ENGINEERING SERVICES AGREEMENT

THIS IS AN AGREEMENT made as of September 27, 2018, between the **LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT**, an urban county government of the Commonwealth of Kentucky pursuant to KRS Chapter 67A ("**OWNER**") and TETRA TECH with offices located at 424 Lewis Hargett Circle, Suite 110, Lexington, KY 40503 ("**CONSULTANT**"). **OWNER** intends to proceed with the Engineering Services for Investigation/Design Services for West Hickman WWTP Biological Phosphorus Removal (BPR) Improvements as described in the attached **EXHIBIT A**, Scope of Engineering Services and Related Matters RFP #15-2018 (the "**PROJECT**"). The **CONSULTANT** shall perform professional engineering services and deliverables as described in **EXHIBIT A** which include customary master planning, civil, geotechnical, electrical, mechanical, structural, programming, water quality and sanitary engineering services as related to providing the deliverables specific to this agreement–that will assist the **OWNER** in successfully implementing the **PROJECT** and complying with any requirements which are related to the Consent Decree entered in a case styled *United States & Commonwealth of Kentucky* v. *Lexington Fayette Urban County Government,* United States District Court for the Eastern District of Kentucky, Civil Action No. 5:06-cv-386-KSF (the "**CONSENT DECREE**"). The services are hereinafter referred to as the **PROJECT**. **The primary goal of the PROJECT is to provide the OWNER with the technical support necessary to successfully meet the RMP Implementation Plan-WWTP Reliability Upgrade West Hickman WWTP-4 BPR Improvements obligations and deadlines of the CONSENT DECREE. OWNER** and **CONSULTANT** in consideration of their mutual covenants herein agree in respect of the performance of professional engineering services by **CONSULTANT** and the payment for those services by **OWNER** as set forth below.

CONSULTANT shall provide professional consulting services for **OWNER** in all phases of the **PROJECT** to which this Agreement applies, serve as **OWNER'S** professional engineering representative for the **PROJECT** as set forth below and shall give professional consultation and advice to **OWNER** during the performance of services hereunder.

SECTION 1 - BASIC SERVICES OF CONSULTANT

1.1. General

CONSULTANT shall perform professional services as hereinafter stated that include customary civil, geotechnical, structural, mechanical, electrical and sanitary engineering services incidental thereto.

1.2. Incorporated Documents

The following documents are incorporated by reference as part of this Agreement:

1. The **CONSENT DECREE**, as may be amended, including all appendices.
2. **EXHIBIT A** – Scope of Engineering Services and Related Matters RFP #15-2018 (Including Addendums).
3. **EXHIBIT B** – Certificate of Insurance and Evidence of Insurability.
4. **EXHIBIT C** – Proposal of Engineering Services and Related Matters (the **CONSULTANT**'s response to RFP #15-2018).

5. ~~**EXHIBIT D — Further Description of Basic Engineering Services and Related Matters.**~~ ***NOT USED***

To the extent of any conflict among the provisions of these documents and/or this Agreement, the provisions of this Agreement shall control, followed by the provisions of **EXHIBIT A**, then ~~**EXHIBIT D**~~ ***NOT USED*, and then EXHIBIT C**.

1.3 Project Phase

A complete description of the duties and responsibilities of the **CONSULTANT** are as indicated in **EXHIBIT A**, Scope of Engineering Services and Related Matters RFP #15-2018, **EXHIBIT C** Proposal of Engineering Services and Related Matters, ~~**and Exhibit D Further Description of Basic Engineering Services and Related Matters**~~ ***NOT USED***. After written authorization to proceed from the **OWNER, CONSULTANT** shall:

1.3.1. Notify the **OWNER** in writing of its authorized representative who shall act as Project Engineer and liaison representative between the **CONSULTANT** and the **OWNER. OWNER** has the right to approve the Project Engineer, or any change thereto, which approval shall not be unreasonably withheld.

1.3.2. The **CONSULTANT must perform all duties necessary to fully complete the deliverables as further described in attached EXHIBIT A,** Scope of Engineering Services and Related Matters RFP #15-2018, attached **EXHIBIT C,** Proposal of Engineering Services and Related Matters, ~~**and attached EXHIBIT D Further Description of Basic Engineering Services and Related Matters**~~ ***NOT USED* unless otherwise agreed to in writing by the parties.**

1.3.3 The **CONSULTANT** shall provide written documentation of all meetings and be responsible for incorporating all comments and changes resulting therefrom in final work product.

1.3.4. The **CONSULTANT** shall submit five (5) copies (hardcover) of all initial draft final work products for this **PROJECT** unless otherwise described in Exhibit A. The copies of the initial draft final reports are submitted for review and comment by the **OWNER**, and should be presented in person to the **OWNER**.

1.3.5. After the **OWNER'S** detailed review, the **CONSULTANT** will revise the initial draft final for all work products for this **PROJECT**, and the **CONSULTANT** shall submit five (5) copies (hardcover) unless otherwise described in Exhibit A. One electronic copy of the all work products for this **PROJECT**, including all appendices, shall be provided and prepared in such a manner that it can readily be converted to a quick-link accessible form for the **OWNER'S** Website. The **OWNER** shall have ten (10) business days within which to accept or deny each such final draft. If it is denied, the **OWNER** shall provide a detailed explanation in writing for the basis of such denial. Once the OWNER accepts the draft as final, a total of ten (10) final copies (hardcover) are required in addition to an electronic copy unless otherwise described in Exhibit A.

1.3.6 Immediately notify **OWNER** of any delay in the delivery of a work product or deliverable, regardless of cause. Give written notice to **OWNER** within five (5) business days whenever **CONSULTANT** observes or otherwise becomes aware of

any development that affects the scope or timing of **CONSULTANT'S** services, or any defect in the work of Contractor(s).

SECTION 2 - EXTRA WORK BY CONSULTANT

2.1. The **OWNER** may desire to have the **CONSULTANT** perform work or render services in connection with this **PROJECT** other than provided by the expressed intent of this Agreement. Such work shall be considered as Extra Work, subject to a change order, supplemental to this Agreement, setting forth the character and scope thereof and the compensation therefore. Work under such change order shall not proceed until the **OWNER** gives written authorization. Should the **OWNER** find it desirable to have previously satisfactorily completed and accepted plans or parts thereof revised, the **CONSULTANT** shall make such revisions as directed, in writing, by the **OWNER**. This work shall be considered as Extra Work and shall be paid as such.

2.2. All Extra Work is subject to prior written authorization of **OWNER** and necessary appropriations made by the Urban County Council.

SECTION 3 - OWNER'S RESPONSIBILITIES

OWNER shall:

3.1. Provide criteria and information as to **OWNER'S** requirements for the **PROJECT**, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations.

3.2. Assist **CONSULTANT** by placing at his disposal available information pertinent to the Project.

3.3. Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by **CONSULTANT**, and provide written approval or disapproval thereof within a reasonable time so as not to delay the services of **CONSULTANT**.

3.4. Designate in writing a person to act as **OWNER'S** representative agent with respect to the services to be rendered under this Agreement (see Section 8.1.1.). Such person shall have complete authority to transmit instructions, receive information, interpret, and define **OWNER'S** policies and decisions with respect to materials, equipment, elements, and systems pertinent to **CONSULTANT'S** services.

3.5. Give written notice to **CONSULTANT** whenever **OWNER** observes or otherwise becomes aware of any development that affects the scope or timing of **CONSULTANT'S** services, or any defect in the work of **CONSULTANT**.

3.6. Furnish or direct **CONSULTANT** to provide, Extra Work as stipulated in Section Two (2) of this Agreement or other services as required.

SECTION 4 - PERIOD OF SERVICES

4.1. Time is of the essence in the performance of this Agreement. **CONSULTANT** is aware that the **OWNER** is subject to penalties for non-compliance with the **CONSENT DECREE** deadlines. See attached **EXHIBIT A** for the overall current project schedule.

4.2. The provisions of this Section Four (4) and the various rates of compensation for **CONSULTANT'S** services provided for elsewhere in this Agreement have been agreed to

in anticipation of the orderly and continuous progress of the **PROJECT** through completion.

4.3. If a delay results from the acts of **OWNER** or another entity that is required to permit or approve the work or services, an extension of time for such delay will be considered by **OWNER**.

4.3.1. If the above type of delay occurs and **CONSULTANT** wants an extension of time, it must, within ten (10) days from the date of the delay, apply in writing to **OWNER** for an extension of time for a reasonable period, which must be agreed upon by **OWNER**.

4.3.2. If the extension of time is approved by **OWNER**, the **PROJECT** schedule shall be revised to reflect the extension. Such extension of time to the completion date shall in no way be construed to operate as a waiver on the part of **OWNER** of any of its other rights in the Agreement.

4.3.3. If the above type of delay would prevent complete performance of the **PROJECT** within sixty (60) days of the time specified therein, **OWNER** shall have the option of cancelling the **PROJECT** or otherwise adjusting the scope of the services or work.

4.3.4. If the parties cannot mutually agree to an extension of time or an adjustment, Section 6.5 under "DISPUTES" of this Agreement shall apply.

4.4. If delays result solely by reason of acts of the **CONSULTANT**, the **CONSULTANT** shall be held liable for any financial penalties incurred by the **OWNER** as a result of the delay, **including but not limited to those assessed pursuant to the CONSENT DECREE**. Section 6.5 of this Agreement (**Disputes**), shall apply in the event the parties cannot mutually agree upon the cause(s) associated with delays in completing project deliverables. The **CONSULTANT** must immediately notify the **OWNER** in the event of such delay, and provide the **OWNER** a written action plan within five (5) business days on how it will attempt to resolve the delay.

SECTION 5 - PAYMENTS TO CONSULTANT

5.1. Methods of Payment for Services of CONSULTANT.

5.1.1. For Basic Services
OWNER shall pay **CONSULTANT** a lump sum amount not to exceed $386,000.00. As defined in Exhibit C. ($291,000.00 + $15,000.00(Addendum #1) + $80,000.00(Modeling, Page 10)

5.1.2. For Extra Work
Extra Work shall be paid for by the **OWNER** on the basis of a fixed fee, the amount of which shall be determined by negotiation. The **OWNER** shall have the right to negotiate alternate methods of payment for Extra Work if the **OWNER** determines that the fixed fee basis is not feasible. In the event the **OWNER** and the **CONSULTANT** are unable to agree upon the amount of payment for Extra Work, then the amount of such payment shall be determined pursuant to Section 6.5 (**Disputes**).

5.2. **Times of Payment**

5.2.1 **CONSULTANT** shall submit to **OWNER** detailed monthly statements for Basic Services and Extra Work rendered. The Statements will be based upon **CONSULTANT'S** estimate of the proportion of the total services actually completed at the time of billing. **OWNER** shall respond to **CONSULTANT'S** monthly statements within thirty (30) days, either denying payment or making payment.

5.3. **Other Provisions Concerning Payments**

5.3.1. In the event the Agreement is terminated by the **OWNER** without fault on the part of the **CONSULTANT**, the **CONSULTANT** shall be paid for the work performed or services rendered for which it has not already been paid in an amount bearing the same ratio to the total Agreement fee as the amount of work completed or partially completed and delivered to the **OWNER** is to the total amount of work provided for herein, as determined by mutual agreement between the **OWNER** and the **CONSULTANT**.

5.3.2. In the event the services of the **CONSULTANT** are terminated by the **OWNER** for fault on the part of the **CONSULTANT**, the **CONSULTANT** shall be paid reasonable value of the work performed or services rendered and delivered for which it has not already been paid, and the amount to be paid shall be determined by the **OWNER**.

SECTION 6 - GENERAL CONSIDERATIONS

6.1. **Termination**

6.1.1. **CONSULTANT may only terminate this Agreement** due to **OWNER'S** material breach of the terms hereof which breach causes **CONSULTANT** to be unable to perform its duties and responsibilities under this Agreement and upon forty-five (45) days written advance notice to **OWNER**.

6.1.2. The **OWNER** may terminate this Agreement for cause upon seven (7) business days written advance notice to the **CONSULTANT**. The **OWNER** reserves the right to terminate the Agreement for any reason whatsoever, with or without cause, at any time upon thirty (30) days written advance notice to the **CONSULTANT**.

6.2. **Ownership and Reuse of Documents**

All documents, including raw data, reports, drawings and specifications, prepared by the **CONSULTANT** pursuant to this Agreement shall be delivered to and become the property of the **OWNER**. The **OWNER** shall have the right to reuse same without restriction or limitation, but without liability or legal exposure to **CONSULTANT**.

6.3. Legal Responsibilities and Legal Relations

6.3.1. The **CONSULTANT** shall familiarize itself with and shall at all times comply with the **CONSENT DECREE** and all federal, state, and local laws, ordinances, and regulations that in any manner affect the services of this Agreement.

6.3.2. In performing the services hereunder, the **CONSULTANT** and its consultants, employees, agents and representatives shall not be deemed or construed to be employees of **OWNER** in any manner whatsoever. Except as otherwise provided in this Agreement, the **CONSULTANT** shall be acting as an independent contractor. The **CONSULTANT** shall not hold itself out as, nor claim to be, an officer or employee of **OWNER** by reason hereof and shall not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of **OWNER**. The **CONSULTANT** shall be solely responsible for any claims for wages or compensation by **CONSULTANT'S** employees, agents and representatives, including consultants, and shall save and hold **OWNER** harmless therefrom.

6.3.3. The parties hereto agree that causes of actions between the parties shall be governed by applicable provisions of the Kentucky Revised Statues, and that venue of any legal action shall be a court of appropriate jurisdiction in Fayette County, Kentucky. The parties further agree that Kentucky law shall apply with respect to the interpretation of any provision of this Agreement.

6.4. Successors and Assigns

6.4.1. **CONSULTANT** binds itself and its partners, successors, assigns and legal representatives to this Agreement. **CONSULTANT** shall not assign any interest in this Agreement without prior written consent of **OWNER. OWNER'S** consent shall not relieve the **CONSULTANT** of any responsibility for compliance with the provisions of this Agreement.

6.4.2. **In no event shall** the **CONSULTANT** subcontract more than fifty percent (50%) of the work, based upon dollar value of the work.

6.4.3. Nothing herein shall be construed to give any rights or benefits hereunder to anyone other than **OWNER** and **CONSULTANT**.

6.5. Disputes

Except as otherwise provided in this Agreement, any dispute hereunder may be resolved by agreement of the **OWNER'S** Agent (Section 8.1.1) and the **CONSULTANT.** In the absence of such an agreement, the dispute shall be submitted to the **OWNER'S** Commissioner, Department of Environmental Quality, whose decision shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary, or so grossly erroneous as necessarily to imply bad faith. Pending a final decision of a dispute hereunder, the **CONSULTANT** shall proceed diligently with the performance of the Agreement in accordance with the directions of the **OWNER**.

6.6. Accuracy of Consultant's Work

CONSULTANT shall be required to perform this Agreement in accordance with the degree of ordinary and reasonable skill and care usually exercised by professional engineers prevailing at the time, place and under similar conditions as the services hereunder are rendered. **CONSULTANT** shall be responsible for the accuracy of all work, even though raw data, reports, Drawings and Specifications have been accepted by **OWNER**, and it shall make any necessary revisions or corrections resulting from its errors and/or omissions for no additional compensation. By submission of reports, soils and subsurface information, quantities estimates, calculations and Drawings and Specifications to **OWNER**, **CONSULTANT** has made an incontrovertible representation that the information is accurate within the appropriate standard of skill and care. Failure on the part of **CONSULTANT** to provide the expected level of accuracy may be grounds for **OWNER** to terminate this Agreement

6.7. Security Clause

The **CONSULTANT** certifies that he shall not at any time release or divulge any information concerning the services covered by this Agreement to any person or any public or private organization without prior approval of the **OWNER** unless otherwise required by law

6.8. Access to Records

The **CONSULTANT** and its sub-consultants shall maintain all books, documents, papers, and accounting records, and make such materials available at their respective offices at all reasonable times during the Agreement period and for three (3) years from the date of final payment under the Agreement for inspection by the **OWNER**, and copies thereof shall be furnished if requested. Failure to maintain such records for three (3) years after the date of final payment may be grounds for the **OWNER** to disqualify the **CONSULTANT** from consideration for future consultant engineering Agreements.

6.9. Risk Management Provisions, Insurance and Indemnification

6.9.1. DEFINITIONS

The **CONSULTANT** understands and agrees that the Risk Management Provisions of this Agreement define the responsibilities of the **CONSULTANT** to the **OWNER**.

As used in these Risk Management Provisions, the terms "**CONSULTANT**" and "**OWNER**" shall be defined as follows:

a. **CONSULTANT** means the consultant and its employees, agents, servants, owners, principals, licensees, assigns and subcontractors of any tier.

b. **OWNER** means the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, boards, assigns, volunteers, and successors in interest.

6.9.2. INDEMNIFICATION AND HOLD HARMLESS PROVISION

a. It is understood and agreed by the parties that **CONSULTANT** hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of **CONSULTANT** or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "**CONSULTANT**") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.

b. **CONSULTANT** shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "**OWNER**") from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by **CONSULTANT**'s performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the **CONSULTANT**; and (b) not caused solely by the active negligence or willful misconduct of **OWNER**.

c. Notwithstanding, the foregoing, with respect to any professional services performed by **CONSULTANT** hereunder (and to the fullest extent permitted by law), **CONSULTANT** shall indemnify, save, hold harmless and defend **OWNER** from and against any and all liability, damages and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees, for any damage due to death or injury to any person or injury to any property (including the loss of use resulting therefrom) to the extent arising out of, pertaining to or relating to the negligence, recklessness or willful misconduct of **CONSULTANT** in the performance of this agreement.

d. In the event **OWNER** is alleged to be liable based upon the above, **CONSULTANT** shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by **OWNER**, which approval shall not be unreasonably withheld.

e. These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this agreement.

f. **OWNER** is a political subdivision of the Commonwealth of Kentucky. **CONSULTANT** acknowledges and agrees that **OWNER** is unable to provide indemnity or otherwise save, hold harmless, or defend the **CONSULTANT** in any manner.

6.9.3. DAMAGES RELATED TO NONPERFORMANCE OR DELAY BY CONSULTANT

In the event that **CONSULTANT**'S delay or other nonperformance of its obligations hereunder results in the imposition of penalties against the **OWNER** pursuant to the **CONSENT DECREE**, or the **OWNER** otherwise suffers damage as a result of such delay or nonperformance, **CONSULTANT** shall be solely liable to **OWNER** for any and all such damages, including any costs and attorney's fees.

6.9.4. FINANCIAL RESPONSIBILITY

The **CONSULTANT** understands and agrees that the **CONSULTANT** shall, prior to final acceptance of the **CONSULTANT'S** proposal and the commencement of any work; demonstrate the ability to assure compliance with the Indemnity Agreement and other provisions of this Agreement.

6.9.5. INSURANCE REQUIREMENTS

6.9.5.1. Required Insurance Coverage

CONSULTANT shall procure and maintain for the duration of this Agreement the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to **OWNER** in order to protect **OWNER** against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by **CONSULTANT**. The cost of such insurance shall be included in any proposal:

Coverage	**Limits**
General Liability (Insurance Services Office Form CG 00 01)	\$1 million per occurrence, \$2 million aggregate or \$2 million combined single limit
Commercial Automobile Liability (Insurance Services Office Form CA 0001)	combined single, \$1 million per occurrence
Professional Liability	\$1 million per occurrence, \$ 2 million aggregate
Worker's Compensation	Statutory

Employer's Liability	$500,000.00

The policies above shall contain the following conditions:

a. **OWNER** shall be named as an additional insured in the General Liability Policy and Commercial Automobile Liability Policy.

b. The General Liability Policy shall be primary to any insurance or self-insurance retained by **OWNER**.

c. The General Liability Policy shall include Business Interruption coverage.

d. The Contractor shall carry Builders Risk coverage at a level sufficient to cover the replacement cost of any equipment or machinery used at the work site, if applicable.

e. The General Liability Policy shall include a Pollution Liability endorsement and/or Environmental Casualty coverage unless it is deemed not to apply by **OWNER**.

f. The General Liability Policy shall have a Professional Liability endorsement (including Errors and Omissions), which shall include Business interruption coverage and this policy or endorsement shall include Environmental Casualty coverage for any services performed pursuant to the contract, and/or a separate Professional Liability Policy shall be obtained unless it is deemed not to apply by **OWNER**. (**OWNER** does not need to be named as additional insured).

g. **OWNER** shall be provided at least 30 days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.

h. The Professional Liability policy shall be maintained for a minimum of three years beyond the completion date of the project, to the extent commercially available. If not commercially available, **CONSULTANT** shall notify **OWNER** and obtain similar insurance that is commercially available and acceptable to **OWNER**.

i. Said coverage shall be written by insurers acceptable to **OWNER** and shall be in a form acceptable to **OWNER**. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.

6.9.5.2. Renewals

After insurance has been approved by **OWNER**, evidence of renewal of an expiring policy must be submitted to **OWNER**, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

6.9.5.3. Right to Review, Audit and Inspect

CONSULTANT understands and agrees that **OWNER** may review, audit and inspect any and all of **CONSULTANT'S** records and operations to insure compliance with these Insurance Requirements.

6.9.6. SAFETY AND LOSS CONTROL

CONSULTANT shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and **OWNER**.

6.9.7. DEFINITION OF DEFAULT

CONSULTANT understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default under this Agreement. **CONSULTANT** also agrees that **OWNER** may elect as its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging **CONSULTANT** for any such insurance premiums purchased, or suspending or terminating this Agreement.

SECTION 7 - EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Agreement, the **CONSULTANT** agrees as follows:

7.1. The **CONSULTANT** will not discriminate against any employee or application for employment because of race, color, religion, national origin, sex, age, or handicap. The **CONSULTANT** will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, national origin, sex, age, or handicap. Such action shall include, but not be limited to the following: employment upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeships. The **CONSULTANT** agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this non-discrimination clause.

7.2. The **CONSULTANT** will, in all solicitations or advertisements for employees placed by or on behalf of the **CONSULTANT**, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, sex, age (between forty and seventy), or handicap.

SECTION 8 - SPECIAL PROVISIONS, EXHIBITS, AND SCHEDULES

8.1. This Agreement is subject to the following provisions.

8.1.1. Pursuant to subparagraph 3.4 of this Agreement, **OWNER** has assigned Charles H. Martin, P.E., Director of the Division of Water Quality (the "**OWNER'S** Agent"), as the authorized agent of **OWNER**, to monitor, direct and review the performance of work of the **CONSULTANT**. Documents, data, reports, and all matters associated with carrying out this Agreement shall be addressed to the **OWNER'S** Agent or his designee. Questions by the **CONSULTANT** regarding interpretations of the terms, provisions and requirements under this Agreement shall be addressed to the **OWNER'S** Agent or his designee. The **CONSULTANT** shall look only to the **OWNER'S** Agent or his designee for direction in its performance under this Agreement; no other direction shall be binding upon **OWNER**. **OWNER** shall respond to written requests by **CONSULTANT** within thirty (30) days.

8.2. This Agreement, together with the Incorporated Documents (Section 1.2) constitutes the entire Agreement between **OWNER** and **CONSULTANT** and supersedes all prior written or oral understandings. This Agreement and **EXHIBITS A, B, C and D** and any related schedules or documents may only be amended, supplemented, modified or canceled by a duly executed written instrument.

8.3. **NO THIRD PARTY RIGHTS.** This agreement does not create a contractual relationship with or right of action in favor of a third party against either **OWNER** or **CONSULTANT.**

8.4 **UNENFORCEABLE TERMS/SURVIVABILITY**. If any term or provision of this Agreement shall be found to be illegal or unenforceable, this Agreement shall remain in full force and such term or provision shall be deemed stricken. The provisions of Section 6 of this Agreement shall survive its termination.

8.5. **NON-WAIVER.** The failure of either party to enforce any right reserved to it in this Agreement shall not be a waiver of any such right to which the party is entitled.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first above written.

OWNER:
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

BY: _____
JIM GRAY, MAYOR

ATTEST:

_____
URBAN COUNTY COUNCIL CLERK

CONSULTANT:
Tetra Tech

BY: Richard W. Walk

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF FAYETTE)

The foregoing Agreement was subscribed, sworn to and acknowledged before me by RICHARD W. WALKER, as the duly authorized representative for and on behalf of TETRA TECH, INC. on this the 27th day of AUGUST, 2018.

My Commission Expires May 15, 2020
ID # 554194

My commission expires: _____.

_____
NOTARY PUBLIC

EXHIBIT A

Scope of Engineering

Services and Related Matters

RFP #15-2018

Investigation / Design Services for West Hickman WWTP
Biological Phosphorus Removal Improvements Project

Lexington – Fayette Urban County Government (LFUCG) Division of Water Quality

The Lexington-Fayette Urban County Government is accepting proposals from interested consulting engineering firms for the Investigation / Design Services for West Hickman Wastewater Treatment Plant (WWTP) Biological Phosphorus Removal (BPR) Improvements Project.

1. General Project Description

The CONSULTANT shall perform professional services as hereinafter stated which shall include but is not limited to customary civil, structural, geotechnical, mechanical, electrical engineering, and programming services as related to the Investigation / Design for West Hickman WWTP Biological Phosphorus Removal Improvements Project.

Per the *Group One Sanitary Sewer System and WWTP Remedial Measures Plan*, the intent of the West Hickman WWTP Biological Phosphorus Removal Improvements Project is to sustain current treatment reliability. The recommendations from this evaluation will address maintaining treatment reliability for a true peak capacity of 70 MGD. The recommendations will not provide for expansion capacity greater than 70 MGD. **Construction of the West Hickman WWTP Biological Phosphorus Removal Improvements Project must be complete by December 31, 2020.**

As stated in the *Group One Sanitary Sewer System and WWTP Remedial Measures Plan* the 2001 expansion included the installation of seven BPR Tanks designed for a limited hydraulic detention time based on influent flows. Until the West Hickman Wet Weather Storage Project (WH WWS) is complete, the West Hickman WWTP will be controlling flow to the BPR tanks with the automated "Leaping Weir". The current configuration presents issues with high flows. When the WH WWS Project is complete, in December 2018, a new splitter box will prevent the issues during high flow events and provide better control of the flow that is sent to the BPR tanks. The CONSULTANT selected will evaluate the BPR basins treatment capacity, influent raw/RAS mixing prior to the BPR basins, and mixing equipment in the basins. The current design and operation of the BPR tanks will be researched and addressed in a Preliminary Engineering Report (PER) with a standard operating procedure developed after final recommendations. Considerations for BPR expansion or addition of a denitrification tank should include the options of additional new basins or modifying the clarifiers that are out of service. The PER will also include updating the back-up phosphorus reducing chemical feed system and updating the Chem Scan monitoring system.

Funding for this project is 100% sewer fund revenue, no federal fund involvement is expected.

2. Scope of Work: Biological Phosphorus Removal (BPR) Improvements Project

The BPR Improvements Project will evaluate the design, operations and capacity of the BPR Tanks, chemical feed equipment, and replace equipment that has surpassed its useful life to

increase reliability while lowering operating cost by improving efficiency. Construction of the project must be completed by **December 31, 2020**.

The CONSULTANT will:

- Evaluate current BPR operations Standard Operating Procedures (SOP)
- Evaluate current BPR Effectiveness and Efficiency
- Evaluate BPR treatment capacity (capacities based on flows/bypassing to zone 2)
- Review new splitter box operations and make recommendations for new SOP
- Determine if there is a need for denitrification before BPR Tanks; design if needed
- Recommend equipment to be replaced for increased reliability
- Update Chem Scan Monitoring System
- Update phosphorus reducing chemical feed system

NOTE: This list is not meant to be all-inclusive.

A. Task 1: Existing Biological Phosphorus Removal Process (BPR) Review

(1) Interview West Hickman Wastewater Treatment Plant Operations and Management staff for input regarding the current process equipment control and functionality related to the BPR Process.

(2) Collect any other supporting data needed to evaluate current operations, past plant upsets and anything needed for design decisions.

B. Task 2: Develop Equipment/Process Replacement Concepts and Schedules

(1) Prepare a conceptual layout for each concept evaluated along with design calculations.

(2) Conduct a 20-year life cycle and present worth analysis for each conceptual design evaluated.

(3) Prepare preliminary cost estimates and implementation schedules for all conceptual designs.

(4) Present Preliminary Engineering Report to Treatment Plant Management Staff for a review of all conceptual designs and receive guidance for progress towards the final design.

(5) LFUCG will respond in writing to the preliminary Engineering Report, providing authorization for work under Task 3.

C. Task 3: Detailed Design

(1) Conduct detailed design progress meetings at 25%, 50%, and 90% completion. The dates for these progress meetings will be decided on during the first pre-design meeting. Progress reports and drawings will be submitted

one week before the Lexington-Fayette Urban County Government review and comment. (3 copies)

(2) Conduct and present any related design calculations to support the new equipment/process.

(3) Furnish detailed cost estimates for probable cost and revise the 20-year life cycle and present worth analysis for the 50% review and the final design.

(4) Update project schedules at 25%, 50% and 90%?

D. Task 4: Bidding Services

(1) Prepare final plans and specifications ready for bidding. Plans and specifications are to be provided in both hard copy and standard electronic format compatible with Lexington-Fayette Urban County Government equipment. The most recent plans and specifications have been submitted in PDF format. LFUCG would also like AutoCAD files. A minimum of 7 copies will be required.

(2) Coordinate and submit plans, specifications, and permit application to the Kentucky Division of Water for the purposes of receiving a construction permit.

(3) Provide customary bidding services including preparation of advertisement, conducting pre-bid meeting, issuing required addenda, evaluating bids and providing a recommendation of award.

E. Task 5: Construction Administration Services

(1) Track, review and approve all shop drawings.

(2) Track change orders, review requests, recommendation comments, and prepare the paper work to be submitted to council.

(3) Track and answer all Request for Information (RFIs)

(4) Coordinate and lead monthly construction progress meetings.

(5) Conduct construction inspections and submit weekly reports once construction begins. Please submit estimated hours per week, total hours included for inspections and the hourly rate with your detailed cost estimate

(6) Take before and after photos of all stages of construction.

(7) Review and approve contractor's monthly payment applications.

(8) Attend and maintain test reports for all equipment start-up for the project.
(9) Coordinate final inspection of completed work and prepare the final punch list.

(10) Transfer field notes from the contractor's drawings and submit final as-built drawings to the owner.

NOTE: This outline is not intended to be all inclusive but is intended to be a guide for prospective firms as to the general expectations of the Owner. The Lexington-Fayette Urban County Government will not compensate firms for the cost of proposal preparation.

3. Detailed Cost Estimates

The CONSULTANT shall prepare a detailed cost estimate for this proposal based on the Tasks defined in this Request for Proposal. The estimate shall show a preliminary schedule estimating the time necessary to complete the Tasks outlined with a unit price associated. The intent of this proposal is to show the number of hours associated with a lump sum fee for the Thickening Process Evaluation and Equipment Upgrades. If your firm has additional Tasks that would be recommended show the new Tasks as separate line items with the scope well defined.

4. Proposal Content

The proposal will contain the following components.

A. Cover Letter

B. Scope/fee (Detailed Cost Estimate) – No more than 8 pages. ***The attached Fee Schedule completed with your estimated cost will be the last page in this section.***

C. Estimated Schedule – No more than 4 pages.

D. Project Team with One-Page Resumes (Do not submit resumes for individuals contributing less than 10% of total man hours allocated)

E. A list of 5 similar projects with owner contact information. This section shall be no more than 5 pages total.

5. Schedule and Completion

The proposed timeline for completion of the Scope of Services outlined in the proposal is as follows:

Aeration Improvements Project

Award Design Contract	August 2018
Meeting to Review Final Design – 90% Completion	February 2019
Bid Opening	April 2019
Award of GC Contract	June 2019

The CONSULTANT shall coordinate the exact time and location of all meetings with the Plant Engineer, Division of Water Quality.

NOTE: Schedule may be adjusted based on final negotiations. When submitting the schedule with your proposals please indicate if your firm could complete this project any sooner than the estimated time above.

6. Method of Invoice and Payment

The CONSULTANT shall submit monthly for basic services or work rendered, based upon the CONSULTANT'S estimate of the portion of the total services actually completed during the billing cycle. Each invoice shall be accompanied by a breakdown of hours attributed to each task for both the billing cycle and the cumulative project period. Also include the percent Disadvantaged Business Enterprise (DBE) cost with each monthly invoice.

The Director of Water Quality or his designee shall respond to the invoice within thirty days of receipt, either denying or approving payment. Specific project time sheets and other payroll information may be subject to reviews and audits by the Lexington-Fayette Urban County Government.

7. Miscellaneous

All plans, specifications and accompanying documents are subject to review by the Lexington-Fayette Urban County Government's Division of Water Quality, Division of Engineering, Division of Risk Management and Division of Building Inspection. The CONSULTANT shall be responsible for incorporating the comments and requirements of the divisions into all documents.

Investigation/Design Services for West Hickman WWTP
Biological Phosphorus Removal Improvements Project

Fee Schedule

(For a description of task refer to Section 2 of the RFP)

Section 2

Scope of Work: Biological Phosphorus Removal Improvements Project

A. Task 1: Existing Process Performance Review

Cost Task 1: _____

B. Task 2: Develop Equipment/Process Replacement Concepts

Cost Task 2: _____

C. Task 3: Detailed Desgin

Cost Task 3: _____

D. Task 4: Bidding Services

Cost Task 4: _____

E. Task 5: Construction Administration Services

Cost Task 5: _____

Details for Task 5.5 - The total cost should be included in Cost Task 5. Please provide the following breakdown. Estimated Weekly Inspection Hrs/Estimated Total Inspection Hrs/Hourly Rate.

_____ / _____ / _____

Section 2 Total Cost: _____

MAYOR JIM GRAY

LEXINGTON

TODD SLATIN
DIRECTOR
CENTRAL PURCHASING

ADDENDUM #1

RFP Number: #15-2018

Date: June 7, 2018

Subject: Investigation/Design Services for West Hickman WWTP Biological Phosphorus Removal Improvements Project

Address inquiries to:

Brian Marcum
(859) 258-3320

TO ALL PROSPECTIVE SUBMITTERS:

Please be advised of the following clarifications to the above referenced RFP:

The RFP states "Update Chem Scan Monitoring System." - Upon further review the system should be replaced with the latest equipment. Piping will not need to be replaced. New systems now have added grinder pumps at each of the sample locations.

When looking at the design of the BPR Tanks LFUCG would like to be able to maintain a true peak of 70MGD for 24 hours with all BPR Tanks in Service.

Vision for the Phosphorus Reducing Chemical feed System; the system will need new piping, new tanks will not be necessary, existing pumps will be replaced. We use Sodium Aluminate at a dosage rate of 250ml/minute.

There are currently 32 BPR mixers total. We want to replace the mixers with equipment that has proven to be more reliable. For new mixers considered the consultant will have to look at the location of the mixers in the tanks and the ease of maintenance.

Information on plant upsets has been included as Attachment #1.

The current SOP of the Leaping Weir/BPR Tanks has been included as Attachment #2.

If you would like to propose process modeling please describe your efforts and show Process Modeling as a separate price.

Base your detailed design fee on adding a tank for denitrification.

A Process Summary, General Site Plan, Site Piping Plan and Hydraulic Profile from 2001 have been added as Attachment #3. Please note the Screw Pumps referred to in the process summary and Hydraulic Profile were replaced with WEMCO Hydrostal Pumps in three phases beginning in 2006. The Hydraulic Profile has not been updated to show different pumps.

Please review attachments #1, 2, 3A, 3B, 3C

Todd Slatin, Director
Division of Central Purchasing

All other terms and conditions of the RFP and specifications are unchanged. This letter should be signed, attached to and become a part of your submittal.

COMPANY NAME:_____

ADDRESS: _____

SIGNATURE OF BIDDER: _____

KY Department for Environmental Protection Electronic Submittals

Type of Notification : eNotification Wastewater

Incident Type:(*) BYPASS - WET WEATHER

Incident Start Date-Time:(*) 02/03/2016 07:15 am (mm/dd/yyyy hh:min am/pm)

Incident End Date-Time: 02/03/2016 11:30 am (mm/dd/yyyy hh:min am/pm)

AI Name:(*) Lexington West Hickman WWTP(2295)

Nature of Incident:(*) Final Clarifier #1 was overwhelmed by high influent flow from rain event causing washout of solids. Washed out solids went to chlorine contacts and was chlorinated and then dechlorinated before going to West Hickman Creek.

Incident Location:(*) Final Clarifier #1 next to Zone 2 aeration building.

Cause/Duration :(*) High flow coming into plant from rain event, caused influent flow to increase to 51,263 gpm(73.82 mgd). The flow overwhelmed final clarifier #1. The washing out lasted 4.75 hours.

Action Taken : Closed down influent gate on #1 clarifier to 30%, shut off air in Zone 1 and Zone 2 aeration tanks. Increased Chlorine and Sulfur Dioxide feed rates to compensate for cloudy effluent, adjusted influent and return rates on other final clarifiers that were in service.

Pollutant	CAS	Quantity	Units
Treated Water		7323	gallons/min

Search More Pollutant/CAS

Other Substance(s) : ☐

County of Release : Jessamine

Weather Conditions : rain

Receiving : West Hickman Creek

Release To : Creek

KY Department for Environmental Protection Electronic Submittals

- [illegible]
  - Report an Incident
    - Fill out a Form
    - Upload XML File

Review History

Print Version

Incident Type:(*)	BYPASS - OTHER
Incident Start Date-Time:(*)	06/24/2012 02:00 pm (mm/dd/yyyy hh:mm am/pm)
Incident End Date-Time:	06/28/2012 04:00 pm (mm/dd/yyyy hh:mm am/pm)
AI Name:(*)	Lexington West Hickman WWTP(2295)
Nature of Incident:(*)	activated sludge denitrified in finals and washed out quicker than it could be pumped out causing it to release into chlorine contacts and creek #2012-2622 ID # rejected 27420
Incident Location:(*)	West Hickman WWTP, 645 West Hickman Plt Rd., Nicholasville Ky. 40356
Cause/Duration :(*)	Biological upset in plant, brought on by a combination of low flows, high temperatures, high influent concentrations an imbalance in food and microorganisms, operational changes made to help settling caused greater problem when flow increased. Duration 4 days
Action Taken :	added final clarifier, added 2 additional chlorine contacts, increased chlorine feed rate and sulfur dioxide feed rate, added 2 BPR tanks, removed 1 large aeration tank, hauled in waste activated sludge to improve F/M ratio, added concentrated nitrifiers to aeration tanks, monitoring creek for changes, cleaned contaminated area of creek (7/6/2012)

Pollutant	CAS	Quantity	Units
Sewage		1000000	gallons

Search More Pollutant/CAS

Other Substance(s) :

County of Release :	Jessamine
Weather Conditions :	calm
Receiving :	West Hickman Creek

B.P.R. OPERATION

THE MAXIUM FLOW THRU THE BPR WITH 8 TANKS IN SERVVICE IS 39 MGD FORWARD FLOW AND A MAXIUM RAS FLOW OF 23 MGD, FOR A TOTAL FLOW OF 62 MGD. WE FIGURE FORWARD FLOW AT 4.25 MGD PER TANK PLUS 5 MGD EXTRA. THE PLANT USUALLY OPERATES WITH 3 BPR TANKS IN SERVICE WITH A MAX OF 5 BPRS. DURING A PEAK FLOW EVENT WITH 3 BPR TANKS IN SERVICE THE TANKS SHOULD HANDLE 17.75 MGD FORWARD FLOW AND UPTO 23 MGD RAS FLOW FOR A TOTAL FLOW OF 40.75 MGD. IF WE HAVE FORWARD FLOW ABOVE 17.75 MGD THE LEAPING WEIR GATES ARE LOWERED TO ALLOW THE INFLUENT FLOW TO GO TO THE SECONDARY CHANNEL AND ZONE 2 AERATION. DURING A HIGH FLOW RAIN EVENT THE BPR MIXERS ARE SHUT OFF SO MORE SOLIDS CAN BE HELD IN THE BPR TANKS RATHER THAN WASHING THRU THE PLANT TO THE FINAL CLARIFIERS.

BPR FLOWS

3 TANKS INSERVICE: 12.75 MGD + 5 MGD = 17.75 MGD

4 TANKS INSERVICE: 17.0 MGD + 5 MGD = 22.0 MGD

5 TANKS INSERVICE: 21.25 MGD + 5 MGD = 26.25 MGD

6 TANKS INSERVICE: 25.5 MGD + 5 MGD = 30.5 MGD

7 TANKS INSERVICE: 29.75 MGD + 5 MGD = 34.75 MGD

8 TANKS INSERVICE: 34.0 MGD + 5 MGD = 39.0 MGD

CHAPTER 3

PROCESS SUMMARY

TREATMENT PROCESS

The original facility was a 5 MGD modified Kraus process followed by 20 acres of polishing lagoons and was put into service in 1972. In 1982, the plant was expanded to 16.8 MGD Average Daily Flow/32 MGD Peak Daily Flow for a total cost of $30 million. The facility was then converted to two-stage nitrification with primary clarification and anaerobic digestion. In 1992, the design capacity was increased to 22.3 MGD Average Daily Flow/32 MGD Peak Daily Flow; fine screens, raw sewage screw pumps, centrifuge for sludge thickening, dechlorination and computer monitoring system were added for a cost of $20 million.

In 2001, an upgrade of the West Hickman Creek WWTP was completed that increased the capacity to 33.8 MGD Average Daily Flow/64 MGD Peak Daily Flow. The modifications included: New Influent Fine Screens (3 @ 25 MGD each) with screenings conveyors and compactors; Influent Pump Station Odor Control System; Conversion of Primary Clarifiers to Biological Phosphorus Removal System; Conversion to Single Stage Nitrification to include the use of Panel Diffusers; High Flow Diversion System; the addition of two 125 ft. diameter final clarifiers; Conversion of Anaerobic Digester to Aerobic Sludge Holding Tanks; Replacement of three existing Belt Filter Presses with new 2 meter units to include new conveyance system; Replacement of Belt Filter Press Feed Pumps; Improvements to Chlorination Feed System and Expansion of Chlorine Contact Tank; installation of Chem Scan Processing Monitoring System (for nitrates, ammonia nitrogen and ortho-phosphate); and Channel Odor Control System. The total construction cost of these improvements was $9.4 million.

The general flow pattern and main process units are presented as schematics in Exhibits 2 through7. More detailed process flow diagrams showing the treatment process lines, valves, and pumps are shown on the record drawings. Later chapters will also describe the various processes used for wastewater treatment and will discuss procedures for effective operation. Table 3-1 summarizes the design criteria data for the treatment plant.

Liquid Train

A 54-inch trunk sewer transports the raw wastewater to Manhole No.10 and continues to flow to Manholes 11 and 12 through a 66-inch reinforced concrete pipe. An 18-inch trunk sewer from Hartland subdivision discharges into Manhole No.12. A 3-inch chlorine solution line at Manhole No.12 allows chlorine solution to be applied to the raw wastewater for odor control and process control. A 78-inch reinforced concrete pipe transports the raw wastewater to the coarse bar racks.

The coarse bar racks are placed in series to remove the larger debris such as rags and sticks from the wastewater to help prevent clogging of pumps and pipes in downstream process units. A 9-inch flume is located at the downstream end of the coarse bar racks to accurately measure sidestream flows that are recycled to the head of the plant. The coarsely screened wastewater is directed to the mechanical bar screens by the screw pumps.

The mechanical bar screens remove debris from the wastewater flow that had been too small to be collected by the coarse bar racks. The screened material is collected and removed for disposal.

The screened wastewater flows by gravity to the grit removal system where grit, sand, silt, etc. is removed from the flow stream for disposal.

Flow from the grit tanks flows by gravity to the High Flow Diversion Box which is used to control flow to subsequent processing tanks. Normal operation would call for flows up to the normal diurnal peak (dry weather) to be completely processed through the Biological Phosphorus Removal (BPR) system while flows exceeding these levels would be diverted directly to the second zone of aeration. This allows for preservation of the fermentation zones needed for biological phosphorus removal during high flows to the facility.

Normal flows then are blended with Return Activated Sludge (RAS) and flow by gravity through the 7 BPR fermentation reactors. These basins allow the nitrates in the RAS to be stripped and for an anaerobic environment to be created for release of volatile acids which solublize the phosphorus. Each BPR reactor is mixed with submersible mechanical mixers to prevent settling yet to prevent aeration.

Should the plant not desire to remove phosphorus biologically, Tanks 1 and 2 have been designed to receive normal diurnal flows, thus allowing for the other tanks to be taken out of service.

The discharge from the BPR tanks flow by gravity to the first zone of nitrification where the phosphorus is metabolized and the nitrification reactions begin. Conditions are maintained with regard to sludge age, dissolved oxygen and alkalinity that are favorable for the conversion of ammonia nitrogen to nitrite and subsequently nitrate nitrogen. Zone 1 discharges to Zone 2 via gravity for additional treatment (nitrification). All tanks in Zone 1, due to the efficiency of its aeration devices, are normally in service while the number of tanks in Zone 2 which are placed in service are dictated by the normal diurnal peak flow.

Zone 2 discharges into the final clarifiers for settling. Eight clarifiers are provided for normal and peak flow conditions. Settled sludge is either returned to the head of the BPR tanks or wasted to either the sludge thickeners (2 units available) or to the Aerated Sludge Holding Tanks (4 available).

The effluent from the final clarifiers discharges to the chlorination contact tanks for disinfection and subsequent dechlorination with sulfur dioxide. The tanks have coarse bubble aeration diffusers for maintaining adequate dissolved oxygen in the plant effluent.

Sludge that is wasted to either the sludge thickeners or the ASH tanks is held until it is desirable for dewatering. The ASH tanks are aerated with positive displacement blowers and fine bubble diffusers. The sludge thickeners can be used for direct feed to the dewatering process or for thickening the sludge prior to use (or during the use) of the ASH tanks.

Sludge is pumped from the sludge thickeners or the ASH tanks to the 2-meter belt filter presses for dewatering. Dewatered sludge is discharged to trucks for disposal in landfill.

TABLE 3-1

WEST HICKMAN CREEK WWTP
DESIGN CRITERIA
YEAR 2001

INFLUENT WASTEWATER

Dry Weather Flow	33.87 MGD
Total Recycle	64.0 mgd
Total Suspended Solids Loadings	
Average	
Influent	48,868 lbs./day
Total Recycle	14,125 lbs./day
Total	62,993 lbs./day
$CBOD_5$ Loadings	
Average	
Influent	50,846 lbs./day
NH_3-N Average Influent	4,802 lbs./day
3-Day Maximum	
Influent	52,227 lbs./day
Total Recycle	12,752 lbs./day
Total	64,979 lbs./day
Total Kjedahl Nitrogen Loading	
Average	
Influent	7,627 lbs./day
3-Day Maximum	
Influent	4,507 lbs./day
Total Recycle	2,610 lbs./day
Total	7,117 lbs./day

KPDES EFFLUENT LIMITATIONS

PARAMETER	MONTHLY	WEEKLY	INSTANTANEOUS VALUE
BOD_5	10 mg/l	15 mg/l	
Total Suspended Solids	30 mg/l	45 mg/l	
Fecal Coliform Bacteria	200/100 ml	400/100 ml	
NH_3-N	4 mg/l * 10 mg/l **	6 mg/l * 15 mg/l **	
(1) Total Phosphorus (as P)	1 mg/l *	2.0 mg/l (*) (***)	
Chlorine Residual			
Dissolved Oxygen	--	--	Greater than or equal to 7.0 mg/l
pH	--	--	From 6.0 to 9.0 S.U.

* May 1 - October 31
** November 1 - April 30
*** Daily Maximum Limit

(1) Limits for Phosphorous will take effect May 2004.
Until then monitor only.

COARSE BAR RACK

Number	2, in series
Type	Manual with electric hoist lift
Width	6.5 feet
Opening Size	3 inches

RAW SEWAGE PUMP STATION

Number of Pumps	3
Pump Type	Enclosed Screw
Pump Capacities	25.2 MGD
Two with one standby	50.4 MGD
Hydraulic Lift	34.1 Feet

PRELIMINARY SCREEN SYSTEM

Number of Units	3
Type	Mechanical- 6mm Opening
Channel Width	4.0 Feet
Water Depth	5.04 Feet
Capacity, Each	25.2 MGD

GRIT REMOVAL SYSTEM

Number of Units	2
Type	Forced Vortex
Dimensions	
Diameter	19 feet
Sidewater Depth	4.75 feet
Center Depth	9.00 feet
Volume	
Each	4,450 gallons
Total	8,900 gallons
Peak Hourly Flow	52.731 MGD
Detention Time	14.6 seconds

Grit Pumps	
Number of Pumps	2
Pump Type	Torque-flow
Capacity, each	210 gpm
Cyclones	
Number	2
Size	10"
Grit Classifiers	
Number	2
Screw Size	12 inches
Area, each	6 sq. ft.

BIOLOGICAL PHOSPHORUS REMOVAL TANKS (BPR)

Number	7
Type	Rectangular
Tank Dimensions	
BPR (Nos. 1, 2, 4, 5, 6, 7)	
Length	137 feet
Width	20 feet
Average Water Depth	10 feet
BPR (No. 3)	
Length	137 feet
Width	41 feet
Average Water Depth	10 feet
Area	
BPR, each (Nos. 1,2,4,5,6 and 7)	2,740 square feet
Clarifier (No. 3)	5,617 square feet
Total	22,057 square feet
Volume	
BPR, each (Nos. 1,2,4,5,6, and 7)	205,500 gallons
Clarifier (No. 3)	421,500 gallons
Total	1.655 MGD

Flow	
Design Flow	33.87 MGD
RAS Flow	16.935 MGD
Detention Time	
Design Flow	.78 Hours

FIRST STAGE AERATION TANKS

Zone One	
Number of Tanks	8
Type	Rectangular with fine bubble aeration
Tanks Dimensions	
Smaller Tanks (Nos. 1&2)	
Length	120 feet
Width	24 feet
Average Water Depth	11.2 feet
Larger Tanks (Nos. 3,4,5,6,7,8)	
Length	120 feet
Width	24 feet
Average Water Depth	13 feet
Volume	
Smaller Tanks (Nos. 1&2)	32,256 cubic feet 241,000 gallons
Larger Tanks (Nos. 3,4,5,6,7 and 8)	37,440 cubic feet 280,000 gallons
Total	289,152 cubic feet 2,162,000 gallons
Detention time Design Q 33.87 MGD + 50% Return	1.02 hours
Design MLVSS Summer	2,000 mg/l
MLVSS Winter	3,000 mg/l

ZONE TWO AERATION TANKS

Number of Tanks	6
Type	Rectangular with fine bubble aeration

Tanks Dimensions	
Length	152 feet
Width	40 feet
Average Water Depth	20 feet
Volume	
Each	121,600 cubic feet 910,000 gallons
Total	729,600 cubic feet 5,460,000 gallons
Detention Time Design Q 33.87 + 50% Return	2.6 hours
Design MLVSS Summer	2,000 mg/l
MLVSS Winter	3,000 mg/l
Return Sludge Pumps	
Number	5
Type	Horizontal Centrifugal
Capacity, each	9,000 gpm
Total Capacity with 2 Standby	27,000 gpm

FINAL CLARIFIERS

Number	8
Type	Circular with rapid sludge removal mechanism
Tank Dimensions	
Small Clarifiers (4)	
Diameter	115 feet
Sidewater Depth	12.5 feet
Large Clarifiers (4)	
Diameter	125 feet
Sidewater Depth	12.5 feet
Area	
Small Clarifiers, each (Nos. 1, 2, 3 and 4)	10,387 sq. ft.
Large Clarifiers, each (Nos. 5, 6, 7 and 8)	12,272 sq. ft.
Total	90,636 sq. ft.

Volume	
Small Clarifiers, each (Nos. 1, 2, 3 and 4)	974,000 gallons
Large Clarifiers, each (Nos. 5,6, 7 and 8)	1,150,000 gallons
Total	8,496,000 gallons
Flow (w/o return sludge)	
Design	33.87 mgd
Peak Hourly	64.00 mgd
Surface Overflow Rate	
Design	560 gpd/sq.ft.
Peak Hourly	893 gpd/sq.ft.
Solids Loading Rate	
Design Flow	18.7 lbs./day/sq.ft.
Peak Hourly Flow	29.8 lbs./day/sq.ft.
Detention Time (without/return sludge)	
Design Flow	6.02 hours
Peak Hourly Flow	3.19 hours
Waste Sludge Pumps	
Number	2
Type	Horizontal Centrifugal
Capacity	450 gpm
Sludge Production	
Design Flow	540,000 gpd
Design Pounds	45,036 Lbs/Day

DISINFECTION FACILITIES

Chlorine Contact Tank	
Number	4
Tank Dimensions	
Effective Length	93 feet
Width	41 feet
Average Depth	6.5 feet
Volume, each	185,400 gallons
Volume, total	741,600 gallons

60" Pipe	
Length	310 Feet
Volume	45,500 gallons
Total Chlorine Contact Volume	787,100 gallons
Flow	
Design	33.87 mgd
Peak Hourly Flow	64.00 mgd
Detention Time	
Design Flow	33.5 minutes
Peak Hourly Flow	17.7 minutes
Chlorinators (for Effluent Chlorination Only)	
Number	5
Capacity	3000 lbs./day
Sulfonators	
Number	2
Capacity (with one standby)	1,500 lbs./day

GRAVITY THICKENER

Number	2
Type	Circular, Mechanical Picket collector
Tank Dimensions	
Diameter	45 feet
Sidewater Depth	12 feet
Surface Area, each	1,590 sq. ft.
Volume, each	160,500 gallons
Volume, total	160,500 gallons

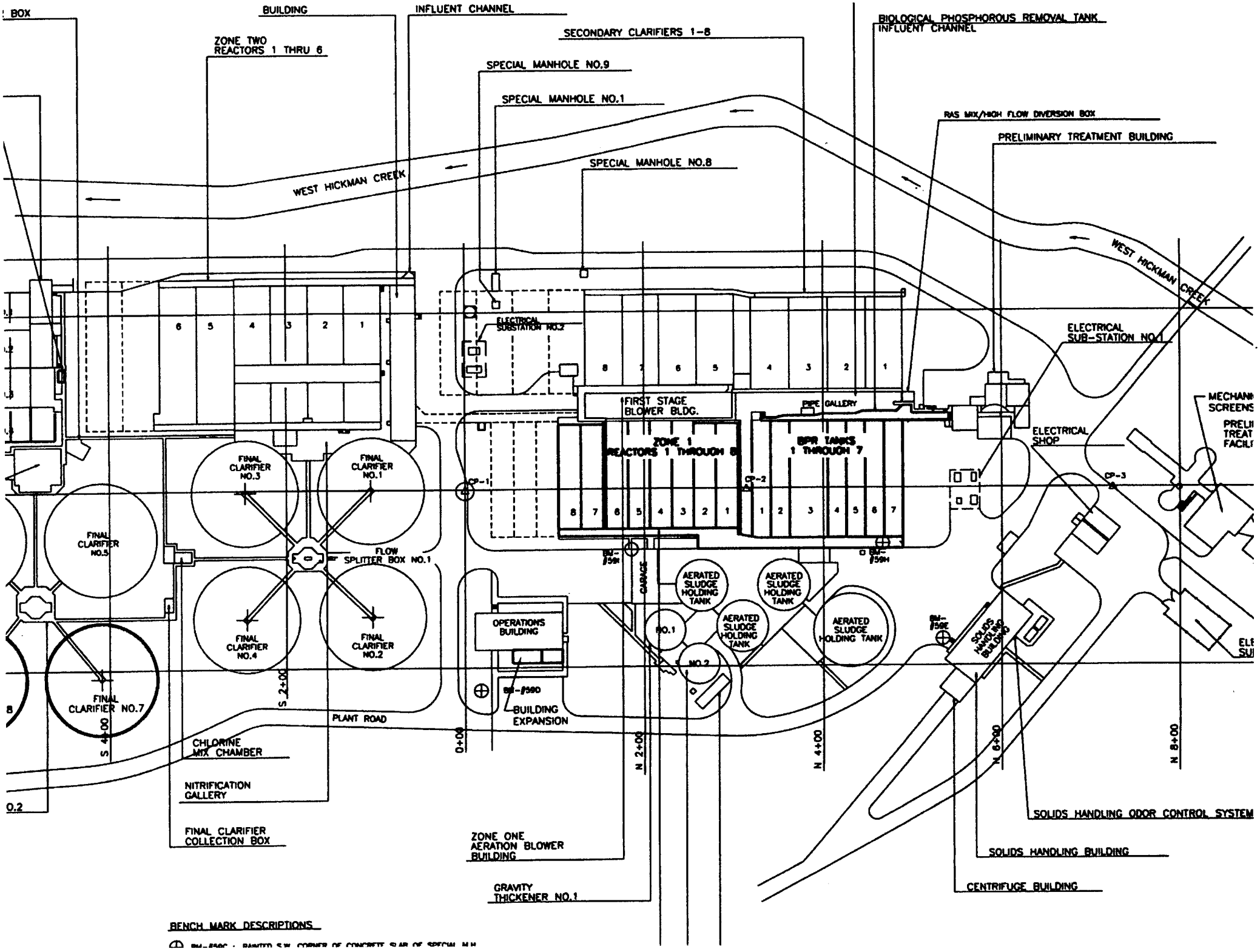
AERATED SLUDGE HOLDING TANKS (ASHT)

Number	4
Type	Circular with fine bubble diffused air

Dimensions	
Small Units	
Number	3
Diameter	50 feet
Sidewater Depth Maximum	32.2 feet
No. Diffusers (each)	312
Large Unit	
Number	1
Diameter	80 feet
Sidewater Depth Maximum	30.3 feet
No. Diffusers	812
Liquid Volume (Maximum)	63,193 cu. ft.
Small Unit (Each)	473,948 gallons
Large Unit	193,920 cu. ft.
	1,454,400 gallons
Total	2,876,244 gallons

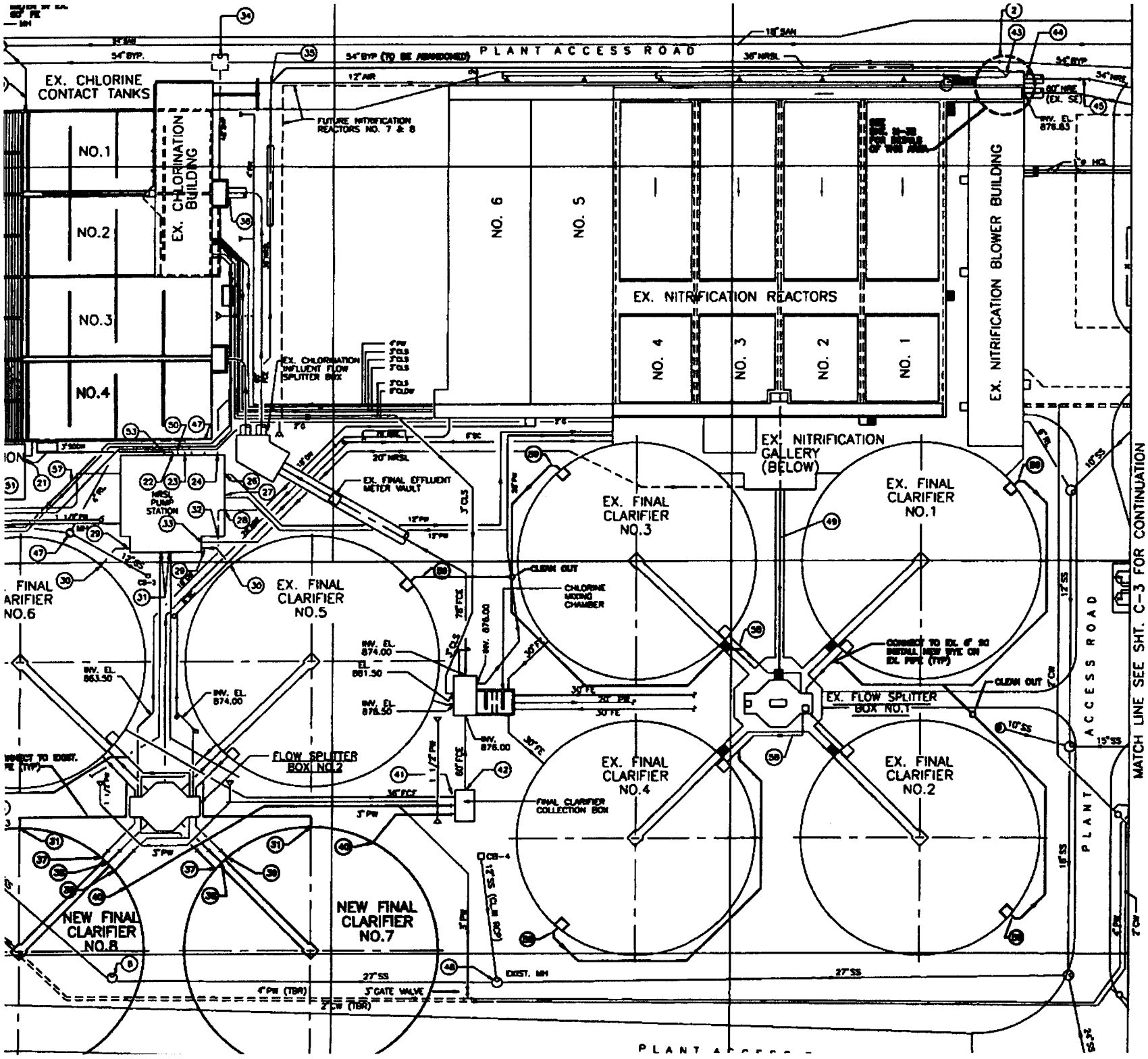
BELT FILTER PRESSES

Number	3
Belt Width	2.0 meters
Design Feed Solid	2.0 to 3.0 %
Capacity, each	1500 lbs/hr.
Capacity, total (2 operating)	3000 lbs./hr.

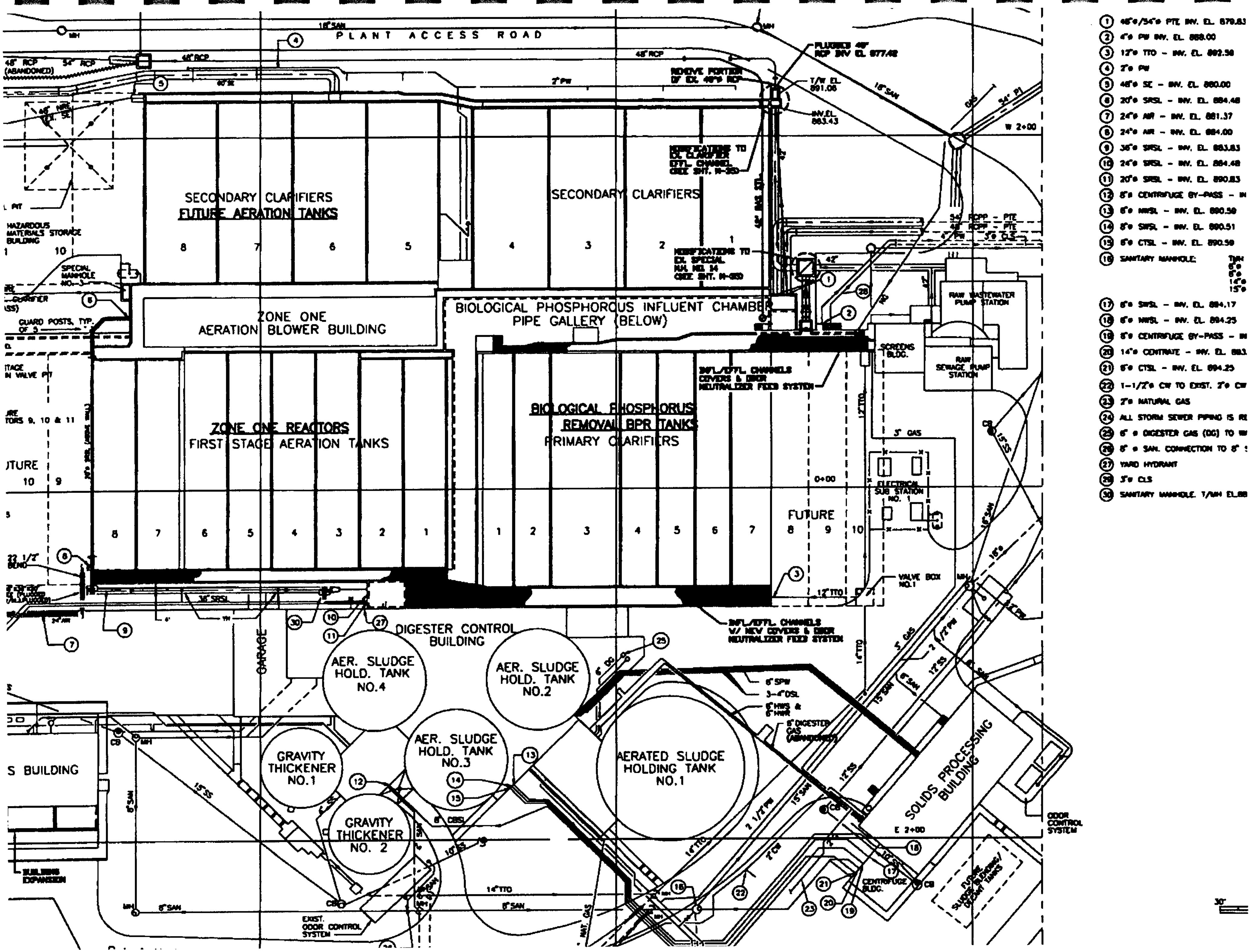


BENCH MARK DESCRIPTIONS

BM-#590 - PAINTED S.W. CORNER OF CONCRETE SLAB OF SPECIAL M.H.



3. EXIST. SS M.H. – 27"ø IN – 878.20
27"ø OUT – 878.10
12"ø IN – INV. EL. 878
TWH EL. – 890.30
4. 54"ø BYP.–INV. EL. 883.2, 18"ø SAN.–INV. EL
5. 27"ø S.S.–INV. EL. 874.77, 18"ø S–INV. EL.
6. EXIST. SS M.H. – 30"ø IN – 873.93
30"ø OUT – 873.91
TWH EL. – 884.20
7. 5'–0"ø STORM MANHOLE 27"ø IN–INV. EL. 874
30"ø OUT–INV. EL. 874.
12"ø IN–INV. EL. 877.10
TWH EL. 884.80
8. EXIST. SS M.H. – 27"ø IN – 878.81
27"ø OUT – 878.79
TWH EL. – 894.20
9. EXIST. BYP. M.H. – 54"ø BYP. IN – 880.19
42"ø BYP. OUT – 879.44
10. EX. SAN
11. 27"ø – SS INV. EL. 879.96, 3"ø CLS – EL. EL. 887.00
12. 27"ø – SS INV. EL. 878.04, 18"ø SAN.
13. 18"ø SC TO SAN: 18" IN – INV. EL. 881.1, EL. 881.1, 18" OUT – INV. EL.881.2
14. VALVE BOX TO DECHLORINATION C.W.
15. 1 1/2"ø SDS – EL. 880.50, 8"ø SC (SLOPE 8"ø SC MIN. 2'–0" DOWN)
16. 3"ø SDS – EL. 881.00
17. 4'–0" I.D. SCUM COLLECTION MANHOLE W/ SC SOLID LID
18. 18"ø SC – INV. EL. 881.78
19. EXIST. 60"ø FE – INV. EL. 872.21
20. EXIST. SPECIAL M.H. NO.3 – 54"ø BYP. IN &
21. 3"ø SDDW – EL. 880.00, 1 1/2"ø SDS – EL.
22. 3"ø SDDW – EL. 880.00
23. 12"ø AIR (FUTURE)– INV.EL. 879.50
24. 36"ø NRSL – INV.EL. 877.00
25. 12"ø AIR (FUTURE)– INV.EL. 881.00
26. 12"ø PW – INV. EL. 872.50
27. 12"ø PW – INV. EL. 872.50
28. 18"ø DW – INV. EL. 883.50
29. 18"ø NRSL – INV. EL. 869.00
30. 18"ø NRSL – INV. EL. 870.00
31. NEW 16"ø NRSL – INV. EL. 869.00
32. 18"ø DW – INV. EL. 883.50
33. 18"ø NRSL TRANSFER – INV. EL. 870.17
34. EXIST. SPECIAL M.H. NO.4 – 54"ø BYP. IN – 48"ø BYP. 54"ø BYP.
35. 36"ø NRSL – INV. EL. 881.00, 12"ø AIR –
36. 60"ø FE – INV. EL. 877.10
37. NEW 12"ø DW – INV. EL. 878.65
38. NEW 48"ø NRE – INV. EL. 868.00
39. NEW 8"ø SC – INV. EL. 878.00
40. NEW 36"ø FCE – INV. EL. 878.75
41. 36"ø FCE – INV. EL. 878.50
42. 60"ø FCE – INV. EL. 878.50
43. 36"ø NRSL – INV. EL. 881.00
44. 54"ø SE – INV. EL. 878.02
45. 54"ø SE. – INV. EL. 877.22
46. 5'–0" I.D. STORM MANHOLE – 27"ø IN–INV. E
47. 4'–0" I.D. STORM MANHOLE – 12"ø IN–INV. E
48. EXIST. SS MANHOLE – Y/MH EL. 893.00
INV. EL. 878.00
12"ø IN – INV. EL. 878.50
49. EX. 72" NRE
50. 2"ø 15 PSI GAS–INV. EL. SET AT MINIMUM ALLOWABLE COVER
51. 4"ø RL–INV. EL. 885.17



PLANT ACCESS ROAD
SECONDARY CLARIFIERS
FUTURE AERATION TANKS
ZONE ONE
AERATION BLOWER BUILDING
BIOLOGICAL PHOSPHOROUS INFLUENT CHAMBER
PIPE GALLERY (BELOW)
ZONE ONE REACTORS
FIRST STAGE AERATION TANKS
BIOLOGICAL PHOSPHORUS
REMOVAL BPR TANKS
PRIMARY CLARIFIERS
FUTURE
HAZARDOUS MATERIALS STORAGE BUILDING
SPECIAL MANHOLE NO.-3
GUARD POSTS, TYP. OF 5
RAW WASTEWATER PUMP STATION
RAW SEWAGE PUMP STATION
SCREENS BLDG.
ELECTRICAL SUB STATION NO. 1
VALVE BOX NO.1
DIGESTER CONTROL BUILDING
GARAGE
AER. SLUDGE HOLD. TANK NO.4
AER. SLUDGE HOLD. TANK NO.2
AER. SLUDGE HOLD. TANK NO.3
AERATED SLUDGE HOLDING TANK NO.1
GRAVITY THICKENER NO.1
GRAVITY THICKENER NO. 2
SOLIDS PROCESSING BUILDING
CENTRIFUGE BLDG.
ODOR CONTROL SYSTEM
EXIST. ODOR CONTROL SYSTEM
S BUILDING
BUILDING EXPANSION
INFL./EFFL. CHANNELS COVERS & ODOR NEUTRALIZER FEED SYSTEM
INFL./EFFL. CHANNELS W/ NEW COVERS & ODOR NEUTRALIZER FEED SYSTEM
W 2+00
E 2+00
0+00
1 48"ø/54"ø PTE INV. EL. 879.83
2 4"ø PW INV. EL. 888.00
3 12"ø TTO - INV. EL. 892.58
4 2"ø PW
5 48"ø SE - INV. EL. 880.00
6 20"ø SRSL - INV. EL. 884.48
7 24"ø AIR - INV. EL. 881.37
8 24"ø AIR - INV. EL. 884.00
9 36"ø SRSL - INV. EL. 883.83
10 24"ø SRSL - INV. EL. 884.48
11 20"ø SRSL - INV. EL. 890.83
12 8"ø CENTRIFUGE BY-PASS
13 8"ø NWSL - INV. EL. 890.58
14 8"ø SWSL - INV. EL. 890.51
15 6"ø CTSL - INV. EL. 890.58
16 SANITARY MANHOLE:
17 6"ø SWSL - INV. EL. 894.17
18 6"ø NWSL - INV. EL. 894.25
19 8"ø CENTRIFUGE BY-PASS
20 14"ø CENTRATE - INV. EL.
21 6"ø CTSL - INV. EL. 894.25
22 1-1/2"ø CW TO EXIST. 2"ø CW
23 2"ø NATURAL GAS
24 ALL STORM SEWER PIPING IS
25 6" ø DIGESTER GAS (DG) TO
26 8" ø SAN. CONNECTION TO 8"
27 YARD HYDRANT
28 3"ø CLS
30 SANITARY MANHOLE. T/MH EL.

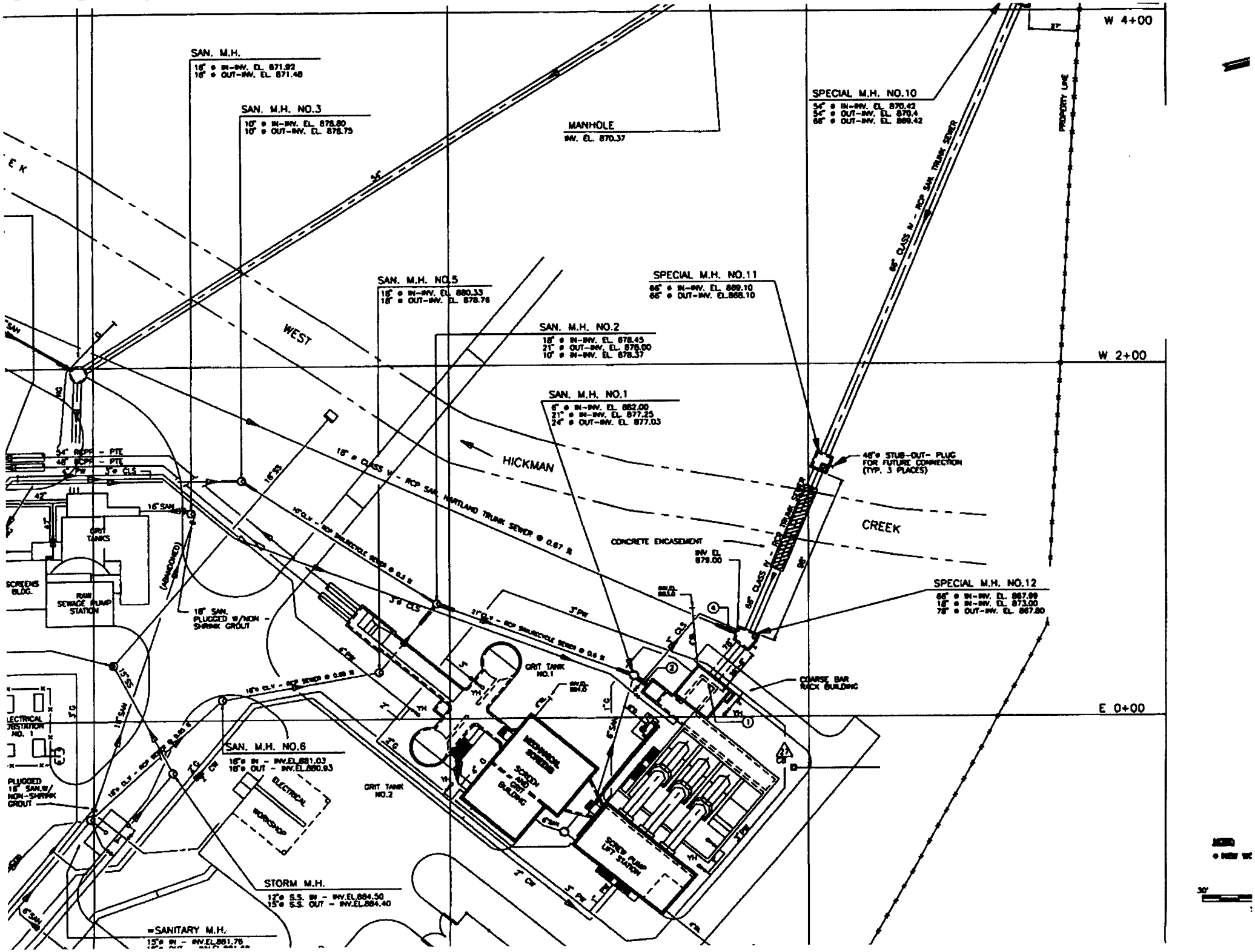

W 4+00
W 2+00
E 0+00
SAN. M.H.
SAN. M.H. NO.3
MANHOLE
SPECIAL M.H. NO.10
SAN. M.H. NO.5
SPECIAL M.H. NO.11
SAN. M.H. NO.2
SAN. M.H. NO.1
SPECIAL M.H. NO.12
SAN. M.H. NO.6
STORM M.H.
SANITARY M.H.
WEST
HICKMAN
CREEK
PROPERTY LINE
GRIT TANKS
SCREENS BLDG.
RAW SEWAGE PUMP STATION
GRIT TANK NO.1
GRIT TANK NO.2
MECHANICAL SCREENS
SCREENS AND GRIT BUILDING
SCREWS PUMP LIFT STATION
COARSE BAR RACK BUILDING
ELECTRICAL
WORKSHOP
CONCRETE ENCASEMENT
48"ø STUB-OUT- PLUG FOR FUTURE CONNECTION (TYP. 3 PLACES)

EXHIBIT B

Certificate of Insurance

and

Evidence of Insurability

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 07/25/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

Holder Identifier : FGHLMZ2

PRODUCER	CONTACT NAME:	
Aon Risk Insurance Services West, Inc. Los Angeles CA Office 707 Wilshire Boulevard Suite 2600 Los Angeles CA 90017-0460 USA	PHONE (A/C. No. Ext): (866) 283-7122	FAX (A/C. No.): (800) 363-0105
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE		NAIC #
Tetra Tech, Inc. 424 Lewis Hargett Circle Suite 110 Lexington KY 40503 USA	INSURER A:	National Union Fire Ins Co of Pittsburgh	19445
	INSURER B:	AIG Europe Limited	AA1120841
	INSURER C:	The Insurance Co of the State of PA	19429
	INSURER D:	American Home Assurance Co.	19380
	INSURER E:	Lexington Insurance Company	19437
	INSURER F:		

COVERAGES **CERTIFICATE NUMBER:** 570072372973 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR X X,C,U Coverage GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [X] LOC OTHER:			GL7468716	10/01/2017	10/01/2018	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $1,000,000 $10,000 $2,000,000 $4,000,000 $4,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			CA 428-80-55	10/01/2017	10/01/2018	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$2,000,000
B	X UMBRELLA LIAB [X] OCCUR EXCESS LIAB CLAIMS-MADE DED [X] RETENTION $100,000			CSUSA1702199	10/01/2017	10/01/2018	EACH OCCURRENCE AGGREGATE	$10,000,000 $10,000,000
C D C C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			WC014629496 WC014629497 WC014629498 WC014629499	10/01/2017 10/01/2017 10/01/2017 10/01/2017	10/01/2018 10/01/2018 10/01/2018 10/01/2018	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
E	Env Contr Prof			028182375 Prof/Poll Liab SIR applies per policy terms & conditions	10/01/2017	10/01/2019	Each Claim Agggregate	$1,000,000 $2,000,000

Certificate No : 570072372973

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Job Description: RFP Number: 15-2018 Investigation/Design Services for West Hickman WWTP Biological Phosphorus Removal Improvements Project. Lexington-Fayette Urban County Government is included as Additional Insured in accordance with the policy provisions of the General Liability and Automobile Liability policies as required by written contract. General Liability policy evidenced herein is Primary to other insurance available to an Additional Insured, but only in accordance with the policy's provisions as required by written contract. Stop Gap Coverage for the following states: OH, ND, WA, WY.

CERTIFICATE HOLDER

Lexington-Fayette Urban
County Government
200 East Main Street
Lexington KY 40507 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Insurance Services West, Inc.

ENDORSEMENT

This endorsement, effective 12:01 AM 10/01/2017

Forms a part of policy no.: 028182375

Issued to: TETRA TECH, INC., ET AL

By: LEXINGTON INSURANCE COMPANY

ADVICE OF CANCELLATION TO ENTITIES OTHER THAN THE NAMED INSURED LIMITED TO E-MAIL NOTIFICATION

This policy is amended as follows:

In the event that the **Insurer** cancels this policy for any reason other than non payment of premium, and

1. The cancellation effective date is prior to this policy's expiration date;

2. The **First Named Insured** is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)"); and has provided to the **Insurer**, either directly or through its broker of record, the email address of the contact at such entity,

and the **Insurer** received this information after the **First Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to such Certificate Holders.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following Definitions apply to this endorsement:

1. **First Named Insured** means the Named Insured shown on the Declarations Page of this policy.
2. **Insurer** means the insurance company shown in the header on the Declarations Page of this policy.

All other terms, conditions and exclusions shall remain the same.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement changes the policy to which it is attached effective on the inception date of the policy unless a different date is indicated below.

(The following "attaching clause" need be completed only when this endorsement is issued subsequent to preparation of the policy).

This endorsement, effective 12:01 AM 10/01/2017 forms a part of Policy No. WC 014-62-9498

LIMITED ADVICE OF CANCELLATION PROVIDED VIA E-MAIL TO ENTITIES OTHER THAN THE NAMED INSURED (WORKERS' COMPENSATION ONLY)

This policy is amended as follows:

In the event that the **Insurer** cancels this policy for any reason other than non-payment of premium, and

1. the cancellation effective date is prior to this policy's expiration date;

2. the **Named Insured** or, if applicable, any other employers named in Item 1 of the Information Page is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)") and the **Named Insured** has provided to the **Insurer**, either directly or through its broker of record, the email address of a contact at each such entity; and

3. the **Insurer** received this information after the **Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to each such Certificate Holders within 30 days after the **Named Insured** provides such information to the **Insurer**; provided, however, that if a specific number of days is not stated above, then the Advice will be provided to such Certificate Holder(s) as soon as reasonably practicable after the **Named Insured** provides such information to the **Insurer**.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following definitions apply to this endorsement:

1. **Named Insured** means the insured first named employer in Item 1 of the Information Page of this policy.

2. **Insurer** means the insurance company shown in the header on the Information Page of this policy.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement changes the policy to which it is attached effective on the inception date of the policy unless a different date is indicated below.

(The following "attaching clause" need be completed only when this endorsement is issued subsequent to preparation of the policy).

This endorsement, effective 12:01 AM 10/01/2017 forms a part of Policy No. WC 014-62-9497

LIMITED ADVICE OF CANCELLATION PROVIDED VIA E-MAIL TO ENTITIES OTHER THAN THE NAMED INSURED (WORKERS' COMPENSATION ONLY)

This policy is amended as follows:

In the event that the **Insurer** cancels this policy for any reason other than non-payment of premium, and

1. the cancellation effective date is prior to this policy's expiration date;

2. the **Named Insured** or, if applicable, any other employers named in Item 1 of the Information Page is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)") and the **Named Insured** has provided to the **Insurer**, either directly or through its broker of record, the email address of a contact at each such entity; and

3. the **Insurer** received this information after the **Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to each such Certificate Holders within 30 days after the **Named Insured** provides such information to the **Insurer**; provided, however, that if a specific number of days is not stated above, then the Advice will be provided to such Certificate Holder(s) as soon as reasonably practicable after the **Named Insured** provides such information to the **Insurer**.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following definitions apply to this endorsement:

1. **Named Insured** means the insured first named employer in Item 1 of the Information Page of this policy.

2. **Insurer** means the insurance company shown in the header on the Information Page of this policy.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement changes the policy to which it is attached effective on the inception date of the policy unless a different date is indicated below.

(The following "attaching clause" need be completed only when this endorsement is issued subsequent to preparation of the policy).

This endorsement, effective 12:01 AM 10/01/2017 forms a part of Policy No. WC 014-62-9496

LIMITED ADVICE OF CANCELLATION PROVIDED VIA E-MAIL TO ENTITIES OTHER THAN THE NAMED INSURED (WORKERS' COMPENSATION ONLY)

This policy is amended as follows:

In the event that the **Insurer** cancels this pplicy for any reason other than non-payment of premium, and

1. the cancellation effective date is prior to this policy's expiration date;

2. the **Named Insured** or, if applicable, any other employers named in Item 1 of the Information Page is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)") and the **Named Insured** has provided to the **Insurer**, either directly or through its broker of record, the email address of a contact at each such entity; and

3. the **Insurer** received this information after the **Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to each such Certificate Holders within 30 days after the **Named Insured** provides such information to the **Insurer**; provided, however, that if a specific number of days is not stated above, then the Advice will be provided to such Certificate Holder(s) as soon as reasonably practicable after the **Named Insured** provides such information to the **Insurer**.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following definitions apply to this endorsement:

1. **Named Insured** means the insured first named employer in Item 1 of the Information Page of this policy.

2. **Insurer** means the insurance company shown in the header on the Information Page of this policy.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ENDORSEMENT

This endorsement, effective 12:01 A.M. 10/01/2017 forms a part of

Policy No. CA 428-80-55

LIMITED ADVICE OF CANCELLATION PROVIDED VIA E-MAIL TO ENTITIES OTHER THAN THE FIRST NAMED INSURED

This policy is amended as follows:

In the event that the **Insurer** cancels this policy for any reason other than non-payment of premium, and

1. the cancellation effective date is prior to this policy's expiration date;

2. the **First Named Insured** is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)") and has provided to the **Insurer**, either directly or through its broker of record, the email address of a contact at each such entity; and

3. the **Insurer** received this information after the **First Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to each such Certificate Holders within [30] days after the **First Named Insured** provides such information to the **Insurer**; provided, however, that if a specific number of days is not stated above, then the Advice will be provided to such Certificate Holder(s) as soon as reasonably practicable after the **First Named Insured** provides such information to the **Insurer**.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following Definitions apply to this endorsement:

1. **First Named Insured** means the Named Insured shown on the Declarations Page of this policy.
2. **Insurer** means the insurance company shown in the header on the Declarations page of this policy.

All other terms, conditions and exclusions shall remain the same.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ENDORSEMENT

This endorsement, effective 12:01 A.M. 10/01/2017 forms a part of

Policy No. GL 746-87-16

LIMITED ADVICE OF CANCELLATION PROVIDED VIA E-MAIL TO ENTITIES OTHER THAN THE FIRST NAMED INSURED

This policy is amended as follows:

In the event that the **Insurer** cancels this policy for any reason other than non-payment of premium, and

1. the cancellation effective date is prior to this policy's expiration date;

2. the **First Named Insured** is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)") and has provided to the **Insurer**, either directly or through its broker of record, the email address of a contact at each such entity; and

3. the **Insurer** received this information after the **First Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to each such Certificate Holders within [30] days after the **First Named Insured** provides such information to the **Insurer**; provided, however, that if a specific number of days is not stated above, then the Advice will be provided to such Certificate Holder(s) as soon as reasonably practicable after the **First Named Insured** provides such information to the **Insurer**.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following Definitions apply to this endorsement:

1. **First Named Insured** means the Named Insured shown on the Declarations Page of this policy.
2. **Insurer** means the insurance company shown in the header on the Declarations page of this policy.

All other terms, conditions and exclusions shall remain the same.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement changes the policy to which it is attached effective on the inception date of the policy unless a different date is indicated below.

(The following "attaching clause" need be completed only when this endorsement is issued subsequent to preparation of the policy).

This endorsement, effective 12:01 AM 10/01/2017 forms a part of Policy No. WC 014-62-9499

LIMITED ADVICE OF CANCELLATION PROVIDED VIA E-MAIL TO ENTITIES OTHER THAN THE NAMED INSURED (WORKERS' COMPENSATION ONLY)

This policy is amended as follows:

In the event that the **Insurer** cancels this policy for any reason other than non-payment of premium, and

1. the cancellation effective date is prior to this policy's expiration date;

2. the **Named Insured** or, if applicable, any other employers named in Item 1 of the Information Page is under an existing contractual obligation to notify a certificate holder when this policy is canceled (hereinafter, the "Certificate Holder(s)") and the **Named Insured** has provided to the **Insurer**, either directly or through its broker of record, the email address of a contact at each such entity; and

3. the **Insurer** received this information after the **Named Insured** receives notice of cancellation of this policy and prior to this policy's cancellation effective date, via an electronic spreadsheet that is acceptable to the **Insurer**,

the **Insurer** will provide advice of cancellation (the "Advice") via e-mail to each such Certificate Holders within 30 days after the **Named Insured** provides such information to the **Insurer**; provided, however, that if a specific number of days is not stated above, then the Advice will be provided to such Certificate Holder(s) as soon as reasonably practicable after the **Named Insured** provides such information to the **Insurer**.

Proof of the **Insurer** emailing the Advice, using the information provided by the **First Named Insured**, will serve as proof that the **Insurer** has fully satisfied its obligations under this endorsement.

This endorsement does not affect, in any way, coverage provided under this policy or the cancellation of this policy or the effective date thereof, nor shall this endorsement invest any rights in any entity not insured under this policy.

The following definitions apply to this endorsement:

1. **Named Insured** means the insured first named employer in Item 1 of the Information Page of this policy.

2. **Insurer** means the insurance company shown in the header on the Information Page of this policy.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE

EXHIBIT C

Proposal of Engineering Services

and

Related Matters

Lexington-Fayette
Urban County Government

RFP #15-2018 | Proposal for:

Investigation/Design Services for West Hickman WWTP Biological Phosphorus Removal Improvements Project

June 15, 2018

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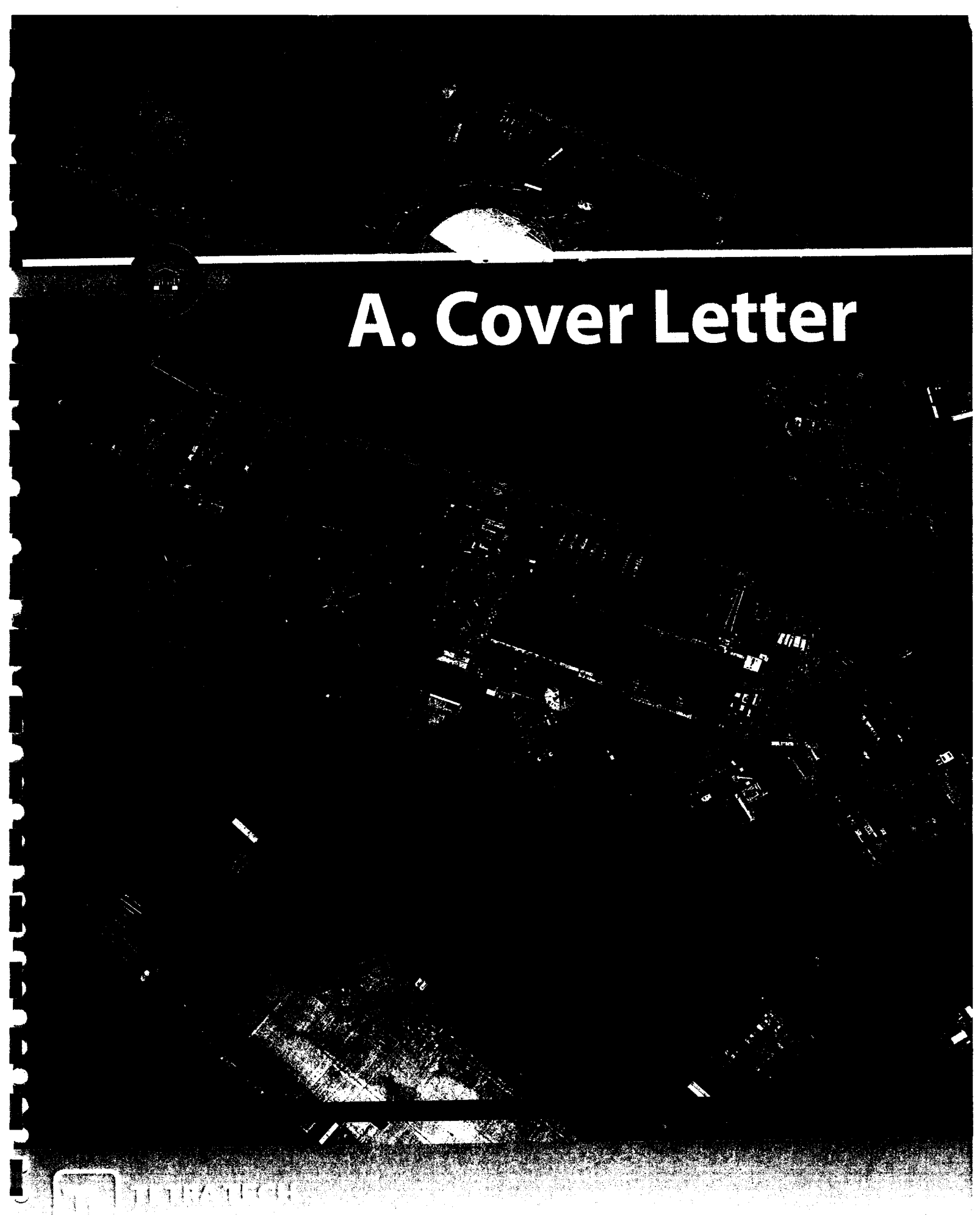


A. Cover Letter

TETRA TECH

A. COVER LETTER

June 15, 2018

Mr. Todd Slatin – Purchasing Director
Lexington-Fayette Urban County Government
Room 338, Government Center
200 East Main Street
Lexington, KY 40507

Re: RFP 15-2018 Investigation/Design Services for West Hickman WWTP Biological Phosphorous Removal Improvements Project

Dear Mr. Slatin and Selection Committee:

Biological phosphorus removal (BPR) is one of the most temperamental processes associated with municipal wastewater treatment. There are several key factors that go into the design and operation of an activated sludge process that ultimately create the proper "selector" environment to promote the release of phosphorus within the anaerobic zone and luxury uptake later in the aerobic reactor zones. To identify the best technical approach, it will take a team of professionals with extensive experience in BPR and the detailed knowledge of your West Hickman Wastewater Treatment Plant (WWTP).

EXTENSIVE BPR EXPERIENCE

As you are aware, Tetra Tech is a leading national consulting firm currently ranked No. 4 among the Top 500 Design firms and No. 1 in Water by *Engineering News-Record (ENR)*. For nearly 30 years, our technical design staff has studied, planned, designed, and permitted advanced wastewater treatment facilities across the U.S. including both biological phosphorus and biological nitrogen removal. Tetra Tech recently completed the design of a 30 MGD advanced treatment facility for Hillsborough County, Florida, that includes a five-stage modified Bardenpho configuration of the activated sludge process to achieve 1 mg/L of total phosphorus and 3 mg/L of total nitrogen in the treated effluent. Our submittal herein lists our vast nutrient removal experience from Michigan to Florida and even our recent project with the City of Oceanside, California, where we are designing additional nitrogen removal capabilities at one of their WWTP facilities, as well as including provisions for further treatment to allow groundwater injection for potable reuse.

PROVEN PERFORMANCE AT WEST HICKMAN FACILITY

Tetra Tech is the current Engineer of Record on the Wet Weather Storage (WWS) project at your West Hickman facility. Our local office provided project management services and integrated our national experts into a cohesive and responsive team that has met a demanding schedule for this highly complex $61,000,000 project. Having current relevant experience with the existing structures, hydraulics, and, most importantly, the difficult flow conditions observed during large rainfall events will directly benefit you in efficient service. There is no need for a learning curve that ultimately translates into costing you more money.

TEAM-ORIENTED APPROACH

Tetra Tech understands the importance of listening to the people who will be operating this facility and providing open communication to solve complex issues such as BPR at your facility. We have demonstrated our ability to do this on the West Hickman WWS project and will continue for this equally important assignment. We propose to use the same key local project management team that worked on past projects. Our team has been in numerous meetings with Tiffany Rank, the plant engineer, and Jim Worten, the plant operator, throughout the design of the WWS project.

Tetra Tech has included team member **Hazen and Sawyer** to assist with biological process modeling and plant optimization. Hazen is recognized as an industry leader in process modeling and has developed over 150 plant models. Hazen has the largest field sampling, testing, and troubleshooting capability in the industry. Because of this experience, Hazen is proficient at model calibration to existing systems, influent wastewater characterization, and prediction of future process performance.

Tetra Tech, Inc.
424 Lewis Hargett Circle, Suite 110, Lexington, KY 40503
Tel 859.223.8000 Fax 859.224.1025 www.tetratech.com

Hazen has performed model calibrations and biological phosphorus removal optimizations for numerous clients throughout the U.S. The table below highlights several projects in the region that have similar nutrient limits as the West Hickman WWTP.

Other team members include **Integrated Engineering**, a Minority Business Enterprise (MBE), for resident inspection and **2020 Land Surveying**, a Veteran-Owned Small Business (VOSB).

Our team is excited about the opportunity to continue to work directly with your staff and provide you with the most economical and operator-friendly solution to this complex item. We are happy to answer any questions you may have and look forward to continuing our successful relationship with LFUCG.

Sincerely,

Tetra Tech, Inc.

Richard W. Walker

Richard W. Walker, PE
Vice President/Principal-in-Charge

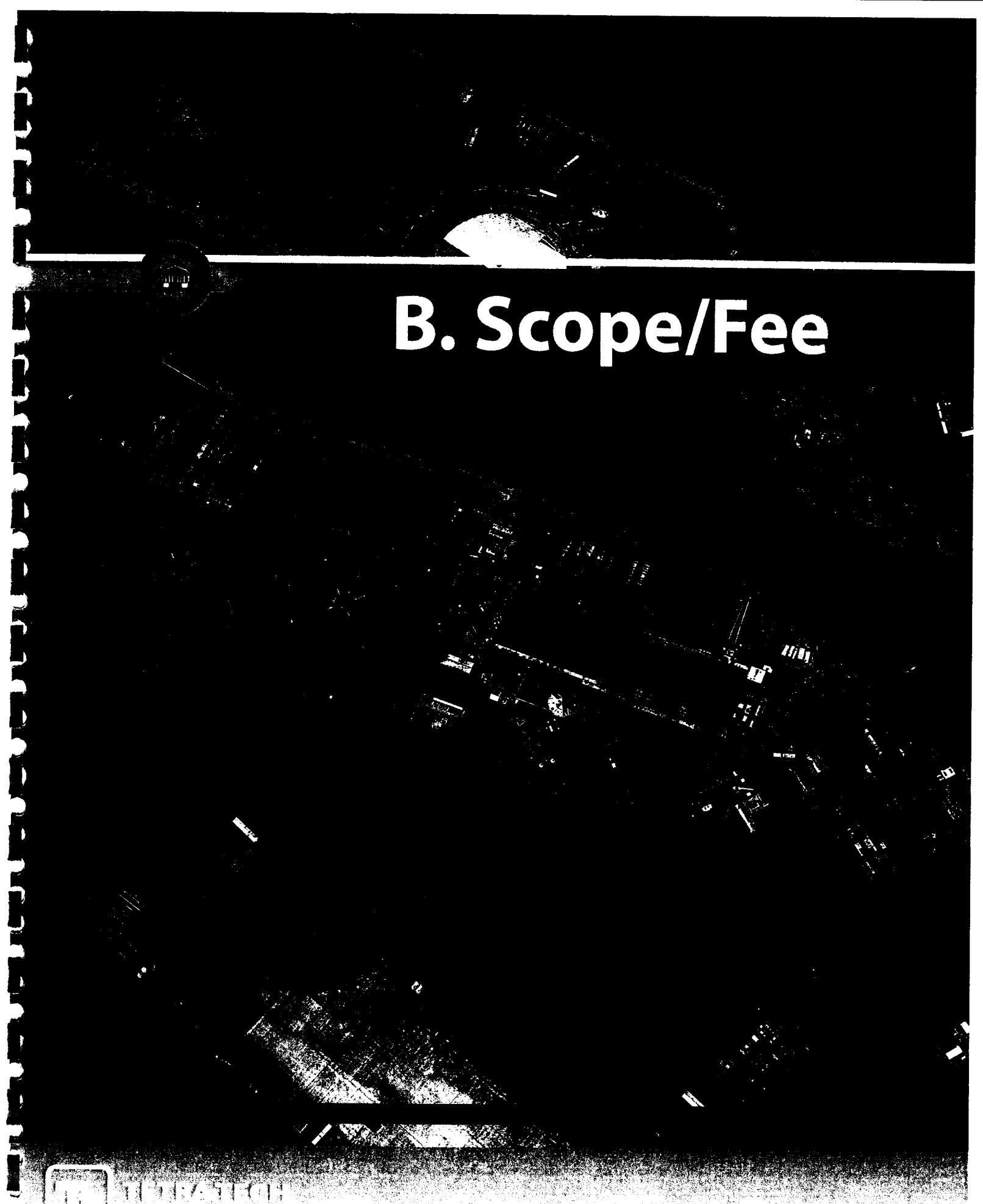
Herbert R. Lemaster, PE
Project Manager

HAZEN AND SAWYER EXPERIENCE ON SIMILAR PROJECTS

PROJECT NAME/LOCATION	HIGHLIGHTS
North Olmsted Wastewater Treatment Plant North Olmsted, OH (7 MGD) TP less than 1 mg/L	Part of $38 million expansion Vertical Loop Reactors to meet nutrient limits in limited space EBPR with chemical trim Average effluent TP less than 0.1 mg/L without chemicals
Upper Mill Creek Water Reclamation Facility Butler County, OH (16 MGD) TP less than 1 mg/L	Significant industrial influence Optimization for consistent performance Influent soluble total phosphorus identified as better performance indicator than ortho-phosphate
LeSourdsville Water Reclamation Facility Butler County, OH (15 MGD) TP less than 1 mg/L	Upgraded aeration/biological system as part of plant expansion Unaerated zones included in layout for nutrient removal TP less than 1 mg/L consistently achieved without chemicals 20% energy reduction
Fairfield Wastewater Treatment Plant Fairfield, OH (10 MGD) TP less than 1 mg/L	Calibrated BioWin modeling to optimize plant and evaluate EBPR versus chemical Full scale trial of chemical addition
Metropolitan Sewer District of Greater Cincinnati Wastewater Treatment Plants Cincinnati, OH (1.5 to 130 MGD) Calibrated Model Development of 7 Facilities	Models developed for future planning for wet weather and nutrient removal Developed operations tools to aid in operational control and decision making at the plant level Operator training

TETRA TECH BENEFITS AND DIFFERENTIATORS

	ITEM	HOW	BENEFITS TO LFUCG
1	**Recent Experience on BPR Projects**	Completed similar projects in Grand Rapids MI; Hillsborough County, FL; Huntsville, AL; Kalamazoo, MI; & Ypsilanti, MI	20-year life cycle cost savings No learning curve Validated design based on experience Few change orders during construction
2	**Understanding of LFUCG Expectations**	Currently working hand-in-hand with LFUCG's Project Manager, Tiffany Rank, & Plant Operator, Jim Worten, on the West Hickman WWTP Wet Weather Storage project	Effective communication Less demand on DWQ staff time
3	**Superior Project Management**	Successfully managing West Hickman WWS project	Highly cohesive & responsive team Meet Consent Decree deadlines & milestones
4	**Attention to Plant Operators' Needs**	Include operators in early meetings & decisions on equipment & materials	Long-term reliability & efficiency Plant operator satisfaction
5	**Highly Experienced Project Team**	Same team that worked on the West Hickman WWS project	No learning curve Less demand on DWQ staff time
6	**Close Collaboration with DWQ Staff**	Project Manager & support staff are in Lexington	Effective communication & coordination Face-to-face meetings
7	**Select the Right Equipment**	Interview vendors Consider sole-source vendors when there are no equal suppliers Evaluate life-cycle costs	Long-term reliability Operator-friendly Lowest life-cycle costs
8	**In-House Structural, Architectural, & Process Team**	Effective teamwork	Fully rehabilitated facility Fewer change orders during construction



B. Scope/Fee

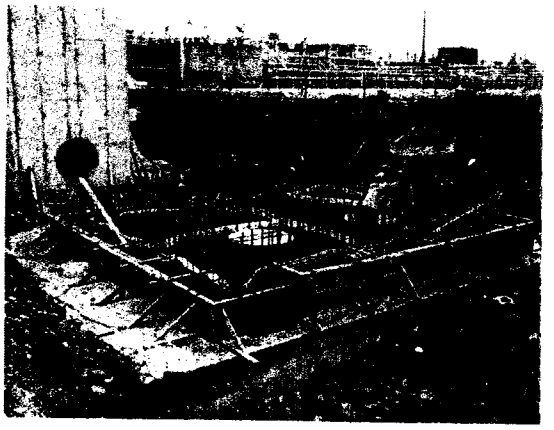
B. SCOPE / FEE

Understanding

Over the past few decades, there has been a nationwide effort to reduce the acceleration of the eutrophication process of natural surface water bodies, particularly lakes and rivers. Eutrophic is a term applied to water bodies with a high degree of biological productivity. Both nitrogen and phosphorus are key elements for algae growth. As part of the overall efforts to limit contributions to local waterways, a growing number of municipalities are being required to further reduce nutrient (nitrogen and/or phosphorus) levels in their treated effluent. Currently, the West Hickman facility is only required to reduce phosphorus levels in their effluent to 1.0 mg/L. However, regulatory requirements to reduce these levels are anticipated in the near future.

The proposed project consists of plant improvements to address aging infrastructure specifically related to LFUCG's continual efforts to reduce phosphorus through a combination of biological and chemical means at the West Hickman WWTP. In particular, this project will consist of replacing the mixers in the anaerobic zones and modify/improve the current chemical feed equipment which supplements phosphorus removal. In addition to the straightforward tasks of equipment replacement, Tetra Tech will focus on identifying additional improvements or modifications to the existing facilities, including operational changes that will maximize the biological portion of phosphorus removal and ultimately aid in reducing the ever-increasing costs associated with chemical feed.

To address the potential for nitrogen reduction requirements in the future, the scope will also include the addition of an anoxic zone basin. It is important to note that the anoxic zone typically follows the anaerobic zone and precedes the aerobic zone. This process configuration is often referred to as an A2O or anaerobic-anoxic-oxic process. Since the West Hickman facility operates what is referred to as an AO or Anaerobic-Oxic process, Tetra Tech will need to evaluate the best location for inclusion of an anoxic zone to maximize the amount of nitrate reduction achievable at the lowest cost. The construction of a separate anoxic zone will require significant process piping modifications and potentially the inclusion of an internal recycle pump station. Tetra Tech will work closely with the staff to establish treatment goals and plan for the most optimum location to achieve the most efficient results.



Influent Junction Chamber Under Construction at West Hickman (Designed by Tetra Tech)

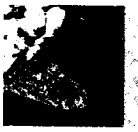
Tetra Tech's Current *ENR* Rankings ▼

#1 Water (Water Supply)

#1 Consulting/Studies

#1 Water Treatment/ Desalination

#1 Environmental Management



#1 Environmental Science

#4 Top 500 Design Firms

TETRA TECH ADVANTAGES

Tetra Tech offers LFUCG the following unique advantages to execute and successfully complete the West Hickman WWTP BPR Improvements project:

EXPERIENCE

Tetra Tech has a proven record of analyzing, designing, constructing, and starting up biological phosphorus removal facilities at municipal WWTPs across the nation. We are especially proud of our many top ENR rankings. Tetra Tech was once again ranked as the No. 1 firm in Water for the 15th straight year, and we are ranked No. 4 among the Top 500 Design firms. Tetra Tech has developed internal procedures that allows us to effectively and efficiently use all the vast resources that allowed us to achieve these rankings. For this project, Tetra Tech brings a proven and experienced project team whose work history includes nutrient (nitrogen and phosphorus) removal facilities from Michigan south to Florida. Our key staff have been involved in the development of several manual of practice (MOP) design documents for the Water Environment (WEF) and provide nationally-recognized operator training courses.

FAMILIARITY

Tetra Tech's local design and project management staff are currently engaged with construction of the new headworks and wet weather storage facilities at the West Hickman WWTP. During the design process for the new headworks facility, the existing hydraulic capacity and capability of the WWTP flow splitting facilities were evaluated. The flow splitting facility, commonly known as the "Leaping Weir" is being replaced with the new headworks facility. The design and construction of the new headworks facility includes the 70 MGD influent pump station and the junction chamber which directs the influent plant flows either towards the BPR channels, or the aeration channels. The actual flow splitting will occur at the new headworks after the new grit chambers where slide gates will be used to split the flow between the BPR or the aeration channel. Parshall flumes are installed in each flow path to monitor the flow ranges and allow plant staff the ability to adjust the direction of flow for operational needs. As reflected in our costs for services, this in-depth experience at the West Hickman facility will provide significant benefit to LFUCG by allowing us to lower our fee due to no learning curve.

PROJECT MANAGEMENT

Tetra Tech has assigned Herb Lemaster, PE, to be the Senior Project Manager for the BPR Improvements project. He has a long-standing relationship with LFUCG staff and direct West Hickman WWTP experience. This hands-on experience will again translate into efficiency and cost savings.

A. Task 1: Data Collection

100 Hours

Our team will perform an operations review as a basis for the development of the project requirements. Our review of the facility operations will include the following:

- Interview West Hickman WWTP operations and management staff for input regarding the current process equipment control and functionality related to the BPR operations. Our team will perform a detailed review of background reports, studies, and other data related to the project. This initial review and analysis will serve as our foundation for confirmation of the project objectives and preparation of the basis of design for the various BPR improvements. With a complete understanding of the project background and plant operating conditions, we will be prepared to begin the preliminary engineering phase. Our project manager will develop an agenda for discussion and schedule an initial project workshop to validate the project requirements. We will plan to set criteria for evaluation of the process systems and identify key operational issues that are most important to LFUCG.
- Collect other supporting data needed for design decisions. Tetra Tech will include a site visit for key engineering staff to the WWTP to conduct a detailed inspection of the BPR and treatment facilities. The inspection will include visual observation of each process and gathering of the design information for the various process components. The inspection will include photographic documentation of each process and an assessment of any readily observable facility deficiencies. Our design engineers will perform field checks for the existing structures that may be critical to the design and layout of proposed improvements. These include the associated process areas facilities. The data from this field validation will be transferred to base plans and used for conceptual design of the project elements. The inspection will also include gathering BPR process operating data. During the inspection, Tetra Tech will meet with LFUCG personnel to review facility operator observations over the last 12–18 months related to process performance, system limitations, operational flexibility, and operational constraints.

B. Task 2: Preliminary Engineering

240 Hours

For the purposes of this proposal, Tetra Tech will focus on the continual efforts to reduce phosphorus with an eye towards the future of incorporating nitrogen removal capabilities to the West Hickman facility. Our team understands that the proposed project consists of replacing the mixers in the anaerobic zones and modify/improve the current chemical feed equipment for the metal salt feed for chemical phosphorus removal. The purpose of this task will be to develop equipment replacement concepts as well as potential process improvements to increase biological removal and reduce the annual operating expenses associated with chemical removal. Preliminary engineering services will include the following:

A critical element in ensuring a successful project is the involvement of operations staff. To ensure a smooth start-up, Tetra Tech will provide start-up planning, staff training, process operations assistance, and appropriate system and process documentation and procedural instructions. Rest assured we will work closely with LFUCG staff to ensure its operators are confident in facility capabilities and operation, as well as the proper maintenance of various facilities and equipment.

- **Develop a Basis of Design.** The initial effort for this task will consist of developing the basis of design that will form the foundation for the entire design process. The basis of design will focus on the design flow rates (both average day and peak hour), influent and effluent characteristics (CBOD5, TSS, TN and TP), and the required volumes to meet specific design hydraulic retention times.
- **Prepare a Compete Phosphorus Balance Across the Plant.** One of the most important tasks prior to beginning the design phase is to accurately establish the influent characteristics, specifically the raw total phosphorus concentration for comparison to effluent goals prior to developing the basis of design. From decades of experience, our process engineers are keenly aware that side-stream contributions can adversely affect the overall success of BPR processes. As such, our team will work with your plant staff during the above sub-tasks to identify all side streams to have as accurate TP balance as possible, particularly return streams from the plant's solids stabilization (digestion) facilities.

- **Develop Alternative Concepts.** The most important criteria for BPR is to create a sufficient anaerobic environment suitable for developing (selecting) bacteria which will proliferate in this environment, as well as incorporate excess amounts of phosphorus into cell mass, commonly referred to as "luxury uptake" when re-introduced into an aerobic environment. This sub-task will consist of comparing the basis of design values against the existing conditions, then identify the gaps (if any). Additionally, this sub-task will consist of developing alternative concepts to close the gap. The evaluation will consider equipment, basin configuration and flow paths, as well as evaluating operation.
- **Lead a Workshop.** Following the development of a draft technical memorandum, key Tetra Tech staff will schedule and lead a workshop with LFUCG staff to review the alternatives and the initial analysis. With input from staff, Tetra Tech will finalize the analysis and make recommendations for improvements.
- **Refine Project Schedule and Develop Preliminary Estimates of Probable Costs of Construction.** For the purposes of preparing this proposal, Tetra Tech has established a preliminary project schedule, as shown in Section C.

C. Task 3: Detailed Design

370 Hours

Following the completion of the preliminary design tasks, our team will proceed with the detailed design stage and the development of the construction plans and specification documents. Working together as a team with LFUCG to meet the desired project results are one of the most important aspects of this task. Tetra Tech anticipates approaching the detailed design efforts and progress meetings in the manner that was done with the previous West Hickman Wet Weather Storage Facility project. We have planned for several progress meetings/workshops during the design process to aid in developing details and communicating the direction of the design. The workshops will ease any transition or mid-course correction that may be necessary to fulfill LFUCG's preferences and requirements. Our team (Tetra Tech/LFUCG input) will develop the design plans for all the project elements with the relevant basis of design information documented for each system. The basis of design will be revised as needed during the design phase as project details are developed. This design engineering task will include the preparation of a final construction cost opinion. We will perform quality reviews of the design drawings and specifications.

The detailed design to develop construction plans and specifications will include the following:

- Conduct detailed design progress meetings at 25-percent, 50-percent, and 90-percent completion. Three (3) copies of the progress drawings will be submitted to LFUCG one week prior to the meetings for review and comment. Tetra Tech anticipates that lead operators and LFUCG management will attend the progress meetings. The progress meetings will be used to discuss the direction of the design and obtain specific requests or requirements from LFUCG management and operations staff.
- Relevant design calculations support the new equipment/process will be presented at the progress meetings.
- A detailed opinion of probable cost and the necessary revisions to the 20-year life-cycle and present-worth analysis will be furnished for the 50-percent review and the final design.
- The anticipated project and construction schedules will be updated at the 25-percent, 50-percent, and 90-percent progress milestones.

Our proposed fee for detailed design is based on the development of plans and specifications for replacement of the mixers in each BPR tank (seven tanks), replacement and updating of the chem scan monitoring system, and replacement of the chemical feed pumps. As indicated in Addendum No. 1, we assume that piping will not need to be replaced for the chemical scan monitoring system, and new tanks will not be necessary for the phosphorous reducing chemical feed system.

Tetra Tech assumes that the elements of this project that will ultimately be designed will be based on the findings of the evaluations performed in Task 2. Accordingly, we assume that our proposed fee will be amended as necessary to reflect any additional efforts to incorporate elements that are accepted by LFUCG from the conceptual/preliminary design efforts of Task 2. Fees for geotechnical borings, geotechnical testing, materials testing, hydro-excavation or exploratory excavation, or environmental evaluations/reports are not included in this proposal.

D. Task 4: Bidding Services

90 Hours

Our team will be actively engaged during the bidding process, providing final bidding documents for the

The Tetra Tech team will be actively engaged during the bidding process, providing final bidding documents and assisting LFUCG with development of the advertisement for bids

project. We plan to actively assist LFUCG with the bidding process including the development of the advertisement for bids. Our bidding services will include the following:

- Preparation of the final plans and specifications ready for bidding. Plans and specifications will be provided in both hard copy and electronic format compatible with LFUCG standard. We understand that the recent procedure has been to submit plans and specifications in PDF format. Seven hard copies will be required to be provided.
- Preparation and submittal of the construction plans and specifications to the Kentucky Division of Water for the purposes of receiving a construction permit.
- Provide customary bidding services including preparation of advertisement, conducting prebid meeting, issuing required addenda, evaluating bids, and providing a recommendation of award.

In response to the RFP, the anticipated fee for this task is based on a 21-day bidding period and the development and issuance of two (2) addendum. Tetra Tech assumes that the final fee for this element will be adjusted for a longer bidding period.

E. Task 5: Construction Administration

Engineering - 590 Hours; Inspection - 1220 Hours

Tetra Tech will provide construction phase engineering and administration services for the project. This task is the implementation of all the previous work that has been conducted to ensure that planning and designs that were developed are applied in the physical construction. The construction phase will include the following tasks:

- Review and processing shop drawings submitted by the contractor. A record and log will be maintained to track the shop drawing submittals. This record/log will be provided to LFUCG and the contractor at each monthly progress meeting.
- Review change orders submitted by the contractor. Recommendations of acceptance along with preparation of necessary forms for submittal to the council will be prepared. A record and log will be maintained to track the change orders and status of approval. This record/log will be provided to LFUCG and the contractor at each monthly progress meeting.
- Respond to contractor submitted Requests for Information (RFIs). A record and log will be maintained to track the RFIs and the corresponding responses. This record/log will be provided to LFUCG and the contractor at each monthly progress meeting.
- Prepare agenda, lead discussion, record minutes, and prepare/distribute meeting minutes for all monthly construction progress meetings.
- Conduct construction inspections and review on-site construction activities. Submit weekly reports to LFUCG documenting the findings of the on-site inspections once construction begins.
- Provide photo documentation of construction. Before and after photos of all stages of construction will be obtained and recorded.
- Review and provide recommendations for approval of the contractor's monthly payment applications.
- Attend and maintain test reports for all equipment start-up for the project.
- Coordinate final inspection of completed work and prepare the final punch list.
- Prepare and submit final As-Built drawings to LFUCG based on field notes from the contractor's drawings.

The proposed fee for construction administration is based on an active construction period of 14 months. Tetra Tech assumes the construction administration fee will be amended as necessary to reflect any extension of the construction period or additional inspections required by LFUCG. The construction inspection fee assumes an on-site presence of 20 hours per week based on the initial design elements discussed above.

Our proposed fee does not include additional engineering or inspection to address unknown abandoned pipes or structures that are cannot be discovered during design but are found during construction. Our fee does not include concrete testing, geotechnical investigations/testing, or materials testing.

F. Process Modeling (Hazen and Sawyer)

Tetra Tech is proud to include Hazen and Sawyer as part of our team to perform process modeling if desired by LFUCG. Hazen has extensive experience in the development and application of wastewater

process models for alternatives evaluations, process optimization, and design. They have developed a state-of-the-art, site-specific approach to process modeling, design, and optimization using the BioWinTM or other simulator packages. Their approach includes deploying experienced staff in the field to perform field testing, and to work with operations staff to fully understand the plant specific issues. This approach ensures the process model is calibrated properly, through understanding the unique aspects of each plant.

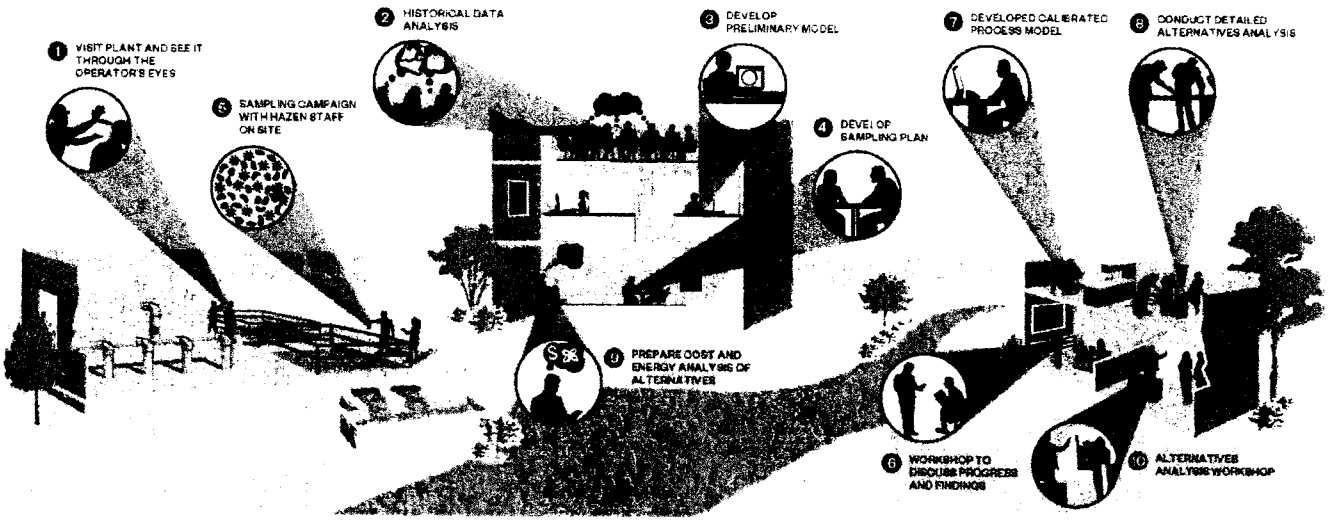
Hazen is recognized as an industry leader in process modeling and has developed over 150 plant models. To support this effort, they have the largest field sampling, testing, and troubleshooting capability in the industry. Hazen is proficient at influent wastewater characterization, model calibration to existing systems, and prediction of future process performance providing the following benefits to LFUCG including:

- Optimization of existing treatment trains, including maximizing treatment capacity with existing tankage
- Optimization of the design of enhanced biological phosphorus removal upgrades
- Convenient evaluation of 'what-if' scenarios for the evaluation of process alternatives and to investigate the impacts of wet weather
- Cost-effective planning for stricter nutrient removal requirements in the future

Whole plant process model calibration starts with a detailed review of historical plant data, site visits, and operator interviews to understand key issues specific to the West Hickman WWTP from the operator's perspective. The historical data is then used for initial process simulations with the model to check fundamental mass balances and yields, identifying potential issues with historical data, and data gaps. Next, supplemental sampling is conducted to understand the detailed influent wastewater characterization and plant performance. Hazen provides experienced staff in the field to conduct part of this special sampling, which many times provides key insight into site-specific sampling and performance issues not identified through routine monitoring. This field work includes detailed nutrient and carbon profiles throughout the plant. Microscopic analysis of the mixed liquor is also typically performed to provide additional detail related to Enhanced Biological Phosphorous Removal (EBPR) populations and filamentous foaming bacteria. This special sampling data and reconciled historical data are used to fully calibrate and verify the whole plant process model, which can then be used with confidence for evaluations and detailed design.

Hazen's approach to modeling for capacity analysis, optimization, alternative evaluation, and design ensures that the existing infrastructure is maximized resulting in a cost-effective solution. Using a steady-state model with worst-case temperature, loads, and settling properties leads to overly conservative conclusions and designs. Their approach uses a statistical, risk-based approach to select appropriate combinations of design parameters, combined with a whole plant dynamic model, to better represent reality and determine true capacity and expected performance.

The estimated fee to conduct process modeling is $80,000. This fee is not included in the fee schedule.



Investigation/Design Services for West Hickman WWTP
Biological Phosphorus Removal Improvements Project

Fee Schedule

(For a description of task refer to Section 2 of the RFP)

Section 2

Scope of Work: Biological Phosphorus Removal Improvements Project

A. Task 1: Existing Process Performance Review

Cost Task 1: $17,000

B. Task 2: Develop Equipment/Process Replacement Concepts

Cost Task 2: $37,000

C. Task 3: Detailed Desgin

Cost Task 3: $68,000

D. Task 4: Bidding Services

Cost Task 4: $12,000

E. Task 5: Construction Administration Services

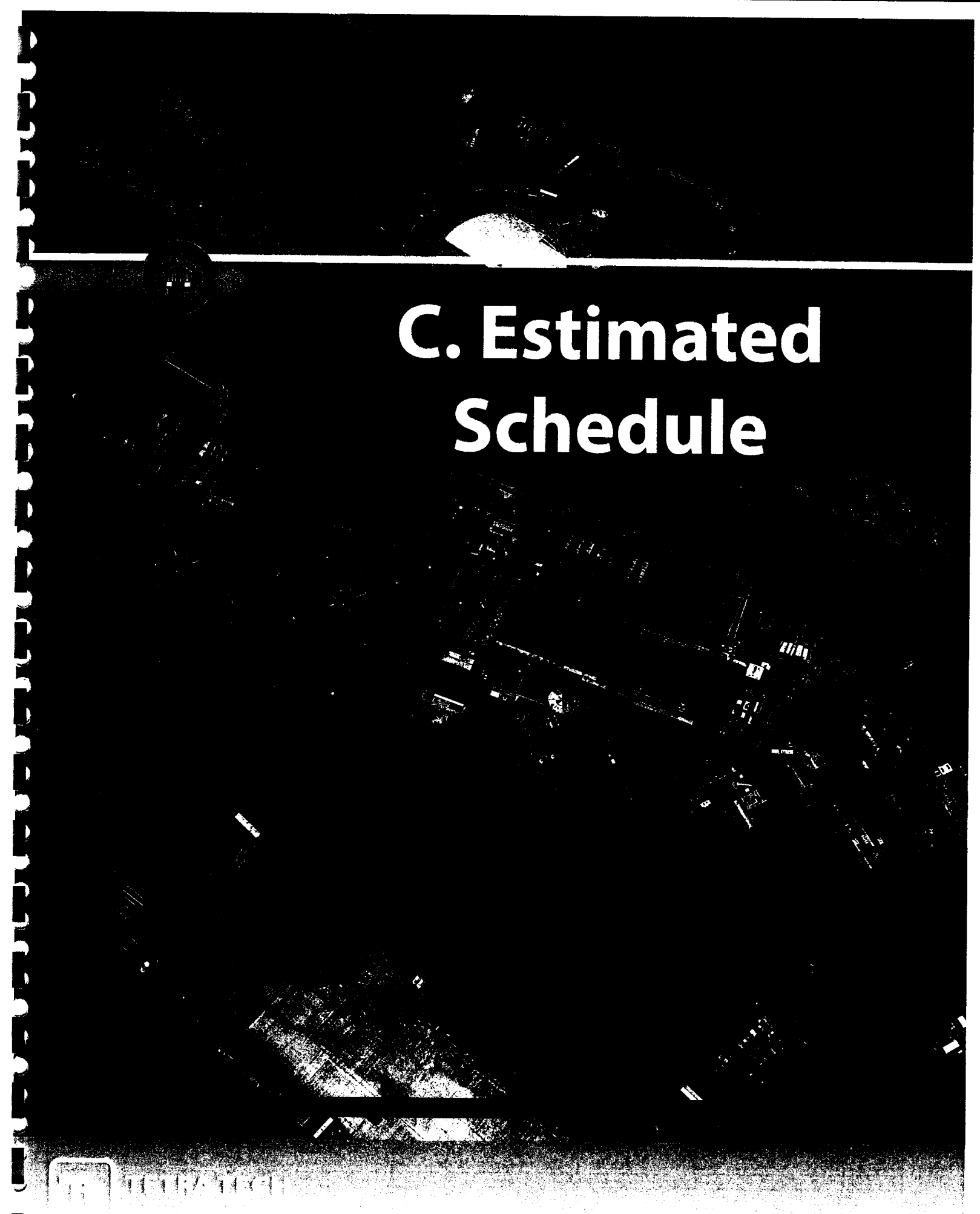
Cost Task 5: $157,000

Details for Task 5.5 - The total cost should be included in Cost Task 5. Please provide the following breakdown. Estimated Weekly Inspection Hrs/Estimated Total Inspection Hrs/Hourly Rate.

20 Hours for 61 Weeks / 1220 / 60

Section 2 Total Cost: $291,000

Addendum No. 1: Add Denitrification Basin $15,000

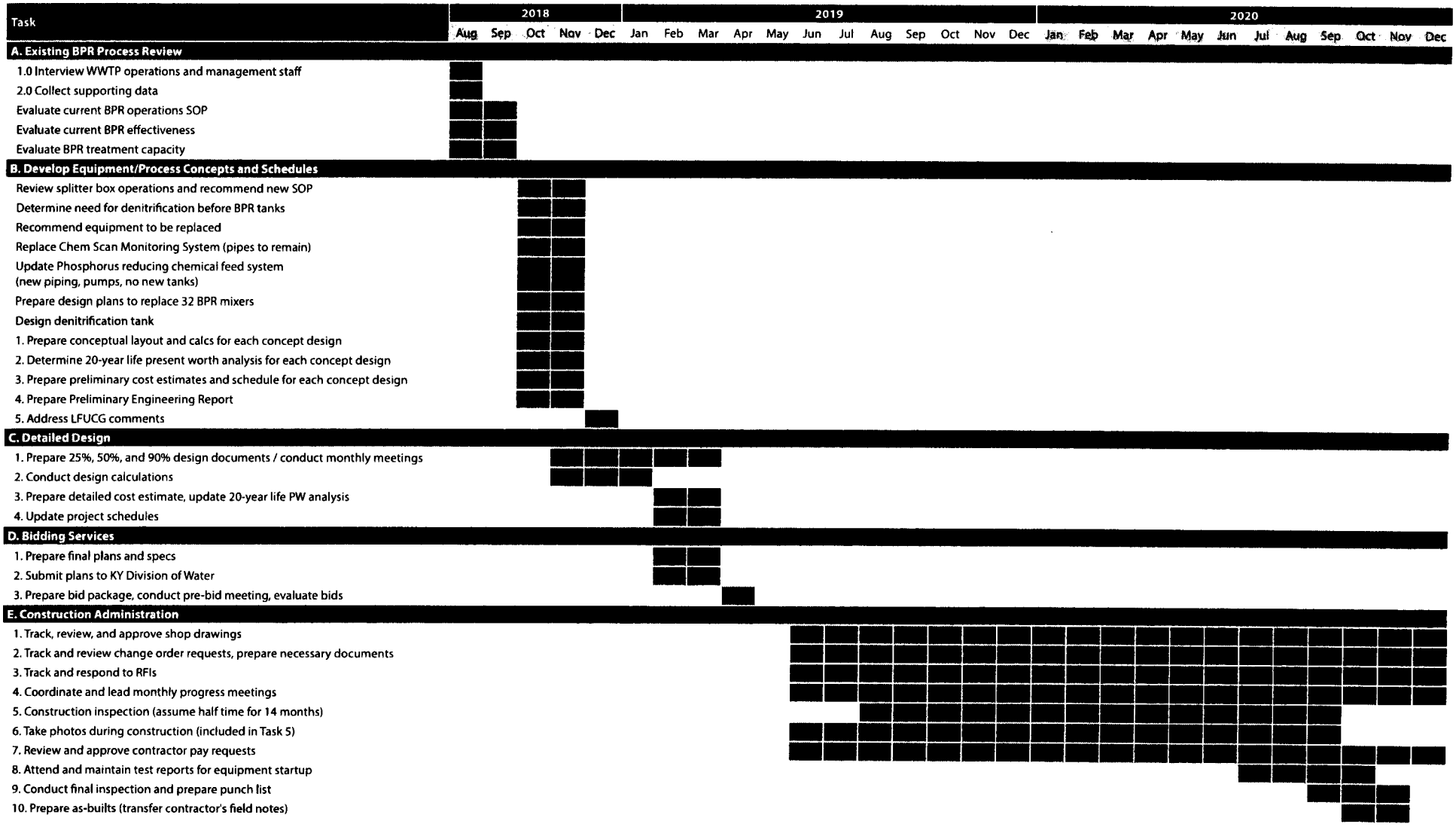


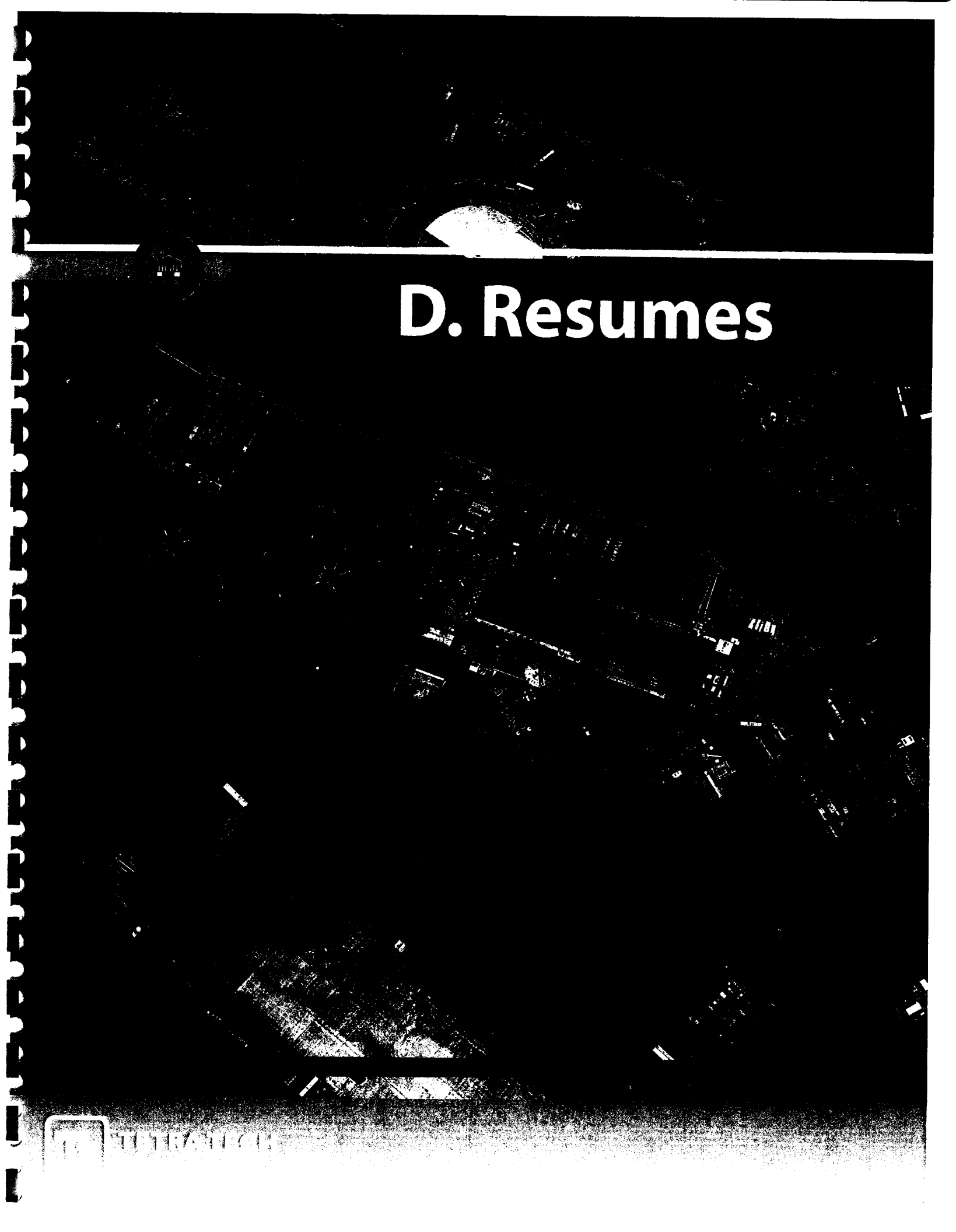
C. Estimated Schedule

C. ESTIMATED SCHEDULE

Tetra Tech has consistently demonstrated its ability to meet clients' schedules and budgets. We have built a strong reputation in the industry for completing quality work within a timely fashion as evidenced by our many repeat clients. Tetra Tech has a proven track record of successfully managing multiple projects with overlapping tasks, teams, and subconsultants on numerous similar WWTP projects. The following page provides a detailed Microsoft Project schedule for the West Hickman WWTP BPR Improvements project.

West Hickman WWTP Biological Phosphorus Removal Improvements Project Estimated Schedule





D. Resumes

D. RESUMES

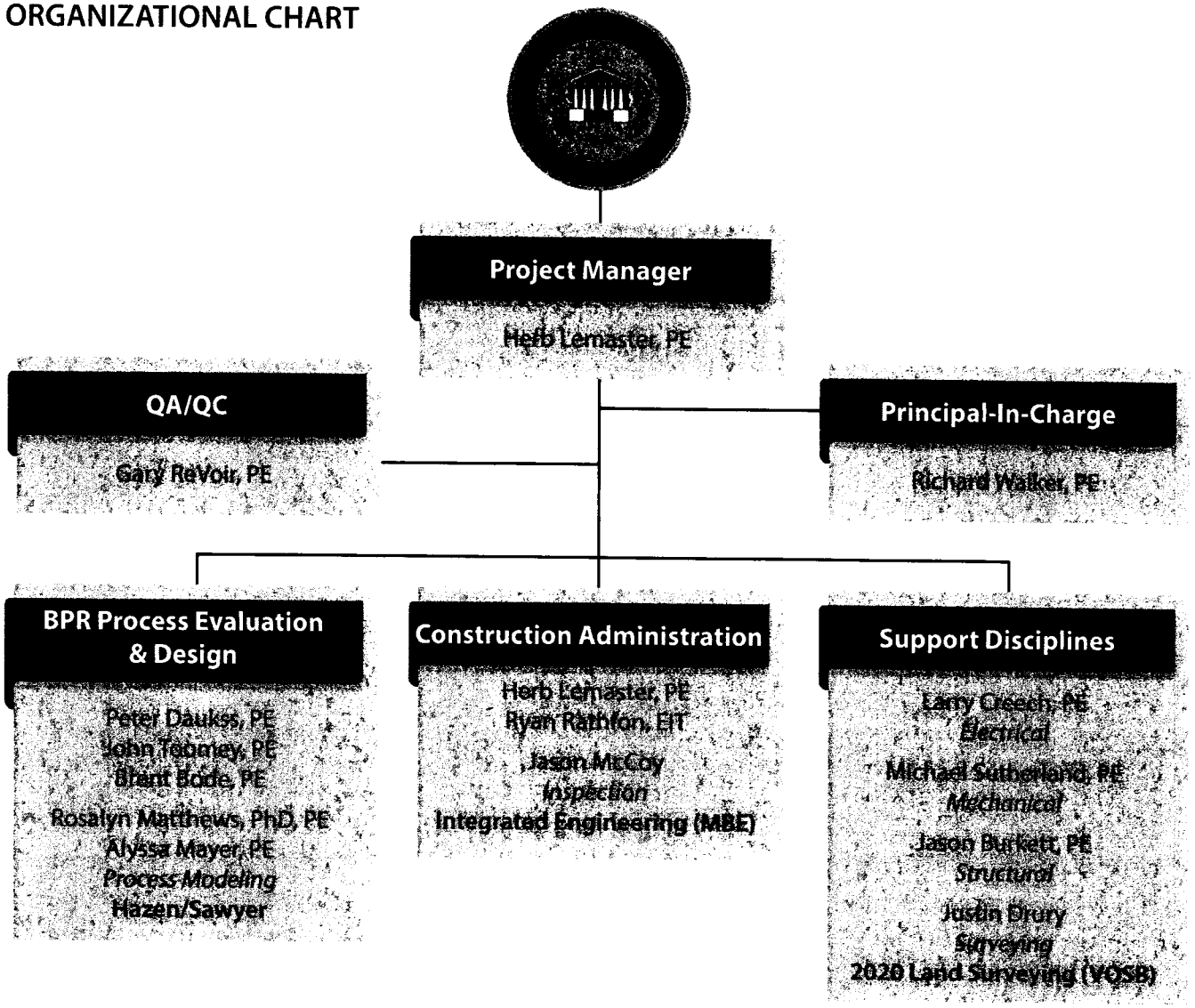
Project Team

The organization chart below outlines key team members proposed for this project. Additional production and support staff may assist with the project, as needed. The following pages provide one-page resumes for staff anticipated to contribute more than 10 percent of total man-hours to be allocated for this project.

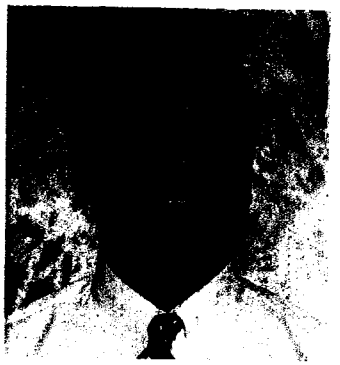
Subconsultants/Commitment to DBE/MBE/WBE Goals

We understand the importance of DBE/MBE/WBE goals and are committed to providing meaningful minority and veteran participation at levels desired by LFUCG. Our track record on similar efforts demonstrates our commitment to, and success in, achieving or exceeding project-specific goals. To achieve or exceed your 10 percent participation goal, we have enlisted the services of Integrated Engineering (MBE) to provide construction inspection, and 2020 Land Surveying (VOSB) to provide surveying.

ORGANIZATIONAL CHART



HERBERT LEMASTER, PE | Project Manager



Mr. Lemaster serves on various civil and environmental projects. He is responsible for analysis and design, writing specifications, developing contract documents and cost estimates, preparation of construction drawings, construction administration, and construction engineering. Mr. Lemaster has worked on many solid waste landfill, water, wastewater, and environmental projects. His wastewater-related projects include rehabilitation evaluations of wastewater collection systems, capacity studies, design of gravity sewer systems, pump station design, and wastewater treatment plant design.

West Hickman Wet Weather Storage Facility, Lexington-Fayette Urban County Government, Fayette County, KY. Project Manager. Design of the wet weather storage facility and improvements to the headworks of the existing treatment plant. The project includes new screening facilities, new grit facilities, a 70 MGD influent pump station, a 70 MGD wet weather pump station, two 20 MG storage tanks, a recycle pump station, upgrades to the nonpotable water system, and all associated piping and electrical systems.

Morehead Wastewater Treatment Plant, Morehead Utility Plant Board, Morehead, KY. Project Manager. Construction administration on the expansion of an existing treatment plant from 2.5 MGD average / 5.0 MGD peak capacity to 5.0 MGD average / 10.0 MGD peak capacity. This project included construction of two 105-foot-diameter clarifiers and RAS/WAS pump station, new influent screening facility with mechanical screens, new resized influent and effluent pumps, conversion of the existing primary clarifier to new RAS reaeration basins, conversion of the existing anaerobic digestor system to a two-stage Autothermal Thermophilic Aerobic Digestion system, new ultraviolet system for disinfection, and construction of a new biosolids handling facility including new belt filter presses.

Wolf Run Wet Weather Storage Facility, Lexington-Fayette Urban County Government, Fayette County, KY. Project Manager. Design and construction of this facility. The design of includes a 1.8 MG wet weather storage tank, a 7.3 MGD wet weather pump station, and all associated structures piping. Assisted in obtaining required permitting and construction administration.

Berea Wastewater Treatment Plant Expansion, Berea Municipal Utilities, Berea, KY. Project Manager, Design Engineer, and Construction Administrator. Expansion of an existing wastewater treatment plant from 2.1 MGD average / 5.0 MGD peak capacity to a 4.3 MGD average / 13.0 MGD peak capacity. Project included two 130-foot-diameter clarifiers and RAS/WAS pump station, new influent screening facility, increased the 60-inch screw pumps to larger 66-inch-diameter screw pumps at the facility influent, conversion of the existing bubble diffuser and inter channel clarifiers to vertical turbine aeration basins, new belt filter presses, and conversion of the chlorine contact basins to a new UV system for disinfection. Added a new building for storage and feeding chemicals for phosphorus removal.

Wastewater Treatment Plant Expansion, Adair County, KY. Project Manager and Design Engineer. Sub to a local consultant for the expansion of an existing wastewater treatment plant. The design objectives of this project were to double the treatment capacity of the existing facility. Tetra Tech was responsible for all relative design tasks and coordination with the KDOW.

EDUCATION

MS, Civil Engineering (Environmental), University of Kentucky, 1992

BS, Civil Engineering, University of Kentucky, 1990

AS, Prestonsburg Community College, 1988

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Kentucky, No. 19309, 1996

PROFESSIONAL AFFILIATIONS

National Society of Professional Engineers

Kentucky Society of Professional Engineers

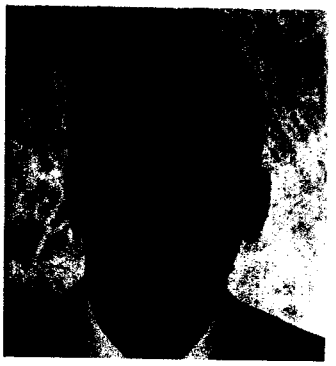
OFFICE LOCATION

Lexington, KY

YEARS OF EXPERIENCE

25

RICHARD WALKER, PE, CFM | Principal-in-Charge



Mr. Walker has a broad range of experience in civil engineering, program management, hydrologic and hydraulic studies, stormwater management, floodplain management, Clean Water Act consent decrees, MS4 Permit compliance, green infrastructure, stormwater utilities, and technical manual development. He is currently the MS4 program manager for the City of Lexington, KY where he is responsible for ensuring that the city complies with the MS4 Permit and the stormwater provisions in the 2011 EPA Consent Decree.

EPA Clean Water Act Consent Decree, Lexington-Fayette Urban County Government, KY. Program Manager. Provided program management services to ensure compliance with the sanitary sewer requirements of the EPA Clean Water Act Consent Decree. Directed the QA/QC of sanitary sewer assessments, gravity line preventative maintenance procedures, pump station assessments, and capacity assurance. Coordinated the activities of staff in the sanitary sewer program.

West Hickman Wet Weather Storage, Lexington-Fayette Urban County Government, KY. Principal-in-Charge. Wet Weather Storage facility that involves the design of a 20 MG prestressed concrete tank, 70 MGD influent pump station, 70 MGD wet weather pump station, grit facility, and screening facility with a construction value of $70M.

Wolf Run Wet Weather Storage, Lexington-Fayette Urban County Government, KY. Principal-in-Charge. Wet Weather Storage facility that involved the design of a 1.8 MG prestressed concrete tank and pump station with a construction value of $5M.

Sanitary Sewer Overflow Response Plan, Lexington-Fayette Urban County Government, KY. Project Manager. Developed the public reporting and regulatory notification sections of the Sewer Overflow Response Plan.

Municipal Separate Storm Sewer System Compliance, Lexington-Fayette Urban County Government, KY. Program Manager. Provides program management services to ensure compliance with the MS4 Permit and stormwater requirements of the EPA Clean Water Act consent decree. Develops procedures for the permitting, plan review, inspection, and enforcement of construction sites and post-construction stormwater management for new development and redevelopment. Directs the development of procedures for illicit discharge investigations, inspections of municipal facilities, and inspection/enforcement of industrial facilities. Develops training programs for staff involved in the inspection of construction sites, illicit discharges, and industrial facilities. Developed stormwater low impact development (LID) guidelines for new development and redevelopment. Directs the water quality monitoring program and development of TMDL implementation strategies. Conducts monthly coordination meetings with 25 staff in the stormwater program.

Walhampton Stormwater Improvements, Lexington-Fayette Urban County Government, KY. Principal-in-Charge. Stormwater improvements project that involved the design of a detention basin and storm sewers to reduce flooding in the neighborhood. Provided QA/QC on the hydrologic/hydraulic model.

EDUCATION

Master of Civil Engineering (Water Resources), University of Kentucky, 1989

BS, Agricultural Engineering, University of Kentucky, 1982

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Kentucky, No. 15345, 1988

Certified Floodplain Manager, 2011

Qualified Inspector, Kentucky Erosion Prevention and Sediment Control, 2014

PROFESSIONAL AFFILIATIONS

National Society of Professional Engineers

Association of State Floodplain Managers

Water Environment Federation

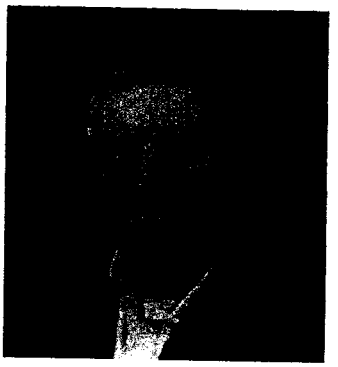
OFFICE LOCATION

Lexington, KY

YEARS OF EXPERIENCE

35

GARY REVOIR, PE | QA/QC / BPR Process Evaluation & Design



Mr. ReVoir has extensive experience in the municipal and industrial water, wastewater and reuse industry. His experience encompasses a full range of wastewater collection, transmission, treatment and effluent disposal planning, with an emphasis on advanced wastewater treatment processes, as well as potable reuse.

Northwest Regional Water Reclamation Facility Expansion, Hillsborough County, FL. Client Manager. The proposed improvements to the NWRWRF under the expansion program include all of the requisite facilities necessary to increase the permitted capacity from 10.0 MGD to 30.0 MGD. The proposed expansion of the NWRWRF include new headworks (screening and degritting), inline flow equalization, additional 5-stage BNR treatment trains, clarifiers, filters and additional prestressed concrete reclaimed water storage tanks; new power feed to the site and additional standby power facilities; and electrical and Instrumentation improvements.

Iron Bridge Regional Water Reclamation Facility, City of Orlando, FL. Project Manager. Planning, permitting, and final design services to convert, with rerating and expansion, a 24.0 MGD-AADF AWT process to a 40.0 MGD-AADF AWT process. The treatment facility included a full 5-stage modified Bardenpho advanced biological nutrient removal treatment system with tertiary filtration and high-level disinfection facilities for reclaimed water production.

Wastewater Treatment Facility, Reedy Creek Improvement District, FL. Client Manager/Project Manager. Capacity rerating, permitting and preliminary design for the expansion of the existing 15.0 MGD-AADF AWT treatment facility to 20.0 MGD-AADF AWT. The treatment facility included a full 5-stage modified Bardenpho advanced biological nutrient removal treatment system with tertiary filtration and high-level disinfection facilities for reclaimed water production.

Crest Avenue Wastewater Treatment Plant Expansion, City of Winter Garden, FL. Client Manager/ Project Manager. Planning, design, permitting, and final design services of a treatment plant expansion form 2.0 MGD to 4.0 MGD. The treatment facility included a full 5-stage modified Bardenpho advanced biological nutrient removal treatment system with tertiary filtration and high-level disinfection facilities for reclaimed water production.

Cape Canaveral Water Reclamation Facility, City of Cape Canaveral, FL. Client Manager/Project Manager. Planning, design, financial assistance, permitting, and construction administration of 1.8 MGD, $8.75 million treatment plant upgrade to a 5-stage modified Bardenpho full advanced treatment biological nutrient removal process with tertiary facilities for reclaimed water production. The project also included reclaimed water storage, pumping transmission and distribution facilities.

AWT Wastewater Treatment Plant, Buenaventura Lakes, FL. Project Manager/Project Engineer. Planning, design, permitting, and construction administration of a treatment plant expansion from 1.5 MGD up to 1.8 MGD the treatment facility included a full 5-stage modified Bardenpho advanced biological nutrient removal treatment system with tertiary facilities for reclaimed water production.

6.0 MGD Advanced Wastewater Treatment Plant, Utilities Commission, City of New Smyrna Beach, FL. Project Engineer. Engineering support for the development of the new wastewater treatment plant site consisted of site selection, ecological assessments and resolution of various site zoning issues. The wastewater treatment plant included permitting and design of a pretreatment structure, a 5-stage biological nutrient removal system, secondary clarifiers, continuous deep bed filters, high-level disinfection.

EDUCATION
MS, Environmental Engineering, University of Central Florida, 1995
BS, Environmental Engineering, University of Florida, 1988

REGISTRATIONS/ CERTIFICATIONS
Professional Engineer, Florida, No. 46684, 1993

PROFESSIONAL AFFILIATIONS
American Water Works Association
Water Environment Federation
WaterReuse Association

OFFICE LOCATION
Orlando, FL

YEARS OF EXPERIENCE
30

PETER DAUKSS, PE | BPR Process Evaluation & Design

As the Discipline Leader for wastewater engineering, Mr. Daukss has responsibility for technical delivery, quality, and standards for wastewater treatment and biosolids management projects. He has extensive experience in all aspects of wastewater treatment technology and biosolids management. His design and construction projects include oxidation ditches, sequencing batch reactors, activated sludge, fine pore aeration systems, biological nutrient removal, disinfection and biosolids thickening, dewatering, storage, advanced stabilization, and incineration.

Mr. Daukss has been involved with biosolids technologies related to municipal wastewater treatment facilities for over 35 years. During this period, he has participated in the evolution from the most basic disposal strategies to bioenergy production and resource recovery for sustainable management. Prominent biosolids technologies that he has evaluated include advanced digestion, composting, pasteurization, thermal processing, and pelletization. Mr. Daukss's industrial waste treatment projects include biological treatment, physical-chemical treatment, land application, and residuals management technologies.

North Secondary Treatment System Improvements, City of Grand Rapids, MI. Project Manager/ Technical Process Leader. Evaluation, design, and construction phase for modification of existing north wastewater treatment plant aeration and final clarification systems for 52 MGD sustained flow design. Aeration improvements included modification of the fine pore air diffusion system to taper the air distribution for improved process efficiency. Final clarifiers were upgraded to improve hydraulic efficiency and performance with enhanced energy inlet dissipation and density current baffle design. Modifications of the activated sludge system included provisions for biological selector for enhanced biological phosphorus removal.

Secondary Treatment Improvements for Water Reclamation Plant, City of Kalamazoo, MI. Technical Leader. Evaluation, design, and construction phase for improvements to the secondary treatment system for 53.3 MGD average design flow capacity. Improvements included two new single-stage aeration blowers for integration with the new fine pore aeration system. New blowers, coupled with high-efficiency fine pore air diffusion and a control system to monitor oxygen requirements, resulted in substantial energy saving over the previous system. Modifications of the activated sludge system included provisions for biological selector for enhanced biological phosphorus removal.

Wastewater Treatment Plant Tertiary Filter, Ultraviolet Disinfection and Effluent Disinfection Improvements, City of East Lansing, MI. Project Manager/Technical Process Leader. Evaluation, design, and construction phase for tertiary filtration, ultraviolet (UV) disinfection and effluent discharge improvements for the wastewater treatment plant. The project involved improvements to existing sand filters for enhanced efficiency and capacity. The project replaced chlorination/dechlorination system with ultraviolet disinfection with a new wastewater effluent discharge to the Red Cedar River.

Ultraviolet Disinfection and Odor Control Improvements, Grand Haven Spring Lake Sewer Authority Wastewater Treatment Plant, Grand Haven, MI. Project Manager/Technical Process Leader. Evaluation, design, and construction phase for disinfection and odor control improvements. UV disinfection was selected as a replacement for the chlorination-dechlorination system at the plant. Performed an analysis of the potential UV disinfection technology alternatives to replace the chlorine-based system. Also performed an evaluation of odor control alternatives to develop a recommended plan to reduce the potential impacts on the neighboring community. Odor treatment involved the conversion of a thickener tank to a biofilter system.

EDUCATION

MS, Water Resources Engineering, University of Michigan, 1977

MS, Chemical Engineering, University of Toledo, 1980

BS, Chemical Engineering, University of Michigan, 1976

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Michigan, No. 6201028051, 1980

Professional Engineer, Florida, No. 68498, 2008

PROFESSIONAL AFFILIATIONS

Water Environment Federation

American Water Works Association

Michigan Water Environmental Association

Member of Water Environment Association Biosolids Committee

OFFICE LOCATION

Lansing, MI

YEARS OF EXPERIENCE

39

JOHN TOOMEY, PE | BPR Process Evaluation & Design

Mr. Toomey has experience in planning, design, and construction administration of various water and wastewater projects. His duties include technical oversight; staff recruitment, evaluation, and mentoring; workload assessment and balancing; business development and proposal development; and detailed technical involvement on selected projects.

Glendale WWTP Dewatering Improvements, City of Lakeland, FL. Project Manager. The City of Lakeland retained Tetra Tech for the design of the Glendale WWTP Dewatering Improvements project, which included the design of a centrifuge sludge dewatering system. To visualize the new system's layout in an existing structure, the Tetra Tech team created a series of three-dimensional models using the Revit® software. Tetra Tech also provided permitting, bidding, and construction assistance.

Conserv I WRF RIB Modifications, Toho Water Authority, FL. Project Manager. Removal of specific lateral flow percolation ponds at the Water Conserv I WRF for the future construction of light rail and related support facilities. Modify the reuse delivery system and modify the existing plant piping to allow the removal of the lateral flow percolation ponds required and still meet the FDEP criteria. Design of an overflow erosion protection system to be located at the existing storage tank overflow structure to serve as an emergency spillway into the adjacent wetland system.

Northwest Regional Water Reclamation Facility Rerating, Hillsborough County, FL. A detailed analysis of flows, influent characteristics, and plant performance in conjunction with a computer modeling effort in order increase the permitted capacity of a 10 MGD BNR facility to 12 MGD with only minor improvements.

Northwest Regional Water Reclamation Facility Expansion, Hillsborough County, FL. Process analysis and preliminary design in conjunction with a computer modeling effort in order increase design and permitted capacities from 12 MGD to 30 MGD.

Cypress West Water Reclamation Facility Upgrade & Expansion, Toho Water Authority, Kissimmee, FL. Upgrade and expansion of an existing 3.0 MGD SBR facility to provide a capacity of 6.0 MGD via implementation of the MLE process with conventional settling, filtration, and disinfection unit operations.

Harmony Water Reclamation Facility Upgrade & Expansion, Toho Water Authority, Kissimmee, FL. Upgrade and expansion of an existing 0.13 MGD package WWTP to provide a capacity of 0.50 MGD with provisions for future expansion to 2.50 MGD. The facility features two circular process basins that include anoxic, aeration, and settling stages with provisions for future conversion of the structures to clarifiers as plant capacity is increased.

Bates Avenue WWTP Nitrogen Reduction Improvements, Eustis, FL. Development of value engineering recommendations associated with compliance with the Wekiva Act and subsequent implementation of recommendations. An option that involved modifying existing process trains to facilitate the use of the step-feed activated sludge process resulted in a capital savings to the City of over $5,000,000 without sacrificing rated capacity or reliability.

Howard F. Curren Advanced Wastewater Treatment Plant Process Optimization Study, Tampa, FL. Development and examination of five distinct alternatives to minimize energy consumption and methanol usage at the City's 96 MGD AWT facility. Options involved various centrate treatment and suspended growth denitrification options as well as elimination of the carbonaceous stage HPO system in favor of a conventional mechanical aeration technology.

EDUCATION

BSE, University of Central Florida, Environmental Engineering, Magna cum Laude

AET, Vermont Technical College, High Honors

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Florida, No. 40264

Professional Engineer, Georgia No. 41116

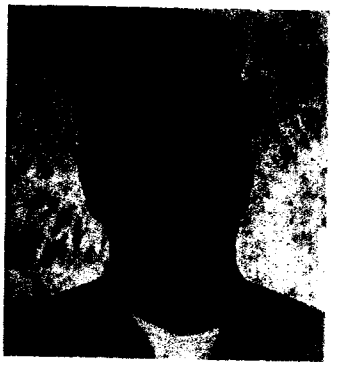
OFFICE LOCATION

Orlando, FL

YEARS OF EXPERIENCE

38

BRENT BODE, PE | BPR Process Evaluation & Design



Mr. Bode is experienced in the planning, evaluation, design, and construction of water and wastewater treatment facilities and pump stations. He has been involved in the retrofit and new construction of several water and wastewater treatment facility projects as an on-site project engineer. Mr. Bode's experience includes production and interpretation of contract documents and the use of computerized drafting, hydraulic calculations, specification writing, and developing opinions of probable project cost.

North Secondary Treatment System Improvements, City of Grand Rapids, MI. Project Engineer. Evaluation, design, and construction phase for modification of the hydraulic control of the flow split between the north and south secondary treatment processes. The existing method for control of the flow split was stressed under high flow periods because the north aeration tank water surface elevation is lower that than the south. A new diversion structure and flow diversion pipe was designed to improve hydraulic conditions for flow to the north aeration system.

Big Cove Wastewater Treatment Plant Improvements, Huntsville, AL. Project Engineer. Evaluation and design phase for improvements to a rated treatment capacity of 10 MGD. Improvements included replacement of influent raw sewage pump, replacement of mechanical bar screens, design of anaerobic basin, oxidation ditch and secondary clarifiers, and expansion of sludge drying beds. Improvement alternatives evaluated and selected based on treatment capacity, site limitations, cost, and future expansion.

Snow Road Pump Station Modifications, Ypsilanti Community Utilities Authority, Ypsilanti, MI. Project Engineer. Design phase of improvements to the 22-MGD raw sewage pump station. Modifications included replacement of suction and discharge piping for five pumps, replacement of control valves and flow meters, and replacement of discharge header and installation of second discharge header.

Wastewater Treatment Plant Improvements, Phase II, Saline, MI. Design and construction for replacement of tertiary sand filter with new rotating disc filters, replacement of septage receiving building with new block construction building with enclosed septage receiving for monitoring flow and washing and compacting screenings, replacement of circular clarifier mechanism drives on primary and secondary clarifier tanks, and rehabilitation of rotating biological contactor shaft bearings, gear boxes, and motors.

Wastewater Treatment Plant, City of East Lansing, MI. Project Engineer. Design improvements to tertiary filters, replacement of disinfection/dechlorination system with an ultraviolet type system, and new wastewater effluent discharge to the Red Cedar River. An extensive study of potential design alternatives was conducted.

Wastewater Treatment Plant Waste Activated Sludge Thickening System Improvements, City of Grand Rapids MI. Project Engineer. Evaluation, design, and construction of improvements to the Waste Activated Sludge (WAS) thickening system with a capacity of 1,200 gpm. Improvements included replacement of centrifuges with new volute screw thickeners, replacement of thickened WAS transfer pumps, improvements to polymer feed system, and demolition of 55-foot diameter WAS storage tank. Multiple thickening technologies were evaluated prior to selection of volute screw thickeners.

Wastewater Treatment Plant Coarse Screen Improvements, Saginaw MI. Project Engineer. Evaluation, design, and construction of the replacement of manually cleaned coarse bar screens with a retractable mechanical gripper cleaning mechanism. Existing manual bar screens were located at the bottom of the 60-foot-deep influent pump station. Improvements included installation of new coarse bar screens with mechanical gripper that lowers to clean material from the bar screens and then travels along monorail to deposit screening in a dumpster.

EDUCATION
BS, Engineering (Concentration in Civil), Calvin College, 2001

REGISTRATIONS/ CERTIFICATIONS
Professional Engineer, Michigan, No. 6201053431
Professional Engineer, Indiana, No. 112000190

OFFICE LOCATION
Lansing, MI

YEARS OF EXPERIENCE
18

RYAN RATHFON, EIT | Construction Administration

Mr. Rathfon's project experience includes site, civil, and structural designs for light manufacturing; power plants; and commercial and educational facilities.

Rental Car Facilities, Blue Grass Airport, KY. Resident Project Representative. Performed daily job site observations, inspections, documentations, and digitally archived photos of construction progress for the construction of three new rental car facilities and site preparation activities that involved 36.5 acres and 100,000 CY of earth work. Assured all site construction, building construction, and utility installation activities were in accordance with project plans and specifications. Facilitated communication between the Owner, Design Team, and Contractor.

West Hickman Wet Weather Storage Facility, Lexington-Fayette Urban County Government, KY. Project Engineer and Construction Administrator. Wet weather storage facility and improvements to the headworks of the existing treatment plant, including new screening facilities, new grit facilities, 70 MGD influent pump station, 70 MGD wet weather pump station, two 20 MGD storage tanks, recycle pump station, upgrades to the nonpotable water system, and all associated piping and electrical.

Individual Experience, Evansville Christian High School, IN. Project Engineer and Civil Designer. Design and modeling of site features for the new high school, including extension of sanitary main, stormwater detention pond design, storm sewer, site grading, new entrance drive design, and design of utility service for the new facility. Assisted in submitting plans to local municipality for approval.

Coal Combustible Residuals Treatment Building, E. W. Brown Power Plant, Confidential Client, Harrodsburg, KY. Project Engineer, Civil Designer, and Structural Designer. Design and modeling of site features for the new facility. Included pumps, conveyors, filters, and electrical equipment for the plant's upgraded coal combustible residuals treatment (CCRT) process. Responsibilities included designs for site grading, storm sewer, sanitary sewer, domestic water, and underground process piping. Assisted in modeling of structural components of the facility.

Individual Experience, 82,000 SF Warehouse and Office Space, Brenntag AG, Houston, TX. Project Engineer and Civil Designer. Assisted with site design and modeling for an 82,000 SF warehouse, adjacent office space, and 10,000 SF open-air chemical storage warehouse. Included a new stormwater detention pond, stormwater piping and structures, site grading, new loading dock and parking layout, truck scale traffic layout, and site utility routing, including sanitary sewer, domestic water, and fire protection water lines.

Individual Experience, Raw Water Inlet Silo, Midwest Fertilizer, Inc., Mount Vernon, IN. Project Engineer, Civil Designer, and Structural Designer. Structural modeling of a reinforced concrete raw water inlet silo. Structural modeling of adjacent structure housing electrical equipment for the project. Design for routing of raw water intake and effluent discharge piping. Assisted with permitting applications for river construction (U.S. Army Corps of Engineers) and railroad pipeline occupancy (CSX).

Individual Experience, Railroad Siding, Berry Plastics, Inc., Evansville, IN. Project Engineer, Civil Designer. Design of new rail siding at a plastic manufacturing facility. Included layout and profile design of new railroad switch and siding, existing utility relocation, and layout for traffic pattern adjustments. Assisted with approval submittal to the railroad authority (CSX).

Individual Experience, New Basketball Practice Facility, University of Evansville, IN. Civil Designer. Site design for new basketball practice facility. Included parking lot expansion, pedestrian traffic (campus sidewalks) layout, and domestic water and sanitary sewer service to the new facility.

EDUCATION
BS, Architectural Engineering, Drexel University, 06/2010

REGISTRATIONS/ CERTIFICATIONS
Engineer in Training, Kentucky

OFFICE LOCATION
Lexington, KY

YEARS OF EXPERIENCE
8

LARRY CREECH, PE | Electrical Engineer

Mr. Creech is experienced in the design of electrical systems including distribution of high, medium and low-voltage circuits, motor control, instrumentation, lighting, communications, fire alarm and signal systems, emergency power generation and its associated control and distribution, lightning protection, telecommunications, data, and cable TV systems, interior and exterior lighting, electrical control systems including microprocessor and computer-based systems, multiplexed control systems, estimating electrical construction costs, electrical design for hazardous locations, security systems, circuit breaker and relay coordination, load studies, fault current and voltage drop calculations and studies, power factor studies and correction design, and substation design. Mr. Creech has in-depth knowledge of the current NEC, OSHA guidelines, International Building Code, and National Fire Codes.

Big Cove Wastewater Treatment Plant Expansion and BNR Upgrade, City of Huntsville, AL. Quality Reviewer. Provided review for electrical design, which included electrical upgrades to support a plant expansion from 2 to 4MGD. Services provided included new electrical service equipment to accommodate the increased power requirements, a new MCC building to serve a new influent pump station and process equipment, a new emergency generator to provides backup power to critical loads and SCADA system improvements. Construction Cost: $ 8.7M.

Bob Wallace Pumping Station, City of Huntsville, AL. Electrical Engineer. Prepared plans and specifications for design of modifications to an existing pump station for increasing capacity to 12 MGD. Modification of the existing lift station required coordinating installation of four new 135 HP submersible pumps and their associated controls and new MCC while maintaining existing flows through the Bob Wallace Pump Station.

Indian Creek Pumping Station, City of Huntsville, AL. 2009. Electrical Engineer. Prepared plans and specifications for the addition of two 215 HP submersible pumps with solid-state, reduced-voltage starters in a new MCC section. Modifications were made to the existing pump controller and radio reporting system.

Philpott Reservoir Sewer Improvements, USACE Wilmington District, Bassett, VA. Electrical Engineer. Developed 100% plans and specifications for electrical design associated with sanitary sewer improvements consisting of six pumping stations, odor control and back-up power supply units required to transport domestic waste off-site into the local utility service sewer system. Several of the stations were in remote areas and required close coordination with Appalachian Power Company in order to minimize construction issues. Power to the stations was obtained from existing facilities, where possible, and from new padmount transformers or overhead banks where the stations were remote. The stations were provided with local duplex control panels and provisions for remote reporting. A trailer-mounted standby generator was provided as well as an emergency receptacle and transfer switch at each station. Construction Cost: $1.29M.

Rome Road Pumping Station, City of Huntsville, AL. Electrical Engineer. Prepared design documents for the new Rome Road Pumping Station located adjacent to the existing pump station. The new pump station consists of three 385 HP submersible pumps with variable frequency drives that are expandable to a total of five pumps for a total of 50 MGD. The pump controller system provided incorporated an ultrasonic wet well–level transmitter and a programmable logic controller (PLC). A standby diesel generator provides backup power.

EDUCATION

BS, Electrical Engineering, Lawrence University, 1968

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Kentucky, No. 8756

Professional Engineer, Ohio, No. 54868

Professional Engineer, Tennessee, No.022058

Professional Engineer, Alabama, No.18128, 1991

Professional Engineer, Indiana, No. 60910221

Professional Engineer, Mississippi, No.11673

Professional Engineer, Maryland, No. 40072

Professional Engineer, Delaware, No. 18038

PROFESSIONAL AFFILIATIONS

American Society of Military Engineers

Institute of Electrical and Electronic Engineers

Illuminating Engineering society of North America

OFFICE LOCATION

Huntsville, AL

YEARS OF EXPERIENCE

49

MICHAEL SUTHERLAND, PE, LEED® AP | Mechanical Engineer

Mr. Sutherland has experience in building mechanical systems for municipal, commercial, institutional, and industrial clients. His specific design experience includes HVAC; plumbing design; fire protection design; LEED design submission; drafting; and construction administration for water and wastewater treatment plants and various other projects. He has experience with codes and standards including the American Society of Heating, Refrigerating, and Air Conditioning Engineers Standards; National Fire Protection Association Standards; and American National Standard Institute standard Z358.1.

Coppermine Water Reclamation Facility Headworks Improvement Project, Paulding County, GA. Mechanical Engineer. Mr. Sutherland provided upgrades to the existing headworks of the treatment plant. Modifications consisted of removal of existing odor control system and design of a new foul air distribution system to the new odor control system. Mr. Sutherland also aided the client in designing a new hot water washdown station for the newly installed screens.

Cypress West Water Reclamation Facility Upgrade and Expansion, Toho Water Authority, FL. Mechanical Engineer. Mr. Sutherland provided the expansion upgrades from 6.0 to 12.0 MGD, which includes new electrical building and a new dewatering building.

Hillsborough Northwest Water Reclamation Facility, Hillsborough County, FL. Mechanical Engineer of Record. Mr. Sutherland provided the HVAC/Plumbing and Fuel System design of the water reclamation expansion and renovation of existing facility. The Project consists of multiple electrical building air conditioning systems, blower building ventilation systems, modifications to existing fueling systems, and a new fueling system to meet the demands of the new facility. Mr. Sutherland is also providing design assistance for the plant wide odor control system.

Franklin Water Reclamation Facility Upgrades, Franklin, TN. Mechanical Engineer. Mr. Sutherland provided the ongoing expansion of the Franklin WRF Liquids/Solids treatment. The plant expansion included the design of a new headworks facility, digester building, solids processing building, alum building, equalization tank, and electrical building. The project included the design of split system heat pump air conditioning and heating systems, hot water make-up air system, industrial ventilation systems, toilet ventilation systems, laboratory fume hood ventilation system, gas-fired make-up air heating systems, plumbing water and sanitary systems, laboratory plumbing systems, emergency plumbing fixtures, and gas-fired water heating systems. The design of the ventilation systems included compliance with the requirements of NFPA 820. Mr. Sutherland is also providing construction administration, including shop drawing and request for information review.

Citico Station Phase 1B and Process Wastewater Upgrades, Tennessee American Water, TN. Mechanical Engineer. Mr. Sutherland assisted in building mechanical design, permitting, and construction phases of the new process wastewater and residuals dewatering improvements at the Tennessee American Water Citico water treatment plant as well as a new fiberglass reinforced plastic chlorine building. The project included the installation of dewatering centrifuges in a new building, a new gravity thickener, a new spent filter backwash equalization tank, and other miscellaneous improvements to the process wastewater system. The project included the design of split system heat pump and air conditioning as well as heating systems, industrial ventilation systems, plumbing water and sanitary systems, and emergency plumbing fixtures. Mr. Sutherland also provided construction administration, including shop drawing and request for information review.

EDUCATION

BS, Mechanical Engineering, University of Central Florida, 2009

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Florida, No. 78587

Professional Engineer, Georgia, No. 41827

Professional Engineer, Kentucky, No. 32773

Professional Engineer, Oklahoma, No. 29408

Professional Engineer, Ohio, No. 83020

Professional Engineer, Texas, No. 127232

LEED AP BD+C, No. 1080419, 2016

ASHRAE 188-2015 Certified for Legionella Risk Management

PROFESSIONAL AFFILIATIONS

American Society of Heating, Refrigerating, and Air Conditioning Engineers

ASHRAE Technical Committee

OFFICE LOCATION

Orlando, FL

YEARS OF EXPERIENCE

9

JASON BURKETT, PE | Structural Engineer

Mr. Burkett is experienced in many structural systems including composite steel, prestressed/precast concrete, concrete framing, steel framing, masonry, timber, tilt-up concrete panels, light-gauge steel, and aluminum. He has completed projects for water treatment facilities, federal government, Department of Defense (DoD), municipal, industrial, commercial, residential, health care, education, aviation, performing arts, roofing components, hurricane shelters, high-velocity hurricane zones, renovations, additions, and investigations.

West Hickman Wet Weather Storage and Wastewater Treatment Plant Improvements, Lexington-Fayette Urban County Government, Lexington, KY. Structural Engineer of Record. Responsible for the design of foundations for a 20 MG wet weather storage tank, a headworks facility, generator building, and other miscellaneous buried structures. The headworks structure is one large structure that combines a truck loading bay, screening building, influent and wet weather pump station, pipe gallery, grit tanks, flumes, and two overhead cranes for equipment removal.

Inline Combined Sewer Overflow Storage, Louisville MSD, Louisville, KY. Lead Structural Engineer. In-line storage project that is a three-pronged effort addressing in-line storage solutions to reduce combined sewer overflows to the Ohio River. **SWOR2** is the modification of a design (by others) that included the use of hydraulic actuators for manipulation of the gates and inflatable dam. During heavy rain events, the shaft can fill with water, submerging the actuator and electrical components longer than the "water-resistant" capabilities the equipment can withstand. The goal was to redesign the site to allow the actuators and electrical components to be relocated above ground. **SOR1** is a proposed in-line storage facility located in the western portion of the service area. It has a planned storage capacity of 11.4 million gallons. **SOR2** is a second in-line storage facility located along the same trunk line as SOR1 but further east. It has a planned storage capacity of 4.7 million gallons. Each facility, SOR1 and SOR2 will required the design of an underground chamber to house three large gates to allow storage of combined sewer waters during wet weather events. Additionally each site is configured to be a part of a cutting-edge control technology that use centralized computing systems to automatically manipulate the gate structures. Each site also includes weirs to allow for overflow in the event of a failed gate condition for the site.

Pine Island Wastewater Treatment Plant Pumping Station Rehabilitation, Pine Island, FL. Structural Engineer of Record. Design of a pump station rehabilitation where a new concrete slab was constructed over an existing wetwell for the support of various equipment.

Dayton Lime Reclamation Facility Expansion, Dayton, OH. Project Engineer. Design of a wet residuals process building, below-grade holding tanks, new screening building over an existing tank, new interior wall in an existing clarifier, pipe racks, and silo foundation.

Harmony Wastewater Treatment Plant, FL. Structural Engineer of Record. Responsible for the design of all the process structures and buildings that included: an administration building, flow equalization basin, two clarifiers, splitter box, filter foundation, chlorine contact basin, chemical storage building, and a pump station. The final construction phase will increase the current capacity of 0.13 to 3 MGD.

EDUCATION

MS, Civil Engineering (Structures and Foundations), University of Central Florida, 2005

BS, Civil Engineering (Structures Emphasis), University of Central Florida, 2003

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Kentucky, No. 28453

Structural Engineer, Illinois, No. 81007184

Model Law Structural Engineer, National Council of Examiners for Engineering and Surveying, No. 47938

Confined Space Certified, 2011

FEMA 154 and ATC 20 Earthquake Evaluation, 2012

PROFESSIONAL AFFILIATIONS

American Institute of Steel Construction

OFFICE LOCATION

Louisville, KY

YEARS OF EXPERIENCE

13

Rosalyn D. Matthews, PhD, PE

Associate

Dr. Matthews specializes in municipal water and wastewater treatment and process modeling. She has significant experience in hydraulic and biological process modeling of wastewater treatment plants, which has been used for preliminary and final design, design optimization, and to predict responses to changes is current plant configurations.

Education

PhD EnvE, Georgia Institute of Technology, 2003

MSEnvE. Georgia Institute of Teohnology, 2003

BSAg&BE, Cornell University, 1999

Certification/License

Professional Engineer: OH, FL, MS

Areas of Expertise

- Wastewater Treatment Prooess Modeling
- Plant Design

Experience

- 14 total years

Professional Activities

Water Environmental Federation

Technical Presentations/Publications

Madhanagopal, T., Matthews, R.D. Upgrading and Rerating Treatment Plants: Orange County Eastern Water Reolamation Faoility Oase Study Prooeedings of the 2010 Florida Water Resouroes Conference. Orlando, Florida.

Matthews, R. D. et. al. Big Bubble Mixing Enhanoes BNR Performance In A Unique Modified 4-Stage Faoility Prooeedings of the 2017 Florida Water Resouroes Conference, Tampa, Florida

Matthews, R. D. et. al. Defying the "Limit of Teohnology", Reducing Effluent TN to Low Levels using Conventional Strategies, Prooeedings of the 2016 WEF/IWA Nutrient Removal and Reoovery Denver, Colorado

Southwest WRF Design, Orange County, FL

Project Engineer for biological process modeling, preliminary design, and final design of the biological process for a 5-mgd advanced wastewater treatment facility. Due to the nutrient sensitivity of the river basin where the RIBs are located, the facility is designed to meet a 3 mg/L TN and 1 mg/L TP. The facility is also being master planned to treat 15 mgd and for additional treatment for surface water discharge or direct aquifer recharge.

Iron Bridge RWRF Effluent Management Project Phase I, Orlando, FL

Project Engineer for the evaluation of the existing Iron Bridge RWRF biological process in light of the new nitrogen and phosphorus numeric nutrient criteria, evaluation of the size, location and benefits of flow equalization, identification of process limitations using BioWin modeling at the 20-year planning horizon flow, identification of necessary improvements or areas in need of further study.

West Palm Beach ECRWRF Biosolids Engineering Report, FL

Project Engineer for the project, which included biological process modeling; screenings-level evaluations of multiple liquids treatment, solids treatment (including Temperature Phased Digestion), cogeneration, and biosolids disposal options; sidestream treatment, facility sizing, life-cycle cost analyses and performance predictions; all in order to recommend the most cost-effective long-term solution for biosolids treatment and upgrades to the main plant biological phosphorus removal treatment system.

Orange County Eastern Water Reclamation Facility (EWRF) Phase IV-C Expansion, Orange County, FL

Project Engineer for the process design and modeling of a new advanced wastewater treatment train for a 5.0-mgd expansion of the EWRF from 19 to 24-mgd to achieve effluent nitrogen and phosphorus concentrations of 3 and 1 mg/l, respectively for discharge to a man-made wetland and eventually a surface water discharge. The system was also designed with the flexibility to achieve biological or chemical phosphorus removal as well as a possible future rerating to treat up to 8.8-mgd.

Hazen

Alyssa Mayer, PE

Senior Principal Engineer

Ms. Mayer has 6 years of experience with wastewater process evaluation and facility design. She currently specializes in detailed process sampling and wastewater treatment process modeling using BioWin and GPS-X. She has been involved in modeling and process optimization projects at over 20 wastewater facilities throughout the country.

Education

MSE EnvE, University of Michigan, 2011

BSE CE, University of Michigan, 2010

Certification/License

Professional Engineer: OH

Areas of Expertise

- Wastewater Treatment Plant Process Modeling in BioWin™ and GPS-X®
- Detailed Process Sampling and Influent Characterization

Experience

- 6 total years

Technical Publications/Presentations

Mayer, A., Miklos, D., Rohrbacher, J., Bilyk, K., Galst, S. (2015) "Optimizing Enhanced Biological Phosphorus Removal in Oxidation Ditches" Presented at WEFTEC 2015, Chicago IL.

Mayer, A., White, C., Martin, W., Latimer, R., Gellner, W. (2014) "Detailed Sampling for Process Modeling: Common Pitfalls and Lessons Learned". Presented at WEFTEC 2014, New Orleans, LA.

Martin, W., Mayer, A., Gellner, W. (2013) "Detailed Sampling for Process Modeling of Phosphorus and Nitrogen Removal". Buckeye Bulletin, May 2013

Mayer, A., Phipps, S. (2016) "Implementing and Optimizing Phosphorus Removal at your WWTP." Presented at SWOWEA Plant Operations Seminar 2016, Cincinnati, OH

F. Wayne Hill Capacity Evaluation, Gwinnett County, GA
Assistant Engineer for the process modeling of Gwinnett County's largest and most advanced 60 mgd WWTP. Sampling data was collected and used to update and calibrate the BioWin process model previously developed in 2010. Several large optimization projects were recently completed at the plant. The scope of the capacity evaluation included evaluation of the impacts of these improvements and determination of plant capacity through use of steady state and dynamic simulations.

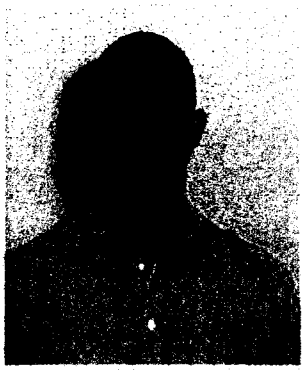
Upper Mill Creek WRF Process Modeling and Operations Support Butler County Water and Sewer, OH
Assistant Engineer for wastewater treatment plant process model development and operations support for 16 mgd biological nutrient removal oxidation ditch facility. Performed detailed process sampling and developed wastewater process model in BioWin. Provided detailed review of effluent phosphorus compliance and performed additional testing and modeling to evaluate alternatives for improved enhanced biological phosphorus removal.

WWTP Process Model Development, MSDGC, Cincinnati, OH
Assistant Engineer for the development of process models at each of the utility's seven WWTPs. Work included historical data analysis, plant-wide detailed process sampling and influent characterization at each facility. Process models were developed in GPS-X and calibrated for use in planning studies, design, and optimization projects at the facilities.

Floyd's Fork WQTC Phosphorus Removal Evaluation, Louisville MSD
Assistant Engineer for the evaluation of implementing enhanced biological phosphorus removal (EBPR) at 6.5 mgd oxidation ditch facility. Developed sampling plan to characterize influent wastewater and existing process performance. Recommendations included modifications to existing flow configuration, air production equipment and control, and chemical feed control to achieve reliable EBPR.

Hazen

Jason McCoy



EDUCATION

- Morehead State University , B.S. General Studies (2003)

EXPERIENCE – 15 YEARS

JASON'S RELATED EXPERTISE

- Utility Coordination
- Construction Inspection

SPECIALIZED TRAINING & AFFILIATIONS

- LFUCG DWQ Erosion Control Training (December 2017)

Providing Resident Project Representative (RPR) services will be Jason McCoy. Jason has had a diverse experience in the municipal and construction related sectors. His construction related project management experience has given Jason a strong understanding of proper construction procedures.

EXPERIENCE

West Hickman Wet Weather Storage (WWS) & Headworks Improvements (LFUCG) - *Lexington, KY* - Resident Project Representative for the construction of a 22 million gallon weather storage facility and associated head works improvements. Responsibilities include preparation of daily inspection logs, weekly communication reports, erosion control documents, and testing logs.

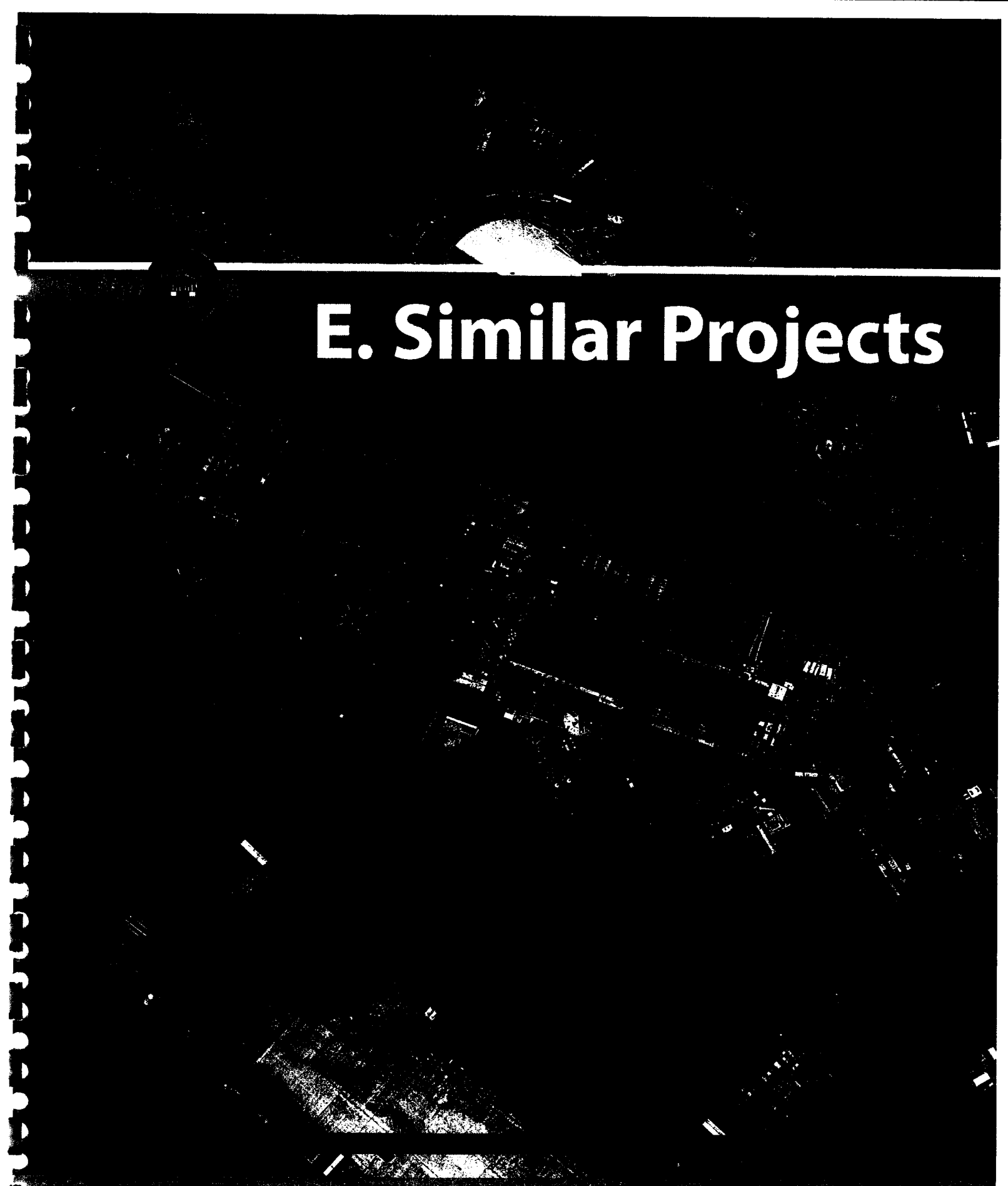
West Hickman Main Trunk A (LFUCG) - *Lexington, KY* - Resident Project Representative for the construction of approximately 5,000 feet of 60, 54, 48, and 18 inch sewer pipes and manholes installed to upsize the existing system flowing through Veterans Park in South Lexington. Responsibilities included preparation of daily inspection logs, weekly communication reports, erosion control documents, and testing logs.

Bob O Link Trunk Sewer Replacement Project (LFUCG) - *Lexington, KY* - Resident Project Representative for the construction of approximately 6,500 lineal feet of trunk sewer in the Wolf Run Sewershed. Responsibilities included preparation of daily inspection logs, weekly communication reports, and erosion control documents in accordance with LFUCG DWQ requirements.

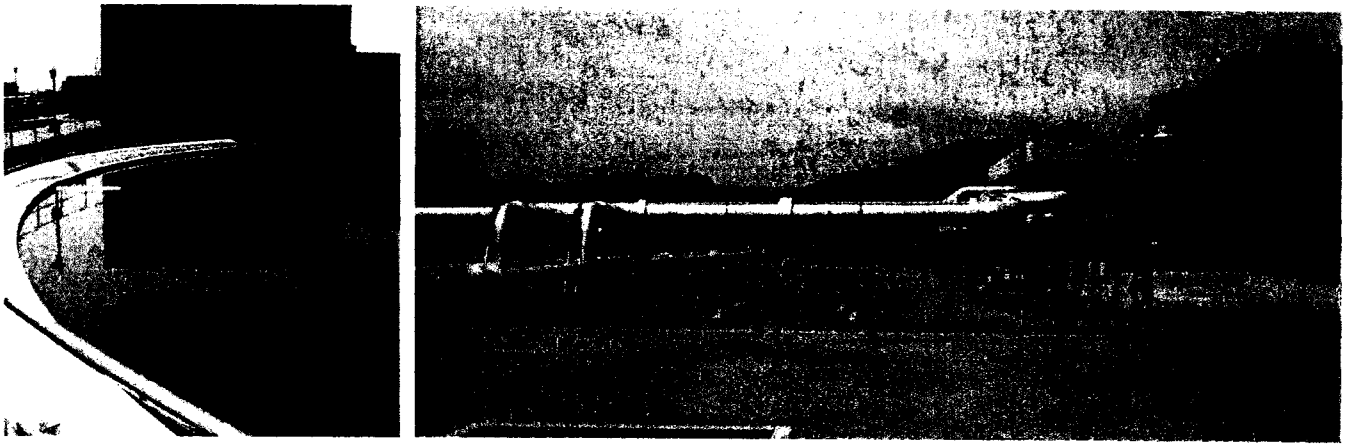
Keeton Enterprises - *Richmond KY* - Project Manager and Assistant Estimator, responsible for the planning of jobs out from start to finish, scheduling, installation of storm, sanitary sewers, water lines gas lines, electrical conduits as well as working with engineers in figuring out problems and how to solve them in order to get the job done in the best and most cost efficient ways. Worked with sub-contractors to keep good relations in between certain aspects of the jobs in order to get the job completed in a timely manner. Also responsible for dealing with safety issues to ensure an employee safe working environment.

City of Richmond Stormwater Enforcer - *Richmond KY* - Jason was in charge of reviewing ongoing construction projects to ensure they were following the proper erosion and sediment control ordinances per city law. He also addressed complaints by the public concerning stormwater and flooding issues.

E. Similar Projects



E. SIMILAR PROJECTS



NORTH SECONDARY TREATMENT IMPROVEMENTS | Grand Rapids, MI

The City of Grand Rapids needed to improve treatment efficiency and maximize capacity of the wastewater treatment plant's north secondary treatment system. Tetra Tech produced a design to address the City's needs. The recommended secondary treatment process improvements include optimization of the secondary clarifiers, addition of a selector zone to the aeration tank for enhanced biological phosphorous removal, modifications to the fine bubble aeration diffuser arrangement, hydraulic mixing in the selector zone and influent channel, and installation of energy efficient aeration blowers.

Two new single stage centrifugal air blowers were recommended to more closely match the oxygen demand and reduce energy requirements. The new blowers replaced two existing multistage centrifugal blowers. The new single-stage centrifugal blowers were equipped with rotary inlet guide vanes to provide optimum throttling characteristics and energy efficiency.

The addition of a non-aerated, complete mix, selector zone ahead of the aeration process was recommended for improved treatment and enhanced biological phosphorus removal. The selector was established with three sets of stainless steel panel baffle walls to isolate the non-aerated portion of the existing aeration basins. A fourth wall with perforated panels was utilized to distribute flow into the aerated portion of the tank. A hydraulic, jet header mixing system was provided to maintain the complete mix environment for the selector zone.

CLIENT
City of Grand Rapids

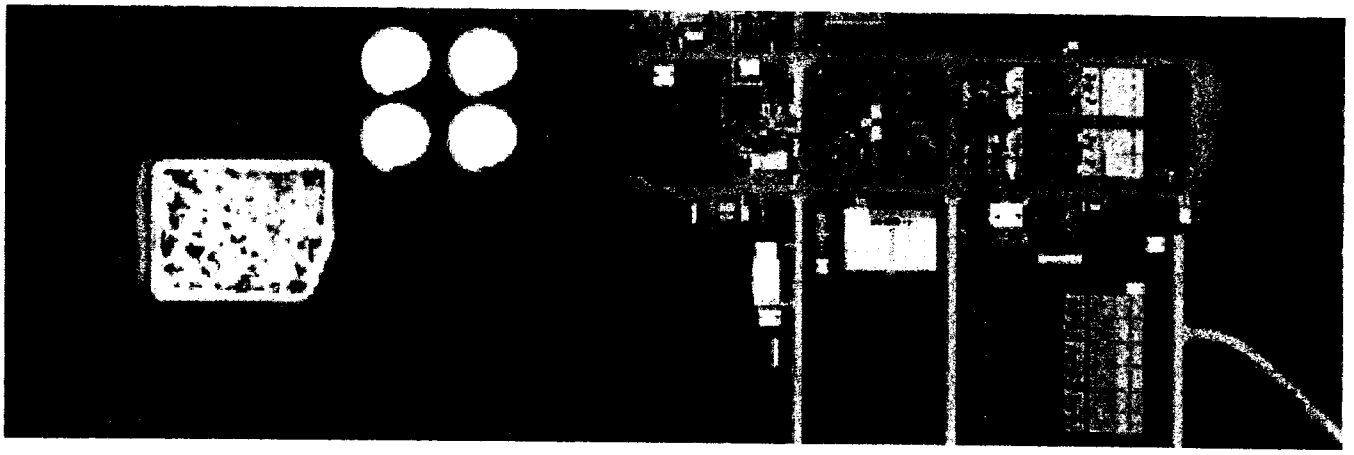
PROJECT DATES
2009-2013

PROJECT VALUE
Preliminary Design: $49,000
Design: $300,000
Construction Phase: $295,000
Construction: $6,000,000

REFERENCE
Mike Lunn
Env. Service Mgr.
1300 Market Ave., S.W.
Grand Rapids, MI 49503
616.456.3914

The north secondary clarifiers were updated in the early 90s, but no upgrades were made to the sludge removal mechanisms. The existing plow and individual stand pipe collector system were original equipment from the 1970s. The equipment was replaced with a multiple orifice sludge collector manifold. Other modifications included improvement to the peripheral baffle at the effluent launder to prevent solids accumulation. Another modification recommended to improve the efficiency under high flow conditions was to provide additional energy dissipation at the inlet to each clarifier.

The replacement of the existing pinch valves on the north return activated sludge (RAS) lines was recommended to improve reliability and control. The existing pinch valves required extensive maintenance and had limited operational control. The worn pinch valves were replaced ball control valves for more reliable operation and lower maintenance. New magnetic flow meters were provided for improved measurement of the RAS.



Northwest Regional Water Reclamation Facility Expansion | Hillsborough County, FL

Tetra Tech was selected as the lead design engineer with the Garney/Wharton-Smith Joint Venture (JV) Design Build Team for the Hillsborough County NWRWRF Expansion. The County is proceeding with a consolidation of facilities in the Northwest area. As such, the Dale Mabry and River Oaks Advanced Wastewater Treatment Plants (AWWTPs) are both scheduled to be decommissioned within the next 2 to 3 years, which will necessitate the diversion of their raw wastewater flows to the NWRWRF. Accordingly, additional permitted capacity beyond the current 10.0 MGD will be required to facilitate the consolidation program and address projected wastewater flows within the composite service area.

The primary purpose of County's design-build project for the proposed expansion of the NWRWRF is to provide a permitted capacity of 30.0 MGD that will lead to full implementation of the consolidation program. The secondary purpose is to rerate the existing facilities so that a permitted treatment capacity of 12.0 MGD may be attained with only very minor improvements. The rerated capacity is an interim step to enable the County to decommission the Dale Mabry AWWTP and transfer flows to the NWRWRF.

CLIENT
Hillsborough County

PROJECT DATES
2016–present

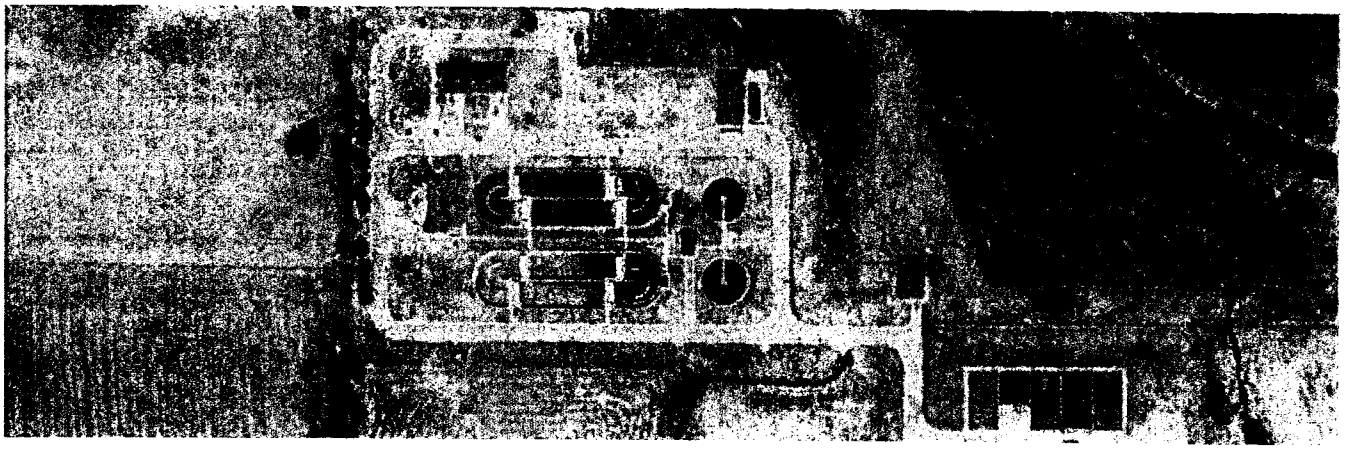
PROJECT VALUE
Fee: $8,415,000
Construction: $190,000,000

REFERENCE
Bart Weiss, PG,
Director, Utilities Support Div.
925 East Twiggs Street
Tampa, FL 33602
813.272.5977
weisst@hillsboroughcounty.org

Proposed improvements to the NWRWRF under the expansion program include all of the requisite facilities necessary to increase the permitted capacity from 10.0 MGD to 30.0 MGD on an AADF basis. The proposed expansion of the NWRWRF will include the following improvements to accommodate the increased wastewater flows, while ensuring both Class I reliability and compliance with state permit requirements.

- New headworks (screening and degritting), inline flow equalization and influent flow distribution box
- Retrofit of existing BNR basins to enhance nitrogen removal and additional 5-stage BNR treatment trains
- Additional odor control systems
- Additional clarifier flow splitter box and additional secondary clarifiers
- New sodium hypochlorite storage tanks and associated chemical feed pumps
- Additional RAS pump station
- Additional deep bed filters
- Additional chlorine contact basins
- Additional effluent transfer pumps and new reclaimed water pumps
- Additional pre-stressed concrete reject water storage tank and additional pre-stressed concrete reclaimed water storage tanks
- New power feed to the site and additional standby power facilities
- Electrical and Instrumentation improvements
- Yard piping and site work

As stated above only minimal improvements are proposed for the interim rerating to 12.0 MGD. Such improvements will include installation of sodium hypochlorite feed facilities to implement conventional chlorine disinfection and the provision of sodium bisulfite feed facilities to implement dechlorination. Further, some minor modifications to the BNR basins are currently being implemented to provide additional operational flexibility and enhance nitrogen removal potential.



Big Cove WWTP Expansion | Huntsville, AL

The City of Huntsville is located in Madison County in the northeast section of Alabama and is home to more than 180,000 residents. Huntsville is home to the U.S. Army's Redstone Arsenal, NASA's George C. Marshall Space Flight Center (MSFC), and numerous agencies and contractors that support these facilities and their missions.

The Big Cove Wastewater Treatment Plant (WWTP) is one of six wastewater treatment facilities operated by the City's Water Pollution Control (WPC) Department. The Big Cove WWTP is currently a 2.0 MGD facility located in the southeast corner of Madison County. The plant serves the rapidly growing Big Cove and Hampton Cove residential areas in Huntsville. The original facility was constructed in 1990 and upgraded in 1998. The current facilities include a conventional activated sludge process facility utilizing a mechanical screen, oxidation ditch with drum aerators, secondary clarifiers, chlorine disinfection, and sludge drying beds. Treated effluent is discharged to the Flint River.

The current project will expand and improve the existing treatment plant processes to accommodate an additional Average Daily Flow (ADF) of 2.0 MGD, increasing the treatment capacity to 4.0 MGD. In addition, the current project included master planning the site for future expansions up to 8.0 MGD, which is the projected build-out capacity for the plant's drainage basin.

CLIENT
City of Huntsville

PROJECT DATES
2008–2011

PROJECT VALUE
Engineering and Contract Administration: $1,250,000
Construction: $8,888,737.48

REFERENCE
Thomas Lovelady
Director, Water Pollution Control Department
P.O. Box 308
Huntsville, AL 35804
256.883.3996
thomas.lovelady@hsvcity.com

It is also expected that the plant will have a phosphorus limit added to its NPDES discharge permit during the next permit renewal cycle. The expansion was therefore designed to include an anaerobic basin for biological phosphorus removal in anticipation of future phosphorus permit limits. Nitrogen limits are also expected at some point in the future, so provisions were included in the design to add a future anoxic basin. The process design was therefore based on a three-stage Bardenpho process to be constructed in phases.

Specifically, the scope of the current project includes the following improvements:

- Modifications to the influent pump station, including new submersible pumps, controls, and discharge piping
- New mechanical fine screening
- New anaerobic basin
- New oxidation ditch
- New clarifier and splitter box
- New RAS/WAS pump station
- Modifications to existing effluent disinfection facilities, including new sodium hypochlorite bulk storage tank and feed pumps
- Additional sludge drying beds
- Modifications to existing RAS/WAS pumping facilities
- New electrical and storage building with backup emergency generator
- SCADA system improvements

Water Reclamation Plant Secondary System Improvements | Kalamazoo, MI

The City of Kalamazoo developed a plan to significantly lower operating expenses by converting the coarse bubble secondary aeration system to fine pore diffusion and by installing a biological phosphorus removal process. The secondary system improvements include:

- Replaced blowers with two energy-efficient, single-stage blowers
- Addition of a carbon contactor for foul air treatment
- Aeration tank modification to include a three-stage BNR process with internal mixed liquor recycle
- Replacement of coarse bubble diffusers, including air diffuser piping with a fine pore air diffuser system
- Conversion of aerated influent channel to mixed anaerobic
- Mud valve replacement

CLIENT
City of Kalamazoo

PROJECT DATES
2009–2010

PROJECT VALUE
Design and Construction Engineering: $325,000
Construction: $7,400,000

REFERENCE
Sue Foune
Public Services Director
415 Stockbridge Ave.
Kalamazoo, MI 49001-2816
269.337.8440
founes@kalamazoocity.org

The Tetra Tech team performed a process analysis of the proposed secondary treatment improvements to determine the design parameters, which included: confirmation of design loadings; selector zone sizing and arrangement; internal recycle requirements; influent channel and selector mixing requirements; aeration diffuser distribution; blower sizing and control strategy; and odor control system requirements.

Following the basis of design, we developed the bid and construction design drawings and technical specifications for the improvements. The project delivery time and cost for preparing bidding documents were minimized by using digital records to maximize efficiency in the project drawing preparation.

The fine pore aeration conversion elements were completed by using scanned background drawing records of structures for the CAD drawings. The drawings included plan view, section views, and details. This approach saved a significant amount of time compared with the development of new base plans for delineation of structures, tanks and other infrastructure.

A performance-based specifications approach was utilized for the key process components of the processes such as the aeration blowers and fine pore diffusers. This methodology ensured that manufactured equipment would conform to the requirements of the specific application. The performance specifications also delineated the warranty period and terms for the equipment provided for the project.

The secondary system improvements included two new single-stage aeration blowers for integration with the new fine pore aeration system. The new blowers, coupled with high efficiency fine pore air diffusion and a control system to monitor oxygen requirements, resulted in substantial energy saving over the previous system.

Tetra Tech provided bidding and contract management services for implementation of the construction phase. During construction, we reviewed the contractor's submittals for materials and equipment to be incorporated into the work, equipment vendor operation and maintenance instructions, requests for information and monthly pay requests, and provided interpretations and clarifications. We also provided an on-site resident project representative (RPR) to observe the construction contractor's work.

Wastewater Treatment Plant Expansion | Ypsilanti, MI

The Ypsilanti Community Utilities Authority (YCUA) provides water supply and wastewater treatment to the City of Ypsilanti and Ypsilanti Township. Tetra Tech was contracted by YCUA to design an expansion of their advanced WWTP from 29 MGD average/72 MGD peak flows to 46 MGD average/102 MGD peak flows. A project team of administration, operations, and maintenance staff was formed for the project design. The team met monthly (or as required), evaluated all major process and equipment alternatives, and visited a number of operating installations prior to making final choices. The plant treatment train consists of:

- Preliminary treatment consisting of retention and equalization, grit removal (detritors followed by grit washers), and screening (3/8-inch spacing, front-cleaned followed by compactors).
- Primary treatment in circular tanks with launder covers as part of an odor control strategy.
- Secondary treatment consisting of activated sludge for BOD and ammonia removal that incorporates the A/O Process for biological phosphorus removal. Airflow can be automatically controlled to three zones in each aeration tank based upon D.O.
- Conventional gravity filters provide tertiary treatment. Work in the filter building included the remodeling of the Second Floor Plant Control Room and a filter building addition. The Filter Building addition provides six new air-water backwash filters, clear well, and backwash holding tank.

  Existing units use dual media and surface wash. The expanded portion will incorporate air-water backwash and an unstratified sand media. The SCADA system can backwash automatically.
- Ultraviolet disinfection incorporates vertically mounted, low-pressure, high-intensity lamps in parallel channels. Equipment was selected based upon life-cycle cost.
- Waste-activated sludge can be thickened by three 2-meter gravity belt thickeners. An array of nine 2-meter belt filter presses (BFP) dewater biosolids.. Sludge is fed to the BFPs with peristaltic pumps equipped with in-line grinders. Polymer is added on the discharge side of the pumps.

  Dewatered sludge cake is burned in a fluid bed incineration with land disposal of dewatered cake as a backup The fluid bed incinerator exhaust passes through venturi and impingement tray scrubbers, a wet electrostatic precipitator, and a bed of activated carbon, chemically impregnated to enhance mercury removal prior to exiting the stack. At the time of construction, it was the cleanest burning sewage sludge incinerator in the U.S. An enclosed truck loading station with live bottom loading hoppers is provided for times when the incinerator is not in use.
- Primary sludge is stored in four 70-foot diameter, 15-foot side water depth converted gravity thickener tanks. The tanks existing tanks are fitted with aluminum covers for odor control and mixed using a hydraulic mixing system driven by chopper pumps. Waste Activated sludge and Thickened Waste Activated sludge are stored in five new cast in place concrete tanks nominally 80-feet long, 20-feet wide with 20-foot SWD. These are also mixed with hydraulic mixing systems and chopper pumps. All of the sludge storage tanks were modeled by the mixing system manufacturer using Computational Fluid Dynamics.

  The exterior of the new addition matches the existing. This was done by matching building heights, window size and locations, brick color, and the unique projected brick detailing of the original building.

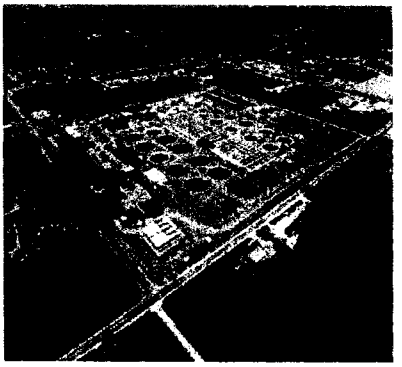
The bidding process utilized "base bid" for the incinerator, belt presses, and biosolids cake pumping and conveying systems equipment with designated "alternates" to control quality and cost. Services included a detailed feasibility study with comparative analyses of process alternatives, detailed design, and bidding and construction phase services. A new plant wide SCADA system was implemented as a part of the expansion.

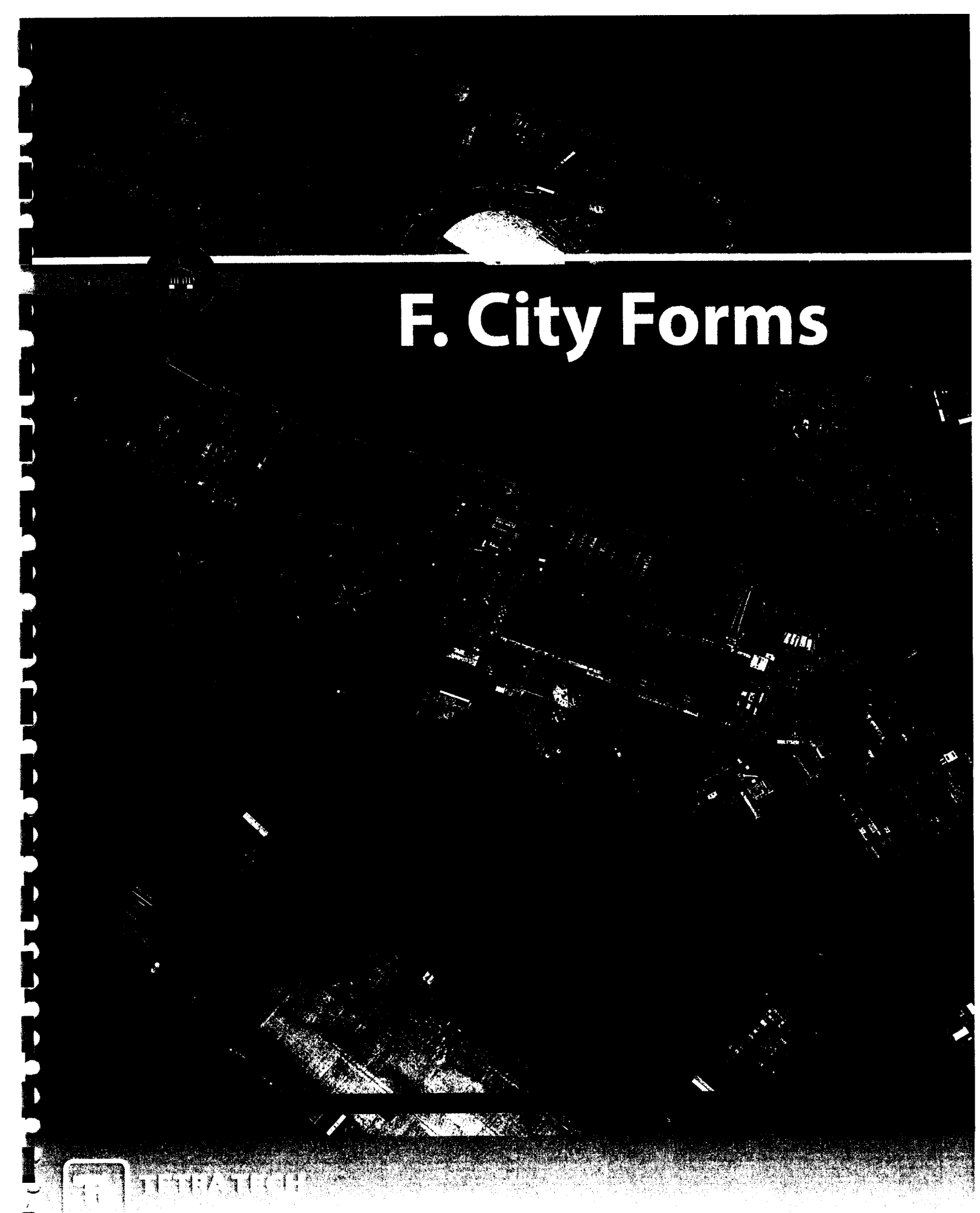
CLIENT
Ypsilanti Community Utilities Authority

PROJECT DATES
2001–present

PROJECT VALUE
$95,300,000
Design: $4,100,000
Construction/Eng.: $3,800,000

REFERENCE
Jeff Castro
Director
2777 State Rd.
Ypsilanti, MI 48198
734.484.4600
jcastro@ycua.org





F. City Forms

F. CITY FORMS

This section contains RFP-required LFUCG forms and acknowledged addenda as executed by Tetra Tech.

Affirmative Action Plan

All vendors must submit as a part of the proposal package the following items to the Urban County Government:

1. Affirmative Action Plan for his/her firm;
2. Current Work Force Analysis Form;

Failure to submit these items as required may result in disqualification of the submitter from award of the contract. All submissions should be directed to:

Director, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, 3rd Floor
Lexington, Kentucky 40507

All questions regarding this proposal must be directed to the Division of Central Purchasing, (859)-258-3320.

CONFIDENTIAL

AFFIRMATIVE ACTION PROGRAM OF

TETRA TECH, INC.

EFFECTIVE DATE OF THIS AAP: 01/01/2018 through 12/31/2018

Dan L. Battrack
Chief Executive Officer and Chief Operating Officer
January 1, 2018

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Dan L. Battrack
Chief Executive Officer and Chief Operating Officer
January 1, 2018

I. INTRODUCTION

EQUAL EMPLOYMENT OPPORTUNITY AFFIRMATIVE ACTION PROGRAM

The following pages represent the Affirmative Action Program of Tetra Tech, Inc., (3475 E Foothill Blvd, Pasadena, CA 91107), herein after referred to as Tetra Tech.

This Affirmative Action Program (AAP) is the property of Tetra Tech. The detailed information contained in this Affirmative Action Program is provided in good faith, and in compliance with Executive Order 11246 and other applicable federal and state laws, and regulations developed by the office of Federal Contract Compliance Programs (OFCCP) pertaining to the development of AAP's by federal contractors and subcontractors. Statements and data in this Affirmative Action Program are subject to a misinterpretation and a misuse which could be damaging to the business goals and interests of Tetra Tech in ways which may be independent of and adverse to Tetra Tech's affirmative action and equal employment opportunity obligations and objectives.

Therefore, this AAP is developed with the specific intent and requirement that:

1. This AAP and the information herein will be made available or submitted to the OFCCP upon demand, pursuant to the relevant provisions of Executive Order 11246 and applicable regulations developed by the OFCCP. The information and data contained in this AAP is to be kept strictly confidential and shall not be disclosed to anyone not employed by the OFCCP without prior written notice to and the written consent of Tetra Tech to disclose the relevant information contained herein. If consent is not given and the OFCCP still intends to disclose all or any part of this AAP, Tetra Tech shall have the right to appeal the decision of the OFCCP through any agency appeal procedure that may exist prior to <u>any</u> disclosure.

2. No information contained in this AAP is to be disclosed, copied, reproduced, or removed from the premises of the OFCCP, except in the normal course of business by an employee of the OFCCP, nor is any unauthorized person to be given access to its contents in any manner whatsoever without the prior written consent of an authorized representative of Tetra Tech.

3. Any employee, applicant, government office or any other entity or other person(s) who are allowed by Tetra Tech to review any or all of this AAP, for whatever reason or purpose, shall keep such information strictly confidential and shall not remove, copy, or in any manner whatsoever disclose, make available, discuss or disseminate the information contained in this AAP.

II. COMPANY PROFILE

Tetra Tech is a leading provider of consulting, engineering, program management, construction, and technical services. The Company supports government and commercial clients by providing innovative solutions to complex problems focused on water, environment, energy, infrastructure, and natural resources. With more than 14,000 employees worldwide, Tetra Tech's capabilities span the entire project life cycle.

Company Facts
Employees: 16,000
Revenue: $4.6 billion (FY 2017)
NASDAQ Symbol: TTEK
Corporate Office: 3475 East Foothill Blvd., Pasadena, CA 91107; (626) 351-4664
Geographic reach: 400 offices worldwide

III. EEO RESPONSIBILITIES
[41 CFR 60-2.17 (a)]

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In most instances, department managers and supervisors will be responsible for the selection of individuals to fill approved vacancies. However, the selection process requires that managers and supervisors be aware of and take into consideration the EEO Policy and AAP goals. Tetra Tech's EEO Policy and AAP will be implemented and administered as outlined below.

A. EEO Officer

Dan Batrack, CEO and COO, has assigned the overall responsibility for Equal Employment Opportunity and Affirmative Action Program compliance to Richard Lemmon, Vice President, who is the Equal Employment Opportunity Officer for Tetra Tech. As EEO Officer, Richard Lemmon is specifically responsible for the implementation and monitoring of the EEO Policy and the Affirmative Action Program. Richard Lemmon's duties and responsibilities include as a minimum, but are not limited to the following:

1. Ensuring that an Affirmative Action Program is adopted and effectively implemented each year, developing policy statements, internal and external communication techniques.
2. Designating or assisting in the selection of a facility EEO Coordinator.
3. Assisting in the identification of focus areas, suggesting corrective action, and the establishment of goals and objectives.
4. Designing and implementing audit and reporting systems that will measure progress to goals and objectives.
5. Conducting meetings with managers, supervisors, and employees to ensure that Tetra Tech's EEO Policy and AAP objectives are understood and good-faith efforts are being made to achieve results.
6. Reviewing Tetra Tech's AAP progress toward goals and objectives with senior management.
7. Ensuring that the work performance of management employees is evaluated, in part, on the basis of their affirmative action efforts and results.
8. Providing guidance to managers and supervisors to prevent racial, ethnic, religious and sexual harassment of employees.
9. Serving as a liaison between Tetra Tech and minority/female organizations.
10. Keep management informed of developments in EEO/AA laws and requirements.

B. EEO Coordinator

Janet Brunner, Sr. Human Resources Generalist, is the Equal Employment Opportunity Coordinator for the AAP year. Janet Brunner, will be responsible for assisting the EEO Officer, as requested, in the performance of any of the duties stated above, developing or obtaining assistance in developing, implementing, and monitoring of the AAP. The EEO Coordinator has been given the full support of senior management and is assured the necessary support to execute all AAP responsibilities.

The EEO Coordinator's responsibilities include, but are not limited to the following:

1. Having an updated AAP in place at the beginning of each plan year.
2. Assisting management in the identification of focus areas and the development of corrective action steps.
3. Submitting an AAP Progress Report to Human Resources and to appropriate facility management which details progress towards AAP goals and includes the applicant flow, new hire, transfer, promotion and termination logs.
4. Serving as liaison between employees and management at this facility.
5. Serving as liaison between this facility and organizations concerned with employment opportunities for minorities and females.
6. Ensuring that minority and female employees are encouraged and afforded a meaningful opportunity to participate in all present and future educational, training, recreational and social activities sponsored by Tetra Tech, and that all facilities, such as lockers and restrooms, are comparable for both sexes.

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7. Reviewing all technical forms (i.e., application forms and posters) for compliance with federal regulations.
8. Monitoring the effectiveness of the EEO Policy, the AAP, training programs, and hiring and promotional patterns to determine if minorities and females are given a full opportunity for employment and advancement.

C. Human Resources Department

As the Equal Employment Opportunity Coordinator for this facility, Janet Brunner has been given the authority and responsibility for implementing and monitoring the EEO and AAP programs for this facility. Janet Brunner Sr. Human Resources Generalist will be assisted by and receive primary staff support from individuals assigned to the Human Resources Department. The Human Resources Department will assume the day-to-day responsibility for the EEO and AAP programs. The responsibilities of the Human Resources Department include, but are not limited to the following:

1. Developing policy statements, Affirmative Action Programs, and internal and external communication techniques.
2. Assisting management in the identification of focus areas and arriving at appropriate solutions.
3. Designing and implementing audit and reporting systems that will:
    a. Measure the effectiveness of Tetra Tech's EEO and affirmative action programs.
    b. Indicate the need for remedial action.
    c. Determine the degree to which Tetra Tech's goals and objectives have been attained.
4. Serving as liaison or assisting facility management in meetings between Tetra Tech and enforcement agencies.
5. Serving as liaison or assisting local and facility management in meetings between Tetra Tech and organizations concerned with employment opportunities for minorities and females.
6. Keeping management informed of the latest developments and requirements pertaining to EEO and affirmative action.
7. Assisting in the development of reports to management on the status of Tetra Tech's EEO Policy and Affirmative Action Program.
8. Assisting any present or future field facilities in preparing and implementing effective Affirmative Action Plans through the issuance of guidelines and appropriate training.
9. Coordinating and participating in compliance reviews by the Office of Federal Contract Compliance Programs, as appropriate.
10. Investigating all formal charges of discrimination at Tetra Tech's facilities, in addition to participating with this facility's senior management representative in conciliation negotiations with government agencies, as necessary.

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IV. IDENTIFICATION OF POTENTIAL FOCUS AREAS
[41 CFR 60-2.17 (b)]

A. WORKFORCE

The workforce is evaluated by department and job group to determine if minorities and women are fully utilized. An analysis is performed by department to ensure that minority and female representation is at an acceptable range as compared to the workforce.

B. PERSONNEL ACTIVITY

Personnel activity including applicant flow, hires, terminations, and promotions are analyzed to determine if there are any problem areas. All employees are treated equally and have an opportunity to advance. Efforts are made to identify qualified minority, females, disabled and veteran employees for promotion. The criteria for both transfers and promotions are based objectively on skills, qualifications, experience, education and the employee's work record, as appropriate. Transfer and promotion practices currently in effect do not hamper the upward mobility of qualified female and minority employees.

C. COMPENSATION

Compensation analyses are performed to ensure that there are no gender or ethnic pay disparities. An analysis is performed on each job title comparing minorities to non-minorities and women to men. If any inequalities exist, a thorough analysis is conducted to correct or explain the difference. This analysis may include a review or the employees' length of service, years of experience, performance evaluations, prior related experience, education, special expertise, or the department or unit where the employees work.

D. SELECTION

The following selection procedures are followed:

1. Job descriptions list the minimum requirements for a particular job and are accurate in relating to actual job functions.
2. No written employment tests are currently being used.
3. The application and interview process has been reviewed and found to be free of bias and does not work to the disadvantage of minority or female applicants.
4. All job applications are retained in the active file for a minimum of at least two years.
5. A detailed record of all data relevant to recruitment and other personnel decisions which involved Affirmative Action candidates or employees is kept by the EEO Coordinator.
6. When an accommodation is made to hire an individual with a disability, a description of the accommodation is recorded in the personnel file.
7. All recruitment sources are notified annually of the EEO policy and Tetra Tech's desire to hire women and members of minority groups.

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E. OTHER AREAS OF FOCUS

Facility & Company Sponsored Activities

Facility and Company sponsored activities are all administered on a non-discriminatory basis.

Public Transportation

Public transportation is available to this facility from surrounding metropolitan areas. Schedules are such that employees can use such transportation both before and after working hours.

Housing

Integrated housing is available to all employees in the area surrounding this facility. Both privately owned homes and commercial rental units are within the immediate area and within commuting distance.

Physical Facilities

This location does not maintain, provide or permit any segregated facilities

Seniority

Formal seniority lines or lists are not maintained. Whenever seniority is used or considered (i.e. vacation accrual, benefit accrual), sex is not a consideration.

Training Programs

While some limited training is provided, employees are encouraged to pursue additional education and training through external sources. On occasion, employees are provided an opportunity or are scheduled to attend relevant in-house or external seminars and training. All training, whether internal or external, is encouraged by Tetra Tech in a non-discriminatory manner.

Technical Phases of Compliance

1. All appropriate bulletin boards are posted with applicable equal employment opportunity literature and regulations.

2. All subcontractors are notified of their obligations under Executive Order No. 11246 as amended, as well as, Revised Order No. 4.

3. Purchase order forms advise vendors and subcontractors that Tetra Tech is a government contractor and of their obligation to practice EEO and affirmative action.

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V. ACTION ORIENTED PROGRAMS
[41 CFR 60-2.17 (c)]

All personnel involved in recruiting, selection, discipline and related processes will receive instruction on an on going basis, regarding Tetra Tech's affirmative action objectives, equal employment opportunity laws, regulations, court decisions, and appropriate job-related management practices.

A. Job Descriptions, Specifications and Requirements

Job descriptions list the minimum requirements for a particular job and are accurate in relating to actual job functions. Tetra Tech will continue to review and revise, when appropriate, employee position titles, qualifications, job specifications and wage/salary rates to assure that they do not have qualifications or other requirements that would tend to screen out or disproportionately or adversely impact upon minorities or females.

Tetra Tech has delegated to its department managers the final decision on hiring, as stated in the section on EEO responsibilities. Yearly reviews will continue to be performed to ensure the elimination of any impediment to full implementation of the EEO Policy and the AAP. The Human Resources Department staff will monitor the attitudes of department management for any adverse attitudes toward EEO and affirmative action, and watch for abnormal rates of rejection for minorities and females.

The Human Resources Staff will be assigned to:

1. Conduct an analysis of position requirements and/or descriptions to ensure that they accurately reflect position functions and are consistent for the same position from one department to another.

2. Evaluate new or modified worker specifications for each job classification by department, using job performance criteria. Specifications will be consistent for the same job classification in all locations and free from bias with regard to race, color, age, religion, sex, and national origin. If any requirements screen out a disproportionate number of minorities or females, these requirements will be carefully evaluated with respect to their relationship to actual job performance and business necessity.

3. Make available approved position descriptions, whether such descriptions have been formalized in writing or not, and worker specifications to all members of management involved in the recruiting, screening, selection and disciplinary processes; and, distribute appropriate copies to recruitment sources.

B. Recruitment Practices

To enhance the likelihood of recruiting minority and female employees, Tetra Tech will contact appropriate State agencies and solicit names from management of appropriate minority and female groups, associations and institutions which can refer qualified applicants for positions in job groups which have an underutilization of minorities or females. Additionally, each qualified applicant is identified by: name, ethnicity, gender, veteran and disabled status, positions applied for, recruitment source, referral source, and final disposition.

The Human Resources staff will be assigned to ensure the following types of recruitment activities:

1. Include the phrase "Equal Employment Opportunity" (EEO) and/or "Affirmative Action" employer (EEO/AA) in all printed employment advertisements.

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2. Place appropriate job opportunities in minority and female publications or minority and female Internet web sites.
3. Disseminate information on job opportunities and Tetra Tech's affirmative action objectives to organizations representing minorities and females, and employment development agencies.
4. Actively encourage minority and female employees to refer applicants.
5. Send minority and female employees to participate in "Career Days," Job Fairs and related activities in their communities, when appropriate.
6. Recruit, when appropriate, at secondary schools, junior colleges and colleges with predominantly minority or female enrollments.
7. Ensure that referral agencies that are used, if any, are referring minorities and females in a nondiscriminatory manner.

C. Internal Postings

Current job openings are posted internally in conspicuous areas throughout the facilities where employees congregate. Job postings are updated as positions become available or are filled. This formal "job posting" procedure is utilized to make employees aware of vacancies, and as a means of promoting job opportunity and mobility of current employees through interdepartmental transfers. The method of posting assures fair and equal treatment of all covered employees consistent with affirmative action policies. Evaluation of employees from transfer or promotion is based solely on knowledge, skills, experience, and ability to perform the duties as required by the job.

D. Selection Practices

To assure that no discriminatory practices have entered the selection system, the Human Resources Department will monitor the selection decisions for all job titles in underutilized job groups. As an example, if a vacancy exists in an area identified as being underutilized, it will be the selecting manager's or supervisor's responsibility to provide the Human Resources Department with reasons why qualified minority and female applicants were considered but not selected.

The Human Resources Staff will continue to ensure that the Tetra Tech's selection process is job related. These responsibilities will include:

1. A review of Tetra Tech's job application and other pre-employment forms to ensure that inquiries are job related.
2. Periodic evaluation of the selection policy to ensure that it is free from bias and does not hinder Tetra Tech's ability to attain its affirmative action goals.
3. Periodically evaluate practices to ensure that they are job related and necessary.
4. Train personnel interviewers on proper interview techniques, appropriate inquiries, documentation and Tetra Tech's affirmative action objectives.

E. Promotional and Training Practices

Staff will continue to take the following types of action to prepare minorities and females for promotion, and to assist employees in advancing to jobs offering a higher level of responsibility, greater degree of challenge and further opportunity for advancement:

1. When an underutilization exists, advise managers and supervisors of approved vacancies, with the intention of identifying potential minority and female candidates.
2. Make available career counseling to assist employees in identifying promotional opportunities, training and educational programs to enhance promotability and opportunities for job rotation or transfer.
3. When appropriate, offer remedial education, skills training, and work-study programs to assist employees in meeting performance standards and preparing for employment or advancement.

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4. Administer an employee performance evaluation program, which is designed to assist employees in meeting performance standards, in a non-discriminatory manner.
5. Evaluate requirements for promotion on job-related criteria and ensure that minorities and females are not required to possess higher qualifications than those of others.
6. When an underutilization exists, require supervisory personnel to explain promotion selection decisions when qualified minority or female employees are among the candidates rejected for advancement opportunities.

F. Management and Disciplinary Practices

In order to increase and/or maintain the representation of minority and female employees throughout the work force, all department heads will be held accountable for monitoring and evaluating their hiring, promotions, transfer and termination practices.

Supervisors and department heads will be responsible for identifying and helping to develop promotion and transfer opportunities for minority and female employees in their departments whenever and wherever an underutilization is identified. In addition, current eligible employees, as well as applicants, will be informed and encouraged to participate in training and educational assistance programs that may be available at or through Tetra Tech, and in the community.

The Human Resources Staff will continue to take the following actions to assist supervisors in meeting their Affirmative Action Program responsibilities:

1. Develop and periodically review forms and management practices such as interviews, employee evaluations, counseling, training and discipline.
2. Offer training to management regarding Tetra Tech's Affirmative Action Program objectives and job-related personnel practices.
3. Monitor disciplinary action to ensure that minorities and females are not being disciplined in disproportionate numbers.

G. Benefits and Rules

Tetra Tech regularly analyzes the wage and benefits program to ensure that no discriminatory practices exist. Wage schedules are not related to or based on the gender or race of employees, but are based on established market labor rates for each classification or specialty.

The Human Resources Staff will be assigned to take the following actions to ensure that Tetra Tech's facilities are desegregated and its benefits programs and rules are nondiscriminatory:

1. Review Tetra Tech's employee benefits plans, coverage and administration procedures to ensure that they do not inadvertently discriminate illegally because of race, color, religion, sex, national origin or age.
2. Review Tetra Tech's work rules to ensure that they do not inadvertently discriminate illegally because of race, color, religion, sex, national origin or age.

H. Management Training

Tetra Tech, Inc. is committed to providing educational training to all the management to ensure that personnel actions and all employment decisions are made in a manner which will further the principle of equal employment opportunity. Tetra Tech, Inc. is committed to assuring that our supervisors and employees are familiar with proper procedures, policies, and practices on affirmative action and harassment training.

Dan L. Battrack
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VI. INTERNAL AUDIT AND REPORTING SYSTEM [41 CFR 60-2.17 (d)]

A major component of the Affirmative Action Plan is an assessment of the effectiveness of efforts undertaken to achieve goals and objectives. This assessment requires complex record-keeping systems for collecting information about applicants and about the numerous personnel transactions affecting Tetra Tech employees. To meet this goal, an audit and reporting system has been designed which:

1. Assists in measuring the effectiveness of the EEO Policy and the Affirmative Action Program.
2. Indicates those areas where remedial action is needed.
3. Determines the degree to which location goals and objectives have been achieved.
4. Monitors the number of qualified applicants, new hires, promotions, transfers and terminations by race and sex.

This information provides the basis for analyzing personnel transactions for a one-year period and for an annual update of the Affirmative Action Plan. The update includes the predetermination of annual placement goals as well as an assessment of the previous year's annual placement goals and progress made.

Applicant Information. Information about gender and ethnicity of each applicant is collected and maintained for affirmative action reporting purposes. Applicants who wish to benefit under the Affirmative Action Program for Individuals with Disabilities, Special Disabled Veterans or Veterans of the Vietnam era are also invited to self-identify their status after an offer of employment has been made and before employment begins. This information is requested on a voluntary basis and is used only for affirmative action purposes. Information regarding the disposition of each application for each opening is also maintained.

Employee Information. Information is collected and maintained for the following personnel transactions: placements (new hires, promotions, and transfers); merit increases; separations (resignation, death, retirement, and medical); involuntary separations (layoffs and dismissals), and training programs. The information is compiled by job group, by gender and by ethnicity.

This system, which was outlined in the preceding section, Action Oriented Programs, will be used by the facility EEO Coordinator in developing progress reports to management, which will indicate progress toward AAP goals and objectives. Department management will indicate any current or foreseeable EEO and AAP focus areas, and outline corrective action suggestions.

Janet Brunner, Sr. Human Resources Generalist, is responsible for discussing any problems related to the implementation of the EEO Policy and this AAP with appropriate management representatives. Discussions will focus on rejection ratios, the underutilization of minorities and females, charges of discrimination or allegations of harassment. There will be yearly audits of the selection and placement process, paying particular attention to hiring, promotion, transfer and termination patterns. A report on the status of this facility's Affirmative Action Program will be prepared, and remedial steps will be taken which are necessary to provide for the effective implementation of the program.

Dan L. Battrack
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VII. WORKFORCE ANALYSIS
[41 CFR 60-2.11]

Workforce Analysis

In accordance with Federal Affirmative Action Regulations, a work force analysis of employees by department is developed. The analysis consists of a count of employees in each job title in the unit; job titles are ranked from the lowest to highest salary range including supervisors. For each job title the following is provided: the salary range; the total number of incumbents; the total number of male and female incumbents and total number or male and female incumbents by the ethnic categories of American Indian, Asian, Black, Hispanic and Caucasian.

The data is analyzed by reviewing each department and comparing the percent of minorities and women in the department to the percentages in the workforce. If any problem areas exist, programs are developed to correct those areas. These programs are described in the "Action Oriented Programs." section.

Dan L. Battrack
Chief Executive Officer and Chief Operating Officer
January 1, 2018

VIII. JOB GROUP ANALYSIS
[41 CFR 60-2.12 AND 60-2.13]

Job groups are the basic units for developing availability proportions, conducting the utilization analysis, and analyzing personnel transactions. In accordance with Federal affirmative action regulations, the different job titles held by Tetra Tech employees have been combined to form the job groups listed in the AAP reports section.

Methodology

Federal affirmative action regulations specify that job groups have similar content, wage rates, and opportunities. Accordingly, in developing the job groups, the following guidelines were taken into consideration:

- The contents of the jobs included in a job group should be similar in job responsibilities, requisite skills, and wage rates.
- The opportunities for advancement should be similar for all jobs in a job group.
- A given job group should not include job classifications with clearly different utilization patterns. For example, job classifications predominantly filled with males should not be combined in the same job group with job classifications predominantly filled with females.
- Job groups, in general, should be composed of a minimum of ten employees to allow meaningful utilization analysis and the establishment of goals. In some cases, job groups of less than ten employees may be necessary because of unique job content, requirements, location, and skills.
- Job groups should illuminate, rather than mask, focus areas.
- Feeder jobs for jobs included in a job group should be similar.
- Jobs in a job group should have the same labor market.

In accordance with Federal Affirmative Action Regulations, a job group analysis of employees by job group categories with similar content, wage rates and opportunity for advancement is developed. The analysis consists of a count of employees in each job title with similar functions ranked from the lowest to highest salary range including supervisors. For each job group category the following is provided: the salary range; the total number of incumbents; the total number of male and female incumbents and total number of male and female incumbents by the ethnic categories of American Indian, Asian, Black, Hispanic and Caucasian.

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January 1, 2018

IX. FEEDER GROUP ANALYSIS

Below is a table demonstrating the lines of progression and providing an analysis of the job groups by their feeder groups.

Job Group	Feeder Group
1A	1B
1B	2A,2D
2A	3A
2D	5A
3A	No Feeder
5A	5B
5B	No Feeder

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X. AVAILABILITY ANALYSIS
[41 CFR 60-2.14]

In accordance with Federal affirmative action regulations, Tetra Tech, Inc. has conducted an availability analysis of the employment of females and ethnic minorities by job group. To perform this availability analysis based on the guidelines outlined in the OFCCP's Federal Contract Compliance Manual and in pertinent parts of 41 CFR, Chapter 60, proportions of available females and ethnic minorities for each job group are developed.

Availability is defined as the percentage of minorities and women among those persons who are eligible currently or will be eligible during the term of the affirmative action program.

As specified in federal affirmative action regulations, two factors are considered in determining the availability proportions of females and ethnic minorities for each job group. These two factors are set forth below. In determining whether minorities and females are underutilized, Tetra Tech has considered the following data: *

1. The availability of minorities/females having requisite skills in an area from which the location can reasonably recruit.
2. The availability of promotable and transferable minority/female employees within the facility during the AAP year.

Data sources for external availability factors for our computations have been acquired from the U.S. Census Bureau.

* The charts used for the computation of availability percentages are in the AAP reports section.

Dan L. Battrack
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XI. UTILIZATION ANALYSIS
[41 CFR 60-2.15]

In determining whether areas of underutilization exist and what steps might be taken to correct the deficiencies, an analysis was performed in accordance with Order No. 4. This utilization analysis considered the results of the Availability Analysis conducted in this plan. By using this data and by applying the measure of reasonableness, we have determined that some underutilization of minorities and/or females exists. The utilization analysis is in the AAP reports section. The results of the utilization analysis are the basis for establishing the goals described in this document.

Dan L. Battrack
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January 1, 2018

XII. GOALS
[41 CFR 60-2.16 AND 60-2.17(B)]

At the beginning of a reporting period, annual goals are established for females and ethnic minority categories in job groups where underutilization is identified and is equal to or exceeds one person or more. For the 2018 Tetra Tech Affirmative Action Plan, these goals are expressed as annual placement rates equal to availability proportions based upon 2017 census data. The goal is met if the actual placement rate is equal to or exceeds the availability rate.

Annual goal attainment for those instances where underutilization was identified at the beginning of the reporting period is assessed at the end of a reporting period by taking into account the applicable annual placement rates and actual experience of employee promotions, transfers, and hires. The assessment is made on the basis of comparing the placement rate by gender or ethnic minority category in the job group to the applicable availability proportion.

The 2014 goals are based on our workforce numbers staying the same. Primarily, openings will result from normal attrition and, in some cases; the vacancies may not be filled. These goals reflect current business conditions and are subject to change as these conditions change.

Our long range goal is to overcome underutilization in all job categories and to employ percentages of minorities and women at least equal to the percentages of qualified minorities and women within the available labor force.

Tetra Tech, Inc. will continue to develop and maintain programs that facilitate the attainment of the goals that have been set to increase the utilization of minorities or females. The following program will be implemented for job groups identified as underutilized:

When an underutilization is identified for a specific job group, Janet Brunner, Sr. Human Resources Generalist, will make an annual review of the employee selection process, to ensure that any practices or policies which could result in a disproportional number of minorities and/or females being rejected for employment are kept out of the selection process.

Dan L. Battrack
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January 1, 2018

AFFIDAVIT

Comes the Affiant, Richard Walker, PE, and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is Richard Walker, PE and he/she is the individual submitting the proposal or is the authorized representative of Tetra Tech, Inc., the entity submitting the proposal (hereinafter referred to as "Proposer").

2. Proposer will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Proposer will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Proposer has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Proposer has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Proposer will not violate any provision of the campaign finance laws of the Commonwealth.

6. Proposer has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

Continued on next page

7. Proposer acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Richard W. Walker

STATE OF Kentucky

COUNTY OF Fayette

The foregoing instrument was subscribed, sworn to and acknowledged before me by Richard W. Walker on this the 12th day of June, 2018.

My Commission expires: My Commission Expires May 15, 2020 ID# 554194

Mary D Turner

NOTARY PUBLIC, STATE AT LARGE

EQUAL OPPORTUNITY AGREEMENT

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.

- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.

- Section 503 of the Rehabilitation Act of 1973 states:

  The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.

- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.

- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

  The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

****

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.

Richard W. Walker
Signature

Tetra Tech, Inc.
Name of Business

WORKFORCE ANALYSIS FORM

Name of Organization: Tetra Tech, Inc.

Categories	Total	White (Not Hispanic or Latino)		Hispanic or Latino		Black or African-American (Not Hispanic or Latino		Native Hawaiian and Other Pacific Islander (Not Hispanic or Latino		Asian (Not Hispanic or Latino		American Indian or Alaskan Native (not Hispanic or Latino		Two or more races (Not Hispanic or Latino		Total	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Administrators	238	221	39	5	2	2	0	0	0	11	2	1	0	0	0	240	43
Professionals	4177	2151	1182	138	103	96	68	5	2	181	138	6	5	64	38	2641	1536
Superintendents																	
Supervisors	1080	701	234	27	10	18	11	1	0	33	23	4	1	10	7	794	286
Foremen	497	258	12	134	3	37	3	1	0	29	4	9	0	7	2	473	24
Technicians	929	587	97	89	13	45	5	10	1	41	10	3	1	25	2	800	129
Protective Service																	
Para-Professionals																	
Office/Clerical	487	46	257	15	54	10	44	0	2	10	30	0	4	2	13	83	404
Skilled Craft	170	101	3	39	1	9	0	0	0	13	1	1	0	2	0	165	5
Service/Maintenance	3789	595	357	418	252	972	893	4	2	20	10	5	8	138	115	2152	1637
Total:	11412	4660	2181	865	438	1187	1024	21	7	338	218	29	19	248	177	7348	4064

Prepared by: Richard Walker, PE, Vice President **Date:** 6 / 11 / 2018

(Name and Title)

Revised 2015-Dec-15

DIRECTOR, DIVISION OF CENTRAL PURCHASING
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 EAST MAIN STREET
LEXINGTON, KENTUCKY 40507

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITIES AND DBE CONTRACT PARTICIPATION

Notice of requirement for Affirmative Action to ensure Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE) Contract participation. Disadvantaged Business Enterprises (DBE) consists of Minority-Owned Business Enterprises (MBE) and Woman-Owned Business Enterprises (WBE).

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this Contract be subcontracted to Disadvantaged Business Enterprises, which is made up of MBEs and WBEs. The Lexington Fayette Urban County Government also has set a goal that not less than three percent (3%) of the total value of this Contract be subcontracted to Veteran-owned Small Businesses. The goal for the utilization of Disadvantaged Business Enterprises as well Veteran –owned Small Businesses as subcontractors is a recommended goal. Contractor(s) who fail to meet such goal will be expected to provide written explanations to the Director of the Division of Purchasing of efforts they have made to accomplish the recommended goal, and the extent to which they are successful in accomplishing the recommended goal will be a consideration in the procurement process. Depending on the funding source, other DBE goals may apply.

For assistance in locating Disadvantaged Business Enterprises Subcontractors contact:

Sherita Miller, MPA, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, 3rd Floor, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

Firm Submitting Proposal: Tetra Tech, Inc.

Complete Address: 424 Lewis Hargett Circle, Suite 1001, Lexington, KY 40503

Street City Zip

Contact Name: Richard Walker, PE Title: Vice President

Telephone Number: 859.514.8749 Fax Number: 859.224.1025

Email address: richard.walker@tetratech.com

Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS

A. GENERAL

1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE), Disadvantaged (DBE) Business Enterprises and Veteran-Owned Small Businesses as subcontractors or suppliers in their bids.

2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.

3) The LFUCG has also established a 3% of total procurement costs as a Goal for participation of Veteran-Owned Small Businesses (VOSB).

4) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation and other requirements as outlined in this section.**

B. PROCEDURES

1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned, Woman-Owned or Veteran-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)

2) Replacement of a Minority-Owned, Woman-Owned or Veteran-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)

3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:

    a) The Lexington-Fayette Urban County Government, Division of Central Purchasing (859-258-3320)

4) The LFUCG will make every effort to notify interested MWDBE and Veteran subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned and operated by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.

2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned and operated by one or more Non-Minority Females.

3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned and operated by a person(s) that are economically and socially disadvantaged.

4) A Veteran-Owned Small Business (VOSB) is defined as a business which is certified as being at least 51% owned and operated by a veteran and/or a service disabled veteran.

5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran-Owned subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**

2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.

3) The Form of Proposal includes a section entitled "MWDBE Participation Form". The applicable information must be completed and submitted as outlined below.

4) **Failure to submit this information as requested may be cause for rejection of bid or delay in contract award.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form." The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed;

estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.

2) Bidders not reaching the Goal must submit the "MWDBE Participation Form", the "Quote Summary Form" and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE and/or Veteran participation, bidder shall enter "None" on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:

a. Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

b. Included documentation of advertising in the above publications with the bidders good faith efforts package

c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event

d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities

e Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.

f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWBDE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less that seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.

j. Provided the interested MWBDE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

k. Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce

l. Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

m. Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

n. Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

o. Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

p. Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

q. Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

<u>Note</u>: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

LFUCG MWDBE PARTICIPATION FORM
Bid/RFP/Quote Reference # 15-2018

The MWDBE and/or veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately. **Failure to submit a completed form may cause rejection of the bid.**

MWDBE Company, Name, Address, Phone, Email	MBE WBE or DBE	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1. Integrated Engineering Eddie Mesta 166 Prosperous Pl., Ste. 220 Lexington KY 40509 859.368.0145 eddie@int-engineering.com	MBE	Resident Inspection		10%
2. 2020 Land Surveying Justin Drury 2216 Young Drive, Ste. 7-B Lexington, KY 40505 859.268.1049 jdd75@msn.com	VOSB	Surveying		3%
3.				
4.				

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Tetra Tech, Inc.
Company

6/13/2018
Date

Richard Walker, PE Richard W. Walker
Company Representative

Vice President
Title

LFUCG MWDBE SUBSTITUTION FORM
Bid/RFP/Quote Reference # 15-2018

The substituted MWDBE and/or veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MWDBE Company Name, Address, Phone, Email	MWDBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract
1. N/A					
2.					
3.					
4.					

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Tetra Tech, Inc.
Company

6/13/2018
Date

Richard Walker, PE Richard W. Walker
Company Representative

Vice President
Title

MWDBE QUOTE SUMMARY FORM
Bid/RFP/Quote Reference # 15-2018

The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project. Failure to submit this form may cause rejection of the bid.

Company Name Tetra Tech, Inc.	**Contact Person** Richard Walker, PE
Address/Phone/Email 424 Lewis Hargett Circle, Suite 110, Lexington, KY 40503 859.514.8749 | richard.walker@tetratech.com	**Bid Package / Bid Date** 6/15/2018

MWDBE Company Addre	Contact Person	Contact Information (work phone, Email, cell)	Date Contacte	Services to be performed	Method of Communicati (email, phone meeting, ad, event etc)	Total dollars $$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female	Veteran
N/A								

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Tetra Tech, Inc.
Company

6/13/2018
Date

Richard Walker, PE Richard W. Walk
Company Representative

Vice President
Title

LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. The LFUCG also has a 3% goal plan adopted by cited council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDBE and Veteran contractors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # 15-2018

Total Contract Amount Awarded to Prime Contractor for this Project_____

Project Name/ Contract #	**Work Period/ From:** **To:**
Company Name:	**Address:**
Federal Tax ID:	**Contact Person:**

Subcontractor Vendor ID (name, address, phone, email	**Description of Work**	**Total Subcontract Amount**	**% of Total Contract Awarded to Prime for this Project**	**Total Amount Paid for this Period**	**Purchase Order number for subcontractor work (please attach PO)**	**Scheduled Project Start Date**	**Scheduled Project End Date**
N/A							

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Tetra Tech, Inc.
Company

6/13/2018
Date

Richard Walker, PE Richard W. Walk
Company Representative

Vice President
Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS
Bid/RFP/Quote # 15-2018

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

_____ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

_____ Included documentation of advertising in the above publications with the bidders good faith efforts package

_____ Attended LFUCG Central Purchasing Economic Inclusion Outreach event

__X__ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

_____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

_____ Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

_____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWBDE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

__X__ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

_____ Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

_____ Provided the interested MWBDE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

__X__ Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the

contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce

_____ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

_____ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

_____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

_____ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

_____Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

_____ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE **and Veteran participation.**

NOTE: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Tetra Tech, Inc.	Richard Walker, PE Richard W. Walk
Company	**Company Representative**
6/13/2018	Vice President
Date	**Title**

GENERAL PROVISIONS

1. Each Respondent shall comply with all Federal, State & Local regulations concerning this type of service or good.

   The Respondent agrees to comply with all statutes, rules, and regulations governing safe and healthful working conditions, including the Occupational Health and Safety Act of 1970, *29 U.S.C. 650 et. seq.*, as amended, and KRS Chapter 338. The Respondent also agrees to notify the LFUCG in writing immediately upon detection of any unsafe and/or unhealthful working conditions at the job site. The Respondent agrees to indemnify, defend and hold the LFUCG harmless from all penalties, fines or other expenses arising out of the alleged violation of said laws.

2. Failure to submit ALL forms and information required in this RFP may be grounds for disqualification.

3. Addenda: All addenda, if any, shall be considered in making the proposal, and such addenda shall be made a part of this RFP. Before submitting a proposal, it is incumbent upon each proposer to be informed as to whether any addenda have been issued, and the failure to cover in the bid any such addenda may result in disqualification of that proposal.

4. Proposal Reservations: LFUCG reserves the right to reject any or all proposals, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.

5. Liability: LFUCG is not responsible for any cost incurred by a Respondent in the preparation of proposals.

6. Changes/Alterations: Respondent may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the proposal, and received by LFUCG prior to the scheduled closing time for receipt of proposals, will be accepted. The proposal, when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of proposal".

7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from a Respondent.

8. Bribery Clause: By his/her signature on the bid, Respondent certifies that no employee of his/hers, any affiliate or Subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.

9. Additional Information: While not necessary, the Respondent may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the Respondent's response. Additional documentation shall not serve as a substitute for other documentation which is required by this RFP to be submitted with the proposal,

10. Ambiguity, Conflict or other Errors in RFP: If a Respondent discovers any ambiguity, conflict, discrepancy, omission or other error in the RFP, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.

11. Agreement to Bid Terms: In submitting this proposal, the Respondent agrees that it has carefully examined the specifications and all provisions relating to the work to be done attached hereto and made part of this proposal. By acceptance of a Contract under this RFP, proposer states that it understands the meaning, intent and requirements of the RFP and agrees to the same. The successful Respondent shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to Respondent shall be authorized for services or expenses reasonably covered under these provisions that the proposer omits from its Proposal.

12. Cancellation: If the services to be performed hereunder by the Respondent are not performed in an acceptable manner to the LFUCG, the LFUCG may cancel this contract for cause by providing written notice to the proposer, giving at least thirty (30) days notice of the proposed cancellation and the reasons for same. During that time period, the proposer may seek to bring the performance of services hereunder to a level that is acceptable to the LFUCG, and the LFUCG may rescind the cancellation if such action is in its best interest.

A. Termination for Cause

(1) LFUCG may terminate a contract because of the contractor's failure to perform its contractual duties

(2) If a contractor is determined to be in default, LFUCG shall notify the contractor of the determination in writing, and may include a specified date by which the contractor shall cure the identified deficiencies. LFUCG may proceed with termination if the contractor fails to cure the deficiencies within the specified time.

(3) A default in performance by a contractor for which a contract may be terminated shall include, but shall not necessarily be limited to:
(a) Failure to perform the contract according to its terms,

conditions and specifications;

(b) Failure to make delivery within the time specified or according to a delivery schedule fixed by the contract;

(c) Late payment or nonpayment of bills for labor, materials, supplies, or equipment furnished in connection with a contract for construction services as evidenced by mechanics' liens filed pursuant to the provisions of KRS Chapter 376, or letters of indebtedness received from creditors by the purchasing agency;

(d) Failure to diligently advance the work under a contract for construction services;

(e) The filing of a bankruptcy petition by or against the contractor; or

(f) Actions that endanger the health, safely or welfare of the LFUCG or its citizens.

B. At Will Termination

Notwithstanding the above provisions, the LFUCG may terminate this contract at will in accordance with the law upon providing thirty (30) days written notice of that intent, Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.

13. Assignment of Contract: The contractor shall not assign or subcontract any portion of the Contract without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.

14. No Waiver: No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this Contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.

15. Authority to do Business: The Respondent must be a duly organized and authorized to do business under the laws of Kentucky. Respondent must be in good standing and have full legal capacity to provide the services specified under this Contract. The Respondent must have all necessary right and lawful authority to enter into this Contract for the full term hereof and that proper corporate or other action has been duly taken authorizing the Respondent to enter into this

Contract. The Respondent will provide LFUCG with a copy of a corporate resolution authorizing this action and a letter from an attorney confirming that the proposer is authorized to do business in the State of Kentucky if requested. All proposals must be signed by a duly authorized officer, agent or employee of the Respondent.

16. Governing Law: This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this Contract, the Parties agree that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division. All parties expressly consent to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to this Contract or any rights or obligations arising thereunder. Service of process may be accomplished by following the procedures prescribed by law.

17. Ability to Meet Obligations: Respondent affirmatively states that there are no actions, suits or proceedings of any kind pending against Respondent or, to the knowledge of the Respondent, threatened against the Respondent before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of Respondent to perform its obligations under this Contract, or which question the legality, validity or enforceability hereof or thereof.

18. Contractor understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Contractor is an independent contractor at all times during the performance of the services specified.

19. If any term or provision of this Contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

Richard W. Walk
Signature

6/13/2018
Date

MAYOR JIM GRAY

LEXINGTON

TODD SLATIN
DIRECTOR
CENTRAL PURCHASING

ADDENDUM #1

RFP Number: #15-2018

Date: June 7, 2018

Subject: Investigation/Design Services for West Hickman WWTP Biological Phosphorus Removal Improvements Project

Address inquiries to:

Brian Marcum
(859) 258-3320

TO ALL PROSPECTIVE SUBMITTERS:

Please be advised of the following clarifications to the above referenced RFP:

The RFP states "Update Chem Scan Monitoring System." - Upon further review the system should be replaced with the latest equipment. Piping will not need to be replaced. New systems now have added grinder pumps at each of the sample locations.

When looking at the design of the BPR Tanks LFUCG would like to be able to maintain a true peak of 70MGD for 24 hours with all BPR Tanks in Service.

Vision for the Phosphorus Reducing Chemical feed System; the system will need new piping, new tanks will not be necessary, existing pumps will be replaced. We use Sodium Aluminate at a dosage rate of 250ml/minute.

There are currently 32 BPR mixers total. We want to replace the mixers with equipment that has proven to be more reliable. For new mixers considered the consultant will have to look at the location of the mixers in the tanks and the ease of maintenance.

Information on plant upsets has been included as Attachment #1.

The current SOP of the Leaping Weir/BPR Tanks has been included as Attachment #2.

If you would like to propose process modeling please describe your efforts and show Process Modeling as a separate price.

Base your detailed design fee on adding a tank for denitrification.

A Process Summary, General Site Plan, Site Piping Plan and Hydraulic Profile from 2001 have been added as Attachment #3. Please note the Screw Pumps referred to in the process summary and Hydraulic Profile were replaced with WEMCO Hydrostal Pumps in three phases beginning in 2006. The Hydraulic Profile has not been updated to show different pumps.

Please review attachments #1, 2, 3A, 3B, 3C

Todd Slatin

Todd Slatin, Director
Division of Central Purchasing

All other terms and conditions of the RFP and specifications are unchanged. This letter should be signed, attached to and become a part of your submittal.

COMPANY NAME: Tetra Tech, Inc.

ADDRESS: 424 Lewis Hargett Circle, Suite 1001, Lexington, KY 40503

SIGNATURE OF BIDDER: Richard W. Walk

KY Department for Environmental Protection Electronic Submittals

- Navigate Notification
  - Report an Incident
    - Fill out a Form
    - Upload XML File

Type of Notification :	eNotification Wastewater
Incident Type:(*)	BYPASS - WET WEATHER
Incident Start Date-Time:(*)	02/03/2016 07:15 am (mm/dd/yyyy hh.min am/pm)
Incident End Date-Time:	02/03/2016 11:30 am (mm/dd/yyyy hh.min am/pm)
AI Name:(*)	Lexington West Hickman WWTP(2295)
Nature of Incident:(*)	Final Clarifier #1 was overwhelmed by high influent flow from rain event causing washout of solids. Washed out solids went to chlorine contacts and was chlorinated and then dechlorinated before going to West Hickman Creek.
Incident Location:(*)	Final Clarifier #1 next to Zone 2 aeration building.
Cause/Duration :(*)	High flow coming into plant from rain event, caused influent flow to increase to 51,263 gpm(73.82 mgd). The flow overwhelmed final clarifier #1. The washing out lasted 4.75 hours.
Action Taken :	Closed down influent gate on #1 clarifier to 30%, shut off air in Zone 1 and Zone 2 aeration tanks. Increased Chlorine and Sulfur Dioxide feed rates to compensate for cloudy effluent, adjusted influent and return rates on other final clarifiers that were in service.

Pollutant	CAS	Quantity	Units
Treated Water		7323	gallons/min

Search More Pollutant/CAS

Other Substance(s) : ☐

County of Release :	Jessamine
Weather Conditions :	rain
Receiving :	West Hickman Creek
Release To :	Creek

KY Department for Environmental Protection Electronic Submittals

Home **Notification** Manage User

Report an Incident
Fill out a Form
Upload XML File

Review History

Print Version

Incident Type:(*)	BYPASS - OTHER
Incident Start Date-Time:(*)	06/24/2012 02:00 pm (mm/dd/yyyy hh:mm am/pm)
Incident End Date-Time:	06/28/2012 04:00 pm (mm/dd/yyyy hh:mm am/pm)
AI Name:(*)	Lexington West Hickman WWTP(2295)
Nature of Incident:(*)	activated sludge denitrified in finals and washed out quicker than it could be pumped out causing it to release into chlorine contacts and creek #2012-2622 ID # rejected 27420
Incident Location:(*)	West Hickman WWTP, 645 West Hickman Plt Rd., Nicholasville Ky. 40356
Cause/Duration :(*)	Biological upset in plant, brought on by a combination of low flows, high temperatures, high influent concentrations an imbalance in food and microorganisms, operational changes made to help settling caused greater problem when flow increased. Duration 4 days
Action Taken :	added final clarifier, added 2 additional chlorine contacts, increased chlorine feed rate and sulfur dioxide feed rate, added 2 BPR tanks, removed 1 large aeration tank, hauled in waste activated sludge to improve F/M ratio, added concentrated nitrifiers to aeration tanks, monitoring creek for changes, cleaned contaminated area of creek (7/6/2012)

Pollutant	CAS	Quantity	Units
Sewage		1000000	gallons

Search More Pollutant CAS

Other Substance(s)

County of Release :	Jessamine
Weather Conditions :	calm
Receiving :	West Hickman Creek

B.P.R. OPERATION

THE MAXIUM FLOW THRU THE BPR WITH 8 TANKS IN SERVVICE IS 39 MGD FORWARD FLOW AND A MAXIUM RAS FLOW OF 23 MGD, FOR A TOTAL FLOW OF 62 MGD. WE FIGURE FORWARD FLOW AT 4.25 MGD PER TANK PLUS 5 MGD EXTRA. THE PLANT USUALLY OPERATES WITH 3 BPR TANKS IN SERVICE WITH A MAX OF 5 BPRS. DURING A PEAK FLOW EVENT WITH 3 BPR TANKS IN SERVICE THE TANKS SHOULD HANDLE 17.75 MGD FORWARD FLOW AND UPTO 23 MGD RAS FLOW FOR A TOTAL FLOW OF 40.75 MGD. IF WE HAVE FORWARD FLOW ABOVE 17.75 MGD THE LEAPING WEIR GATES ARE LOWERED TO ALLOW THE INFLUENT FLOW TO GO TO THE SECONDARY CHANNEL AND ZONE 2 AERATION. DURING A HIGH FLOW RAIN EVENT THE BPR MIXERS ARE SHUT OFF SO MORE SOLIDS CAN BE HELD IN THE BPR TANKS RATHER THAN WASHING THRU THE PLANT TO THE FINAL CLARIFIERS.

BPR FLOWS

3 TANKS INSERVICE: 12.75 MGD + 5 MGD = 17.75 MGD

4 TANKS INSERVICE: 17.0 MGD + 5 MGD = 22.0 MGD

5 TANKS INSERVICE: 21.25 MGD + 5 MGD = 26.25 MGD

6 TANKS INSERVICE: 25.5 MGD + 5 MGD = 30.5 MGD

7 TANKS INSERVICE: 29.75 MGD + 5 MGD = 34.75 MGD

8 TANKS INSERVICE: 34.0 MGD + 5 MGD = 39.0 MGD

CHAPTER 3

PROCESS SUMMARY

TREATMENT PROCESS

The original facility was a 5 MGD modified Kraus process followed by 20 acres of polishing lagoons and was put into service in 1972. In 1982, the plant was expanded to 16.8 MGD Average Daily Flow/32 MGD Peak Daily Flow for a total cost of $30 million. The facility was then converted to two-stage nitrification with primary clarification and anaerobic digestion. In 1992, the design capacity was increased to 22.3 MGD Average Daily Flow/32 MGD Peak Daily Flow; fine screens, raw sewage screw pumps, centrifuge for sludge thickening, dechlorination and computer monitoring system were added for a cost of $20 million.

In 2001, an upgrade of the West Hickman Creek WWTP was completed that increased the capacity to 33.8 MGD Average Daily Flow/64 MGD Peak Daily Flow. The modifications included: New Influent Fine Screens (3 @ 25 MGD each) with screenings conveyors and compactors; Influent Pump Station Odor Control System; Conversion of Primary Clarifiers to Biological Phosphorus Removal System; Conversion to Single Stage Nitrification to include the use of Panel Diffusers; High Flow Diversion System; the addition of two 125 ft. diameter final clarifiers; Conversion of Anaerobic Digester to Aerobic Sludge Holding Tanks; Replacement of three existing Belt Filter Presses with new 2 meter units to include new conveyance system; Replacement of Belt Filter Press Feed Pumps; Improvements to Chlorination Feed System and Expansion of Chlorine Contact Tank; installation of Chem Scan Processing Monitoring System (for nitrates, ammonia nitrogen and ortho-phosphate); and Channel Odor Control System. The total construction cost of these improvements was $9.4 million.

The general flow pattern and main process units are presented as schematics in Exhibits 2 through7. More detailed process flow diagrams showing the treatment process lines, valves, and pumps are shown on the record drawings. Later chapters will also describe the various processes used for wastewater treatment and will discuss procedures for effective operation. Table 3-1 summarizes the design criteria data for the treatment plant.

Liquid Train

A 54-inch trunk sewer transports the raw wastewater to Manhole No.10 and continues to flow to Manholes 11 and 12 through a 66-inch reinforced concrete pipe. An 18-inch trunk sewer from Hartland subdivision discharges into Manhole No.12. A 3-inch chlorine solution line at Manhole No.12 allows chlorine solution to be applied to the raw wastewater for odor control and process control. A 78-inch reinforced concrete pipe transports the raw wastewater to the coarse bar racks.

The coarse bar racks are placed in series to remove the larger debris such as rags and sticks from the wastewater to help prevent clogging of pumps and pipes in downstream process units. A 9-inch flume is located at the downstream end of the coarse bar racks to accurately measure sidestream flows that are recycled to the head of the plant. The coarsely screened wastewater is directed to the mechanical bar screens by the screw pumps.

The mechanical bar screens remove debris from the wastewater flow that had been too small to be collected by the coarse bar racks. The screened material is collected and removed for disposal.

The screened wastewater flows by gravity to the grit removal system where grit, sand, silt, etc. is removed from the flow stream for disposal.

Flow from the grit tanks flows by gravity to the High Flow Diversion Box which is used to control flow to subsequent processing tanks. Normal operation would call for flows up to the normal diurnal peak (dry weather) to be completely processed through the Biological Phosphorus Removal (BPR) system while flows exceeding these levels would be diverted directly to the second zone of aeration. This allows for preservation of the fermentation zones needed for biological phosphorus removal during high flows to the facility.

Normal flows then are blended with Return Activated Sludge (RAS) and flow by gravity through the 7 BPR fermentation reactors. These basins allow the nitrates in the RAS to be stripped and for an anaerobic environment to be created for release of volatile acids which solublize the phosphorus. Each BPR reactor is mixed with submersible mechanical mixers to prevent settling yet to prevent aeration.

Should the plant not desire to remove phosphorus biologically, Tanks 1 and 2 have been designed to receive normal diurnal flows, thus allowing for the other tanks to be taken out of service.

The discharge from the BPR tanks flow by gravity to the first zone of nitrification where the phosphorus is metabolized and the nitrification reactions begin. Conditions are maintained with regard to sludge age, dissolved oxygen and alkalinity that are favorable for the conversion of ammonia nitrogen to nitrite and subsequently nitrate nitrogen. Zone 1 discharges to Zone 2 via gravity for additional treatment (nitrification). All tanks in Zone 1, due to the efficiency of its aeration devices, are normally in service while the number of tanks in Zone 2 which are placed in service are dictated by the normal diurnal peak flow.

Zone 2 discharges into the final clarifiers for settling. Eight clarifiers are provided for normal and peak flow conditions. Settled sludge is either returned to the head of the BPR tanks or wasted to either the sludge thickeners (2 units available) or to the Aerated Sludge Holding Tanks (4 available).

The effluent from the final clarifiers discharges to the chlorination contact tanks for disinfection and subsequent dechlorination with sulfur dioxide. The tanks have coarse bubble aeration diffusers for maintaining adequate dissolved oxygen in the plant effluent.

Sludge that is wasted to either the sludge thickeners or the ASH tanks is held until it is desirable for dewatering. The ASH tanks are aerated with positive displacement blowers and fine bubble diffusers. The sludge thickeners can be used for direct feed to the dewatering process or for thickening the sludge prior to use (or during the use) of the ASH tanks.

Sludge is pumped from the sludge thickeners or the ASH tanks to the 2-meter belt filter presses for dewatering. Dewatered sludge is discharged to trucks for disposal in landfill.

TABLE 3-1

WEST HICKMAN CREEK WWTP
DESIGN CRITERIA
YEAR 2001

INFLUENT WASTEWATER

Dry Weather Flow	33.87 MGD
Total Recycle	64.0 mgd
Total Suspended Solids Loadings	
Average	
Influent	48,868 lbs./day
Total Recycle	14,125 lbs./day
Total	62,993 lbs./day
$CBOD_5$ Loadings	
Average	
Influent	50,846 lbs./day
NH_3-N Average Influent	4,802 lbs./day
3-Day Maximum	
Influent	52,227 lbs./day
Total Recycle	12,752 lbs./day
Total	64,979 lbs./day
Total Kjedahl Nitrogen Loading	
Average	
Influent	7,627 lbs./day
3-Day Maximum	
Influent	4,507 lbs./day
Total Recycle	2,610 lbs./day
Total	7,117 lbs./day

KPDES EFFLUENT LIMITATIONS

PARAMETER	MONTHLY	WEEKLY	INSTANTANEOUS VALUE
BOD_5	10 mg/l	15 mg/l	
Total Suspended Solids	30 mg/l	45 mg/l	
Fecal Coliform Bacteria	200/100 ml	400/100 ml	
NH_3-N	4 mg/l * 10 mg/l **	6 mg/l * 15 mg/l **	
(1) Total Phosphorus (as P)	1 mg/l *	2.0 mg/l (*) (***)	
Chlorine Residual			
Dissolved Oxygen	--	--	Greater than or equal to 7.0 mg/l
pH	--	--	From 6.0 to 9.0 S.U.

* May 1 - October 31
** November 1 - April 30
*** Daily Maximum Limit

(1) Limits for Phosphorous will take effect May 2004. Until then monitor only.

COARSE BAR RACK

Number	2, in series
Type	Manual with electric hoist lift
Width	6.5 feet
Opening Size	3 inches

RAW SEWAGE PUMP STATION

Number of Pumps	3
Pump Type	Enclosed Screw
Pump Capacities	25.2 MGD
Two with one standby	50.4 MGD
Hydraulic Lift	34.1 Feet

PRELIMINARY SCREEN SYSTEM

Number of Units	3
Type	Mechanical- 6mm Opening
Channel Width	4.0 Feet
Water Depth	5.04 Feet
Capacity, Each	25.2 MGD

GRIT REMOVAL SYSTEM

Number of Units	2
Type	Forced Vortex
Dimensions	
Diameter	19 feet
Sidewater Depth	4.75 feet
Center Depth	9.00 feet
Volume	
Each	4,450 gallons
Total	8,900 gallons
Peak Hourly Flow	52.731 MGD
Detention Time	14.6 seconds

Grit Pumps	
Number of Pumps	2
Pump Type	Torque-flow
Capacity, each	210 gpm
Cyclones	
Number	2
Size	10"
Grit Classifiers	
Number	2
Screw Size	12 inches
Area, each	6 sq. ft.

BIOLOGICAL PHOSPHORUS REMOVAL TANKS (BPR)

Number	7
Type	Rectangular
Tank Dimensions	
BPR (Nos. 1, 2, 4, 5, 6, 7)	
Length	137 feet
Width	20 feet
Average Water Depth	10 feet
BPR (No. 3)	
Length	137 feet
Width	41 feet
Average Water Depth	10 feet
Area	
BPR, each (Nos. 1,2,4,5,6 and 7)	2,740 square feet
Clarifier (No. 3)	5,617 square feet
Total	22,057 square feet
Volume	
BPR, each (Nos. 1,2,4,5,6, and 7)	205,500 gallons
Clarifier (No. 3)	421,500 gallons
Total	1.655 MGD

Flow	
Design Flow	33.87 MGD
RAS Flow	16.935 MGD
Detention Time	
Design Flow	.78 Hours

FIRST STAGE AERATION TANKS

Zone One	
Number of Tanks	8
Type	Rectangular with fine bubble aeration
Tanks Dimensions	
Smaller Tanks (Nos. 1&2)	
Length	120 feet
Width	24 feet
Average Water Depth	11.2 feet
Larger Tanks (Nos. 3,4,5,6,7,8)	
Length	120 feet
Width	24 feet
Average Water Depth	13 feet
Volume	
Smaller Tanks (Nos. 1&2)	32,256 cubic feet 241,000 gallons
Larger Tanks (Nos. 3,4,5,6,7 and 8)	37,440 cubic feet 280,000 gallons
Total	289,152 cubic feet 2,162,000 gallons
Detention time Design Q 33.87 MGD + 50% Return	1.02 hours
Design MLVSS Summer	2,000 mg/l
MLVSS Winter	3,000 mg/l

ZONE TWO AERATION TANKS

Number of Tanks	6
Type	Rectangular with fine bubble aeration

Tanks Dimensions	
Length	152 feet
Width	40 feet
Average Water Depth	20 feet
Volume	
Each	121,600 cubic feet 910,000 gallons
Total	729,600 cubic feet 5,460,000 gallons
Detention Time Design Q 33.87 + 50% Return	2.6 hours
Design MLVSS Summer	2,000 mg/l
MLVSS Winter	3,000 mg/l
Return Sludge Pumps	
Number	5
Type	Horizontal Centrifugal
Capacity, each	9,000 gpm
Total Capacity with 2 Standby	27,000 gpm

FINAL CLARIFIERS

Number	8
Type	Circular with rapid sludge removal mechanism
Tank Dimensions	
Small Clarifiers (4)	
Diameter	115 feet
Sidewater Depth	12.5 feet
Large Clarifiers (4)	
Diameter	125 feet
Sidewater Depth	12.5 feet
Area	
Small Clarifiers, each (Nos. 1, 2, 3 and 4)	10,387 sq. ft.
Large Clarifiers, each (Nos. 5, 6, 7 and 8)	12,272 sq. ft.
Total	90,636 sq. ft.

Volume	
Small Clarifiers, each (Nos. 1, 2, 3 and 4)	974,000 gallons
Large Clarifiers, each (Nos. 5,6, 7 and 8)	1,150,000 gallons
Total	8,496,000 gallons
Flow (w/o return sludge)	
Design	33.87 mgd
Peak Hourly	64.00 mgd
Surface Overflow Rate	
Design	560 gpd/sq.ft.
Peak Hourly	893 gpd/sq.ft.
Solids Loading Rate	
Design Flow	18.7 lbs./day/sq.ft.
Peak Hourly Flow	29.8 lbs./day/sq.ft.
Detention Time (without/return sludge)	
Design Flow	6.02 hours
Peak Hourly Flow	3.19 hours
Waste Sludge Pumps	
Number	2
Type	Horizontal Centrifugal
Capacity	450 gpm
Sludge Production	
Design Flow	540,000 gpd
Design Pounds	45,036 Lbs/Day

DISINFECTION FACILITIES

Chlorine Contact Tank	
Number	4
Tank Dimensions	
Effective Length	93 feet
Width	41 feet
Average Depth	6.5 feet
Volume, each	185,400 gallons
Volume, total	741,600 gallons

60" Pipe	
Length	310 Feet
Volume	45,500 gallons
Total Chlorine Contact Volume	787,100 gallons
Flow	
Design	33.87 mgd
Peak Hourly Flow	64.00 mgd
Detention Time	
Design Flow	33.5 minutes
Peak Hourly Flow	17.7 minutes
Chlorinators (for Effluent Chlorination Only)	
Number	5
Capacity	3000 lbs./day
Sulfonators	
Number	2
Capacity (with one standby)	1,500 lbs./day

GRAVITY THICKENER

Number	2
Type	Circular, Mechanical Picket collector
Tank Dimensions	
Diameter	45 feet
Sidewater Depth	12 feet
Surface Area, each	1,590 sq. ft.
Volume, each	160,500 gallons
Volume, total	160,500 gallons

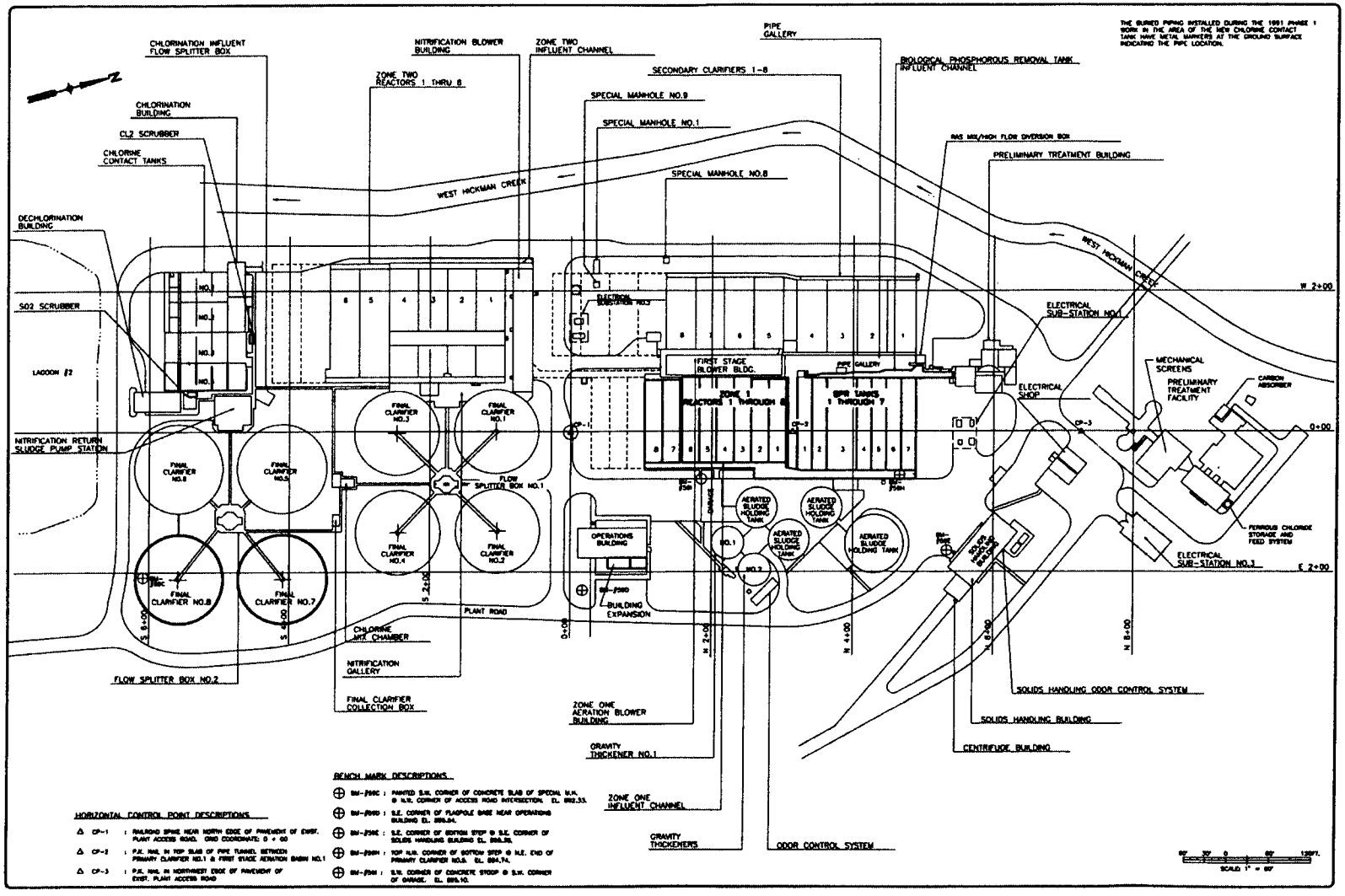
AERATED SLUDGE HOLDING TANKS (ASHT)

Number	4
Type	Circular with fine bubble diffused air

Dimensions	
Small Units	
Number	3
Diameter	50 feet
Sidewater Depth Maximum	32.2 feet
No. Diffusers (each)	312
Large Unit	
Number	1
Diameter	80 feet
Sidewater Depth Maximum	30.3 feet
No. Diffusers	812
Liquid Volume (Maximum)	63,193 cu. ft.
Small Unit (Each)	473,948 gallons
Large Unit	193,920 cu. ft. 1,454,400 gallons
Total	2,876,244 gallons

BELT FILTER PRESSES

Number	3
Belt Width	2.0 meters
Design Feed Solid	2.0 to 3.0 %
Capacity, each	1500 lbs/hr.
Capacity, total (2 operating)	3000 lbs./hr.



PDR Engineers, Inc.
Lexington-Cincinnati-Louisville-Memphis-Nashville-Owensboro-Indianapolis
820 Corporate Dr. • Lexington, Kentucky 40503 • (606) 223-8000

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
WEST HICKMAN WATER POLLUTION CONTROL FACILITY
EXPANSION AND IMPROVEMENTS
LEXINGTON, KENTUCKY

GENERAL SITE PLAN

SCALE:	1"=60'
JOB No.:	98063
DESIGNED BY:	MLL
DETAILED BY:	AJP
CHECKED BY:	
DATE:	JAN. 2000

REVISIONS:
5/31/00 EOW
11/16/00 EOW
2/26/01 EOW

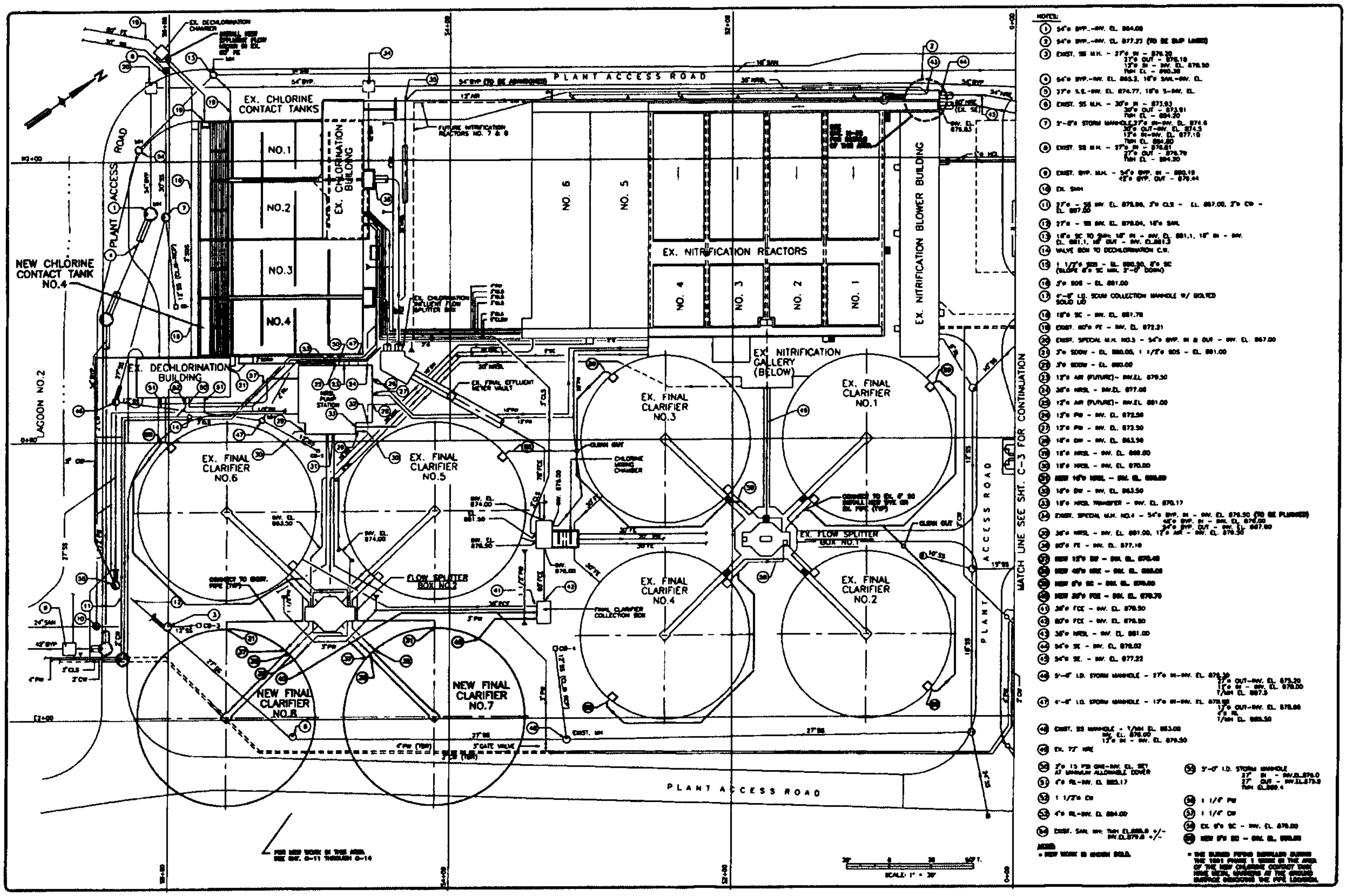
EXHIBIT 1

SHEET: C-1 OF 23

1/1/00 1"=60'

1-16

REVISED



9828JC2 1/19/00 1"=30'

NOTES:

PDR Engineers, Inc.

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
WEST HICKMAN WWTP – CONTRACT NO. 2
EXPANSION/IMPROVEMENTS
LEXINGTON, KENTUCKY

SITE PIPING PLAN

SCALE: 1"=30'

DATE: JAN. 2000

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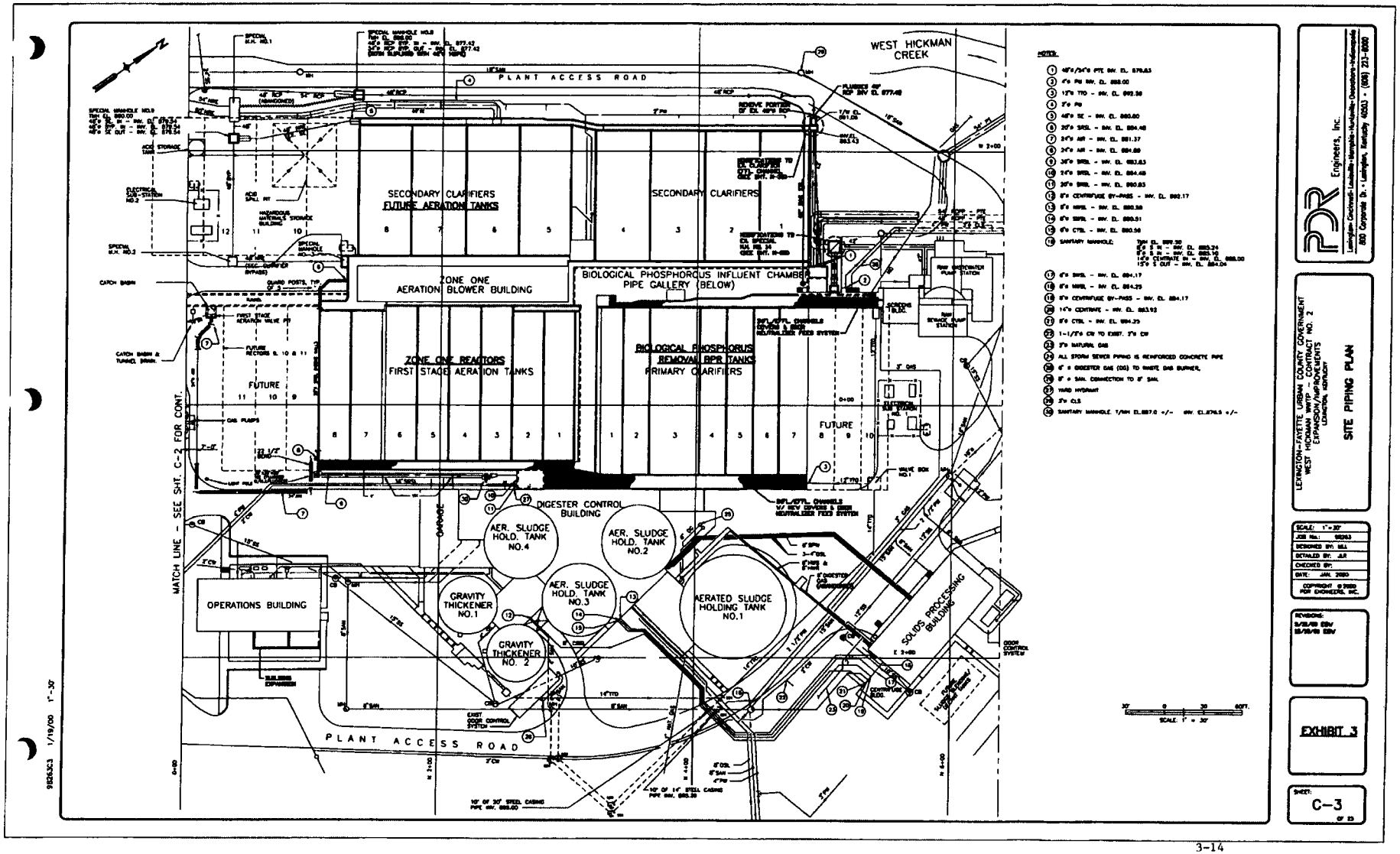
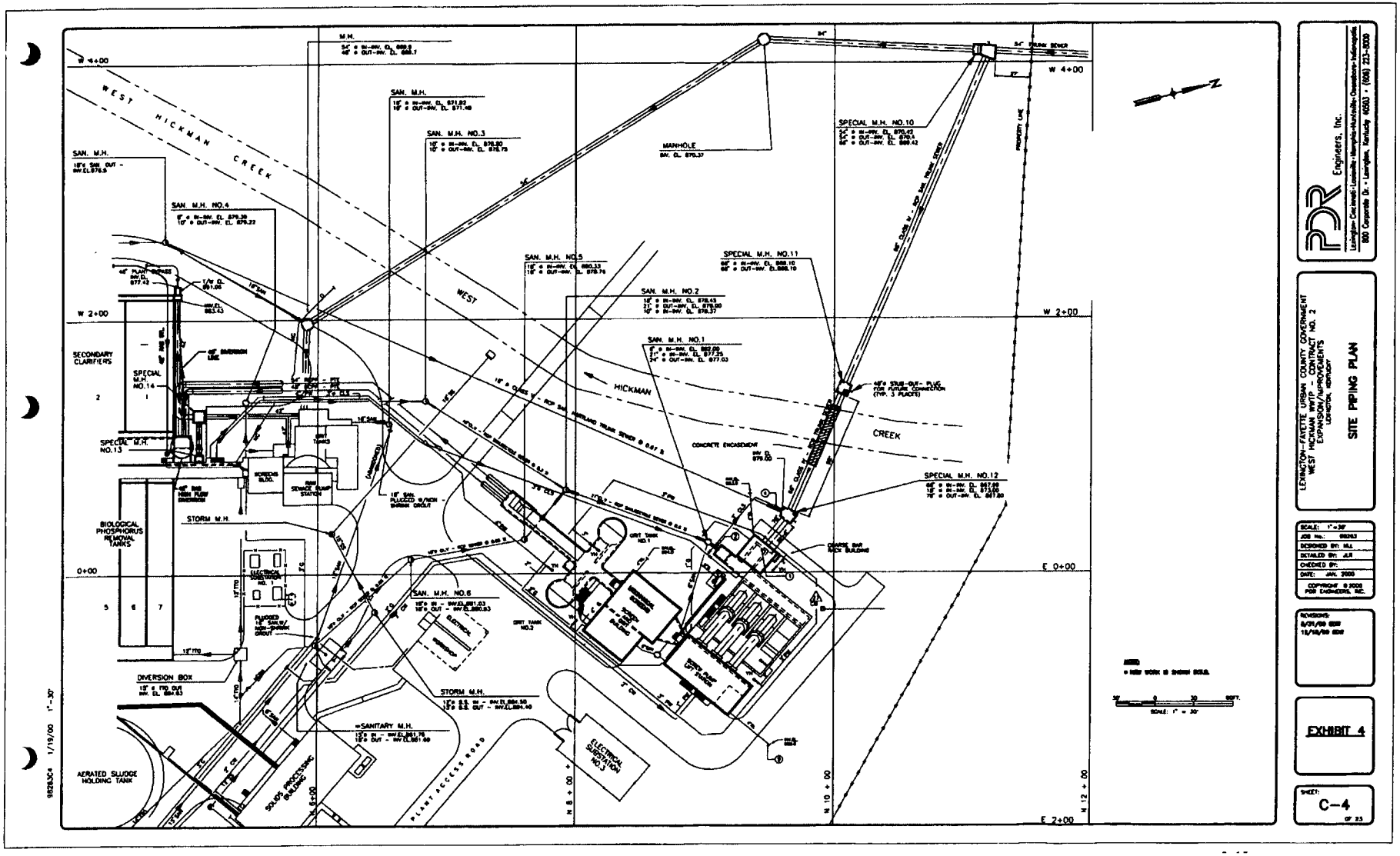
REVISIONS:

EXHIBIT 2

SHEET: C–2

3-13


WEST HICKMAN CREEK
PLANT ACCESS ROAD
SECONDARY CLARIFIERS
FUTURE AERATION TANKS
SECONDARY CLARIFIERS
ZONE ONE AERATION BLOWER BUILDING
BIOLOGICAL PHOSPHORUS INFLUENT CHAMBER PIPE GALLERY (BELOW)
ZONE ONE REACTORS
FIRST STAGE AERATION TANKS
BIOLOGICAL PHOSPHORUS REMOVAL BPR TANKS
PRIMARY CLARIFIERS
FUTURE
FUTURE
DIGESTER CONTROL BUILDING
AER. SLUDGE HOLD. TANK NO.4
AER. SLUDGE HOLD. TANK NO.2
AER. SLUDGE HOLD. TANK NO.3
GRAVITY THICKENER NO.1
GRAVITY THICKENER NO. 2
AERATED SLUDGE HOLDING TANK NO.1
SOLIDS PROCESSING BUILDING
OPERATIONS BUILDING
MATCH LINE - SEE SHT. C-2 FOR CONT.
PLANT ACCESS ROAD
NOTES
SCALE: 1" = 30'
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
WEST HICKMAN WWTP - CONTRACT NO. 2
EXPANSION/IMPROVEMENTS
LOUISVILLE, KENTUCKY
SITE PIPING PLAN
EXHIBIT 3
C-3



PDR Engineers, Inc.
Lexington · Cincinnati · Louisville · Memphis · Huntsville · Owensboro · Indianapolis
800 Corporate Dr. · Lexington, Kentucky 40503 · (606) 223-3030

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
WEST HICKMAN WWTP - CONTRACT NO. 2
EXPANSION/IMPROVEMENTS
LEXINGTON, KENTUCKY

SITE PIPING PLAN

SCALE: 1"=30'
JOB No.: 99243
DESIGNED BY: MJL
DETAILED BY: JJR
CHECKED BY:
DATE: JAN. 2000
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REVISIONS:
5/31/00 EDR
10/16/00 EDR

EXHIBIT 4

SHEET: C-4 OF 23

~~EXHIBIT D~~ *NOT USED*

Further Description of Basic Engineering Services

and

Related Services

MAYOR JIM GRAY

LEXINGTON

CHARLES H. MARTIN, P.E.
DIRECTOR
WATER QUALITY

TO: Mayor Jim Gray
Urban County Council

FROM: Robert S. Chase FOR C H MARTIN
Charles H. Martin, P.E., Director
Division of Water Quality

DATE: August 14, 2018

SUBJECT: **Contract for Investigation/Design Services for West Hickman WWTP Biological Phosphorus Removal Improvements Project; RFP #15-2018**

Request

The purpose of this memorandum is to request a resolution authorizing an agreement between the Lexington-Fayette Urban County Government (LFUCG) and Tetra Tech. The contract with Tetra Tech will provide investigation and design services for West Hickman WWTP Biological Phosphorus Removal Improvements Project.

Purpose of Request

The purpose of the West Hickman WWTP Biological Phosphorus Removal Improvements Project, as defined by RFP #15-2018, is to replace equipment that has surpassed its useful life to sustain current treatment reliability and lower operating cost by improving efficiency. The recommendations from this evaluation will address maintaining treatment reliability for a true peak capacity of 70 MGD. After the design and advertisement for construction, the consultant will also be responsible for weekly inspections until construction is complete.

On July 16, 2018, an RFP workgroup reviewed three RFPs for providing investigation and design services for the West Hickman WWTP Biological Phosphorus Improvements Project. The workgroup scored the firms as best meeting the conditions of the advertised Request for Proposals. The unanimous decision was Tetra Tech for the project. Tetra Tech's cost proposal was the lowest and ranked #1 in meeting the qualifications.

Project Cost in FY19 and in Future Budget Years

The cost for the defined investigation, design services and construction administration for the project is $386,000.00

Are Funds Budgeted

Funds are budgeted in the following account:
West Hickman Creek WWTP (Remedial Measures): 4003-303401-3401-92711
Project: WHWWTP_RMP/CONSENT_DE

Martin

Lisa McFadden

From: Charles Martin
Sent: Monday, August 20, 2018 3:37 PM
To: Lisa McFadden
Subject: FW: West Hickman BPR Improvements - Bluesheet

You doing this for LaDonna?

Charles H. Martin, P.E.
Acting Commissioner
LFUCG Dept. of Environmental Quality and Public Works
(859) 258-3400

LEXINGTON

From: Michael Cravens
Sent: Monday, August 20, 2018 3:26 PM
To: Commisioner EQ PW Exec Asst; Charles Martin
Cc: LaDonna Roberts
Subject: RE: West Hickman BPR Improvements - Bluesheet

I have reviewed this request for authorization for the Mayor to execute an agreement with Tetra Tech for the West Hickman WWTP Biological Phosphorous Removal Improvements Project. I have also reviewed the agreement. I note that the agreement provides for a lump sum payment of $386,000. As long as that is what is intended (as opposed to payment by use of task orders), I see no legal issues with the agreement. OK to bluesheet.

Michael Cravens
Attorney Senior
Department of Law

859.258.3500
MCravens@lexingtonky.gov
lexingtonky.gov

LEXINGTON

From: Janet Graham
Sent: Monday, August 20, 2018 9:39 AM
To: Michael Cravens <mcravens@lexingtonky.gov>
Cc: LaDonna Roberts <lroberts@lexingtonky.gov>; Charles Martin <chmartin@lexingtonky.gov>; Commisioner EQ PW

From: LaDonna Roberts
Sent: Friday, August 17, 2018 3:32 PM
To: Commisioner EQ PW Exec Asst <commeqpwea@lexingtonky.gov>
Cc: Lisa McFadden <lmcclana@lexingtonky.gov>
Subject: FW: West Hickman BPR Improvements - Bluesheet

Good afternoon,

Please send the attached for law review to begin the Legistar process.

Thank you,

LaDonna Roberts
Administrative Specialist
Division of Water Quality

859.258.3362 office
lexingtonky.gov

LEXINGTON

From: Tiffany Rank
Sent: Wednesday, August 15, 2018 10:47 AM
To: LaDonna Roberts <lroberts@lexingtonky.gov>
Cc: Charles Martin <chmartin@lexingtonky.gov>
Subject: West Hickman BPR Improvements - Bluesheet

Attached is the Bluesheet Memo and the ESA for the WH BPR Improvements Project.

We selected Tetra Tech who has Hazen as a sub for some modeling. The contract is $386,000.00 for design and modeling. I selected to model this area for this project to maximize the use of our existing tanks. I am under the impression that we have the capacity but it is just not being used correctly. The modeling will help us to estimate what improvements can be done to use the existing tanks more efficiently without having to spend money on more construction and concrete.

Please let me know if you have any questions. It would be nice if we could get second reading on this by September 13. That would mean it would need to be in Legistar by Monday the 20th.

Thank You,
Tiffany Rank