

# Four Rivers Sanitation Authority Rockford, Illinois

Bidding Requirements and Contract Forms and General Provisions and Technical Specifications for Sanitary Sewer Construction

for

# Interstate Diversion Basin Trunk Upsizing FPCIP 150D

Capital Project No. 2108

# **Board of Trustees**

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#### Article 1 — Notice to Bidders

The Four Rivers Sanitation Authority (FRSA) will receive signed and sealed bids for the Interstate Diversion Basin Trunk Upsizing FPCIP 150D, Capital Project No. 2108, at the Steve Graceffa Administration Building (Administration Building) at 3501 Kishwaukee Street, Rockford, Illinois until 10:00 a.m. on Tuesday, May 13, 2025 at which time and place responsive / responsible bids will be publicly opened and read aloud.

The Interstate Diversion Basin Trunk Upsizing FPCIP 150D project consists of removal and replacement of sanitary sewer pipe and manholes, new alignment of sanitary sewer and manholes, sanitary sewer and manhole abandonment, boring and jacking casing pipe, pavement removal and replacement, aggregate surface placement, and all other appurtenances as indicated on the plans and in the specifications.

Bidder's attention is called to Article 2 – Instructions to Bidders 3.8 requirements for Statement of Qualifications. Bidder must have a permanent business office within forty (40) miles of FRSA's office at 3501 Kishwaukee Street in Rockford, Illinois.

All demolition, construction, installation and associated Project work shall be completed by August 1, 2026. Liquidated damages shall be \$300.00 per calendar day.

Bid documents may be obtained at a cost of \$50.00 per set (non-refundable) by contacting the FRSA Engineering Department at 815-387-7660.

Plans and specifications may also be viewed at the offices of the Northern Illinois Building Contractors Association at 1111 S. Alpine Rd, Rockford, Illinois. For more information, visit the FRSA website at <u>fourrivers.illinois.gov</u>.

All construction shall be done in accordance with specifications on file with FRSA, including the *General Provisions and Technical Specifications for Sanitary Sewer Construction*, Four *Rivers Sanitation Authority* (Current Edition).

Each Proposal must be accompanied by the FRSA Bid Bond form with an acceptable Bid Security attached, in the amount of five percent (5%) of the total bid price. This amount is a guarantee that, if the Proposal is accepted, a Contract will be entered into and its performance properly secured.

A Non-Mandatory Pre-Bid Meeting for this project will be held on Tuesday, April 29, 2025 at 10:00 a.m. in the FRSA Board Room at 3501 Kishwaukee Street, Rockford, Illinois. All Contractors intending to bid on this project are encouraged to attend the prebid meeting.

The successful bidder will be required to furnish a satisfactory Performance Bond in the full amount of the Bid or Proposal. No Bid shall be withdrawn without FRSA's consent for a period of sixty (60) days after the scheduled closing time for receipt of bids.

FRSA reserves the right to reject any or all bids, or any part thereof, or to accept any bid or any part thereof, or to waive any formalities in any bids, deemed to be in the best interest of FRSA.

Dated this \ day of BY: Christopher T. Baer, PE Interim Executive Director / Director of Engineering

## Article 2 — Instructions to Bidders

## 1 General

#### 1.1 Scope and Intent

This section of the Contract Documents provides detailed information and requirements for preparing bids to prospective bidders, bidders' responsibility, the preparation and the submission of bids, basis for awarding the Contract and other general information concerned with bidding and executing the Contract.

#### 1.2 Contradictions

If in the case of apparent contradictions between or among the Contract Documents, the Contract Documents shall be consulted in the following order: Addenda, Agreement, Supplementary Drawings, Instructions to Bidders, Detailed Specifications, Plans, Four Rivers Sanitation Authority (FRSA) General Provisions and Technical Specifications for Sanitary Sewer Construction. The language in the first such document in which language regarding the conflict, error or discrepancy occurs shall control.

#### 1.3 Non-Mandatory Pre-Bid Meeting

A Non-Mandatory Pre-Bid Meeting for this project will be held on Tuesday April 29, 2025 at 10:00 a.m. in the FRSA Board Room at 3501 Kishwaukee Street, Rockford, Illinois. All Contractors intending to bid on this project must attend the pre-bid meeting.

### 2 Legal Requirements

#### 2.1 Illinois Regulations

- A. Public Act 100-1177 (820 ILCS 130/) entitled the "Prevailing Wage Act" requires the Bidder to comply with prevailing wages in accordance with the Illinois Department of Labor Standards. The State of Illinois requires contractors and subcontractors on FRSA projects to submit certified payroll reports via the State's Certified Transcript of Payroll Portal currently found at: <u>https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/certifiedtranscriptofpayroll.aspx</u>. The Bidder is responsible for verifying current information at the State's website.
- B. Public Act 83–1030 (30 ILCS 565/) entitled the "Steel Products Procurement Act" requires that steel products used or supplied in performance of this Contract or subcontract must be manufactured or produced in the United States with three exceptions.

The provisions of this Section shall not apply:

- Where the Contract involves an expenditure of less than \$500.
- 2. Where the executive head of the public agency certifies in writing that
  - a) the specified products are not manufactured or produced in the United States in sufficient quantities to meet the agency's requirements, or
  - b) obtaining the specified products, manufactured or produced in the United States would increase the cost of the Contract by more than 10%.

- 3. When its application is not in the public interest.
- C. Public Act 96-929 (30 ILCS 570/) entitled the "Illinois Workers on Public Works Act" provides that Illinois residents be employed on Illinois public works projects, provided there has been a period of excessive unemployment (5%) in the State of Illinois as defined in the Act; and, further, that Illinois workers are available and capable of performing the particular type work involved.
- D. Public Act 101-0221 entitled the "Workplace Transparency Act" requires that any party to a contract adopt and promulgate written sexual harassment policies that include, as a minimum, the following information:
  - 1. the illegality of sexual harassment
  - 2. the definition of sexual harassment under Illinois State law
  - 3. a description of sexual harassment, utilizing examples
  - 4. my (our) organization's internal complaint process including penalties
  - 5. the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Illinois Human Rights Commission
  - 6. directions on how to contact the Department and the Commission
  - 7. protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act

Upon request, this information must be provided to the Illinois Department of Human Rights and the FRSA.

- E. With regard to nondiscrimination in employment, the Contractor for this project will be required to comply with the Illinois Fair Employment Practices Commission's Rules and Regulations.
- F. The Contractor for this project must comply with the Occupational Safety and Health Act.
- G. The Contractor for this project must comply with the Federal Drug-Free Workplace Act.
- H. Public Act 96-1416 requires the Certification of Clean Construction and Demolition Debris (CCDD) and uncontaminated soil prior to disposal at a CCDD fill site. The Contractor for this project must comply with Public Act 96-1416 and be responsible for the certifications and any fees associated with the disposal at a CCDD fill site.

 In the event that contaminated soil is uncovered on the project, the Contractor must notify FRSA immediately. Any extra costs resulting from the presence of contaminated soil must be evaluated in accordance with FRSA General Provisions & Technical Specs for Sanitary Sewer Construction; General Conditions: Article 5 – Time Provisions and Article 8 – Changes.

#### 2.2 Americans with Disabilities Act

The Contractor for this project will comply with all applicable requirements of the Americans with Disabilities Act of 1990 (ADA). The Contractor will hold harmless and indemnify Four Rivers Sanitation Authority (FRSA) and their representatives from all:

- A. suits, claims, or actions
- B. costs, either for defense (including but not limited to reasonable attorney's fees and expert witness fees) or for settlement
- C. damages of any kind (including but not limited to actual, punitive, and compensatory damages)

relating in any way to or arising out of the ADA, to which said firm is exposed or which it incurs in the execution of the Contract.

### 3 General Instructions

#### 3.1 Bidder's Responsibility

Bidders are cautioned not to submit proposals until having carefully examined the entire site of the proposed work and adjacent premises and the various means of approach and access to the site, and having made all necessary investigations to inform themselves thoroughly as to the facilities for delivering, placing and handling the materials at the site, and having informed themselves thoroughly as to all difficulties involved in the completion of all the work under this Contract in accordance with its requirements.

Bidders must examine the Plans, Specifications and other Contract Documents and shall exercise their own judgment as to the nature and amount of the whole of the work to be done and for the bid prices must assume all risk of variance, by whomsoever made, in any computation or statement of amount or quantities necessary to complete fully the work in strict compliance with the Contract Documents. The Bidder must satisfy himself by making borings or test pits, or by such methods as he may prefer, as to the character and location of the materials to be encountered or work to be performed. No pleas of ignorance of conditions that exist or that may hereafter exist, or of conditions or difficulties that may be encountered in the execution of the work under this Contract, as a result of failure to make the necessary examinations and investigations, will be accepted as an excuse for any failure or omission on the part of the Contract to fulfill, in every detail, all of the requirements of the Contract Documents, or will be accepted as a basis for any claims whatsoever for extra compensation or for an extension of time.

The Contractor is responsible for verifying the location of all existing utilities in the project areas.

The Bidder, therefore, shall satisfy himself by such means as he may deem proper as to the location of all structures that may be encountered in construction of the work.

#### 3.2 Addenda and Interpretations

No interpretation of the meaning of the Plans, Specifications, or other Contract Documents will be made to any bidder orally. Every request for such interpretation must be in writing addressed to Four Rivers Sanitation Authority, 3501 Kishwaukee Street, Rockford, Illinois.

To be given consideration, such request must be received at least five (5) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda which, if issued, will be sent by email, fax, or certified mail with acknowledgement of receipt requested, to all prospective bidders, at the respective addresses furnished for such purposes, not later than three (3) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addenda or interpretation shall not relieve said bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

#### 3.3 Laws and Regulations

The prospective bidder is warned that he must comply with all laws of the United States Government, State of Illinois, all ordinances and regulations of FRSA in the performance of the work under this Contract. The Bidder's attention is specifically called to that provision of the General Conditions regarding the rate of wage to be paid on the work.

#### 3.4 Quantities Estimated Only

Bidders are warned that the estimate of quantities of the various items of work and materials, as set forth in the Proposal form, is approximate only and is given solely to be used as a uniform basis for the comparison of bids. The quantities actually required to complete the Contract work may be less or more than so estimated, and if awarded a contract for the work specified, the Contractor further agrees that he will not make any claim for damages or for loss of profits or for an extension of time because of a difference between the quantities of the various classes of work assumed for comparison of bids and quantities of work actually performed.

#### 3.5 Form, Preparation, and Presentation of Proposals

For particulars as to the quantity and quality of the supplies, materials and equipment to be furnished, and the nature and extent of the work or labor to be done, prospective bidders are referred to the Contract Documents, which may be examined or obtained at the office of FRSA.

Each bid will be submitted upon the prescribed Proposal form. All blank spaces for bid prices must be filled in, in ink, with the unit or total sum or both for which the Proposal is made. If the Proposal contains any omissions, erasures, alterations, additions or items not called for in the itemized Proposal, or contains irregularities of any kind, such may constitute sufficient cause for rejection of bid. In case of any discrepancy in the unit price or amount bid for any item in the Proposal, the unit price as expressed in figures will govern. In no case is the agreement form to be filled out or signed by the bidder.

#### Bidders may opt to contact FRSA's Engineering Department at 815.387.7660 to obtain an electronic Proposal form. If used, this form must be attached to the hard copy Proposal form and appropriately signed and executed with the bid.

The bid must be verified and be presented on the prescribed form in a sealed envelope on or before the time and at the place stated in the Advertisement for Bids, endorsed with the name of the person, firm or corporation presenting it, the date of presentation, and the title of the work for which the bid is made. If forwarded by mail, the sealed envelope containing the Proposal and marked as directed above, must be enclosed in another envelope addressed to Clerk of the Four Rivers Sanitation Authority, 3501 Kishwaukee Street, Rockford, Illinois, 61109 and be sent preferably by certified mail. FRSA will not accept facsimile generated bids.

#### 3.6 Bid Security

Each Proposal must be accompanied by the FRSA Bid Bond form with an acceptable Bid Security attached, in the amount specified in Article One, Notice to Bidders. This sum is a guarantee that, if the Proposal is accepted, a contract will be entered into and its performance properly secured. The FRSA's Bid Bond Form included in the bid packet must be used. No other Bid Bond form may be substituted.

Within ten (10) days after the opening of bids, the deposits of all but the three lowest bidders will be returned. The deposits of the remaining two unsuccessful bidders will be returned within three (3) days after the execution of the Contract, or, if no such Contract has been executed, within sixty (60) days after the date of opening bids. The deposit of the successful bidder will be returned only after he has duly executed the Contract and furnished the required bond and insurance.

#### 3.7 Affidavit of Compliance

**Each proposal must be accompanied by an executed Affidavit of Compliance.** A separate Affidavit of Compliance form is enclosed with the Proposal packet. Failure to submit an executed Affidavit of Compliance with the Proposal may constitute sufficient cause for rejection of the bid.

#### 3.8 Statement of Qualifications

Each Proposal must be accompanied by a Statement of Qualifications certifying that the bidder is registered to do business in the State of Illinois, <u>has a permanent business office</u> within forty (40) miles of the FRSA office at 3501 Kishwaukee Street in Rockford, IL, and provides documentation that the bidder possesses the appropriate financial, material, equipment, facility and personnel resources and expertise necessary to meet all contractual obligations. The bidder shall document no less than three (3) contracts for sanitary sewer system work within the past five (5) years having equal or greater value to the bid being submitted. FRSA reserves the right to request additional information, as needed, to evaluate bids prior to making an award.

#### 3.9 Comparison of Proposals

Bids on item contracts will be compared on the basis of a total computed price arrived at by taking the sum of the estimated quantities of each item, multiplied by the corresponding unit prices and including any lump sum bids on individual items, in accordance with the estimate of quantities set forth in the Proposal form. Bids on lump sum contracts will be considered upon the basis of the lowest sum bid.

#### 3.10 Acceptance of Bids and Basis of Award

The contract will be award, if at all, to the lowest responsive, responsible bidder. No bidder may withdraw his bid after the scheduled closing time for receipt of bids, for at least sixty (60) days. Four Rivers Sanitation Authority also reserves the right to reject any and all bids.

The bidder whose proposal is accepted will be notified of the Notice of Award issued by FRSA Executive Director. Within ten (10) days of issuance of a Notice of Award by the FRSA Executive Director, the successful bidder shall enter into a written contract for the

performance of the Proposal work and shall furnish the required bonds and insurance certificates upon being served such Notice, personally, by mailing, or via email.

If the bidder does not comply with the Notice of Award, FRSA will issue a Deficiency Notice. If the bidder to whom the contract is awarded refuses or neglects to execute it or fails to furnish the required bond and insurance within five (5) days after receipt by him of Deficiency Notice, the amount of his deposit shall be forfeited and shall be retained by FRSA as liquidated damage and not as a penalty. It being now agreed that said sum is a fair estimate of the amount of damages that FRSA will sustain in case said bidder fails to enter into a contract and furnish the required bond and insurance. No plea of mistake in the bid shall be available to the bidder for the recovery of his deposit or as a defense to any action based upon the neglect or refusal to execute a contract.

#### 3.10.1 Evaluation of Responsiveness

The responsiveness of bidders will be judged on the basis of the completeness of the bid submitted. To be responsive, a Bid must be submitted on the forms provided as part of the Bid Documents and comply with all the requirements of the Instruction to Bidders.

#### 3.10.2 Evaluation of Responsibility

To be judged as responsible, the bidder shall:

- A. Have adequate financial resources for performance, the necessary experience, organization, technical qualifications, and facilities, or a firm commitment to obtain such by subcontracts;
- B. Be able to comply with the required completion schedule for the project;
- C. Have a satisfactory record of integrity, judgment, and performance, including, in particular, any prior performance on contracts from FRSA;
- D. Have an adequate financial management system and audit procedures, that provide efficient and effective accountability and control of all property, funds, and assets;
- E. Conform to the civil rights, equal employment opportunity and labor law requirements of the Bid Documents.
- F. Have satisfactorily completed no less than three (3) sanitary sewer system repair contracts within the past five (5) years of equal or greater value to the bid being submitted.

#### 3.11 The Rejection of Bids

FRSA reserves the right to reject any bid if the evidence submitted in the statement of the bidder's qualifications, or if investigation of such bidder fails to satisfy FRSA that such bidder is properly qualified to carry out the obligations and to complete the work contemplated therein. Any or all proposals will be rejected if there is reason to believe that collusion exists among the bidders. Conditional bids will not be accepted. FRSA reserves the right to reject any and all bids and to accept the bid which they deem most favorable to the interest of FRSA after all Proposals have been examined and canvassed.

#### 3.12 Insurance and Bonding

Contractor shall provide all necessary insurance and bonds required to complete the project. No more than ten (10) calendar days subsequent to FRSA's issuance of an award letter, the

Contractor shall provide documentation to prove that he has obtained all required insurance and bonds. FRSA shall be the sole judge as to the acceptability of any such proof.

Contractor shall provide and maintain all insurance and bonds as required by FRSA.

#### 3.12.1 General

The Contractor shall ensure that:

- A. All insurance policies shall be specific to the project.
- B. The insurance certificate shall state: This certifies that the insurance coverage meets or exceeds that required for Interstate Diversion Basin Trunk Upsizing FPCIP 150D, Capital Project No. 2108.
- C. FRSA shall be named as Additional Insured in all policies; this shall include the Owners' Contractors' Protective Policy option.
- D. All completed operations coverages and bonds shall remain in force for a period of two (2) years following acceptance of the Project and completed operations shall stay in force for two (2) years following completion of the Project.

#### 3.12.2 Insurance

The Contractor shall, for the duration of the Contract and for two (2) years following project acceptance, maintain the following:

- A. <u>General Liability</u>: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit. The Contractor shall provide "XCU" coverage.
- B. <u>Automobile Liability</u>: \$1,000,000 combined single limit per accident for bodily injury and property damage including coverages for owned, hired or non--owned vehicles, as applicable.
- C. <u>Workers' Compensation and Employers Liability</u>: Workers' Compensation limits as required by statute and Employers Liability limits of \$500,000 per accident and \$500,000 per disease.
- D. <u>Umbrella</u>: \$2,000,000 per occurrence/aggregate for contracts valued at \$500,000 or over, or \$1,000,000 for contracts below \$500,000. \$10,000 is maximum allowable self-retained limit.
- E. <u>Errors and Omissions</u>: If the Contractor performs professional services, he shall maintain errors and omissions insurance with a limit no lower than \$1,000,000 for the duration of the contract.

The policies shall contain, or be endorsed to contain, the following provisions in the General Liability and Automobile Liability Coverage's:

1. Unless otherwise provided in paragraph "c" of this section, FRSA, its officers, officials, employees and volunteers shall be covered as additional insureds as respects liability arising out of activities performed by or on insured's general supervision of the Contractor, products and completed operations of the Contractor, premises owned,

occupied or used by the Contractor, or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to FRSA, its officers, officials, employees, volunteers, or agents.

- 2. Unless otherwise provided in paragraph "c" of this section, the Contractor's insurance coverage shall be primary insurance as respects FRSA, its officers, officials, employees, volunteers, and agents. Any insurance or self-insurance maintained by FRSA, its officers, officials, employees, volunteers, or agents shall be excess of the Contractor's insurance and shall not contribute with it.
- 3. As an acceptable alternative to provisions "a" and "b" of this section, the Contractor may provide owner's and contractor's protective liability insurance with coverage limits, named insureds, and in conformity with all applicable specifications of this section.
- 4. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to FRSA, its officers, officials, employees, volunteers, or agents.
- 5. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- All Coverages Each insurance policy required by this clause shall not be suspended, voided, canceled by either party, reduced in coverage, or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to FRSA.

#### 3.12.3 Best's Ratings

FRSA shall be the sole judge of whether or not said insurer's ratios are satisfactory. FRSA 's decision shall be final and FRSA 's bidding procedures contain no appeal provision.

- A. <u>Alphabetical Rating</u>: For purposes of this Request for Bids, "insurer" shall mean any surety, insurance carrier, or other organization which proposes to provide an insurance policy or bond for the Contractor. No insurer or surety rated lower than "A-, Excellent" in the current *Best's Key Rating Guide* shall be acceptable to FRSA.
- B. <u>Financial Size Rating</u>: Provided an insurer's alphabetical rating is satisfactory, FRSA will examine said insurer's financial size rating.
  - 1. If <u>Best</u> classifies the insurer XII or larger, said insurer shall be acceptable to FRSA.
  - 2. If <u>Best</u> classifies the insurer as smaller than XII, but larger than VI, said insurer shall be submitted to FRSA's Director of Management Services and/or FRSA's insurance consultant for review.

Financial Size ratings less than VII are not acceptable and will disqualify the Contractor.

#### 3.12.4 Performance Bond and Labor & Materials Payment Bond Form

The Contractor shall provide a Performance Bond and Labor & Materials Payment Bond form acceptable to FRSA. The performance bond shall be for either 100% of the contract price or for the Contractor's unit price times the estimated number of units, as applicable.

This Request for Bids contains a Performance Bond and a Labor & Material Bond form for the Contractor's use.

If the Contractor fails to provide acceptable bonds within the specified time, he shall be in default.

#### 3.12.5 Correction of Contractor's Insurance or Bond Deficiencies

If FRSA determines that the Contractor's insurance or bond documentation does not conform to these specifications, FRSA shall inform said Contractor of the non-conformity. If said Contractor fails to provide conforming insurance or bond documentation within five (5) calendar days of FRSA's deficiency notice, he shall be in default.

#### 3.12.6 Indemnification Clause

Contractor shall protect, indemnify, hold and save harmless and defend FRSA, its officers, officials, employees, volunteers, and agents against any and all claims, costs, causes, actions and expenses, including but not limited to attorney's fees incurred by reason of a lawsuit or claim for compensation arising in favor of any person, including the employees, officers, independent contractors, or subcontractors of the Contractor or FRSA, on account of personal injuries or death, or damages to property occurring, growing out of, incident to, or resulting directly or indirectly from the performance by the Contractor or subcontractor, whether such loss, damage, injury or liability is contributed to by the negligence of FRSA or by premises themselves or any equipment thereon whether latent or patent, or from other causes whatsoever, except that the successful bidder shall have no liability for damages or the costs incident thereto caused by the sole negligence of FRSA.

The indemnification shall not be limited by a limitation on amount or type of damages payable by or for the Contractor or its subcontractor under any employee benefits act including, but not limited, to the Workers Compensation Act.

No inspection by FRSA, its employees, or agents shall be deemed a waiver by FRSA of full compliance with the requirements of the Contract. This indemnification shall not be limited by the required minimum insurance coverages in the Contract.

#### 3.13 Tax Exemption

FRSA is exempt, by law, from paying bidder Federal Excise Tax and Illinois Retailers' Occupational Tax. Therefore, the bidder shall exclude those taxes from his bid. FRSA's tax exemption number is E9992-3696-06. The bidder shall include all other applicable taxes in his bid price.

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## Article 3 — Detailed Specifications

## 1. GENERAL

This article contains detailed specifications relating to Proposal items. The work to be done under each item is discussed along with units for payment and measurement for payment. However, the descriptions given do not necessarily outline all the work to be done under any item. In addition, work shall conform to the following *Technical Specifications: Standard Specifications for Water and Sewer Main Construction in Illinois*, current edition, and *Four Rivers Sanitation Authority* (FRSA) *General Provisions and Technical Specifications for Sanitary Sewer Construction*. When referenced, work shall conform to the *Illinois Department of Transportation's* (IDOT's) *Standard Specifications for Road and Bridge Construction*, current edition.

Throughout these specifications, the term "Owner" and "FRSA" shall be synonymous.

In case of apparent contradictions between *Section I, Article 3 - Detailed Specifications, IDOT Standard Specifications, and General Provisions and Technical Specifications for Sanitary Sewer Construction*, Section I, Article 3 - Detailed Specifications shall govern.

Utility locations shown on the plans are based on the information obtained at the time of design and are not guaranteed. The orientation and location (horizontal and vertical) of all existing underground utilities, such as gas mains, water mains, electric lines, field tiles, irrigation pipes, etc., shall be ascertained by the Contractor. The Contractor shall assume full responsibility for the location of all utilities.

The general location of the proposed sewer is governed by existing field conditions. Minor variations in alignments may be made to facilitate construction operations with prior FRSA approval.

Any construction not supervised by a FRSA Inspector will not be accepted.

No work shall be permitted on Sundays or FRSA Holidays without prior approval by the Four Rivers Sanitation Authority Director of Engineering.

Suppliers shall implicitly warrant that their products and product components are suitable and appropriate for the intended use and that they are free from all material, design, or workmanship defects. Said warranty shall inure to the benefit of FRSA. The foregoing shall apply to all products and product components, whether constructed as directed by the Contract documents or produced by an outside source.

FRSA will not supervise, direct, control, have authority over or be responsible for the Contractor's means, methods, techniques, sequences, procedures of construction, safety precautions and programs incident thereto, or for any failure by the Contractor to comply with all applicable laws and regulations in performance of the specified work. FRSA will not be responsible for the Contractor's failure to perform or furnish the work in accordance with the Contract documents.

As determined by FRSA or governing roadway authority, any appurtenance or property damaged within or adjacent to public rights-of-way or private easements, whether through Contractor negligence or as a result of construction, shall be repaired or replaced by the Contractor to the satisfaction of FRSA and roadway authority at no additional cost.

#### 2. PERMIT REQUIREMENTS

#### 2.1. General

All work within public right–of–way shall be subject to the regulations and requirements of the jurisdictional agencies. Should conflicts or contradictions arise between the plans, specifications and right-of-way permits, the permits shall govern.

The Contractor shall comply with the requirements of all permits obtained and required for the construction of this project, including but not limited to, the following:

IDOT Utility Permit IEPA Permit IEPA NPDES NOI IDNR EcoCAT/IWPA Wetland Compliance IHPA SHPO Compliance

FRSA previously procured permits listed above are included in these Contract documents in Section III; renewed permits will be procured by FRSA. FRSA has also procured an IEPA Permit which is attached in Section III. Copies of all Contractor secured permits shall be provided to FRSA prior to the start of construction. Unless otherwise noted, the Contractor shall be responsible for securing all necessary permits and for all bonds, insurance, etc., and all fees required by any and all permits.

The contractor shall acquire permission and right-of-entry as required by Union Pacific Railroad (UPRR) and Chicago, Central & Pacific Railroad Company.

Applications for Utility Occupancy have been initiated with Union Pacific and Chicago, Central & Pacific Railroad Company. The contractor shall submit plans and requested information as outlined in these specifications to FRSA to complete the permit. Please see *Item 11 – Boring and Jacking* and *Item 35 – Railroad safety and flagging* for more details.

# 2.2. Materials

Not Used

#### 2.3. Required Submittals

Copies of signed permits, as applicable.

## 2.4 Payment

No payment shall be made for costs associated with permit procurement or compliance.

## 3. NOTIFICATION, ACCESS, AND SPECIAL CONSIDERATIONS

#### 3.1. General

The Contractor shall notify all utility companies prior to beginning any work. All underground utilities shall be located by the utility owner and special care shall be taken when excavating near underground utilities to avoid damage. Contractor shall call J.U.L.I.E. at 811 or (800) 892-0123 for utility locations in the project area, fortyeight (48) hours minimum but not more than 14 days prior to construction. If permits require more advanced notification measures, permits shall govern.

The Contractor shall notify FRSA, all affected property and business owners and all applicable roadway authorities forty-eight (48) hours, minimum, prior to beginning any work.

City of Rockford Water Division Devin Johnson Email: <u>Devin.Johnson@rockfordil.gov</u> Phone: (779) 348-7362

The Contractor shall be responsible for the temporary maintenance of all roadways and drives for the duration of this project and shall maintain access to residences and businesses at all times during construction (i.e. drives, roadways, ramps, etc., must remain open or temporary access must be provided). All materials, equipment, labor, etc., necessary to assure this shall be incidental to the Contract.

It shall be the Contractor's responsibility to secure any temporary or permanent access, storage or construction easements, in excess of what is provided in these construction documents, from property owner(s) deemed necessary to perform the work as shown on the plans or defined in the specifications.

The Contractor shall clean up areas from which spoil has been removed at the end of each day by sweeping, washing or other approved methods. When the work is halted by rain, the Contractor shall clean-up work areas before leaving the site.

Contact information for the Area 7 IEPA superfund site is as follows:

Community Involvement Coordinator CHERYL ALLEN (312) 353-6196

Remedial Project Manager Jennifer Knoepfle (312) 886-7153

For additional information regarding the Southeast Rockford Groundwater Contamination Site 7 please visit:

https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0500955.

Chicago, Central & Pacific Railroad Company reserves the right to prohibit a certain construction methodology, at its own discretion; however, Chicago, Central & Pacific Railroad Company shall not assume any responsibility for the suitability of the accepted method. Open cut methodology shall only be considered where other installation techniques are deemed impractical and where rail traffic volumes are 00<sup>5</sup>e low. Installations using water jet methods shall not be permitted.

#### 3.2. Materials

Not used.

#### 3.3. **Required Submittals**

Not used.

#### 3.4. Measurement and Payment

No payment will be made for costs associated with notification, access, and special considerations.

#### LOCATE EXISTING UNDERGROUND UTILITIES 4.

#### 4.1. General

This item shall consist of furnishing all labor, equipment, tools, and material necessary to locate, expose and record the location and elevation of existing underground utilities at specific locations, as directed by FRSA. Contractor to contact Jennifer Knoepfle, Remedial Project manager for the IEPA Superfund Site for information regarding utilities supporting the groundwater treatment facility.

It shall be the responsibility of the Contractor to protect all utilities that are encountered in his work operations. The Contractor shall contact utilities to determine their procedure and schedule for supporting and/or relocating facilities. All costs of protecting existing utilities such as tunneling, sheathing, bracing or relocation including utility company bracing and relocation charges shall be considered incidental to construction.

The Contractor shall locate and expose existing utilities at Alpine Road within trench limits and bore and Jack location.

No additional compensation will be awarded for corrective work needed to rectify Conflicts with utilities that could have been avoided had the above-prescribed locates been performed prior to construction.

No additional compensation will be made for utility location work performed at locations other than those described above.

#### **Materials** 4.2.

Not used.

#### 4.3. **Required Submittals**

Not used.

#### 4.4. Payment

No payment will be made for costs associated with locating existing underground 0050 utilities.

#### 5. **ROCK EXCAVATION**

#### 5.1. General

This work shall conform to Section 202 and Article 107.17 of the IDOT Standard Specifications for Road and Bridge Construction (current edition) and shall consist of furnishing all labor, equipment, tools, transportation and materials, and all other operations needed to provide the necessary rock excavation for constructing the proposed sanitary sewer system. The Contractor shall demonstrate to the Engineer by all possible standard methods that the material encountered while excavating within the lines and grades shown on the plans and the payline width as described in T.S. 2:2(c) of the General Provisions and Technical Specifications for Sanitary Sewer Construction, Four Rivers Sanitation Authority (Current Edition) is not diggable with conventional sewer excavation equipment before being classified as rock excavation.

The following criteria will be used to facilitate in the determination of whether or not the excavation will be considered rock excavation:

- 1. Reference to T.S. 2:3/Rock Excavation of the General Provisions and Technical Specifications for Sanitary Sewer Construction, Four Rivers Sanitation Authority (Current Edition).
- 2. Substantial reduction in production rate.
- 3. Visual evidence of large boulders, rock, granite, trap, quartzite, chert, limestone, hard sand stone, hard shale or slate, or other hard materials, in natural ledges or displaced masses which cannot be removed by a modern backhoe without resorting to the continuous use of pneumatic tools, blasting, barring or wedging for removal from their original beds

The determination of what qualifies as legitimate rock excavation shall be made by the Engineer and shall not be limited to the above-mentioned criteria. Weathered rock that can be excavated with normal heavy construction equipment shall not qualify as Rock Excavation.

When explosives are used, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.

A minimum of 48 hours advance notice shall be provided to all property and utility owners having structures in proximity to the intended blasting. The Contractor shall perform and document pre-blast building inspections for all structures within 1,000 feet of the use of explosives for rock excavation. Before and after pictures shall be taken of foundations and other areas of potential concern. Sensors shall be installed on these structures to document blast force intensity at the structure. The blasting subcontractor shall have a minimum of two (2) million-dollar general liability insurance in addition to the insurance requirements for the General Contractor specified under Article 107.27 of the Standard Specifications.

The Contractor and blasting sub-contractor shall be solely responsible for all damages and claims resulting from the use of explosives. All blasting operations, including monitoring requirements, shall be in accordance with the National Fire Protection Association 495 Explosive Materials Code (current edition). Pre-blast inspection around gas mains shall be in accordance with the 1994 U.S. Bureau of Mines Report of Investigation #9523 "Surface Mine Blasting Near Pressure Transmission Pipelines." Pre-blast inspection around all structures within 1,000 feet shall be in accordance with the 1980 U.S. Bureau of Mines Report of Investigation #8507 "Structure Response and Damage Produced by Ground Vibrations Ground Surface Mine Blasting."

See geotechnical report in Section IV.

5.2. Materials

Not used

5.3. Required Submittals

Not used

5.4. Measurement and Payment

Payment for **rock excavation** shall be made at the Contract unit price per Cubic Yard (CY).

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The limits of what will qualify as rock excavation will be determined by a FRSA representative in the field. The maximum payable trench width shall not exceed the nominal pipe size plus eighteen inches (18") for 8" to 24" diameter pipes or the nominal pipe size plus twenty-four inches (24") for pipe sizes greater than 24" diameter. No additional payment will be made for extra rock excavation desired for work area enhancement or for areas needed to facilitate manhole or vault installations.

## **EROSION AND SEDIMENT CONTROL**

#### 6.1. General

The Contractor shall comply with all the requirements of the Erosion Control Plan, IEPA Illinois Urban Manual, current edition and Article 280 of the *IDOT Standard Specifications*. All disturbed areas shall be restored to near original contours or as

shown on plans. The contractor shall protect properties adjacent to the site of land disturbance from sediment deposition.

The Contractor shall take whatever measures FRSA deems necessary to prevent or eliminate excessive erosion or siltation. Actual field conditions may require additional measures beyond those cited. This shall include, but is not limited to straw baling of ditches, stabilizing slopes with an approved geo-fabric and/or mulch, seeding, sodding, silt fence installation, rip rap, etc. Sediment control shall be provided around the perimeter of all stockpile areas.

Provisions shall be made to minimize the transport of sediment by runoff or vehicle tracking onto roadways. Mud and debris shall be removed daily from roadway surfaces at the end of each workday or as necessary.

The Contractor shall remove and dispose of all temporary erosion control devices within 30 days of final site stabilization and FRSA approval.

The Contractor shall maintain storm water flow in all ditches and storm water conveyance systems (storm inlets, pipes, culverts, etc.) disturbed as a result of construction. Ditches shall be rough graded at the end of each day and whenever rain is imminent.

#### Silt Fencing

Silt fencing shall conform to Standard 280001-07 of the IDOT Highway Standard Detail. Silt fencing shall conform to section 1080.02 of the *IDOT Standard Specifications.* Posts shall be 1.5" x 1.5" x 4' long, minimum, spaced 5' maximum on center. Silt fencing shall be installed prior to excavation or stockpiling of materials.

#### Stabilized Construction Entrance

Where required or directed, a temporary construction entrance shall be provided to the project site. The Contractor shall place one-inch (1") to three-inch (3") graded washed stone to a minimum thickness of six-inches (6") over non-woven geotechnical fabric. Temporary culvert pipes shall be of the material and diameter specified by the appropriate roadway authority. At FRSA's discretion and direction, the dimensions and location of the stabilized construction entrance shall be adjusted to accommodate specific field needs and changes in site conditions. The temporary construction entrances shall be routinely washed, as necessary, to prevent tracking mud onto public roadways.

#### Storm Inlet and Pipe Protection

This work shall consist of furnishing, installing, maintaining and retrieval of FRSAapproved drainage inlet protection filters to retain storm water runoff sediment as required or as directed. Inlet protection shall be drop-in type installed in accordance with Illinois Urban Manual detail 561D. Filters shall be 9" or 12" diameter sediment logs, erosion eels or straw wattles as manufactured by North American Green (or FRSA-approved equal). The Contractor shall inspect the work site and review the plans to determine the sizes, types and numbers of inlet protection filters needed.

Erosion control devices shall remain in place until removal is directed by FRSA. All erosion control devices shall remain the property of the Contractor. Upon stabilization and approval, the Contractor shall promptly remove and dispose of all cerosion control devices as well as all debris and sediment accumulations.

#### **Erosion Control Blanket**

The blanket shall consist of a machine produced mat of straw fiber and shall be furnished in rolls and meet the following minimum requirements:

- 1. Weight -0.5 lbs. per sq. yd., +/-10%
- 2. Material 100% weed free straw.
- 3. The straw blanket shall be bound to the netting with a biodegradable thread sewn on  $1 \frac{1}{2}$  centers.
- 4. The top and bottom of each blanket may be covered with 5/8 by 5/8 of an inch opening size biodegradable netting.
- 5. All materials shall be new and unused

Staple length shall be chosen based on soil type and conditions. "U" shaped wire staples of 0.12 inch in diameter (No. 11 wire gage) or greater, with a minimum leg length of 6 inches and minimum crown of 1 inch shall be used. In sandy soils, the minimum leg length of staples shall be 9 inches. Circle-top staples are also acceptable. They shall meet the material specifications previously stated.

#### **Temporary Erosion Control Seeding**

This system consists of seeding all erodible/bare areas to minimize the amount of exposed surface area. Seed bed preparation will not be required if the surface of the soil is uniformly smooth and in a loose condition. Light disking shall be done if the soil is hard packed or caked. Erosion rills greater than 1 in. (25 mm) in depth shall be filled and area blended with the surrounding soil. Fertilizer nutrients will not be required.

The original seed bags shall be opened in the presence of the Engineer. The seed shall be applied by hand broadcasting to achieve a reasonably uniform coverage at a rate of 100 lb/acre. Seed shall be applied to all bare areas every seven days, regardless of weather conditions or progress of the work. The Engineer may require that critical locations be seeded immediately, and the Contractor shall seed these areas within 48 hours of such a directive. Temporary mulch cover will be incidental to temporary seeding and be installed according to Article 251.03 of the *IDOT Standard Specifications*.

#### Riprap

Riprap shall be minimum RR4 gradation conforming to Article 1005.01 of *IDOT Standard Specifications*. Installation shall conform to Article 281 of *IDOT Standard Specifications*.

#### Notice of Intent

FRSA has filed a "Notice of Intent" (NOI) with the IEPA. The Contractor shall furnish, install and maintain all erosion and sediment control equipment, devices and materials needed for the duration of construction and shall comply with all NOI requirements, including all inspection and record keeping requirements.

#### 6.2. Materials

Temporary erosion control measures shall conform to IL Urban Manual and Article 1080 of *IDOT Standard Specifications*.

#### 6.3. Required Submittals

Material specifications for erosion control products outlined below or as applicable:

- 1. Silt fence
- 2. Stabilized construction entrance material gradations and culvert specifications)
- 3. Ditch checks
- 4. Inlet and pipe protection products
- 5. Erosion control blanket
- 6. Temporary erosion control seeding
- 7. Riprap gradation

#### 6.4. Payment

Payment for **Perimeter Erosion Barrier** installed will be made at the Contract unit price per Linear Foot (FOOT).

Payment for **Temporary Ditch Checks** installed will be made at the Contract unit price per foot (FOOT).

Payment for **Inlet and Pipe Protection** installed will be made at the Contract unit price per Each (EACH).

Payment for **Stabilized Construction Entrance** installed will be made at Contract unit price per Square Yard (SQYD).

Payment for **Erosion Control Blanket** installed will be made at the Contract unit price per Square Yard (SQYD).

Payment for **Temporary Erosion Control Seeding** will be made at the Contract unit price per pound (POUND) of seed applied.

Payment for **Stone Riprap, Class A4** installed shall be made at the Contract unit price per Square Yard (SQYD), complete in place.

Additional erosion and sediment control measures not explicitly mentioned shall be provided, as needed or directed – no separate payment will be made for additional erosion and sediment control measures. No separate payment will be made for maintenance and retrieval of erosion control devices during construction and upon completion of construction.

### 7. TREE REMOVAL AND CLEARING

#### 7.1. General

Trees approved for removal for this project will not require replacement. The Contractor shall save and protect all trees not specifically approved by the FRSA for removal. (Estimated minimum acreage = 12.6)

The Contractor shall remove only those trees necessary to complete the specified work. Tree removal shall consist of cutting, grubbing, removing and off-site disposal of any trees, stumps and brush, as needed, to properly facilitate construction or as shown on the plans. Only trees approved by FRSA for removal shall be removed.

#### 7.2. Materials

Not used

7.3. Required Submittals

Not used

7.4. Payment

Payment for **Tree Removal and Clearing** shall be made at the Contract Lump Sum (LSUM) price.

# 8. DEWATERING

#### 8.1. General

Contractor shall design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades. Groundwater will not be allowed to be pumped on existing ground surfaces within the EPA superfund boundary; it shall be discharged to the existing sanitary sewer line. A filter must be used to capture sediment from entering the system. Manhole locations must be approved by FRSA Engineer prior to operation.

Dewatering well points require permits issued by the Winnebago County Department of Public Health (Health Department). The installation, operation and

removal of well points shall conform to the Health Department requirements. The Health Department shall be notified prior to installing dewatering wells and prior to abandonment of well points so that they may be present if they desire; contact (815) 720-4000.

Any permits required to perform dewatering work on this project shall be secured by the Contractor; it shall be his/her responsibility to provide any bonds; insurances, guarantees, etc., as required by said permit(s). Abandonment of dewatering facilities shall be performed in accordance with pertinent State and County requirements.

If generators are required to run on a twenty-four (24) hour basis, the equipment supplied shall be equipped to restrict noise levels to ninety decibels (90 dB) or less.

The contractor shall create a detailed settlement analysis based on the equipment used and soil conditions. This information should be part of the work plan and incorporated into the monitoring plan and contingency plan submitted to FRSA prior to construction activities.

#### 8.2. Materials

Not used.

#### 8.3. Required Submittals

- 1. Contractor dewatering plan
- 2. Detailed Settlement analysis, monitoring plan, and contingency plan
- 3. Copy of permits, as applicable
- 4. Manhole discharge locations plan

#### 8.4. Payment

Payment for **Dewatering** shall be made at the Contract Lump Sum (LSUM) price, complete.

# 9. CONSTRUCTION LAYOUT

## 9.1. General

This work shall be in accordance with 2024 IDOT Recurring Special Provision Check Sheet #9: Construction Layout Stakes and the Contractor shall provide all construction layout for this project to the lines and grades shown on the plans.

Reference points for the survey centerline and benchmarks are shown on the plans. FRSA will assist in periodic layout checks, particularly before any pavement or curb is placed.

#### 9.2. Materials

Not used

#### 9.3. **Required Submittals**

Not used

#### 9.4. Payment

Payment for **Construction Layout** will be made at the Contract Lump Sum (LSUM) OSÉ price, complete.

### **10. TRAFFIC CONTROL AND PROTECTION**

#### 10.1. General

Contractor shall be solely responsible for the safety of all operations and shall comply with all State, local and OSHA regulations. Contractor shall employ a competent person to comply with OSHA trenching and excavation requirements on site at all times. This person shall be capable of identifying existing and probable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and shall be authorized to take prompt corrective measures to eliminate them. The means and methods to comply with construction site safety are the sole responsibility of the Contractor. FRSA staff shall not be responsible for the Contractor's compliance procedures.

The Contractor shall provide detailed traffic control plans as required by permits and implement and maintain approved traffic control measures, including detour routes. Traffic control and protection shall be in accordance with the current *IDOT* Standard Specifications and the current Highway Standards (Standard 701602).

All work within public right-of-ways will require traffic control plans prepared by the Contractor and approved by the jurisdictional roadway authority prior to the start of construction.

#### 10.2. Staging and Minimum Requirements

See Sheet 5 of the project plans for staging requirements and project details located in the plans for applicable Highway Standards.

#### 10.3. Materials

Traffic control devices shall conform to Article 1106 of IDOT Standard Specifications.

#### 10.4. Required Submittals

Copies of approved traffic control plans, including detour routing and road closures as required by the roadway authority.

#### 10.5. Payment

Payment for **Traffic Control and Protection** shall be made at the Contract Lump Sum (LSUM) price, complete.

Payment for **Intersection Safety and Traffic Control, Alpine Road** shall be made at the Contract Lump Sum (LSUM) price, complete.

## **11. BORING AND JACKING**

#### 11.1. General

The work under this item pertains to boring and jacking operations required to install steel casing pipes under UP and Chicago, Central & Pacific Railroad Company Railway and Alpine Road. The Contractor shall notify FRSA, City of Rockford, UP Railway, Chicago, Central & Pacific Railroad Company Railway and the Illinois Department of Transportation seventy-two (72) hours, minimum, prior to performing any work within public rights-of-way. See also RAILROAD SAFETY AND FLAGGING for applicable requirements to BORING AND JACKING.

#### 11.2. Setup, Complete

"Setup, Complete," shall refer to all necessary labor, equipment and materials preparatory to the boring and jacking operations, including, but not limited to, excavation of push and receiving pits, dewatering, shoring, sheeting, setting of rails on line to grade, thrust blocking, proper material disposal and backfilling of push and receiving pits.

Under Setup, Complete, the Contractor shall:

- 1. Identify, locate and relocate, as necessary, any utilities that could be damaged by setup, boring and jacking or related construction activities. Any utilities damaged by construction shall be repaired or replaced by the Contractor to the satisfaction of the affected utility, at the Contractor's sole expense. Except where provided by a separate pay item, the cost of all utility location and/or relocation work shall be included in the Contract unit price for Boring and Jacking Setup, Complete.
- 2. Excavate suitable jacking and receiving pits adjacent to the area into which the steel casing pipe will be jacked into place as shown on the plans. Every effort shall be made to minimize the size of the jacking and receiving pits without jeopardizing work area safety.

3. Accurately set and maintain guide timbers or rails in the bottoms of the jacking pits in order to keep the casing pipe at the proper elevation, line and grade.

4. Furnish and install heavy backstop supports (bulkheads) at rear of jacking pits sufficient to absorb/support the shock of jacking operations without distortion. Any sheeting or shoring needed to provide a safe working area or to comply with permit requirements shall be considered incidental to this item.

#### 11.3. Boring and Jacking

"Boring and Jacking" shall refer to the process by which a steel casing pipe is jacked through the ground while soil is simultaneously removed from the casing face by an auger. Drilling the entire length followed by pushing casing pipe through the hole after auger/drill rig has been removed shall not be allowed. Boring and jacking shall include the material cost of the specified casing pipe, as well as all labor, equipment and materials associated with the boring and jacking operations.

The process will be advanced by the use of an earth auger where possible, but if conditions are encountered where the auger will not remove material or stay on line and grade, the operation shall be advanced by mining. During mining operations, the amount of material removed in front of the pipe shall not exceed six inches (6") beyond the pipe heading before advancing the casing pipe, unless otherwise approved, in writing, by the roadway authority.

Steel casing pipe installation shall proceed at such a rate that the development of voids is minimized, and ground settlement is prevented.

#### 11.4. Tolerances

During the course of the work, the line and grade shall be closely monitored to ensure no deviation from plan alignment or grade will occur. All rails, guides and jacks must be set securely and exactly to ensure that tolerances of boring and jacking operations and final casing pipe positions are maintained within the following acceptable limits:

- 1. Horizontal: End-to-end centerline of finished sleeve shall be within one inch (1") per twenty linear feet (20') of plan centerline.
- 2. Vertical: Inverts of casing pipe shall be within 0.20 feet of plan inverts.

Any changes in push alignments must receive prior approval from FRSA, Railroad, and governing roadway authority before push operations will be allowed to resume. Open-cut installation of the steel casing pipes will not be allowed under any circumstances.

#### 11.5. Materials

Steel casing pipes shall be grade B structural steel with minimum yield strength of 35,000 psi, per ASTM A-53. Wall thickness shall be as determined by the Contractor based on an evaluation of the jacking forces required but not less than 0.781 inch for 60-inch dia. and 0.500 inch for 30-inch dia. Steel casing shall have a bituminous asphalt coating to provide cathodic protection. Minimum outside diameter of casing pipes shall be as follows:

- 1. Between MH #12 and new MH 008-006: 30" Dia.
- 2. Alpine Road: 60" Dia.
- 3. Between MH#15 and MH#16: 60" Dia.
- 4. Between MH#16 and MH#23: 30" Dia.

Joints between steel casing pipe sections shall consist of a continuous watertight welded seam extending around the full pipe perimeter and shall provide a strength through the joint equal to that of the pipe shell. The casing pipes shall be new, straight pipe with beveled edges to accommodate weld seams.

Warning utility markers shall be placed where the sanitary sewers cross the railroad right-of-way. All equipment, materials, and labor associated with installing utility marker signs are to be included in the pay item for steel casing pipe, bored and jacked, to the diameter of the crossing indicated on the plans.

#### 11.6. Exterior Grouting (Casing Pipes)

Immediately following installation, the Contractor shall pressure grout the exterior of steel casing pipes at appropriate intervals to ensure that any voids caused by boring and jacking and/or dewatering operations are completely filled. Grouting tubes shall be installed along the casing pipes to facilitate this process. The Contractor shall verify the acceptability of all void elimination methods and materials with the governing roadway authority prior to grouting.

#### 11.7. Spacers & End Seals

Centered and restrained spacers with runners shall be installed on the PVC carrier pipe at intervals recommended by the manufacturer (Cascade, BWM or FRSAapproved equivalent). The ends of the casing shall be sealed with flexible rubber pull on seals (Cascade or FRSA-approved equivalent). Actual spacer configuration required may differ.

#### 11.8. Required Submittals

- 1. Casing pipe specifications.
- 2. Pipe spacer specifications.
- 3. Casing pipe end-seal specifications.
- 4. Grade correction diagram for spacers.
- 5. Grout specifications.

#### 11.9. Responsibility

The Contractor shall assume all risks associated with the installation of the casing pipes and shall be solely responsible for any and all damage occurring as a result of above or below-ground operations, including damage to utilities.

The geotechnical report appended to these specifications was obtained exclusively for use in the design of this project. The accuracy and reliability of this information is not guaranteed and shall not be construed as a part of the plans governing construction. The Contractor shall perform all necessary site investigations and shall be solely responsible for ascertaining all subsurface conditions that may impact boring and jacking operations.

#### 11.10.Payment

Boring and Jacking Setup, Complete shall include, but is not limited to, jacking and receiving pit excavations, dewatering for boring and jacking, setting of rails on line to grade, shoring, sheeting, backfilling of jacking and receiving pits, traffic control, restoration and cleanup. Payment for this item shall be made incidental to Steel Casing Pipe, Bored and Jacked, at the specified diameter that the boring and Jacking setup is used for.

Payment for Steel Casing Pipe, Bored and Jacked, Complete, in place, shall include the material cost of the casing pipes and the cost of boring and jacking operations needed to place the casing pipes to the lines and grades indicated on the plans, all rock mining, cobble and boulder removal and the removal of any other obstacles, as necessary; special sheeting or shoring to prevent damage or loss of stability to subsurface strata or to proximal structures, dewatering for boring and jacking (including sediment screening, as necessary), grouting of exterior casing voids, casing pipe spacers/runners and end seals, all preparatory work necessary for installing the carrier pipes, and all restoration, cleanup and supervision. Payment for this item shall be made at the Contract unit price per lineal foot (FOOT) of Steel Casing Pipe, Bored and Jacked, Complete, in place, of the size specified (four locations). No additional payment will be made for partial or incomplete push attempts, for any reason. No additional compensation will be awarded for the use of larger-than-specified casing pipe diameters or for any special methods, labor (including overtime, weekends and holidays), equipment or materials needed to install the casing pipes.

Payment for **Sanitary Sewer Carrier Pipe** shall be made at the Contract unit price per Linear Foot (FOOT) of the type and diameter of pipe installed, complete in place.

## 12. BYPASS PUMPING SANITARY SEWERS

#### 12.1. General

The Contractor shall provide bypass pumping as required and shall be responsible for providing all piping, valves, pumps, power, fuel, plugs and other items to divert the flow of sewage as required to complete proposed work.

Bypass for installation of the proposed force main discharge structure shall include connection to the existing 16" pressure tap connection fitting and installation of 18" temporary discharge piping from the 16" fitting to the manhole shown on plans. Record drawings of the 16" pressure connection fitting can be found in Section V – Supplemental information. Bypass piping shall be HDPE with buttwelded joints. Temporary bypass piping shall include, at a minimum, one (1) combination air and vacuum release valve. Sanitary line stop plugs as shown on plans shall use existing 30"x 12" fitting and be inflatable. Existing FRSA pumps will remain in service throughout this bypass set-up. Contractor shall coordinate the transition from existing discharge to temporary piping with FRSA to ensure personnel are at the Cherry Valley Pump Station at the time of transition in case the pumps must be taken offline (1/2 hour estimated but wet well level shall determine maximum amount of downtime available in order to prevent a sewage back-up). Upon completion of the required bypass, all temporary piping shall be removed from the site, plugs removed, and a permanent blind flange installed on the 16" connection.

The Contractor shall furnish the necessary labor and supervision to setup, maintain and operate additional bypass pumping systems for discharge from FRSA's Pyramid Pump Station and gravity sewers, as required, to complete work. Contractor shall only pump into sanitary sewer manholes approved by FRSA. The maximum discharge rate of the Pyramid Pump Station is 330 gallons/minute and the 2024 daily average flow from January to April is approximately 7,150 gallons per day.

All pumping systems shall have sufficient capacity to accommodate peak flows. The Contractor shall provide sufficient inspection personnel to ensure that surcharging and backups do not occur on public or private property. If pumping is required on a 24–hour basis, the equipment supplied shall be equipped with apparatus to restrict noise levels to ninety decibels (90 dB) or less.

The Contractor shall be responsible for providing the current level of service to all properties and shall be liable for any damage caused by sewer back-ups resulting from this project.

Estimated flow data for bypass pumping:

Sanitary Sewer Bypass Pumping, From 103-282 to 153-045 6" Dia. DIP, Maximum flow 0.006 MGD, 2024 average flow 0.21 MGD.

Sanitary Sewer Bypass Pumping, From 007-092 to 007-090 33" Dia. RCP., Estimated average flow 3.72 MGD, Maximum flow 9.459 MGD estimated from a 10-year, 24-hour storm event.

Sanitary Sewer Bypass Pumping, From 007-098 to 007-093 8" Dia, VCP, Estimated average flow 0.14 MGD, Maximum flow 0.392 MGD estimated from a 10-year, 24-hour storm event.

Sanitary Sewer Bypass Pumping, From 008-008 to 008-005 12" Dia. CIPP, Estimated average flow 0.26 MGD, Maximum flow 0.714 MGD estimated from a 10-year, 24- hour storm event.

Sanitary Sewer Bypass Pumping, From 008-P02 to 008-P01 6" Dia. PVC, Estimated average flow 15 Gallons Per Day.

Sanitary Sewer Bypass Pumping, From 103-003 to 008-044 21" Dia. VCP, Estimated average flow 0.77 MGD, Maximum flow 2.458 MGD estimated from a 10-year, 24-hour storm event.

Sanitary Sewer Bypass Pumping, From 104-007 to 104-006 15" Dia. CIPP, Estimated average flow 0.35 MGD, Maximum flow 0.895 MGD estimated from a 10-year, 24- hour storm event.

#### Sanitary Sewer Bypass Pumping, From 30" FM to 103-089

36" Dia. RCP, Estimated average flow 2.2 MGD, Maximum flow 5.0 MGD based on historical pump data (Jan 2023 through May 2024).

#### 12.2. Materials

Sanitary force main line stops will be on existing 30" diameter PCCP and existing JCM Fitting. Inflatable plugs for sanitary force main line stops are preferred.

#### 12.3. Required Submittals

- 1. Temporary piping and valve specifications.
- 2. Line stop plug specifications.
- 3. Line stop manufacturer's installation and testing procedure instructions.
- 4. Pump specifications, including pump performance curves.
- 5. Temporary pipe and fitting specifications.
- 6. Details of temporary pipe alignment, including suction and discharge details.

#### 12.4. Payment

Payment for Sanitary Sewer Bypass Connection & Piping, From 30" Forcemain to 103-089, 18" dia. shall be made at the Contract Lump Sum (LSUM) unit price complete at the specified locations.

Payment for Sanitary Sewer Bypass Pumping, from 007-092 to 007-090, Sanitary Sewer Bypass Pumping, from 007-098 to 007-093, Sanitary Sewer Bypass Pumping, from 008-008 to 008-005, Sanitary Sewer Bypass Pumping, from 008-P02 to 008-P01, Sanitary Sewer Bypass Pumping, from 103-003 to 008-044, Sanitary Sewer Bypass Pumping, from 103-282 to 153-045, and Sanitary Sewer Bypass Pumping, from 104-007 to 104-006 shall be made at the Contract Lump Sum (LSUM) unit price for bypass pumping, complete at the specified locations.

Any Contractor determined bypass pumping at a location not specified shall be incidental to the cost of the associated sewer connection at no additional charge.

# 13. ABANDON SEWERS

# 13.1. General

This work shall consist of abandoning various diameters of existing sanitary sewer mains and services by filling the pipes, as much as possible, with bentonite approved grout material or cellular concrete. The contractor shall properly bulkhead sewers prior to filling with grout.

All sewers scheduled for abandonment are listed and shown on plans. Abandonment shall be staged with other contract work to ensure uninterrupted sanitary sewer service is provided to current users. The contractor shall verify no active user connections remain on the system prior to performing this work.

#### 13.2. Materials

The bentonite grout material shall have the following mix design:

- "Mix" 60%
- Mason Sand or Torpedo Sand 40%
- Bentonite Vul-Clay Powder 5 pounds per 25 pounds of "Mix" and Sand Water Add as required to facilitate pumping the material.

The "Mix" design is detailed below. All material in the "Mix" shall be pulverized, mixed and screened with 100% passing through a #4 sieve.

- Light Sandy Clay Mixture 80% (100% passing #4 Sieve)
- Limestone Powder 15% (100% passing #4 Sieve)
- Mason Sand 5%

The Bentonite Vul-Clay Powder shall have the following properties:

- Ph: 9-10
- Moisture: 9%
- Grind % 200 Mesh 88%

Cellular concrete conforming to Part 1029 of *IDOT Standard Specifications* will also be allowed. Minimum compressive strength shall be 50 PSI at 28 days (ASTM C495/C796).

#### 13.3. Required Submittals

- 1. Bentonite grout mix design
- 2. Cellular concrete mix design

#### 13.4. Payment

Payment for **Abandon and Fill Existing Sanitary Sewer**, Various Diameters, will be made at the Contract unit price for each (EACH).

# 14. SANITARY MANHOLES TO BE REMOVED OR ABANDONED AND FILLED

#### 14.1. General

This work shall consist of furnishing all labor, equipment, tools, transportation and materials, and all other operations needed to remove or abandon existing manholes.

#### Manholes to be removed:

Manholes designated to be removed shall be removed to the full depth of the structure and be disposed of according to Article 202.03 if the *IDOT Standard Specifications*. Contractor to place permanent watertight plugs with non-shrink

hydraulic cement and bricks in all pipes and openings connected to the removed manhole. All disturbed areas to be restored per contract requirements.

#### Abandoned Manholes:

Contractor to place permanent watertight plugs with non-shrink hydraulic cement and bricks in all pipes and openings connected to manhole and drill 10–1 inch holes in the bottom slab or break apart the manhole bottom by other methods approved by FRSA.

Manhole frame, lid, and all masonry within 3 feet of existing or proposed grade shall be removed and disposed of according to Article 202.03 if the *IDOT Standard Specifications* and shall be incidental to manhole abandonment. Manhole and all voids to be filled with compacted trench backfill (FA-6) or Class 1A Bedding stone (CA-7). All disturbed areas to be restored per contract requirements.

#### Manholes to be removed & Replaced:

Manholes designated to be removed and replaced shall be removed to the full depth of the structure and be disposed of according to Article 202.03 if the *IDOT Standard Specifications* and shall be incidental to manhole replacement. Connections to existing pipes per *Specification 16 Connect to Existing Manhole* of these specifications and are incidental to replacement manhole. Existing frame and lid will not be allowed to be reused.

#### 14.2. Materials

Not used.

14.3. Required Submittals

Not used.

#### 14.4. Payment

Payment for sanitary manholes to be removed will be made at the Contract unit price for **Sanitary Manholes to be Removed** per Each (EACH), complete in place.

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Payment for abandon and fill existing sanitary manhole will be made at the Contract unit price for **Abandon and Fill Existing Sanitary Manhole** per Each (EACH), complete in place.

Payment for sanitary manholes to be removed and replaced will be made at the Contract unit price for **Sanitary Manholes to be Removed & Replaced** per Each (EACH), of the diameter and type installed, complete in place.

## **T5. SANITARY SEWERS**

#### 15.1. General

The work under this item includes all labor, equipment, and materials for furnishing and installing sanitary sewer pipe on grade and in line according to the plans and

specifications. This item shall also include all fittings, couplings, adapters, riser pipes and any other item necessary to satisfactorily install and test the new sanitary sewer pipe system.

Excavation, bedding and backfilling shall be incidental to the sanitary sewer installation and shall conform to *FRSA General Provisions and Technical Specifications*. See Article III, Item 18 Bedding Backfill and Compaction for requirements.

When replacing an existing sanitary sewer or altering alignment of an existing sanitary sewer, abandonment (either in place or by removal and disposal) of existing sanitary sewer piping as required to complete proposed work shall be incidental to the installation of new sanitary sewer. Pipe being abandoned in place shall include installation of a concrete bulkhead at the limits of removal. Costs associated with installation of concrete bulkheads shall be incidental to new sanitary sewer.

Sanitary sewer pipe that varies  $\pm 0.02$  feet from the proposed grade and/or  $\pm 0.15$  feet from the proposed line will not be accepted. More stringent tolerances may be required in the field if directed by FRSA. The Contractor shall be solely responsible for setting and maintaining proper elevations, lines and grades for all work. FRSA shall not be obliged to establish construction grade or alignment.

The Contractor shall provide at least one laser device for setting lines and grades of sub-grade and pipe inverts during all phases of construction. The device(s) shall be of acceptable design and maintained in good working condition for the duration of the project. The Contractor shall employ workers competent in the setup and operation of said device(s). Said device(s) shall be considered a convenience to the Contractor and shall be operated at no extra cost to FRSA.

The Contractor shall provide and have available on-site at all times, a calibrated level and level rod.

Sanitary sewer pipe and pipe-laying methods must conform to the requirements of the FRSA's *General Provisions and Technical Specifications* and as stated elsewhere herein.

When connecting to existing sanitary sewers, the contractor shall connect to structurally sound pipe using FRSA-approved transition couplings.

#### 15.2. Materials

8" diameter PVC pipe shall be SDR 26 PVC pipe meeting the requirements of ASTM D3034. Joints shall conform to ASTM D3212.

18" diameter PVC pipe shall be PS 115 PVC pipe meeting the requirements of ASTM F679. Joints shall conform to ASTM D3212.

42" diameter PVC pipe where indicated on plans shall be PS 115 PVC pipe meeting the requirements of ASTM F679. Joints shall conform to ASTM D3212.
42" diameter ADS pipe where indicated on plans shall be SaniTite Triple wall pipe meeting the requirements of ASTM F2764. Joints shall conform to ASTM D3212. Gaskets shall meet the requirements of ASTM F-477.

Clay-to-PVC and cast iron or ductile iron to PVC pipe transition couplings shall be Fernco 5000 or LDC series (as required by pipe diameter), Mission Flex-Seal ARC shear resistant or other FRSA-approved repair couplings made of flexible PVC compound with 316 stainless steel clamps and stainless steel rings. Transition couplings shall conform to the applicable parts of ASTM D5926 and C1173.

## 15.3. Required Submittals

- 1. Pipe material specifications.
- 2. Fitting, coupling, and adapter specifications as applicable

## 15.4. Measurement and Payment

Payment for **Sanitary Sewers** will be made at the Contract unit price per Linear Foot (FOOT) of the type and diameter specified, installed, complete in place.

Measurement for payment shall be horizontal along the centerline of the installed pipe from center-of-manhole to center-of-manhole, center of manhole to center of repair coupling, or center of repair coupling to center of repair coupling, as applicable.

# 16. SANITARY MANHOLES

## 16.1. General

This work shall consist of furnishing and installing all labor, equipment and materials required to install pre-cast concrete sanitary manholes as directed by FRSA in accordance with the FRSA Standard Detail Sheet and Article 6:3 and 7 of FRSA's General Provisions and Technical Specifications. Work shall also include furnishing and placing a FRSA-approved manhole frame and lid (Neenah R-1670-2004 or EJ 00111711 or for manholes with sewers larger than 18" or in flood prone areas use bolt down 1915JT08) adjusted to grade as shown on plans.

Eccentric cone sections must be a component of all manholes. Unless otherwise noted in plans, flat-top structures will not be allowed.

FRSA-approved manhole steps shall be provided with a maximum spacing of 16". The top of the pre-cast cone section shall be at an elevation to allow for adjustment of frame (12" maximum) without disturbing the cone section.

The Contractor shall field verify all proposed rim elevations and shall construct manholes in accordance with the FRSA Standard Detail Sheet.

Manhole frames shall be set at finished grade in paved areas. Concrete adjusting rings shall be standard reinforced concrete pipe pattern. Minimum ring thickness shall be two inches (2"). Maximum ring thickness shall be twelve inches (12").

Adjustment rings shall conform to ASTM C478 and ASTM C139, latest revision. Concrete for adjusting rings shall be Class "A" as specified in T.S. 5:3(a) in FRSA's General Provisions and Technical Specifications for Sanitary Sewer Construction. Absorption shall comply with ACI Specification P-I-C and ASTM C139, latest revision.

All adjusting ring joints shall be sealed watertight by means of EZ Stik, Kent-Seal, or equal. Minimum adjusting ring placement height is four inches (4"). Maximum adjusting ring placement height is twelve inches (12"). No more than thirty inches (30") from the top of casting to the first step will be allowed. A maximum of one (1) 2" adjusting ring will be allowed. Joint between adjusting rings and casting shall be watertight by means of a butyl material seal (E-Z Stik, Kent-Seal, or equal).

No adjusting rings are required for manholes in turf areas or with roadways with curb and gutter.

In roadways only: metal or plastic shims will be required if the casting is located in a roadway and must be pitched to match the slope of roadway pavement. Shims must be equally spaced with no more than one-inch (1") of total adjustment. If frame is shimmed, no butyl sealant (E-Z Stik, Kent Seal, or equal) will be required under the casting. The void area between the casting, and masonry shall be grouted from the outside to the inside face of the adjusting ring, filling the entire void. No trench compaction shall take place until the concrete has cured and hardened to FRSA's satisfaction. Final manhole adjustment shall meet any additional requirements of the governing roadway authority.

The Contractor shall install FRSA approved external casting seals on all proposed manholes and external seals on all manhole barrel section joints (Cretex, Mac Wrap or CANUSA Wrapid Seal), as indicated on the Standard Detail Sheet.

The Contractor shall field verify the materials, sizes and elevations of all existing pipes to be connected. Pipe connections to new manholes shall be made by means of a watertight flexible pipe to manhole connector meeting the requirements of ASTM C923 titled "Resilient Connectors between Reinforced Concrete Manhole Structures and Pipes." Integrally cast and expandable gaskets are acceptable. The design shall be in accordance with the manhole and pipe manufacturer requirements and shall receive prior FRSA approval. All sanitary manholes equal to or greater than twenty-two feet (22') deep shall use pipe-to-manhole gaskets rated at a minimum of 15 psi hydrostatic pressure (A-LOK model X-CEL or FRSA-approved equivalent).

All connections between new manholes and existing sanitary sewers shall be made with minimum 4.0' lengths of new PVC Pipe. Connection shall be made to structurally sound pipe.

Where drop connections are required, Contractor shall furnish and install a complete drop bowl assembly, including drop pipe and fittings as detailed on FRSA Standard Detail Sheet. The drop bowl assembly shall be as manufactured by Reliner-

Duran, Inc., or FRSA-approved equal. All mounting brackets, anchors and hardware shall be of stainless steel construction.

All new manholes shall be vacuum tested per ASTM C1244 Standard Test Method for Concrete Sewer Manholes by the Negative Pressure (Vacuum) Test prior to placing into service.

#### 16.2. Materials

Materials for manholes and components shall be as shown on FRSA Standard Detail Sheet.

## 16.3. Required Submittals

Shop drawings for each manhole showing the number and height of barrel sections, height of cone section, number and size of adjusting rings, location and spacing of steps and elevations of all pipes. A plan view shall be provided showing the orientation of pipe openings.

- 1. Frames and lids material specifications.
- 2. Chimney seals material specifications.
- 3. Barrel joint seals material specifications.
- 4. Manhole-to-pipe connection seals material specifications.
- 5. Manhole steps material specifications.
- 6. Exterior wall sealant material specifications.
- 7. Drop connection material specifications.

## 16.4. Payment

Payment for **Sanitary Manholes** shall be made at the Contract unit price per Each (EACH) of the diameter specified, installed, complete in place.

Payment for **Sanitary Manhole Inside Drop Connection, Complete** shall be made unit price per Each (EACH) of the diameter specified, installed, complete in place.

## **17. SANITARY MANHOLE EPOXY LINING**

## 17.1. General

This work shall consist of all labor, equipment, and materials needed to furnish and install epoxy coating on the interior of the manhole indicated on the plans. Coating shall be approved by FRSA to protect against corrosion.

Finished surface shall be smooth and uniform. Contractor will be required to remove lumps and fins protruding from the finished surface by more than  $\frac{1}{2}$ ".

Suppliers under this item shall implicitly warrant that their products and all product components are suitable and appropriate for the intended application and are free from all material, design or workmanship defects. Said warranty shall be insured to the benefit of FRSA. The foregoing shall apply to all products and/or product components, whether fabricated or constructed as directed by the contract documents or produced independently by an outside source.

The Contractor shall unconditionally warrant all installed products and workmanship for a period of one (1) year commencing on the date all work is completed and accepted, and final payment is issued by FRSA.

## 17.2. Materials

After pipes are connected, but before the structure is placed in service, all interior concrete surfaces shall be lined with an approved 100% solids epoxy coating for corrosion resistance. The epoxy liner shall be a single coat application with a 1/4 inch (250 mil) minimum thickness as manufactured by Raven Lining Systems, 405FS, 100% Solids Ultra High Build Epoxy, Madewell Mainstay DS-5 High Build Epoxy, or Warren Environmental, Inc., 405FS 100% Solids Ultra High Build Epoxy.

## 17.3. Required Submittals

- 1. Epoxy liner material specifications.
- 2. Installers Statement of Qualifications.

## 17.4. Measurement and Payment

Payment for **Sanitary Manhole Epoxy Lining** shall be made at the Contract unit price per vertical foot (VFQOT) of the diameter specified, lined, complete in place.

# 18. BEDDING, BACKFILL AND COMPACTION

## 18.1. Pipe Bedding

Pipe bedding for PVC pipe shall be Class IA per ASTM Standard D2321. The trench bottom shall be bedded with a minimum of six inches (6") of crushed stone foundation. Crushed stone shall be placed to a minimum of twelve inches (12") above the top of the pipe, as shown on FRSA's Standard Detail Sheet. For sewers greater than fifteen inches (15") in diameter, and where the depth is greater than fifteen feet (15') an additional six inches (6") of crushed stone shall be placed above the twelve inches (12") stated above for a total of eighteen inches (18").

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Bedding shall be graded such that it precludes the migration of trench wall material into the bedding; FRSA shall approve this bedding material after the characteristics of the trench are determined. In the event that the trench bottom is unstable, as determined by FRSA, the Contractor shall undercut the trench as required and furnish foundation material at no additional cost to FRSA. The foundation material shall be a coarse aggregate material of a gradation distribution that will inhibit the migration of the bedding material into trench bottoms and walls. In the event the water table is above the bottom of the pipe bedding, or the trench bottom is unstable or unsuitable, a porous granular foundation meeting *IDOT Standard Specifications* of CA-5 or CA-3 stone shall be installed as necessary below the granular bedding material, extending to the limits of the bedding diagram at no extra cost to FRSA.

Should boulders, frozen material, etc., which could damage the pipe be present in the native backfill material, the Contractor shall bring the bedding material to a point twenty-four inches (24") above the crown of the pipe (cost incidental).

## 18.2. Backfill and Compaction

The Contractor shall use approved select trench backfill to the level of the base under all roads, shoulders, sidewalks, driveways, parking lots or pavements of any kind and beyond such pavements as set forth in General Provisions and Technical Specifications T.S. 2:4-c. Select trench backfill under said structures shall meet FA 6 gradation and be mechanically compacted in six-inch (6") to twelve-inch (12") loose lifts to the sub-grade elevation of the road shoulder, sidewalk, driveway, parking lot or pavement. The materials and compaction shall be in accordance with Section 208 and 550.07, Method 1 of the *IDOT Standard Specifications*.

For granular backfill a vibratory plate, or other approved equipment-mounted compaction equipment must be used by the Contractor to compact the backfill in lifts not to exceed eighteen inches (18"). Water-jetting, ponding or flooding will not be permitted as a means of trench compaction.

All select trench backfill shall be compacted to ninety-five percent (95%) of Proctor density; all other backfill shall be compacted to ninety percent (90%) minimum of Proctor density. Contractor shall provide third-party confirmation of subgrade compaction.

The Contractor shall furnish a backhoe and operator during the testing of the backfill placed during construction. All compaction tests will be performed at the Contractor's expense by an approved, independent geotechnical-testing firm. If the tests do not meet the compaction requirement specified above, the area shall be both re-compacted and re-tested at the Contractor's expense until the test requirements are met. If initial tests indicate compaction requirements are being met, no further lift testing will be required unless method, equipment or material changes. The final lift forming the sub-grade must be tested.

In trenches not requiring select trench backfill, no excavated material larger than eight inches (8") in any dimension shall be used in the backfill.

Contractor shall properly dispose of all spoil at no additional cost to FRSA. The Contractor shall exercise care not to disturb any existing utilities during backfilling and compaction operations.

## 18.3. Submittals

Pipe bedding and select trench backfill material gradation certifications.

## 18.4. Payment

Payment for **Bedding, Backfill and Compaction** shall be incidental to sanitary sewer construction. No separate payment will be made for bedding, backfill and compaction.

## 19. TESTING

## 19.1. General

ose

All costs of testing, installing, re-installing, backfilling, compaction, and re-testing of sanitary sewers and services shall be borne by the Contractor. All pipe shall be tested in accordance with ASTM and the manufacturer's standards. The manufacturer shall furnish certified test reports with each shipment of pipe, run or unit of pipe extrusion.

Final, satisfactory low-pressure air tests, deflection tests and manhole vacuum tests shall be performed no later than sixty (60) days after the installation of each sewer main section (manhole-to-manhole). The 60-day period starts with the completion of the sewer main. FRSA reserves the right to suspend any or all work until the Contractor fully complies with this requirement.

After the final installation, backfilling and compaction have been completed, lowpressure air tests and deflection tests shall pass on all sewer pipe throughout the project.

## Low Pressure Air Test - Gravity Sewers:

Low-pressure air testing of sanitary sewers shall use an allowable timed pressure drop of 0.5 psig. The allowable air loss rate shall be 0.0015 cu. ft./min. All test times shall be calculated using Ramseier's equation T = 0.85 DK/Q, where:

- T = Shortest time, in seconds, allowed for the pressure to drop 0.5 psig
- K = 0,000419 DL, but not less than 1.0

- 0.0015 cu. ft./minute/sq. ft. of internal surface

Nominal pipe diameter, in inches

Length of pipe being tested, in feet

This modifies T.S. 9.4 of the General Provisions and Technical Specifications for Sanitary Sewer Construction.

## Pipe Deflection Test:

After sewer installation, backfilling and compaction, all flexible sewer pipe shall be thoroughly cleaned and flushed with water and then, if not previously tested as elsewhere specified herein, the installed pipe shall be deflection tested by the Contractor at his own expense. Deflection testing shall be performed at least thirty (30) days after the trench has been backfilled.

If the vertical deflection exceeds five percent (5%) of the diameter, the Contractor shall replace the pipe. In the event that this pipe is used for replacement, it will be subject to the same vertical deflection test.

FRSA reserves the right to make a vertical deflection test within a year following construction.

If deflection exceeds five percent (5%), the Contractor is responsible for replacing the pipe, as per G.C. 7:4 of the *General Provisions and Technical Specifications for Sanitary Sewer Construction*.

In addition to the above and T.S. 8:2(c) of the *General Provisions and Technical Specifications for Sanitary Sewer Construction*, use the following deflection test:

Testing of all lines shall be done with a Go/No–Go Deflection Gauge, pulled through all lines. The diameter of the gauge shall be set at ninety-five percent (95%) of the undeflected inside diameter of the flexible pipe. The Go/No–Go Deflection Gauge will stop at any area in a flexible underground pipeline having vertical ring deflection greater than five percent (5%). All pipe exceeding this deflection shall be considered to have reached the limit of serviceability and shall be re-laid or replaced by the Contractor at no additional cost to the owner.

If possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines. Where deflection is found to be in excess of five percent (5%) of the original pipe diameter, the Contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, after the initial testing, should the deflected pipe fail to return to the original site (inside diameter) the line shall be replaced.

## Vacuum Testing – Manholes:

All sanitary sewer manholes shall be vacuum tested per ASTM C-1244 Standard Test Method for Concrete Sewer Manholes by the Negative Pressure (Vacuum) Test prior to placing into service.

## 19.2. Materials

Not used.

## 19.3. Required Submittals

Not used.

## 19.4. Measurement and Payment

No separate measurement or payment will be made for this work. All costs shall be incidental to sanitary sewer, and sanitary manhole installation.

## 20. PCC CURB AND GUTTER, TYPE M. 6-24 REMOVE AND REPLACE

## 20.1. General

This work shall consist of all labor, equipment and materials required to remove and replace existing PCC curb and gutter to the limits indicated on the plans. Existing curb and gutter shall be saw-cut (full-depth) at removal limits or removed at the nearest construction joint.

Removal of HMA pavement required to place forms shall be full depth saw cut and replaced with variable patch to match existing thickness. Saw-cut, removal, and replacement patch of HMA to be incidental to PCC curb and gutter.

Removal and disposal of existing curb and gutter as well as subgrade and base installation/preparation shall be incidental to this bid item.

Curb and gutter shall be Type M-6.24 in accordance with IDOT Highway Standard 606001-08. Construction of new PCC curb and gutter shall be in accordance with Section 606 of *IDOT Standard Specifications*.

## 20.2. Materials

Concrete shall be Class SI in accordance with Section 1020 of *IDOT Standard Specifications*.

## 20.3. Required Submittals

1. Concrete mix design.

## 20.4. Measurement and Payment 🤇

Payment for **Combination Curb & Gutter Removal** shall be made at the Contract unit price per Linear Foot (FOOT), removed.

Payment for **Combination Concrete Curb & Gutter, TY. M6.24** shall be made at the Contract unit price per Linear Foot (FOOT), installed, complete in place.

# 21. GUARDRAIL REMOVAL AND REPLACEMENT

## 21.1. General

This work shall consist of all labor, equipment, and materials required to remove and replace existing guardrail. Guardrail to match existing type and size and conform to Section 630 of the *IDOT Standard Specifications*. Existing rail elements that are not deformed may be reused. Posts, fasteners, and block-outs must be disposed of properly.

## 21.2. Materials

Not used.

## 21.3. Required Submittals

Not used.

## 21.4. Measurement and Payment

Payment for **Guardrail Removal & Replacement** shall be made at the Contract unit 0050 price per Linear Foot (FOOT), installed, complete in place.

## 22. AGGREGATE BASE COURSE, TYPE B

## 22.1. General

This work shall consist of placing compacted Aggregate Base Course, Type B, to the depth identified on the plans, beneath the proposed pavement where indicated on the plans. This work shall include subgrade preparation, removal and disposal of excess material, furnishing, placing, installing and compacting course aggregate to thicknesses identified on plans, and trimming and prepping aggregate base for subsequent pavement placement. This work shall be in conformance with Section 351 of the IDOT Standard Specifications.

Existing base material may remain in place at the approval of the appropriate Roadway Authority. No additional payment will be made for grading, shaping, and compacting existing base materials.

The Contractor shall compact the aggregate base course and perform a sufficient number of compaction tests as determined by FRSA and Roadway Authority. Compaction tests must be performed as work progresses. All compaction tests must meet 95% of Standard Proctor density and must be performed by an approved independent geotechnical company.

Prior to aggregate base course placement, the subgrade of the entire pavement replacement area shall be proof-rolled and witnessed by FRSA Inspector and the Roadway Authority. Proof-rolling shall consist of using a fully loaded tandem axle dump truck to dentify locations of structurally unsuitable subgrade. Proof-rolling shall be scheduled and completed so as to avoid a rain event between proof-rolling and aggregate base course placement. At the direction of the Inspector, the subgrade may be required to dry for a period of time in an attempt to correct areas of structurally unsuitable subgrade before proceeding with road base improvements.

# 22.2. Materials

Finished aggregate base course thickness shall be as indicated on plans, placed in two compacted lifts of equal thickness. The aggregate shall be of CA-6 gradation. Coarse Aggregates shall be in accordance with Article 1004.04 of the IDOT Standard Specifications.

## 22.3. Required Submittals

1. Material gradation certifications for aggregates.

#### 22.4. Measurement and Payment

Payment for **Aggregate Base Course, Type B** shall be made at the Contract unit price per Square Yard (SQYD), at the depth specified, complete in place.

## 23. AGGREGATE SURFACE COURSE, TYPE B

## 23.1. General

This work shall consist of placing compacted Aggregate Surface Course, Type B, to the depth identified on the plans, for surface where indicated on the plans. This work shall include subgrade preparation, removal and disposal of excess material, furnishing, placing, installing and compacting course aggregate to thicknesses identified on plans. This work shall be in conformance with Section 402 of the *IDOT Standard Specifications.* 

Existing base material may remain in place at the approval of FRSA. No additional payment will be made for scarifying, grading, shaping, and compacting existing base materials.

The Contractor shall compact the aggregate surface course in accordance with Section 301 of the *IDOT Standard Specifications*.

#### 23.2. Materials

Finished aggregate base course thickness shall be as indicated on plans, placed in two compacted lifts of equal thickness. The aggregate shall be CA-6 or CA-10 gradation. Coarse Aggregates shall be in accordance with Article 1004.04 of the *IDOT Standard Specifications*.

## 23.3. Required Submittals

1. Material gradation certifications for aggregates.

## 23.4. Measurement and Payment

Payment for **Aggregate Surface Course, Type B** shall be made at the Contract unit price per Square Yard (SQYD) at the depth specified, complete in place.

# 24. RESTORATION AND SEEDING

## 24.1. General

All restoration shall be completed in accordance with public agency requirements or, on private property, equal to or better than the pre-construction conditions, unless otherwise directed. All restoration of public or private property including, but not limited to, fences, sidewalks, driveways, all other slab work, (concrete and asphalt), drainage channels, riprap, fences, turf areas and dry wells, etc., disturbed or damaged as a result of construction shall be promptly completed, equal to or better than the pre-construction conditions, as directed by FRSA, and guaranteed by the Contractor for a period of one (1) year following satisfactory completion and final acceptance of the work. Topsoil shall be as specified in T.S. 4:2c.

All drainage devices shall be cleaned of debris. Pipes which in the estimation of FRSA have been significantly damaged by the Contractor, shall be replaced with new pipe or structures of the same diameter, length and/or type, at no added expense to FRSA. All work shall be to the satisfaction of FRSA. When necessary, temporary restoration of roads, drives, fences, etc., will be required, all costs incidental to the contract.

All work shall be guaranteed against trench subsidence for a period of one (1) year.

Suppliers shall be prepared to certify that laboratory and field testing of their product has been accomplished, based upon testing.

Guarantee: All seeded areas shall be maintained for at least thirty (30) days after application. Scattered bare spots no larger than two square feet will be allowed up to a maximum of five percent (5%) of any seeded area.

Seeding and Fertilizing:

Ground surfaces including right–of–ways and easements that were covered with grass before construction shall be seeded as directed by FRSA. The Contractor shall make certain that all disturbed areas have the same depth (6" minimum) and quality of topsoil that existed prior to construction.

Unless otherwise noted on the plans, work shall conform to the General Provisions and Technical Specifications for Sanitary Sewer Construction, T.S. 4:2 and Sections 250 and 251 of *IDOT Standard Specifications*.

Seedbed preparation shall be done according to Article 250.05 of *IDOT Standard Specifications*.

Seeding methods shall follow those mentioned in Article 250.06. Mowing to discourage weed growth will be completed by the Contractor until the project is accepted by FRSA.

Fertilizing shall be done in accordance with Article 250.04. Fertilizer shall have a ratio of 1:1:1 NPK component and be applied at the rate of 90 lbs./acre per each nutrient. No additional compensation will be made for the inclusion of fertilizer.

Straw mulch shall be per Method 2 and done in accordance with the applicable portions of Section 251 of *IDOT Standard Specifications* with the following exceptions:

The rate of application for mulch will be 4,000 lbs./acre using Hydro Tack at a rate of 400 lbs./acre for stabilization. This specification describes mulch for use with the hydraulic application of grass seed which shall consist of specially prepared wood cellulose fiber. It shall be processed in such a manner that it will not contain any growth or germination-inhibiting factors and shall be dyed in an appropriate color to facilitate metering of the material. It shall be manufactured in such a manner that

after additions and agitations in slurry tanks with fertilizers, grass seeds, water and any other approved additives, the fibers in the material will become uniformly suspended to form a homogenous slurry, and that when hydraulically sprayed on the ground, the material will form a blotter-like cover impregnated uniformly with grass seed, and which after application will allow the absorption of moisture and percolation of rainfall or mechanical watering of the underlying soil.

The mulch material described above shall be supplied in packages having a gross weight not in excess of 55 pounds. The packages shall be adequately wrapped in paper, polyethylene or other suitable material to prevent loss or spillage during handling. Weight specifications of this material from suppliers, and for all applications, shall refer only to air dry weight of the fiber material. Absolute air dry weight is based on the normal weight standard of the Institute of the Pulp and Paper Industry for wood cellulose and is considered equivalent to ten percent (10%) moisture. Each package of the cellulose fiber shall be marked by the manufacturer to show the air-dry weight content.

As illustrated on the plans or at the direction of FRSA or other governing agency, the Contractor shall provide steep slope protection over turf areas disturbed by construction in accordance with Articles 251.03 and 251.04 of *IDOT Standard Specifications*.

## 24.2. Materials

Seed mixture shall be Class 1, Class 2, or Class 7 in accordance with Section 250 of *IDOT Standard Specifications*. Fertilizer shall be in accordance with Section 250 of *IDOT Standard Specifications*. Mulch shall be in accordance with Section 251 of *IDOT Standard Specifications*.

## 24.3. Required Submittals

1. Seed mixtures, fertilizer and mulch specifications.

## 24.4. Payment

Payment for **Seeding and Fertilizing**, for the class specified, shall be made at the Contract unit price per Acre (ACRE) for the particular class of seed specified, installed, complete in place.

Payment for **Mulch Method 2**, shall be made at the Contract unit price per Acre (ACRE), complete in place.

# 25. CHAIN LINK FENCE REMOVAL

## 25.1. General

This work shall consist of removal and disposal of chain link fence fabric, posts, wire, and all appurtenances as indicated on plans. Salvage of fence fabric material by Contractor will be allowed.

#### 25.2. Materials

Not used

## 25.3. Required Submittals

Not used

## 25.4. Payment

Payment for **Chain Link Fence Removal** shall be made at the Contract unit price per foot (FOOT) for the six-foot chain-link fence removed.

## 26. CHAIN LINK FENCE, 6'

## 26.1. General

This work shall be performed in accordance with Section 664 of *IDOT Standard Specifications* to the satisfaction of FRSA and jurisdictional roadway authority. Work to conform with 664001 of IDOT Standard Details, latest edition with the exception of the post cap. Posts shall be capped with barbed wire arms and 3 runs of barbed wire. No additional payment shall be made for barbed wire required to extend beyond the limits of the 6' fence.

## 26.2. Materials

Materials shall comply with Section 664.03 to 664.10 of *IDOT Standard Specifications* with the exclusion of Section 664.09.

Barbed wire arms shall be galvanized, commercial grade 45 degree angle with slots for 3 runs of barbed wire. Barbed wire shall be four-point, 12.5 gauge, with aluminized coating of 0.30 oz/sf per ASTM A585.

## 26.3. Required Submittals

- 1. Fence post and fabric specifications.
- 2. Barbed wire specifications.

## 26.4. Payment

Payment for **Chain Link Fence**, **6'** shall be made at the Contract unit price per foot (FOOT) for the six-foot chain-link fence installed, complete in place.

# 27. TEMPORARY ACCESS TO MANHOLE 15

## 27.1. General

This work shall consist of placement of materials, labor, and equipment necessary to establish aggregate ramp to maintain access for construction operations. Work items shall include all temporary pipe culvert, aggregate and geotextile fabric. Contractor to remove temporary access and restore all disturbed areas to pre-construction

condition or better. Seeding and fertilizer to be paid for under Item 24 **Seeding and Fertilizing**.

Positive drainage must be maintained at all times.

27.2. Materials

Ramp aggregate surface shall be as indicated on plans, placed in 9-inch compacted lifts. The aggregate shall be of CA-6 or CA-4 gradation. Coarse Aggregates shall be in accordance with Article 1004.04 of the *IDOT Standard Specifications*.

Filter Fabric shall conform to Section 282 of the *IDOT Standard Specifications* and be placed over the cleared area prior to placing the stone.

Temporary pipe culvert shall be 12" HDPE, ADS Dual wall N-12 corrugated pipe or approved equal.

## 27.3. Required Submittals

- 1. Material gradation certifications for aggregates.
- 2. Filter Fabric
- 3. HDPE pipe

## 27.4. Payment

Payment for aggregate, geotextile fabric, and temporary pipe related to **Temporary Access to Manhole 15** shall be made at the Contract unit price per Lump Sum (LSUM). The contractor may invoice for 40% of the unit price at installation and 60% of the unit price at complete in place restoration.

## 28. PAVEMENT REMOVAL

## 28.1. General

This work shall consist of removing existing bituminous or concrete pavement and driveway pavement as required to construct this project. Bituminous pavement shall be saw-cut full depth prior to removal and be incidental to the removals. PCC Pavement shall be saw-cut full depths or removed at the nearest existing construction joint and be incidental to the removals.

Maximum payment limits for pavement removal shall be as shown on the plans. Contractor shall not remove any pavement outside these limits without receiving prior written approval from FRSA. Care must be taken to protect bituminous and concrete vertical joint faces are protected from all damage (e.g. spalling). In all cases where drop-offs exist, measures such as temporary asphalt pavement wedges will be required and the cost of installation and removal will be incidental to construction. No additional payment will be made for the removal of aggregate base or soil under the bituminous pavement. If approved by FRSA, existing base aggregates may remain in place. No additional payment will be made for grading and shaping.

Actual thicknesses may vary from those shown and no additional payment will be made for thicknesses that differ from those indicated. 00500

#### 28.2. Materials

Not used

28.3. Required Submittals

Not used.

## 28.4. Payment

Payment for **Driveway Pavement Removal** will be made at the contract unit price per Square Yard (SQYD) of pavement removed, irrespective of the type or thickness.

Payment for **Pavement Removal** will be made at the contract unit price per Square Yard (SQYD) of pavement removed, irrespective of the type or thickness.

# 29. HOTMIX ASPHALT BINDER COURSE, IL-19.0, N50

## 29.1. General

This work shall be in accordance with T.S. 4:3/Pavement Restoration of the General Provisions and Technical Specifications for Sanitary Sewer Construction and with Section 406 of IDOT Standard Specifications.

The work shall be performed to the satisfaction of FRSA and jurisdictional roadway authority. All roadway authorities shall be notified a minimum of forty-eight (48) hours prior to pavement replacement. At the discretion of FRSA, maintenance and temporary restoration of roads, drives, fences, etc., will be required; this work shall be done by the Contractor without delay and at no additional cost.

All costs associated with placement of the bituminous tack coat shall be considered incidental to this item.

Finished lift thickness shall be to depth indicated on plans.

Roller requirements per Table 1 of 406.07 (a) of the IDOT Standard Specifications.

## 29.2. Materials

HMA Binder Course shall be mixture IL-19.0, N50 in accordance with Section 1030 of IDOT Standard Specifications.

Tack coat shall be SS-1 in accordance with Section 1032 of the *IDOT Standard* Specifications.

## 29.3. Required Submittals

1. HMA mix designs.

2. Tack coat material certifications.

## 29.4. Measurement and Payment

Payment for **HMA Binder Course**, **IL-19.0**, **N50**, shall be made at the Contract unit price per Ton (TON), to thickness indicated on plans, complete in place.

# 30. HOTMIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50

## 30.1. General

This work shall be performed in accordance with Section 406 of *IDOT Standard Specifications* to the satisfaction of FRSA and jurisdictional roadway authority. All roadway authorities shall be notified a minimum of forty-eight (48) hours prior to pavement replacement. At the discretion of FRSA, maintenance and temporary restoration of roads, drives, fences, etc., will be required; this work shall be done by the Contractor without delay and at no additional cost.

Tack coat shall be SS-1 bituminous materials; all costs associated with placement of the tack coat shall be considered incidental to this pay item.

To the maximum extent feasible, surface course paving operations shall be scheduled during non-peak traffic times. Flaggers shall be utilized to keep the roadway open to one-way traffic during the surface course paving operations.

The finished lift thickness shall be to depth indicated on plans.

Roller requirements per Table 1 of 406.07 (a) of the *IDOT Standard Specifications*.

## 30.2. Materials

HMA Surface Course shall be IL-9.5, Mix "D", N50, in accordance with Section 1030 of *IDOT Standard Specifications*.

Tack coat shall be SS-1 in accordance with Section 1032 of *IDOT Standard Specifications* 

## 30.3. Required Submittals

1. HMA mix designs.

2. Tack Coat material certifications.

## 30.4. Measurement and Payment

Payment for HMA Surface Course, IL-9.5, Mix "D", N50 shall be made at the Contract unit price per Ton (TON), to thickness indicated on plans, complete in place.

## 31. SANITARY SEWER TRENCH EMBEDMENT DAM

## 31.1. General

This work consists of placement of embedment dam material to the full width of the trench and steel casing or ductile iron pipe (DIP). Steel casing or DIP shall be 5 feet in length and ends sealed watertight. If concrete is used, earthen forming will not be permitted. Final location of trench embedment dam to be as directed by FRSA.

## 31.2. Materials

Embedment dam material shall be IDOT Class DS concrete in accordance with Section 1020 of the *IDOT Standard Specifications* or FRSA approved clay material.

## 31.3. Required Submittals

- 1. Casing pipe specifications.
- 2. Pipe spacer specifications.
- 3. Casing pipe end-seal specifications.

## 31.4. Measurement and Payment

Payment for Sanitary Sewer Trench Embedment Dam shall be made at the Contract unit price per Each (EACH) installed, complete in place.

# 32. TEMPORARY CHAIN LINK FENCE, 6'

## 32.1. General

This work entails the installation of temporary construction fencing measuring six feet (6') in accordance with the provided plans, along with monitoring to ensure its efficacy. Fence must be in place before any construction work. No site access control will be required along the temporary fence.

## 32.2. Materials

Temporary fence panels to be chain link.

## 32.3. Required Submittals

A. Security and monitoring plan

2. Temporary fence specifications

## 32.4. Measurement for Payment

Payment for **Temporary Chain Link Fence**, **6'** shall be made at the Contract unit price per foot (FOOT) installed and removed.

## **33. TEMPORARY CONSTRUCTION FENCE**

## 33.1. General

This work shall conform to Four Rivers Sanitation Authority (FRSA) requirements, details, and provisions, and Section 201 of the *IDOT Standard Specifications* for Road and Bridge Construction, current edition. This work shall include all equipment, materials, labor, transportation, and workmanship to install, maintain and remove temporary construction fence as shown on the plans.

This work shall include the installation, maintenance, and removal of temporary construction fence and all appurtenances for the purposes of maintaining separation from construction activities and the public. Temporary construction fence limits shall be as shown on the plans or as approved by the Engineer. Temporary construction fence shall be installed to sufficiently deter pedestrians and pets from entering the work area, as determined by the Engineer.

#### 33.2. Materials

Fence fabric shall be orange in color and 4 feet in height and shall be approved for use by the Engineer. Steel posts shall be installed at 12-foot intervals and the fence fabric shall be securely attached to the posts.

## 33.3. Required Submittals

Not used.

## 33.4. Measurement for Payment

Payment for **Temporary Construction Fence** shall be made at the Contract unit price per foot (FOOT), complete.

## 34. ENTRANCE GATE COMPLETE

## 34.1. General

This work shall conform to Four Rivers Sanitation Authority (FRSA) 'Entrance Gates Complete' requirements, details, and provisions. This work shall include all equipment, materials, labor, transportation, and workmanship to furnish and install entrance gates as shown on the plans.

This work shall consist of furnishing and installing entrance gates as shown on the plans or as directed by the Engineer. The gates, hinges, and all necessary materials, appurtenances and hardware shall be made by the same manufacturer and designed to be used as a system. The system shall include complete furnishing and installation.

Gates shall be nominally 50 inches in height. The 6"x 6" treated lumber posts shall be spaced so that there is between 2 and 6 inches of space between the inside of the gates when they are closed. Posts shall be encased in a 12-inch diameter concrete encasement, 4 feet deep. The bottom of the 6"x 6" treated post must sit on 4" of

compacted CA-7 gradation aggregate. The gates shall freely swing open in the direction determined by the Engineer with no obstruction or un-necessary hardship, as determined by the Engineer.

## 34.2. Materials

Gates shall be 1.625" tubular steel 50" tall utility gates as manufactured by Behlen Country (Behlen Mfg. Co.) or approved equal. All hardware and appurtenances shall be made to be used with the gates as a system.

## 34.3. Required Submittals

1. Complete system including gates, hardware, wheels, posts, color, and material.

#### 34.4. Measurement for Payment

Payment for **Entrance Gate Complete**, **16' Wide** shall be made at the Contract unit price per each (EACH), installed, complete in place.

## 35. RAILROAD SAFETY AND FLAGGING

## 35.1. General

The contractor shall provide railroad safety and flagging as required by Union Pacific Railroad (UPRR) and Chicago, Central & Pacific Railroad Company in accordance with Article 107.12 of the *IDOT Standard Specifications*.

Before commencing work, the contractor shall provide and maintain the following insurance, in form and amount and with companies satisfactory to, and as approved by, the UPRR and Chicago, Central & Pacific Railroad Company.

- 1. Statutory Workers' Compensation and Employer's Liability insurance.
- 2. Automobile Liability in an amount not less than \$1,000,000 dollars combined single limit.
- 3. An Occurrence Form Railroad Protective Policy with limits of not less than \$5,000,000 dollars per occurrence for Bodily Injury Liability, Property Damage Liability and Physical Damage to Property with \$10,000,000 dollars aggregate for the term of the policy with respect of Bodily Injury Liability, Property

Damage Liability and Physical Damage to Property. The policy must name the appropriate RAILROAD as the insured and shall provide for not less than ten (10) days prior written notice to the Railroad as cancellation of, or any material change, in the policy.

The contractor shall provide to FRSA, UPRR, and Chicago, Central & Pacific Railroad Company a detailed plan outlining the monitoring of ground surface and subsurface movements in accordance with the *UPRR GUIDELINES FOR TRACK & GROUND MONITORING* and *CHICAGO, CENTRAL & PACIFIC RAILROAD COMPANY REQUIREMENTS* provided in Section V – Supplemental Information.

Plan must include contingency plan and notification procedures to be implemented in the event of excessive or unexpected settlement or heave.

Monitoring of the Railroad track elevations will be required once daily during jacking operations. All elevations recorded shall be certified by a Professional Land surveyor licensed in the State of Illinois. Elevations shall be provided daily to FRSA. :POSE

#### 35.2. Materials

Not Used

## **35.3.** Required Submittals

- 1. Safety and flagging plan.
- 2. Monitoring and contingency plan.
- 3. Detailed work plan.
- 4. Required insurance.

## **35.4.** Measurement for Payment

Payment for Railroad Safety and Flagging shall be made at the Contract unit price per calendar day (CAL DAY), complete.

## **36. UNEXPECTED REGULATED SUBSTANCE**

#### 36.1. General

This work is to be done in accordance with section 107.19 of the *IDOT Standard* Specifications for Road and Bridge Construction, current edition. Excavated material shall remain on site within the superfund area. The Southeast Rockford Groundwater Contamination Site report which includes areas of the superfund site is accessible online at: •

https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=se cond.cleanup&id=0500955.

The quantities specified in this contract are provisional and are to be utilized only as required FRSA has not conducted an independent investigation into soil contamination beyond reviewing the above referenced site report.

This Supplemental Specification amends the *IDOT Standard Specification* Article 107.19 fourth paragraph to read:

Should the disposition of waste material require special procedures by certified personnel, the Contractor will make arrangements with qualified persons to dispose of the material. If FRSA provides for removal and disposal operations by forces other than the Contractor's and arranges for the Contractor to pay all costs in connection therewith, the Contractor will be reimbursed according to Article 109.05.

Related Sections include *IDOT Standard Specifications* Article 669. Removal and Disposal of Regulated Substances. It shall be the contractor's responsibility to monitor and provide a safe work environment for workers and subcontractors. Payment for decontamination, labor, material, and equipment for monitoring or excavation shall be incidental to regulated substance monitoring.

The Contractor is required to excavate a test pit, to the depth of sixteen (16) feet below existing grade, adjacent to the proposed location of manhole #10. From this pit, a Toxicity Characteristic Leaching Procedure (TCLP) test shall be performed by the contractor and submitted with the Regulated Substances Pre-Construction Plan to determine if the leachate is hazardous. All work related to, and including, the TCLP test shall be considered incidental to the pre-construction plan, and no separate compensation will be provided.

Disposal of groundwater shall be in accordance with Item *8 Dewatering* of these supplemental specifications. All sampling shall be incidental to the Regulated Substance Pre-Construction Plan. No additional payment will be made for sampling and analysis beyond the pre-construction plan.

#### 36.2. Materials

Not Used.

## 36.3. Required Submittals

Submit Regulated Substances Pre-Construction Plan and Regulated Substance Final Construction Report Per *Art. 669 of the IDOT Standard Specifications for Road and Bridge Construction.* 

## 36.4. Measurement for Payment

The work of preparing, submitting, and administering a **Regulated Substances Pre-Construction Plan** will be paid for at the contract lump sum (LSUM) price.

**Regulated Substance Monitoring** for each day of work, will be paid for at the contract unit price per lump sum (LSUM), complete.

The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (CUYD) for Non-Special Waste Disposal, Special Waste Disposal, or Hazardous Waste Disposal only if it cannot be reincorporated to the site as approved by FRSA.

The work of preparing, submitting and administering a **Regulated Substance Final Construction Report** will be paid for at the contract lump sum price (LSUM), complete.

## 37. PAVEMENT MARKINGS - LINE 4"

## 37.1. General

Contractor to paint 4" yellow striping on new HMA surface course to match existing length and width and comply with Section 780 of the *IDOT Standard Specifications*.

The Contractor shall layout all markings with non-permanent marking material. Prior to the paint pavement marking installation, FRSA personnel must review and approve the layout. Painted pavement markings shall be installed according to manufacturer's recommendations. Contractors must make sure surface is clean and free of loose material and dust before application of paint. No painting shall be undertaken immediately following rain, frost, or dew.

## 37.2. Materials

Paint pavement markings shall be in accordance with Article 1095.02 of the *IDOT Standard Specifications*. Color for lines shall be yellow.

37.3. Required Submittals

Product Data: Pavement paint for use on new pavements.

## 37.4. Measurement and Payment

Payment shall be made at the contract unit price per Linear Foot (FOOT) of **Paint Pavement Markings – Line 4.**"

## **38. DUST CONTROL**

## 38.1. General

The Contractor shall be responsible for controlling the dust and air-borne dirt generated by his/her construction activities complying with Section 107.36 of the *IDOT Standard Specifications*.

The Engineer may require the implementation of dust control procedures if wind and dry soil conditions reduce visibility on adjacent roads and property. Concerns for health and safety to the public using adjacent facilities will be grounds for the Engineer to request implementation of a dust control plan.

When circumstances warrant, and in the non-attainment areas and "Maintenance" areas, a specific dust control plan shall be developed. Non-attainment and "Maintenance" areas will be published as a special notice in the Service Bulletin. The Contractor and the FRSA shall meet to review the nature and extent of dust generating activities and cooperatively develop specific types of control techniques appropriate to that specific situation. Sample techniques that may warrant consideration include the following measures.

(a) Minimize track out of soil onto nearby publicly traveled roads.

(b) Reduce vehicle speed on unpaved surfaces.

(c) Cover haul vehicles.

(d) Apply chemical dust suppressants or water to exposed surfaces, particularly

to surfaces on which construction vehicles travel.

Dust control measures as indicated in the Dust Control Plan, or as directed by the Engineer, shall be readily available for use on the project site.

- **38.2.** Materials Not used.
- **38.3.** Required Submittals Not used.

#### 38.4. Measurement and Payment

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## Proposal

Projec	ct:	Interstate Diversion Basin Trunk Upsizing FPCIP 150D, Capital Project No. 2108
Location:		Sections 5 and 6 of Township 43 North, Range 2 East of the Third P.M. in Rockford, Illinois.
Completion Date:		August 1, 2026
Liquidated Damages:		\$300/calendar day
To:	Board of Trustees Four Rivers Sanitation 3501 Kishwaukee S Rockford, IL 61109	on Authority treet
From:	(Individual, Partne	rship or Corporation, as case may be)
	(Address of Indivio	lual, Partnership or Corporation)

Gentlemen:

I (We), the undersigned, hereby propose to furnish all materials, equipment, tools, services, labor, and whatever else may be required to construct and place in service the above subject Sanitary Sewer for the Four Rivers Sanitation Authority all in accordance with the plans and specifications, provided by Four Rivers Sanitation Authority. The undersigned also affirms and declares:

- 1. That I (we), have, examined and am (are) familiar with all the related contract documents and found that they are accurate and complete and are approved by the undersigned.
- 2. That I (we), have carefully examined the site of the work, and that, from my (our) investigation, has satisfied myself (ourselves) as to the nature and location of the work, the character, quality, and quantity of materials and the kind and extent of equipment and other facilities needed for the performance of the work, the general and local conditions and all difficulties to be encountered, and all other items which may, in any way, effect the work or its performance.
  - 3. That this bid is made without any understanding, agreement or connection with any other person, firm, or corporation making a bid for the same purposes, and is in all

respects fair and without collusion or fraud; and that I (we) are not barred from bidding as a result of a bid-rigging or bid-rotating conviction.

- 4. That accompanying the Proposal is a Bidder's Bond in the amount specified in Article 1, Notice to Bidders, payable to the Board of Trustees of the Four Rivers Sanitation Authority, which it is agreed, shall be retained as liquidated damages by said Four Rivers Sanitation Authority if the undersigned fails to execute the Contract in conformity with the contract documents incorporated in the contract documents and furnish bond as specified, within ten (10) days after notification of the award of the contract to the undersigned.
- 5. The Bidder is of lawful age and that no other person, firm or corporation has any interest in this Proposal or in the Contract proposed to be entered into.
- 6. The Bidder is not in arrears to the Four Rivers Sanitation Authority, upon debt or contract, and is not a defaulter, as surety or otherwise, upon any obligation to the Four Rivers Sanitation Authority.
- 7. No officer or employee or person whose salary is payable in whole or in part by the Four Rivers Sanitation Authority is, shall be or become interested, directly or indirectly as a contracting party, partner, stockholder, surety of otherwise, in this Proposal, or in the performance of the Contract, or in the work to which it is relates, or in any portion of the profits thereof.
- 8. The Bidder which I represent complies with all applicable requirements of the Americans with Disabilities Act (ADA) and the Occupational Safety and Health Act (OSHA) and that if said bidder is awarded a contract, it will complete all OSHA-required or ADA-required employee and customer training, will make available all required information, and will hold harmless and indemnify the Four Rivers Sanitation Authority and the Four Rivers Sanitation Authority and the Four Rivers.

In regard to participation in an approved Apprenticeship program, upon request, Contractor will be required to provide written proof of participation.

- 9. The undersigned, as Bidder, declares that he has adopted and promulgated written sexual harassment policies in accordance with Public Act 101-0221 and will make this information available upon request.
- 10. The undersigned, as Bidder, declares he will comply with prevailing wages in accordance with the Illinois Department of Labor Standards. The State of Illinois requires contractors and subcontractors on public works projects (including Four Rivers Sanitation Authority) to submit certified payroll reports via the State's Certified Transcript of Payroll Portal found at <a href="https://labor.illinois.gov/laws-rules/conmed/certifiedtranscriptofpayroll.html">https://labor.illinois.gov/laws-rules/conmed/certifiedtranscriptofpayroll.html</a>.
- 11. The undersigned, as Bidder, declares he will comply with the Federal Drug Free Workplace Act.
  - 12. The undersigned, as Bidder, declares he will comply with Public Act 83-1030 entitled "Steel Products Procurement Act".

- 13. The undersigned, as Bidder, declares he will comply with Public Act 96-929 (30 ILCS 570) regarding Illinois residents' employment.
- 14. The undersigned, as Bidder, declares he will comply with non-discrimination in employment in accordance with the Illinois Fair Employment Practices Commissions Rules & Regulations.
- 15. The undersigned, as Bidder, declares that he currently participates in an apprenticeship or training program that is registered with the United States Department of Labor's Bureau of Apprenticeship and Training or other acceptable State of Illinois Department of Labor monitored program.

In submitting this bid, it is understood that the right is reserved by the Four Rivers Sanitation Authority to reject any and all bids. It is agreed that this bid may not be withdrawn for a period of sixty (60) days from the opening thereof.

eni , has (ha all the work hittin hit The undersigned further declares that he (they) has (have) carefully examined the following items of work and that the cost of all the work to complete this project is

Item	Quan-	<b>TT</b> •.		Unit Price	Unit Price	Total Price
NO.	tity	Unit	Description (In Writing) (In Figures) (In Fig		(In Figures)	
1	28	EACH	Abandon and Fill Existing Sanitary Manhole	andon and Fill Existing Sanitary		<b>\$</b>
2	5	EACH	Abandon and Fill Existing Sanitary Sewer		R	\$-
3	814	SQ YD	Aggregate Base Course, Type B 10"			\$ -
4	2406	SQ YD	Aggregate Surface Course, Type B 6"			\$ -
5	155	FOOT	Chain Link Fence Removal		$\sim$	\$ -
6	155	FOOT	Chain Link Fence, 6'			\$ -
7	109	FOOT	Combination Concrete Curb & Gutter, Ty. M6.24	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	.0	\$ -
8	109	FOOT	Combination Curb & Gutter Removal			\$-
9	1	LSUM	Construction Layout	• •		\$-
10	1	LSUM	Dewatering			\$ -
11	814	SQ YD	Driveway Pavement Removal			\$ -
12	1	EACH	Entrance Gate Complete, 16' Wide			\$ -
13	8872	SQ YD	Erosion Control Blanket			\$ -
14	48	FOOT	Guardrail Removal & Replacement			\$ -
15	100	CU YD	Hazardous Waste Disposal			\$ -
16	160	TON	Hot-Mix Asphalt Binder Course, IL- 19.0, N50, 3.5"			\$-
17	91	TON	Hot-Mix Asphalt Surface Course, IL- 9.5, Mix "D", N50, 2"			\$ -
18	1	LSUM	Intersection Safety and Traffic Control, Alpine Rd.			\$ -
19	30.7	ACRE	Mulch, Method 2			\$ -
20	100	CU YD	Non-Special Waste Disposal			\$ -

Item	Quan-	T Tan ite	Unit Price Unit Price Total		Total Price	
1NO. 21	216	FOOT	Description Paint Payement Marking - Line 4"	Paint Pavement Marking - Line 4"		(in Figures)
21	19	SOYD	Payement Removal	vement Removal		
22	16 550	FOOT	Perimeter Frosion Barrier	meter Erosion Barrier		<u>с</u> с
24	15	CAL DAY	Railroad Safety and Flagging			\$-
25	1	LSUM	Regulated Substance Final Construction Report			\$ -
26	1	LSUM	Regulated Substances Monitoring			\$-
27	1	LSUM	Regulated Substances Pre- Construction Plan		6	\$-
28	90	CU YD	Rock Excavation			\$ -
29	158	VFOOT	Sanitary Manhole Epoxy Lining, 6' Dia.	hitary Manhole Epoxy Lining, 6'		\$ -
30	17	VFOOT	Sanitary Manhole Epoxy Lining, 8' Dia.	nitary Manhole Epoxy Lining, 8' a. \$		\$ -
31	3	EACH	Sanitary Manhole Inside Drop Connection, Complete	tary Manhole Inside Drop nection, Complete \$		\$ -
32	9	EACH	Sanitary Manholes To Be Removed	nitary Manholes To Be Removed \$		\$ -
33	2	EACH	Sanitary Manholes To Be Removed & Replaced, 4' Dia.	nitary Manholes To Be Removed & placed, 4' Dia. \$		\$ -
34	1	EACH	Sanitary Manholes To Be Removed & Replaced, 5' Dia.	anitary Manholes To Be Removed &		\$-
35	1	EACH	Sanitary Manholes To Be Removed & Replaced, 6' Dia. \$		\$ -	
36	1	EACH	Sanitary Manholes To Be Removed & Replaced, 8' Dia.			\$ -
37	1	EACH	Sanitary Manholes, 4' Dia.			\$-
38	21	EACH	Sanitary Manholes, 6' Dia.			\$ -
39	1	EACH	Sanitary Manholes, 8' Dia.			\$ -



Item	Quan-	IInit	Description	Unit Price	Unit Price	Total Price
40	1	LSUM	Sanitary Sewer Bypass Connection &     Image: Connection &       Piping, from 30" FM to 103-089, 18"     \$		\$ -	
41	1	LSUM	Sanitary Sewer Bypass Pumping, from 007-092 to 007-090		R	\$-
42	1	LSUM	Sanitary Sewer Bypass Pumping, from 007-098 to 007-093			\$ -
43	1	LSUM	Sanitary Sewer Bypass Pumping, from 008-008 to 008-005			\$ -
44	1	LSUM	Sanitary Sewer Bypass Pumping, from 008-P02 to 008-P01		.0	\$ -
45	1	LSUM	Sanitary Sewer Bypass Pumping, from 103-003 to 008-044			\$ -
46	1	LSUM	Sanitary Sewer Bypass Pumping, from 103-282 to 153-045	3		\$ -
47	1	LSUM	initary Sewer Bypass Pumping, from \$		\$ -	
48	510	FOOT	nitary Sewer Carrier Pipe, PVC PS 5, 42" Dia. \$		\$ -	
49	413	FOOT	Sanitary Sewer Carrier Pipe, PVC SDR 26, 15" Dia.	Canitary Sewer Carrier Pipe, PVC SDR 26, 15" Dia. \$		\$ -
50	1	EACH	Sanitary Sewer Trench Embedment Dam			\$ -
51	23	FOOT	Sanitary Sewer, PVCPS 115, 18" Dia.			\$ -
52	5242	FOOT	Sanitary Sewer, PVC PS 115, 42" Dia.			\$ -
53	54	FOOT	Sanitary Sewer, PVC SDR 26, 08" Dia.			\$ -
54	3262	FOOT	Sanitary Sewer, SaniTite HP TWall, 42" Dia.			\$
55	1	ACRE	Seeding, Class 1 and Fertilizing			\$ -
56	18.3	ACRE	Seeding, Class 2 and Fertilizing			\$ -

Itom	Ouan			I Init Prico	I Init Prico	Total Price
No	tity	Unit	Description (In Writing) (In Figures)		(In Figures)	(In Figures)
57	13.7	ACRE	Seeding Class 7 and Fertilizing	Seeding. Class 7 and Fertilizing		\$
58	100	CUYD	Special Waste Disposal	Special Waste Disposal		\$ -
59	720	SOYD	tabilized Construction Entrance		\$ -	
60	290	FOOT	Steel Casing Pipe, Bored and Jacked, 30" Dia.		R	\$ -
61	380	FOOT	Steel Casing Pipe, Bored and Jacked, 60" Dia.			\$-
62	20	SQ YD	Stone Riprap, Class A4			\$ -
63	1	LSUM	Temporary Access to MH 15			\$ -
64	145	FOOT	Temporary Chain Link Fence, 6'	•••	.0	\$ -
65	758	FOOT	Temporary Construction Fence	$\Delta \nabla$		\$ -
66	80	FOOT	Temporary Ditch Checks			\$ -
67	1910	POUND	Temporary Erosion Control Seeding			\$ -
68	1	LSUM	Traffic Control and Protection, Standard 701602			\$ -
69	1	LSUM	Tree Removal and Clearing	$\mathbf{O}$		\$ -
			TOTAL BID PRICE:	(In Writ	ing)	\$ (In Figures)
The un part of	dersigne the Cont	d acknowle ract.	edges receiving Addendum numbers	,,, and rea	alizes that all Addenc	la are considered
By: Name:					Date:	

Bid Doc. No. 25-422

 $\mathbf{\mathbf{Y}}$ 

# Fair Employment Practices Affidavit of Compliance

## Project: Interstate Diversion Basin Trunk Upsizing FPCIP 150D, Capital Project No. 2108

NOTE: THE BIDDER MUST EXECUTE THIS AFFIDAVIT AND SUBMIT IT WITH ITS SIGNED BID. THE FOUR RIVERS SANITATION AUTHORITY CANNOT ACCEPT ANY BID WHICH DOES NOT CONTAIN THIS AFFIDAVIT

	(	, being firs	st duly sworn, deposes and says that:			
	(Name of person making affidavit)					
They are:	:(Officer's Title)	of	(Company Name)			
that said	company is and "Equal Opportunity Emp d and Federal Executive Orders #11375	ployer" as defined by Se which are incorporated	ection 2000(e) of Chapter 21, Title 42 of the United States Code			
and that Clause, R	said company will comply with any and Rules and Regulations, Illinois Departmen	l all requirements of T nt of Human Rights, w	itle 44 Admin. Code 750. APPENDIX A – Equal Opportunity hich read as follows:			
'In the ev Rights A neligible he contr is provid	vent of the contractor's non-compliance v ct or the Rules and Regulations of the Ill e for future contracts or subcontracts with fact may be cancelled or voided in whole led by statute or regulation. During the p	vith the provisions of t linois Department of F 1 the State of Illinois or or in part, and such oth erformance to this con	his Equal Employment Opportunity Clause, the Illinois Human Human Rights ("Department"), the contractor may be declared any of its political subdivisions or municipal corporations, and her sanctions or penalties may be imposed or remedies invoked tract, the contractor agrees as follows:			
1.	That it will not discriminate against an orientation, marital status, national ori sexual orientation, military status or ar classifications to determine if minority rectify any such underutilization.	ay employee or applica igin or ancestry, citizer 1 unfavorable discharg 7 persons or women ar	nt for employment because of race, color, religion, sex, sexual a status, age, physical or mental handicap unrelated to ability, e from military service; and further that it will examine all job e underutilized and will take appropriate affirmative action to			
2.	That, if he or she hires additional empl determine the availability (in accordanc from which he or she may reasonably r in a way that minorities and women are	loyees in order to perfo re with the Department recruit and he or she wi e not underutilized.	orm this contract or any portion of this contract, he or she will i's Rules and Regulations) of minorities and women in the areas Il hire for each job classification for which employees are hired			
3.	That, in all solicitations or advertisemer all applicants will be afforded equal opp marital status, national origin or ances orientation, military status or an unfavo	ments for employees placed by him or her or on his or her behalf, he or she will state that opportunity without discrimination because of race, color, religion, sex, sexual orientation, acestry, citizenship status, age, physical or mental handicap unrelated to ability, sexual favorable discharge from military service.				
4.	That he or she will send to each labor organization or representative of workers with which he or she has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the contractor's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the contractor in his or her efforts to comply with such Act and Rules and Regulations, the contractor will promptly so notify the Department and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations under the contract.					
5.	That he or she will submit reports as rea may from time to time be requested by Human Rights Act and the Department	ports as required by the Department's Rules and Regulations, furnish all relevant information as uested by the Department or the contracting agency, and in all respects comply with the Illinois partments Rules and Regulations.				
6.	That he or she will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Department for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.					
7.	That he or she will include verbatim or any portion of the contract obligatio subcontractor. In the same manner as v applicable provisions of this clause by s Department in the event any subcontra utilize any subcontractor declared by the the State of Illinois or any of its political	by reference the provi ns are undertaken or vith other provisions o uch subcontractors; an ctor fails or refuses to c e Illinois Human Right l subdivisions or muni	isions of this clause in every subcontract awarded under which assumed, so that the provisions will be binding upon the f this contract, the contractor will be liable for compliance with d further it will promptly notify the contracting agency and the omply with the provisions. In addition, the contractor will not to Commission to be ineligible for contacts or subcontracts with cipal corporations.			
Source:	Amended at 32 I11. Reg. 16484, effectiv	e September 23, 2008	<sup>,</sup> "			
L Dept o	of Human Rights Registration No.:		Expiration Date:			
		Signature				
Subscribe	ed and sworn to before me this	dav of	.20 .			
	· · · · ·		,			

Notary Public

Bid Doc. No. 25-422

Fair Employment Practices Affidavit / Page 1 of 1

# Bid Bond

## KNOW ALL MEN BY THESE PRESENTS, that we:

WHEREAS, the Principal is about to submit, or has submitted to FRSA, a proposal for the Interstate Diversion Basin Trunk Upsizing FPCIP 150D project consisting of removal and replacement of sanitary sewer pipe and manholes, new alignment of sanitary sewer and manholes, sanitary sewer and manhole abandonment, boring and jacking casing pipe, pavement removal and replacement, aggregate surface placement, and all other appurtenances as indicated on the plans and in the specifications.

WHEREAS, the Principal desires to file this bond, in accordance with law, to accompany this Proposal.

NOW THEREFORE, The conditions of this obligation are such that if the Proposal be accepted, the Principal shall, within ten days after the date of receipt of a written notice of award of Contract, execute a Contract in accordance with the Proposal and upon the terms, conditions, and prices set forth therein, in the form and manner required by FRSA, and execute a sufficient and satisfactory Contract Performance Bond payable to said FRSA in an amount of one hundred percent (100%) of the Contract price (including alternates) in form and with security satisfactory to said FRSA, then this obligation to be void, otherwise to be and remain in full force and virtue in law; and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid FRSA, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

IN TESTIMONY THEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this \_\_\_\_\_\_ day of \_\_\_\_\_\_, 20\_\_\_\_\_.

Principal	S
(Seal)	By
	Name:
	Date:
Attest:	
Secretary	
Surety	eori
(Seal)	
	By
×O	Name:
K	Litle:
$\sim$	Date:

## Agreement

#### 1. General

THIS AGREEMENT, made and concluded this \_\_\_\_\_ day of \_

\_\_\_\_\_, 2025, between the Four Rivers Sanitation Authority (FRSA), Rockford, Illinois, acting by and through the Board of Trustees, and \_\_\_\_\_\_, his/their executors, administrators, successors or assigns:

#### 2. Scope of Work

WITNESSETH: That for and in consideration of the payments and agreements made in the Proposal attached hereto, to be made and performed by FRSA and according to the terms expressed in the Bond referring to these presents, the Contractor agrees with FRSA at his/their own proper cost and expense to do all the work, furnish all equipment, materials and all labor necessary to complete the work in accordance with the plans and specifications hereinafter described, and in full compliance with all of the terms of this agreement and the requirements of FRSA and its representative.

And it is also understood and agreed that the Bidding Requirements, Detailed Specifications, Contract Forms, General Conditions, General Requirements, Technical Specifications, Plans, Addenda, and provisions required by law are all essential documents of the contract, and are a part hereof, as if herein set out verbatim or as if attached, except for titles, subtitles, headings, table of contents and portions specifically excluded.

#### 3. Contract Price

FRSA shall pay to the Contractor, and the Contractor shall accept, in full payment for the performance of this Contract, subject to any additions or deductions provided for hereby, in current funds, the Total Contract Price of \_\_\_\_\_\_\_\_\_ and 00/100 (\$\_\_\_\_\_\_).

Payments are to be made to the Contractor in accordance with and subject to the provisions of Section 7 of this Agreement, which is a part of this Contract.

## 4. Bond

5.

The Contractor has entered into and herewith tenders a bond of even date herewith, in the penal sum of \_\_\_\_\_\_ and 00/100

(\$\_\_\_\_\_) to insure the faithful performance of this Contract, which said bond is hereby made a part of this Contract by reference.

## Maintenance and Guarantee

The Contractor shall promptly repair, replace, restore or rebuild any imperfections that may arise and shall maintain satisfactory to FRSA all work for a period three years from the date of final acceptance of the Contract for trench settlement and for a period of two years all other work, except where periods of maintenance and guarantee are provided for. The Contractor shall, for this period, indemnify and save harmless the FRSA, its officers and agents from any injury done to property or persons as a direct or alleged result of imperfections in the Contractors' work, and shall immediately assume and take charge of the defense of such action or suits in like manner and to all intents and purposes as if said actions and suits had been brought directly against the Contractor.

If the Contractor shall fail to repair, replace, rebuild or restore such defective or damaged work promptly after receiving notice given by FRSA, the FRSA shall have the right to have the work done by others and to call on the Contractor and his bondsman to pay the costs thereof.

## 6. Contract Execution

IT IS EXPRESSLY UNDERSTOOD AND AGREED that the entire improvement shall be done in a thorough and workmanlike manner, under the direction and to the satisfaction of FRSA and in full compliance with all the requirements of its representative under them. All loss or damage arising out of the nature of the work to be done, or from any detention of unforeseen obstruction or difficulty which may be encountered in the prosecution of the work, or from the action of the elements, shall be sustained by the Contractor.

The Contractor will be held responsible for all accidents, and hereby agrees to indemnify and protect FRSA from all suits, claims, and actions brought against it, and all cost, and damages which FRSA may be put to by reason of an injury or alleged injury, to the person or property of another in the execution of this contract, or the performance of the work, or in guarding the same, or for any material used in its prosecution or in its construction.

Any person employed on the work who shall refuse or neglect to obey the directions of FRSA or its representative, or who shall be deemed by FRSA to be incompetent, or who shall be guilty of any disorderly conduct, or who shall commit any trespass on any public or private property in the vicinity of the work, shall at once be removed from the work by the Contractor when so requested by FRSA.

Any request to extend the contract completion date must be considered by the Board at the Board meeting prior to the then-existing contract termination date. Any deviation from this action will result in the liquidated damage clause in the contract to be exercised.

## 7. Payments to Contractor

FRSA hereby covenants and agrees, in consideration of the covenants and agreements in this Contract, specified to be kept and performed by the Contractor and subject to the conditions herein contained, and if FRSA receives an acceptable invoice prior to the tenth day of the month and receives approval of the work by the FRSA's Director of Engineering, FRSA shall issue payment before the fifth day of the succeeding month. If FRSA receives an acceptable invoice on or after the tenth day of the month, FRSA shall issue payment before the fifth day of the second succeeding month.

FRSA reserves the right at all times to refuse to issue payment in case the Contractor has neglected or failed to pay any subcontractors, workmen or employee on the work.
# 8. Subcontracts

No part of the work herein provided for shall be sublet or subcontracted without the express consent of FRSA, to be entered in the records, and in no case shall consent relieve the Contractor from the obligation herein entered into, or change the terms of this Agreement.

# 9. Contractor's Responsibility

This Contract shall extend to and be binding upon the successors and assigns, and upon the heirs, administrators, executors, and legal representatives of the Contractor.

In consideration of and to induce the award of this Contract to him, the Contractor represents and warrants: that he is not in arrears to FRSA upon debt of the Contract and that he is not a defaulter, as surety, contractor or otherwise; that he is financially solvent and sufficiently experienced and competent to perform the work; that the work can be performed as called for by the Contract; that the facts stated in his proposal and the information given by him is true and correct in all respects, and that he is fully informed regarding all the conditions affecting the work to be done and labor and materials to be furnished for the completion of this Contract and that his information was secured by personal investigation and research.

The Contractor shall pay not less than the prevailing wage rate as determined by the Department of Labor, to all laborers, workmen and mechanics performing work under this Contract. Contractor shall comply with current revisions of the wage standards; as required by law. The Contractor shall be responsible for verifying the prevailing wages each month and notifying all subcontractors of the appropriate monthly rates. The State of Illinois requires contractors and subcontractors on FRSA projects to submit certified payroll reports via the State's Certified Transcript of Payroll Portal currently found at: https://labor.illinois.gov/laws-rules/conmed/certifiedtranscriptofpayroll.html. The Contractor is responsible for verifying current website.

In regard to nondiscrimination in employment, Contractor will be required to comply with the Illinois Fair Employment Practices Commission's Rules and Regulations as provided herein.

The Contractor shall comply with the American Disabilities Act of 1990 (ADA). The Contractor will hold harmless and indemnify FRSA and their representatives from all:

- (a) suits, claims, or actions;
- (b) costs, either for defense (including but not limited to reasonable attorney's fees and expert witness fees) or for settlement, and;

(c) damages of any kind (including but not limited to actual, punitive, and compensatory damages)

relating in any way to or arising out of the ADA, to which said firm is exposed or which it incurs in the execution of the contract.

Contractor shall also comply with Public Act 101-0221, which requires any party to a contract to adopt and enforce a written policy regarding sexual harassment that includes, as a minimum, the following information:

- (a) the illegality of sexual harassment
- (b) the definition of sexual harassment under Illinois State law;
- (c) a description of sexual harassment, utilizing examples;
- (d) my (our) organization's internal complaint process including penalties;
- (e) through the Illinois Department of Human Rights and the Illinois Human Rights Commission;
- (f) directions on how to contact the Department and the Commission; and
- (g) protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act.

Upon request this information will be provided to the Illinois Department of Human Rights. Upon FRSA award of a contract, FRSA will be provided this information described no more than ten working days after FRSA issues its award notification.

The Contractor shall comply with Public Act 96-929 (30 ILCS 570) which provides that Illinois residents be employed on Illinois public works projects, provided there has been a period of excessive unemployment (5%) in the State of Illinois as defined in the Act; and further, that Illinois workers are available and capable of performing the particular type work involved.

The Contractor shall comply with all rules and regulations of OSHA during the execution of this Contract.

The Contractor shall comply with the Federal Drug Free Workplace Act.

The Steel Products Procurement Act, Illinois Public Act 83-1030, requires that steel products used or supplied in performance of this Contract or subcontract shall be manufactured or produced in the United States with three exceptions, as explained in the Instructions to Bidders.

The Contractor shall comply with Public Act 96-1416 regarding the disposal of CCDD and uncontaminated soil at CCDD fill sites as explained in the Instructions to Bidders.

10. Time

Work under this Agreement shall be commenced upon written Notice to Proceed. The completion date for this project shall be August 1, 2026.

# 11. Liquidated Damages

The amount of liquidated damages shall be \$300.00 per calendar day.

# 12. Counterparts

This Agreement may be executed and recorded in counterparts, each of which shall be deemed an original and all of which, when taken together, shall constitute one and the same instrument. The Parties hereby acknowledge and agree that facsimile signatures or signatures transmitted by electronic mail in so-called "pdf" format shall be legal and binding and shall have the same full force and effect as if an original of this Agreement had been delivered. Each of the parties (a) intend to be bound by the signatures on any document sent by facsimile or electronic mail, (b) are aware that the other party will rely on such signatures, and (c) hereby waive any defenses to the enforcement of the terms of this Agreement based on the foregoing forms of signature.

# 13. Seals

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals, and such of them as are corporations have caused these presents to be signed by their duly authorized officers.

(Seal)	Four Rivers Sanitation Authority Winnebago County, Illinois
ATTEST: Clerk of the Board	By President, Board of Trustees
(Corporate Seal)	Contractor By Contractor's Officer Name: Title:
ATTEST:	Date:

# Labor & Material Payment Bond

TO:	Contractor Name
	Contractor City, State
KNO	W ALL MEN BY THESE PRESENTS
That_	(Contractor)
as Prin	ncipal, and
a corp unto hereii	ooration of the State of as Surety, are held and firmly bound the Four Rivers Sanitation Authority, as Obligee, for the use and benefit of claimants as nafter defined in the amount of
Princi assigr	Dollars (\$), for the payment where of ipal and Surety bind themselves, their heirs, executors, administrators, successors and hs, jointly and severally, firmly by these presents.
Contra contra refere	WHEREAS, Principal has by written agreement dated20 Entered into a ract with Obligee for in accordance with act documents prepared by the Four Rivers Sanitation Authority which Contract is by ence made a part hereof, and is hereinafter referred to as "the Contract".
Princi under charac Depar and fo then t	<b>NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION</b> is such that if ipal shall promptly pay for all laborers, workers and mechanics engaged in the work is the Contract, and not less than the general prevailing rate of hourly wages of a similar cter in the locality in which the work is performed, as determined by the State of Illinois rtment of Labor pursuant to the Illinois Compiled Statutes 280 ILCS 130 / 1-12 et.seq. or all material used or reasonably required for use in the performance of the Contract, this obligation shall be void; otherwise it shall remain in full force and effect.
1.	Principal or with any of Principal's subcontractors for labor or materials furnished in the performance of the Contract on account of which this Bond is given.
2.	Nothing in this Bond contained shall be taken to make the Obligee liable to any subcontractor, material man or laborer, or to any other person to any greater extent than it would have been liable prior to the enactment of The Public Construction Bond Act, approved June 20, 1931, as amended; provided further, that any person having a claim for labor and materials furnished in the performance of the Contract shall have no right of action unless he shall have filed a verified notice of such claim with the Obligee within 180 days after the date of the last item of work or the furnishing of the last item of materials, which claim shall have been verified and shall contain the name and address of the claimant, the business address of the claimant within the State of Illinois, if any, or if the claimant be a foreign corporation having no place of business

within the State the principal place of business of the corporation, and in all cases of partnership the names and residences of each of the partners, the name of the Contractor for the Obligee, the name of the person, firm or corporation by whom the claimant was employed or to whom such claimant furnished materials, the amount of the claim and a brief description of the public improvement for the construction or installation of which the contract is to be performed. No defect in the notice herein provided for shall deprive the claimant of its right of action under the terms and provisions of this Bond unless it shall affirmatively appear that such defect has prejudiced the rights of an interested party asserting the same.

- 3. No action shall be brought on this Bond until the expiration of 120 days after the date of the last item of work or of the furnishing of the last item of material except in cases where the final settlement between Obligee and the Contractor shall have been made prior to the expiration of the 120 day period, in which case action may be taken immediately following such final settlement; nor shall any action of any kind be brought later than 6 months after the acceptance by the Obligee of the work. Such suit shall be brought only in the circuit court of this State in the judicial district in which the Contract is to be performed.
- 4. Surety hereby waives notice of any changes in the Contract, including extensions of time for the performance thereof.
- 5. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.
- 6. The Principal and Surety shall be liable for any attorneys' fees, engineering costs, or court costs incurred by the Obligee relative to claims made against this Bond.

Signed and Sealed thisday of	, 20
CONTRACTOR	SURETY
Contractor Firm Name	
By:Signature	By: Attorney-in-Fact Signature
Printed/Namo	 Drinted Name
Title	Resident Agent
ATTEST:	

Corporate Secretary (Corporations only)

# Performance Bond

**KNOW ALL MEN BY THESE PRESENTS,** that WHEREAS, the Four Rivers Sanitation Authority has awarded to: \_\_\_\_\_

hereinafter designated as the "Principal", a contract, dated, \_\_\_\_\_\_, for the Four Rivers Sanitation Authority.

WHEREAS, said Principal is required under the terms of said Contract to furnish a bond for the faithful performance of said Contract (the "Bond");

NOW, THEREFORE, we the Principal and \_\_\_\_\_

as Surety, are firmly bound unto the Four Rivers Sanitation Authority in the penal sum of

Dollars (\$\_\_\_\_\_\_\_) lawful money of the United States for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents for a performance bond. The conditions of this obligation is such that if the said Principal does well and faithfully performs all the conditions and covenants of said Contract, according to the true intent and meaning thereof, upon its part to be kept and performed, then the above obligation is to be null and void, otherwise to remain in full force and effect.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal, its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract, including the provisions for liquidated damages in the said Contract, any changes, additions or alterations thereof made as therein provided, on its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the Four Rivers Sanitation Authority, its officers and agents, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect. And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same and no inadvertent overpayment of progress payments shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications or of any inadvertent overpayment of progress payments. The Four Rivers Sanitation Authority shall be named as beneficiary on this Performance Bond.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their seal this \_\_\_\_\_\_day of \_\_\_\_\_\_, 20\_\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR	SURETY
Contractor Firm Name	
Ву:	By:
Signature	Attorney-in-Fact Signature
Printed Name	Printed Name
Title	Resident Agent
ATTEST:	
Corporate Secretary (Corporations only	)
ve	
K KO	
20-	
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#### DEPARTMENT OF THE ARMY CORPS OF ENGINEERS, ROCK ISLAND DISTRICT PO BOX 2004 CLOCK TOWER BUILDING ROCK ISLAND, ILLINOIS 61204-2004

July 23, 2024

J.POSEE

**Regulatory Division** 

SUBJECT: CEMVR-RD-2024-0727

Lee Aschim Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109-2053

Dear Lee Aschim:

Our office reviewed your application received June 12, 2024, concerning the proposed Interstate Diversion Basin Trunk Upsizing FPCIP #150D project located in Section 5, Township 43 North, Range 2 East, Winnebago County, Illinois; 42.23121, - 89.02839.

Our office has completed a Preliminary Jurisdictional Determination (PJD) concerning your project area and we determined that there appear to be 4100 linear feet of jurisdictional streams present within your project area. The discharge of dredged or fill material into these potentially jurisdictional areas may require a Department of the Army authorization. Your project as described does not impact these areas; therefore, your project, as currently designed, does not require a permit from our office.

A copy of our PJD is enclosed. A PJD is not appealable, and it is applicable only to the permit program administered by the Corps of Engineers. Please review, sign, and date. Email your signed permit back to the project manager in charge of review, at Troy.M.Larson@usace.army.mil.

Although a DA permit will not be required for the project, this does not eliminate the requirement that you must still acquire other applicable Federal, state, and local permits.

The Rock Island District Regulatory Division is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our web site at https://regulatory.ops.usace.army.mil/ords/f?p=136:4 (be sure to select "Rock Island District" under the area entitled: Which Corps office did you deal with

Should you have any questions, please contact our Regulatory Division by letter, PUTPOSEE email Troy.M.Larson@usace.army.mil, or telephone Troy Larson at 309/215-5635.

Sincerely, Cintouts

Julie C. Rimbault Chief, Eastern Branch Regulatory Division nor

**Enclosures:** 2024-0727 PJD and project plans

CC: William Milner, Illinois Department of Natural Resources, bill.milner@illinois.gov

al Prote Darin LeCrone, Illinois Environmental Protection Agency,





Applicant:	Lee Aschim
Contact:	Lee Aschim
Address:	3501 Kishwaukee Street Rockford, IL 61109

IDNR Project Number: 2411319 03/04/2024 Date: Alternate Number: 2108

Project: Interstate Diversion Basin Trunk Upsizing FCIP # 150D Address: 3035 South Alpine Road, Rockford

Description: Project consists of removal of existing sanitary sewer pipe and replacing with larger pipe.

# Natural Resource Review Results

# Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Rusty Patched Bumble Bee (Bombus affinis) Rusty Patched Bumble Bee (Bombus affinis)

### Wetland Review (Part 1090)

The Illinois Wetlands Inventory does not show wetlands within 250 feet of the project location.

### An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely



# Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

### **Terms of Use**

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

### Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

### Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

Aotto





EcoCAT Receipt		Project Code 2	411319	es pes
APPLICANT		DATE		
Lee Aschim Lee Aschim 3501 Kishwaukee Street Rockford, IL 61109		3/4/2024		
DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID	
EcoCAT Consultation	\$ 125.00	\$ 2.81	\$ 127.81	_
Illinois Department of Nati One Natural Resources Wa Springfield, IL 62702 217-785-5500 dnr.ecocat@illinois.gov	ural Resources	TOTAL PAID	\$ 127.81	

### ILLINOIS ENVIRONMENTAL PROTECTION AGENCY WATER POLLUTION CONTROL PERMIT

**PERMIT NO.:** 2024-HB-71476

# LOG NUMBERS: 2024-71476 BUREAU ID: W2010300010 FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Four Rivers Sanitation Authority

DATE ISSUED: JUL 0 8 2024

SUBJECT: FOUR RIVERS SANITATION AUTHORITY - Interstate Diversion Basin Trunk Upsizing FPCIP 150D (Four Rivers Sanitation Authority Sewage Treatment Plant) - Sanitary Sewer Permit

PERMITTEE TO CONSTRUCT, OWN, AND OPERATE

Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109-2053



SANITÁTION AUTHORITY

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows (quantities are approximate):

54 feet of 8 inch sanitary sewer, 413 feet of 15 inch sanitary sewer, 23 feet of 18 inch sanitary sewer, 8,509 feet of 42 inch sanitary sewer, and 28 manholes to serve as replacement sewer for existing flows (0 P.E., 0 GPD, DAF) located on 3007 South Alpine Road in Rockford with discharge to an existing 33 inch sanitary sewer tributary to the above indicated sewage treatment plant.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: Any connections to this sanitary sewer extension must be in accordance with the latest Revisions of Title 35, Subtitle C, Chapter 1. Permits must be obtained if required by said regulations.

SPECIAL CONDITION 2: The Permittee to Construct shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activities associated with this project will result in the disturbance of one (1) or more acres total land area. Additional information is provided on the following webpage: https://epa.illinois.gov/topics/forms/water-permits/storm-water/construction.html.

SPECIAL CONDITION 3: Please contact the Illinois Department of Natural Resources (IDNR), Office of Water Resources. IDNR may require a permit pursuant to the Rivers, Lakes, and Streams Act for construction of that portion of the project located in the floodplain. The U.S. Army Corps of Engineers may also require a permit pursuant to Section 404 of the Clean Water Act. Application forms received from IDNR will specify which Corps District you should contact.



THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

BDF:KKD:n:\bow\permits\wpdocs\docs\permits\stateco n\desai\2024-71476.docx DIVISION OF WATER POLLUTION CONTROL

Brack, Fel

Brant D. Fleming, P.E. Manager, Municipal Unit, Permit Section

cc: EPA-Des Plaines FOS Records - Municipal

# READ ALL CONDITIONS CAREFULLY: STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

- Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.
- 2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.
- There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications to the Agency and a supplemental written permit issued.
- 4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials.
  - To enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
  - To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
    - To inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated, and maintained under this permit;
  - d. To obtain and remove at reasonable times samples of any discharge or emission of pollutants;
    - To enter at reasonable times and utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit;

- 5. The assurance of this permit:
  - Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;
  - Does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
  - c. Does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances, and regulations;
  - d. Does not take into consideration or attest to the structural stability of any units or parts of the project;

In no manner implies or suggests that the Agency (or its offices, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility;

- 6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the Agency before the facility or equipment covered by this permit is placed into operation.
- 7. These standard conditions shall prevail unless modified by special conditions.
  - The Agency may file a complaint with the Board for suspension or revocation of a permit;
    - Upon discovery that the permit application contained misrepresentations, misinformation, or false statement or that all relevant facts were not disclosed; or
    - Upon finding that any standard or special conditions have been violated; or
    - Upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.



JB Pritzker, Governor • Natalie Phelps Finnie, Director One Natural Resources Way • Springfield, Illinois 62702-1271

www.dnr.illinois.gov

July 18, 2024

FOUR RIVERS SANITATION AUTHORITY UNNAMED STREAM INTERSTATE DIVERSION BASIN TRUNK UPSIZING FPCIP #150D APPLICATION NO. S20240144

# STATEWIDE PERMIT NOTIFICATION LETTER

Thank you for your recent submittal regarding the project as shown on the enclosed copy of your submittal. Based on the information you have submitted, it appears that the project qualifies for approval under the Illinois Department of Natural Resources, Office of Water Resources statewide permit program. The applicable statewide permit(s) (as noted below) can be obtained on our website at: <a href="http://www.dnr.illinois.gov/WaterResources/Pages/PermitsStatewideRegionalGeneral.aspx">http://www.dnr.illinois.gov/WaterResources/Pages/PermitsStatewideRegionalGeneral.aspx</a>. Please review this material to confirm whether your work will meet the terms and conditions of the permit(s). If any of the conditions would not be met, please inform us of the differences and we will continue with the formal permit process.

If we do not hear from you within thirty (30) days, we will assume it is your intention to comply with the conditions of the statewide permit(s).

This letter should not be construed as a release from any other federal, state, or local requirements. If you have not already done so, you should contact the local regulatory agency to ascertain applicable local floodplain construction requirements.

If you have any questions, feel free to contact the person noted below at 217/558-4532.

BY:	Kristian Peterson	JUL 29 2024 FOUR RIVERS SANITATION AUTHORITY
Statewide Permit(s).		
SW 1 - Fringe Construction SW 2 - Rural Bridges SW 3 - Barge Fleeting Facilities SW 4 - Aerial Utility Crossings SW 5 - Minor Boat Docks SW 6 - Minor Floodway Construction SW 7 - Outfalls	SW 8 - Underground C SW 9 - Shoreline/Strea SW 10 - Additions/Acce SW 11 - Dredging SW 12 - Replacement SW 13 - Temporary Co SW 14 - Special Use of	rossings mbank Protection essory Structures Structures onstruction f Public Water

cc: City of Rockford (Brad Holcomb) w/ appl. Downstate NFIP Coordinator (Erin Conley)

	JOIN	T APPLICATIO	ON FORM	FOR ILL		CEIVE	ED
ITEMS 1 AND 2 FOR AGENCY USE Office of Water Resources					urces		
			2. Date	Received	S	PRINGFIELD. ILLINUR	
5102	40/44	/				JUL 05 2024	
3. and 4. (SEE SPECIAL INSTRUC	TIONS) NAME,	MAILING ADDRESS	AND TELEPH	ONE NUMBER	S		
3a. Applicant's Name:		3b. Co-Applicant/Pro (if needed or if differe	perty Owner N ent from applica	lame ant):	4. Authorized Ag	gent (an agent is not rec	quired):
Lee Aschim		Matt Campbell					
Company Name (if any) :		Company Name (if a	iny): n Authority		Company Name	(if any):	S
Four Rivers Sanitation Authority	ni îl seripe di	Address:	n Authonity	al-perfériçiye	Address:		
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Email Address:		Email Address:			Email Address:		
Applicant's Phone Nos. w/area code	)	Applicant's Phone No	os. w/area code	Э	Agent's Phone I	os. w/area code	
Business: (815) 387-7651	an esti an	Business: (815) 3	87-7684		Business:		
Residence:		Residence:			Residence:	· · · ·	140. V
Cell: (815) 543-7983		Cell: (815) 978-02	32		Cell:		- 1 Deg
Fax: (815) 387-7665		Fax: (815) 387-76	65		Fax:		
		STATEMENT	OF AUTHOR	ZATION			
I hereby authorize,	support of this	to act in my permit application.	y behalf as my	agent in the pr	ocessing of this a	oplication and to furnish	, upon
request, supplemental mornation i	roupport of the	point approxim					
Applicant's Sig	nature			D	Date		
5. ADJOINING PROPERTY OW	VNERS (Upstro	eam and Downstrea	m of the wate	er body and v	vithin Visual Rea	ach of Project)	
Name	Mailing Ad	dress			PI	none No. w/area cod	e
a. John Ekberg in care of Ekberg Trus	t 8065 Harr	isville Rd, Rockfo	rd, IL 61109	9	(8	15) 395-1955	
b. Jarid Stimpert	4631 Yale	Drive, Rockford,	IL 61109		(8	15) 821-1231	
C							
d.		5					
a.					e e de la ser a la s		
6. PROJECT TITLE:							
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IN OR NEAR CITY OF TO	OWN (check a	ppropriate box)		WATE	RWAY	RIVEF (if app	R MILE licable)
Rockford			Unnamed	d seasona	l stream	N/A	
COUNTY	STATE	ZIP CODE					
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VVinnebago	L	61109					
Revised 2010	I Den't of Not	ural Resources		- nvironmenta	I Protection		s Copy
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uia. Sanitary sev		. New alignment w		and jacking operations	under the CN
and UP railroad	s as well as Alpi	ne Road, sanitary	sewer bypass p	pumping, entrance pave	ement, and
seeding site res	toration.				
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COMPLETE TH	E FOLLOWING FO	OUR BLOCKS IF DR	EDGED AND/OR I	FILL MATERIAL IS TO BE	DISCHARGED
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	- subAl				
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13. DESCRIPTION OF	AVOIDANCE, MINIMIZ	ATION AND COMPENSA	TON (See instructions)		
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SEE INSTRUCTIONS FOR ADDRESS



### **Bureau of Land and Water Resources**

State Fairgrounds • P.O. Box 19281 • Springfield, IL 62794-9281 • 217/782-6297 • TDD 866/287-2999 • Fax 217/557-0993

September 25, 2024

Mr. Lee Aschim Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109-2053

Re: Four Rivers Sanitation Authority (Winnebago) Sewer Main Replacement U.S. Economic Development Administration Grant Funds



Dear Mr. Aschim:

The Illinois Department of Agriculture (IDOA) has examined the above-referenced project for its potential impact to agricultural land in order to determine its compliance with the Illinois Farmland Preservation Act (505 ILCS 75/1 et seq.). Our analysis also relates to the federal Farmland Protection Policy Act (7 USC 4201 et seq.) (FPPA), which specifies that federal actions affecting farmland conversion shall be consistent with state and local programs to protect farmland.

The Four Rivers Sanitation Authority plans to replace  $\pm 9,000$  feet of sewer main which is an interstate diversion basin trunk. The pipe will cross through private easements near the railroad right-of-way and through agricultural land. Per the USDA NRCS the project is exempt from FPPA requirements as the sewer main is in an existing urbanized area on an existing right-of-way.

Because construction of the proposed sewer main and related appurtenances will be done in accordance with the IDOA *Water and Sewer Line Construction Standards and Policies*, the IDOA has determined that the project complies with the Illinois Farmland Preservation Act.

Sincerely,

Michelle Curby, Chief Bureau of Land and Water Resources

c: Agency project file



# **ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397 JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

Project/Site: Interstate Diversion Basin Trunk Upsizing FCIP # 150D, Rockford, IL, Winnebago County NPDES Permit No: ILR10ZEAW

#### 06/29/2024

We have reviewed your application requesting new coverage for Interstate Diversion Basin Trunk Upsizing FCIP# 150D located at 3035 South Alpine Road, Rockford, IL 61109, and determined that storm water discharges associated with industrial activity from construction sites are appropriately covered by the <u>General NPDES Permit</u> issued by the Agency. Your discharge is covered by this permit effective as of the date of this letter. A copy of the NOI submission can be downloaded at this link: <u>https://npdes-ereporting.epa.gov/net-cgp/api/public/v1/form/1832840/attachment/zip</u>.

The Permit includes special conditions regarding the application, Storm Water Pollution Prevention Plan and reporting requirements. Failure to meet any portion of the Permit could result in civil and/or criminal penalties. The Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

As a Permit Holder, it is your responsibility to:

- 1. Submit a modified Notice of Intent of any substantial modification to the project such as address changes, new contractors, area coverage, or additional discharges to Waters of the United States within 30 days.
- 2. Submit a Notice of Termination once the site has completed final stabilization and all storm water discharges from construction activities that are authorized by this Permit are eliminated.

Please reference your permit number ILR10ZEAW in all future correspondence. Should you have any questions concerning the Permit, please contact the Permit Section at (217) 782-0610.

Sincerely,

Darin E. LeCrone Manager, Permit Section Division of Water Pollution Control

Link to: General NPDES Permit No. ILR10

cc:

2125 S. First Street, Champaign IL 61820 (217) 278-5800 2009 Mall Street Collinsville, IL 62234 (618) 346-5120 9511 Harrison Street Des Plaines, IL 60016 (847) 294-4000 595 S. State Street, Elgin, IL 60123 (847) 608-3131 2309 W. Main Street, Suite 116, Marion, IL 62959 (618) 993-7200 412 SW Washington Street, Suite D, Peoria, IL 61602 (309) 671-3022 4302 N. Main Street, Rockford, IL 61103 (815) 987-7760

PLEASE PRINT ON RECYCLED PAPER

# ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES ONE NATURAL RESOURCES WAY SPRINGFIELD, ILLINOIS 62702-1271

**STATEWIDE PERMIT NO. 8** 

# AUTHORIZING THE CONSTRUCTION OF UNDERGROUND PIPELINE AND UTILITY CROSSINGS

05ec

# PURPOSE

The purpose of this Statewide Permit is to authorize the construction of underground pipeline and utility crossings which have insignificant impact on those factors under the jurisdiction of the Department of Natural Resources, Office of Water Resources (IDNR/OWR). It is no longer necessary to submit applications to, or obtain individual permits from, IDNR/OWR for activities meeting the terms and conditions of this permit. If a project would not meet all of the terms and conditions of this permit application must be submitted.

# APPLICABILITY

This permit applies to all directionally bored pipeline and utility crossings placed beneath the beds of all Illinois rivers, lakes and streams under the Department's jurisdiction. This permit also applies to other pipeline and utility crossings placed beneath the beds of all Illinois rivers, lakes and streams under the Department's jurisdiction except those in Lake, McHenry, Cook, DuPage, Kane and Will Counties for which regulatory floodways have been designated pursuant to 17 Illinois Administrative Code 3708, the public waters of the state, and the following:

- 1. The meandered lakes
- 2. Loon Lake (Lake County)
- 3. Cedar Lake (Lake County)
- 4. Ogden Slip
- 5. Mackinaw River

Kickapoo Creek in Peoria County

- Big Creek in Hardin County
- 8. Lusk Creek in Pope County
- 9. Middle Fork of the Vermilion River in Vermilion County

- 10. Kishwaukee River in McHenry County
- 11. Clear Creek in Union and Alexander Counties
- 12. Embarras River in Jasper and Cumberland Counties

### **COORDINATION WITH OTHER AGENCIES**

This permit does not supersede nor relieve any permittee's responsibility to obtain other federal, state or local permits. The local (county or municipal) regulatory official and the U. S. Army Corps of Engineers' regulatory functions office should be contacted to obtain any required permits. Also, for utility crossings carrying materials which could cause water pollution, potentially impacted owners of public water supplies should be notified.

### SPECIAL CONDITIONS

In order to be authorized by this permit, an underground pipeline or utility crossing must meet the following special conditions.

- 1. In all cases, the crossing shall be placed beneath the bed of the river, lake or stream and, unless the crossing is encased in concrete or entrenched in bedrock, a minimum of three (3) feet of cover shall be provided. The river, lake or streambed shall be returned to its original condition.
- 2. Disturbance of streamside vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation. All disturbed floodway areas, including the stream banks, shall be restored to their original contours and seeded or otherwise stabilized upon completion of construction.
- A utility crossing carrying material which may cause water pollution as defined by the Environmental Protection Act, 415ILCS 5 (1996 State Bar Edition), shall be provided with shutoff valves on each side of the body of water to be crossed.
- 4. If blasting is to be utilized in the construction of the crossing, the Permittee shall notify the Illinois Department of Natural Resources, Office of Resource Conservation at least ten (10) days prior to the blasting date to allow monitoring of any related fish kills.

### **GENERAL CONDITIONS OF THE STATEWIDE PERMIT**

- 1. This permit is granted in accordance with the Rivers, Lakes and Streams Act, 615 ILCS 5 (1996 State Bar Edition).
- 2. This permit does not convey title to any permittee or recognize title of any permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the project or any part thereof will be located, or otherwise grant to any permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
- 3. This permit does not release any permittee from liability for damage to persons or property resulting from any activity covered by this permit, and does not authorize any injury to private property or invasion of private rights.
- 4. This permit does not relieve any permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if any permittee is required by law to obtain approval from any federal or other state agency to do the work, authorization granted by this permit is not effective until the federal and state approvals are obtained.
- 5. The permittee shall, at the permittee's own expense, remove all temporary piling, cofferdams, false work, and material incidental to the construction of the project, from the floodway in which the work is done. If the permittee fails to remove such structures or materials, the Department may have removal made at the expense of the permittee. If the activity is on a public body of water and if future need for public navigation or public interests, by the state or federal government, necessitates changes in any part of the structure or structures such changes shall be made by and at the expense of the permittee or permittee's successors as required by the Department of Natural Resources or other properly constituted agency, within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.
- 6. In issuing this permit, the Department of Natural Resources does not approve the adequacy of the design or structural strength of any structure or improvement authorized by this permit.

7. This Statewide Permit shall remain in effect until such time as it is modified, suspended, or revoked by the Department of Natural Resources.

This Statewide Permit was issued on August 1, 1986 and last modified or corrected June 15, 1998.

**APPROVED:** Brent Manning, Director Department of Natural Resou **EXAMINED AND RECOMMENDED:** Martin J. Stralow, Manager ror **Division of Water Resource Management APPROVAL RECOMMENDED:** Donald R. Vonnahme, Director Office of Water Resources ottobe

# ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES ONE NATURAL RESOURCES WAY SPRINGFIELD, ILLINOIS 62702-1271

### STATEWIDE PERMIT NO. 13

# AUTHORIZING TEMPORARY CONSTRUCTION ACTIVITIES

# PURPOSE

The purpose of this Statewide Permit is to authorize temporary construction activities in the floodways of non-public waters of the state which have insignificant impact on those factors under the jurisdiction of the Illinois Department of Natural Resources, Office of Water Resources (IDNR/OWR). It is no longer necessary to submit applications to, or obtain individual permits from, IDNR/OWR for activities meeting the terms and conditions of this permit. If a project would not meet all of the terms and conditions of this permit, a formal permit application must be submitted.

# APPLICABILITY

This permit applies to temporary construction activities in the floodways of all non-public rivers, lakes and streams under the Department's jurisdiction except those in Lake, McHenry, Cook, DuPage, Kane and Will Counties for which regulatory floodways have been designated pursuant to 17 Illinois Administrative Code 3708. This permit does not apply to work in any public body of water (see attached list). This permit also does not apply to projects which conflict with a federal, state or local project or improvement, or with any other rules of the Department.

# COORDINATION WITH OTHER AGENCIES

This permit does not supersede nor relieve any permittee's responsibility to obtain other federal, state or local permits. The local (county or municipal) regulatory official and the U. S. Army Corps of Engineers' regulatory functions office should be contacted to obtain any additional design criteria and required permits. In addition, if any historical or archeological materials are revealed by any activity authorized by this permit, the activity shall be suspended and the permittee shall notify the staff archeologist, Historic Preservation Agency, One Old State Capitol Plaza, Springfield, Illinois 62701.

# SPECIAL CONDITIONS

2.

In order to be authorized by this permit, an individual project must meet the following special conditions.

No temporary construction activity shall be commenced until the individual permittee determines that the permanent structure (if any) for which the work is being performed has received all required federal, state and local authorizations.

The term "temporary" shall mean not more than one construction season; all temporary construction materials must be removed from the stream and floodway within one year of their placement and the area returned to the conditions existing prior to the beginning of construction. Any desired subsequent or repetitive material placement shall not occur without the review and approval of the Office of Water Resources.

- 3. The temporary project shall be constructed such that it will not cause erosion or damage due to increases in water surface profiles to adjacent properties. For locations where there are structures in the upstream floodplain, the temporary project shall be constructed such that all water surface profile increases due to the temporary project are contained within the channel banks.
- 4. This permit does not authorize the placement or construction of any solid embankment of wall such as a dam, roadway, levee, or dike across any channel or floodway.
- 5. No temporary structure shall be placed within any river or stream channel until a registered professional engineer determines and documents that the temporary structure will meet the requirements of Special Condition 3 of this statewide permit. Such documentation shall include, at a minimum, confirmation that no buildings or structures will be impacted by the backwater induced by the temporary structure.
- 6. The permittee shall maintain records of projects authorized by this permit necessary to document compliance with the above condition.
- 7. Disturbance of vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation. All disturbed areas shall be seeded or otherwise stabilized upon completion of the removal of the temporary construction.
- 8. Materials used for the project shall not cause water pollution as defined by the Environmental Protection Act (415 ILCS 5).

# GENERAL CONDITIONS OF THE STATEWIDE PERMIT

- 1. This permit is granted in accordance with the Rivers, Lakes and Streams Act, 615 ILCS 5 (1996 State Bar Edition).
- 2. This permit does not convey title to any permittee or recognize title of any permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the project or any part thereof will be located, or otherwise grant to any permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
- 3. This permit does not release any permittee from liability for damage to persons or property resulting from any activity covered by this permit and does not authorize any injury to private property or invasion of private rights.
- 4. This permit does not relieve any permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if any permittee is required by law to obtain approval from any federal or other state agency to do the work, authorization granted by this permit is not effective until the federal and state approvals are obtained.
- 5. In issuing this permit, the Department of Natural Resources does not approve the adequacy of the design or structural strength of any structure or improvement authorized by this permit.
- 6. This Statewide Permit shall remain in effect until such time as it is modified, suspended, or revoked by the Department of Natural Resources.

This Statewide Permit was issued on October 2, 1998.

APPROVED:

Nottobeusedforbildinepunposes

# Public Bodies of Water

The following public bodies of water were navigable in their natural condition or were improved for navigation and opened to public use. The entire length and surface area in Illinois, including all backwater lakes and sloughs open to the main channel or body of water at normal flows or stages, are open to the public unless limited to a head of navigation as stated. Head of navigation descriptions use the U.S. rectangular survey system and these abbreviations: T = township, R = range, PM = principal meridian, Sec. = section, 1/4 = quartersection, N = north, E = east, S = south, W = west, USGS = U.S. Geological Survey.

- 1) Lake Michigan;
- 2) Chicago River: Main Branch;
- 3) Chicago River: North Branch to North Shore Channel;
- 4) Chicago River: South Branch;
- 5) Chicago River: South Fork of South Branch;
- 6) Chicago River: East and West Arms of South Fork of South Branch;
- Chicago River: West Fork of South Branch to Chicago Sanitary and Ship Canal;
- 8) Calumet River;
- 9) Lake Calumet and entrance channel to Calumet River;
- 10) Grand Calumet River;

11) Little Calumet River;

Wolf Lake (Cook County);

Mississippi River (including all backwater lakes such as Frentress Lake in Jo Daviess County, Boston Bay in Mercer County and Quincy Bay in Adams County);

14) Sinsiniwa River to North Line of Sec. 9, T28N, R1W, 4th PM in Jo Daviess County, which is located approximately two-thirds mile downstream from the U.S. Highway 20 Bridge. This area is shown on the Galena, Ill.-Iowa, 7.5 minute USGS quadrangle map;

- 15) Galena River to East Line of Sec. 16, T28N, R1E, 4th PM in Jo Daviess County, which is located approximately one-half mile upstream from the County Highway 67 Bridge. This area is shown on the Galena, Ill.-Iowa, 7.5 minute USGS quadrangle map;
- 16) Apple River to North Line of Sec. 35, T26N, R2E, 4th PM in Jo Daviess County;
- 17) Plum River to North Line, T24N, R3E, 4th PM in Carroll County, which is located approximately one and one-half miles upstream from the U.S. Highway 52 Bridge. This area is shown on the Savanna, III., 15 minute USGS quadrangle map;
- 18) Rock River;
- 19) Pecatonica River;
- 20) Sugar River (Winnebago County);
- 21) Stillman Creek to South Line, T25N, R11E, 4th PM in Ogle County, which is located approximately one-third mile downstream from the Illinois Highway 72 Bridge. This area is shown on the Stillman Valley, 7.5 minute USGS quadrangle map;
- 22) Henderson Creek (new channel) to East Line, SW 1/4, Sec. 6, T10N, R5W, 4th PM in Henderson County. The river has been relocated and the old channel abandoned;
- 23) The Sny in Adams, Pike and Calhoun Counties. The area has been drained with levees and ditches and it is uncertain that any descendent body of water exists;
- 24) Bay Creek to West Line, Sec. 29, T8S, R3W, 4th PM in Calhoun County. The head of navigation is the limit of meanders on the official plat of survey; but it is uncertain that any descendent body of water exists;

Ulinois River (including all backwater lakes such as Peoria Lake in Peoria, Tazewell and Woodford Counties; Matanzas Bay in Mason County; and Meredosia Lake in Cass and Morgan Counties);

Des Plaines River to Hoffman Dam in Cook County, which is located one-half mile downstream from the junction with Salt Creek. This area is shown on the Berwyn, 7.5 minute USGS quadrangle map;

27) Kankakee River;

25)

26)

- 28) Iroquois River to South Line, SW 1/4, Sec. 30, T27N, R12W, 2nd PM in Iroquois County, which is located approximately one mile downstream from the junction with Sugar Creek. This area is shown on the Gilman, 15 minute USGS quadrangle;
- 29) Fox River (Illinois River Basin);
- 30) Griswold Lake (McHenry County);
- 31) Fox Chain-O-Lakes (Lake and McHenry Counties): Bluff Lake, Lake Catherine, Channel Lake, Fox Lake, Grass Lake, Lake Marie, Nippersink Lake, Dunns Lake, Pistakee Lake, Lake Jerilyn, Lac Louette, Redhead Lake;

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- 32) Vermilion River (Illinois River Basin) to approximately one-half mile above the mouth near Oglesby in LaSalle County;
- 33) Spring Lake (Tazewell County);
- 34) Spoon River to North Line, Sec. 24, T6N, R1E, 4th PM in Fulton County, which is located approximately one-half mile upstream from the Illinois Highway 95 Bridge. This area is shown on the Smithfield, 7.5 minute USGS quadrangle map;
- 35) Sangamon River to South Line, NE 1/4, Sec. 1, T15N, R4W, 3rd PM in Sangamon County, which is located approximately one mile south of the Mechanicsburg Road Bridge. This area is shown on the Mechanicsburg, 7.5 minute USGS quadrangle map;
- 36) Sangamon River: South Fork to South Line, Sec. 33, T16N, R4W, 3rd PM in Sangamon County, which is located approximately two miles upstream from the mouth. This area is shown on the Springfield-East, 7.5 minute USGS quadrangle map;
- 37) Macoupin Creek to East Line, Sec. 25, T9N, R13W, 3rd PM in Green and Jersey Counties, which is located approximately one mile downstream from the junction with Boyer Creek. This area is shown on the Boyer Creek, 7.5 minute USGS quadrangle map;

Otter Creek to East Line of Sec. 3, T7N, R13W, 3rd PM in Jersey County, which is located approximately two miles east of the Illinois Highway 100 Bridge. This area is shown on the Nutwood, 7.5 minute USGS guadrangle map;

39)

Kaskaskia River to East Line, SW 1/4, Sec. 31, T8N, R2E, 3rd PM, which is located nine miles south and two miles west of Herrick. This area is shown on the Vera, 7.5 minute USGS quadrangle map;

- 40) Big Muddy River to East Line T8S, R2W, 3rd PM in Jackson County, which is located approximately one mile northwest of the Southern Illinois Airport. This area is shown on the Murphysboro, 7.5 minute USGS quadrangle map;
- 41) Ohio River;
- 42) Wabash River;
- 43) Vermilion River (Wabash River Basin) to West Line, T19N, R11W, 2nd PM in Vermilion County, which is located approximately one mile upstream from the junction with the North Fork. This area is shown on the Danville, SW, 7.5 minute USGS quadrangle map;
- 44) Little Wabash River to the Illinois Highway 1 bridge in Carmi in White County;
- 45) Saline River to junction of North Fork and South Fork
- 46) Saline River: North Fork to North Line, Sec. 5, T8S, R8E, 3rd PM in Gallatin County, which is located approximately three miles south of the junction of Illinois Highway 141 and U.S. Highway 45. This area is shown on the Ridgway, 7.5 minute USGS quadrangle map;
- 47) Saline River: South Fork to West Line, T9S, R8E, 3rd PM in Gallatin County, which is located at the Gallatin-Saline County line. This area is shown on the Equality, 7.5 minute USGS guadrangle map;
- 48) Horseshoe Lake (Alexander County).

The following public bodies of water are primarily artificial navigable waters that were opened to public use.

1) Illinois and Michigan Canal;

3)

6)

- 2) Illinois and Mississippi (Hennepin) Canal and Canal Feeder;
  - North Shore Channel (Cook County);

North Branch Canal of North Branch Chicago River (Cook County);

- Relocated South Branch Chicago River (Cook County);
- Chicago Sanitary and Ship Canal;
- 7) Calumet Sag Channel;

- 8) Marseilles Canal (LaSalle County);
- 9) Chain of Rocks Canal (Madison County);
- 10) Relocated Kaskaskia River.

The following public bodies of water are navigable waters that were dedicated to public use. This list is incomplete. It is believed there are numerous channels and slips in subdivisions on the margins of public bodies of water which have been dedicated by plat. Additional channels and slips have been dedicated by common law.

unes Petite Lake, Spring Lake and connecting channels between Bluff Lake and 1)



JB Pritzker, Governor • Natalie Phelps Finnie, Director One Natural Resources Way • Springfield, Illinois 62702-1271 www.dnr.illinois.gov

SHPO LOG #009030124

J.POSE

PLEASE REFER TO:

Winnebago County Rockford South of the Canadian National and Union Pacific Railroads, East and West of Alpine Road Sections:4,5,6-Township:43N-Range:2E EDA Reconstruction of Sewer Trunk Line, FCIP#150D, Capital Project No. 2108

March 22, 2024

Lee Aschim Four Rivers Sanitation Authority Graceffa Administration Building 3501 Kishwaukee St. Rockford, IL 61109

We have reviewed the documentation submitted for the referenced project in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance. If further assistance is needed contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

Sincerely,

JSE Varey L. Mayer Carey L. Mayer, AIA Deputy State Historic Preservation Officer





May 29<sup>th</sup>, 2024

Mr. Christopher Baer, PE **Director of Engineering** Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109

Re: **PRELIMINARY** Geotechnical Engineering Report FRSA Interstate Diversion Basin Trunk Upsizing FPCIP #150D Alpine Road Rockford, Illinois GEOCON Project No. 24-G0507

Dear Mr. Baer:

neptingoset Pursuant to our proposal for geotechnical engineering services, we have completed subsurface exploration and geotechnical analyses for the Interstate Diversion Basin Trunk Upsizing project, in Rockford, Illinois. This electronic copy of the PRELIMINARY Geotechnical Engineering Report includes our findings and recommendations for the proposed project referenced above. Please contact our office if you require hard copies of the report.

GEOCON Professional Services, LLC. (GEOCON) appreciates the opportunity to be of service during this phase of the project. If there are any questions or comments you may have regarding the contents of this report, or if we may be of any further service, please contact us at your convenience.

Sincerely,

# **GEOCON Professional Services, LLC.**

Benjamin Skolek, EIT **Project Engineer** 

Kenneth K. Rippy, PE Senior Engineer





# PRELIMINARY Geotechnical Engineering Report

FRSA Interstate Diversion Basin Trunk Upsizing **FPCIP #150D** Alpine Road **Rockford**, Illinois

> Mr. Christopher Baer, PE **Director of Engineering** Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109

Aottobei **Prepared By: GEOCON Professional Services, LLC.** 22774 Citation Road, Unit A Frankfort, Illinois 60423

May 29<sup>th</sup>, 2024

**GEOCON Project No. 24-G0507**
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Boring Location Diagrams Soil Boring Logs Subsurface Profiles General Notes PID Readings

### PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

FRSA Interstate Diversion Basin Trunk Upsizing FPCIP #150D Alpine Road Rockford, Illinois

### INTRODUCTION

This report presents the results of a subsurface exploration for the proposed FRSA Interstate Diversion Basin Truck Upsizing project near Alpine Road, in Rockford, Illinois. The purpose of this report was to determine and evaluate the subsurface conditions existing at the subject site, and to establish related geotechnical parameters to be utilized for the economical design and construction of the sewer improvements planned as part of this project.

This report should be considered preliminary because project design details such as the pipe diameter and profile/depth of the new sewer was not known at the time this report was completed. Further, the site is underlain by fill and areas of soft/loose native soils that may affect the design and installation of the pipe. We recommend additional borings be performed to better define the extent of these conditions after the design details are available for review by the Geotechnical Engineer.

### PROJECT AND SITE DESCRIPTION

The proposed project will consist of about 1.5 miles of new sewer beginning south of Owens Corning, continuing east past Alpine Road, ending north of the FedEx facility located at 5156 American Road, in Rockford, Illinois. The topography along the sewer route varies significantly with surface elevations at the boring locations ranging from El. 757.5 feet at B-1, located on the west end of the alignment, to El. 831.3 feet at B-18, located on the east end of the alignment. Further details regarding the size of the pipe and installation profile were not available at the time this report was completed. It is assumed that the depth of the sewer will generally range from 10 to 20 feet and the sewer will be installed using conventional open trench excavations methods with trench boxes to support the excavation.

### SUBSURFACE EXPLORATION

As requested in the Request for Proposal (RFP), seventeen (17) borings, labeled B-1 to B-9 and B-11 to B-18, were advanced for the project at the locations shown on the Boring Location Diagram included in the Appendix. The borings were extended to predetermined termination depth of 30 feet below grade. Note access to the location of B-10 could not be ascertained prior to drilling and the boring was deleted from the scope.

The boring locations were staked in the field by the client prior to drilling, and the ground surface elevations were provided. The coordinates and ground surface elevations at the boring locations are tabulated on the Boring Location Diagrams provided in the Appendix.

After completion of the boring, the holes were backfilled with soil cuttings and patched with like materials as encountered at the boring. This procedure was performed for safety purposes and precluded the recording of water level readings except as encountered during or immediately after completion of drilling.

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#### **Drilling and Sampling Procedures**

The soil borings were performed with an ATV-mounted drilling rig equipped with a rotary head. Conventional, continuous flight, hollow-stem augers were used to advance the borings with representative samples obtained in the boring employing split-barrel sampling techniques in accordance with ASTM Procedure D-1586. Soil samples were taken at 2.5-foot intervals from the surface to a depth of 30 feet followed by 5- foot interval sampling to the termination depth of the borings.

The Standard Penetration Test (SPT) is defined as the number of blows required to advance a 2-inch O.D., split-barrel sampler a distance of one foot by a 140-pound hammer falling 30 inches, commonly described as the N-value. These sampler resistances provide a useful indication of the consistency or relative density of most soil deposits and are reported on the boring log presented in the Appendix. Samples of cohesive soils obtained from the borings were tested with a calibrated hand penetrometer to aid in evaluating the soil strength characteristics. The results from this testing is tabulated on the boring logs.

Water level observations made during drilling operations are noted on the boring logs.

A Photoionization Detector (PID) was used to measure volatile organic compounds (VOCs) of the soil samples obtained from the borings. The results are recorded in parts per million (ppm) presented in the Appendix.

It should be noted that it is difficult to determine the stratigraphy of the upper 2 to 3 feet of the profile from the soil borings due to the size of the bore hole, about 6 inches in diameter, and intermittent sample intervals. Further, the split spoon sampler tends to push through softer soils such as fill or topsoil, resulting in little or no sample recovery from these soils. It is recommended that test pits be excavated to better define the depth of topsoil or fill if such information is required prior to construction.

### Laboratory Tests

Additional characteristics of the foundation materials were determined in the laboratory to provide data on which to classify and estimate the engineering properties of the subsurface soil deposits encountered in the borings. All samples were visually classified by the geotechnical engineer according to the Unified Soil Classification System (ASTM D-2488). An explanation of the symbols used in this system is included in the Appendix.

Representative samples were tested in the laboratory to determine the natural moisture content of the soils. All moisture contents are expressed as a percentage of the dry weight of soil. Representative samples of the cohesive soils encountered in the borings were tested in the laboratory with a calibrated RIMAC spring tester to determine the approximate unconfined compressive strength of the soil samples.

The laboratory testing program selected for this project is intended to assist with determination of soil classification as well as strength and deformation characteristics of the subsurface soil deposits that will be useful in design of excavations and Earth Retention Systems (ERS). All laboratory testing was performed in general accordance with the respective ASTM Methods, as applicable, and the results are included on the boring logs included in the Appendix. Unless notified to the contrary, all samples will be disposed of after one month.

#### SOIL CONDITIONS

The types of subsurface materials encountered at the test boring locations are described on the Soil Boring Logs. The lines delineating the changes in strata on the logs represent an approximate boundary between the various soil classifications. It must be recognized that the soil descriptions are considered representative for the specific test hole location, but that variations may occur between the sampling intervals and at other locations on the site. A summary of the major soil profile components is described in the following paragraphs. A more detailed description and supporting data for the boring locations can be found on the individual boring logs.

The borings generally encountered variable fill materials and the fill, where present, extended to depths ranging from 3.5 to 13.5 feet below grade. The fill was absent at SB-2, SB-13 and SB-16 to SB-18. The fill mostly consisted of black clay fill described as very soft to stiff with unconfined compressive strengths ranging from 0.2 to 1.75 tsf and moisture contents ranging from 14.1 to 43.4 percent. Comparatively stiffer brown clay fill was encountered at SB-8, SB-12 and SB-14 and the fill consisted primarily of sand at SB-1. The fill contained organics and debris such as bricks and an apparent railroad tie, as noted on the logs. An unknown obstruction was encountered in the fill at SB-1 as indicated by sampler refusal at a depth of about 9.5 feet.

The natural soil profile consisted of interbedded strata of sand, silt and clay, as noted on the logs. Note that extremely soft or loose layers of saturated sand and sandy clay were encountered at SB-6 from a depth of about 6 feet and extending to a depth of about 13.5 feet. Similarly, very soft, saturated lean clay was encountered at SB-17 below a depth of about 8.5 feet.

Further information regarding the soil conditions can be found on the boring logs and subsurface profiles included in the Appendix.

### **GROUNDWATER CONDITIONS**

Groundwater measurements recorded during drilling are tabulated below:

	Boring No.	Surface Elevation, feet	<u>Groundwater depth</u> <u>measured at the time of</u> <u>drilling, feet</u>	<u>Groundwater</u> <u>elevation at the time</u> <u>of drilling, feet</u>
	SB-1	763.0	5.5	757.5
~	SB-2	767.6	5.5	762.1
$ \subset $	SB-3	769.3	3.5	765.8
	SB-4	776.5	5.5	771.0
	SB-5	780.2	3.5	776.7
	SB-6	781.9	5.5	776.4
	SB-7	786.9	5.5	781.4

### TABLE 1: GROUNDWATER MEASUREMENTS

Boring No.	Surface Elevation, feet	<u>Groundwater depth</u> <u>measured at the time of</u> <u>drilling, feet</u>	Groundwater elevation at the time of drilling, feet
SB-8	802.1	28	774.1
SB-9	803.6	13	790.6
SB-11	807.2	8.5	798.7
SB-12	821.1	28.5	792.6
SB-13	823.8	28.5	795.3
SB-14	814.6	18.5	796.1
SB-15	807.4	3.5	803.9
SB-16	816.3	18	798.3
SB-17	828.9	8	820.9
SB-18	831.3	13	818.3

After drilling groundwater measurements were recorded at SB-9 and SB-14 and the groundwater levels rose 3 to 4.5 feet higher than the end of drilling measurements recorded above.

It should be noted that due to the relatively short times after completion of drilling at which the water level measurements were made, these observed groundwater levels likely do not indicate the static water level that will be present at the time of construction. Groundwater levels fluctuate over time and are influenced by river levels and seasonal precipitation.

### ENGINEERING RECOMMENDATIONS

### Pipe Support and Construction Considerations

It is understood that conventional trench installation will be used to install the new sewer. The soil conditions encountered in the borings were variable, but generally considered suitable to provide foundation support for the proposed sewer main pipe and manholes. Unsuitable bearing soils consisted of fill, encountered at most borings, and soft/loose native soils encountered at SB-9 and SB-17. Once the pipe invert elevations have been determined, we recommend additional borings be performed in areas where the fill is expected to extend below the invert of the pipe, and near SB-9 and SB-17. Excavation and foundation for the sewer main should be completed in accordance with the Illinois Department of Transportation "Standard Specification for Road and Bridge Construction" (Standard Specifications), Section 550, Article 550.04. If unsuitable soil is encountered at the base of the trench, the unsuitable soil should be removed and replaced with the appropriate bedding material or trench backfill. Other pipe support options such as helical piers could be considered if the depth of undercut is extensive.

#### Sewer Main Installation and Backfilling

GEOCON recommends that the sewer main construction be performed in accordance with the "Standard Specification for Water and Sewer Construction in Illinois", latest edition, the IDOT Standard Specifications, or the Project Specifications, as applicable.

Trench excavations should be protected in accordance with applicable Federal, State and local regulations, laws, and rules; but shall not be less than the standards and regulations established by OSHA 29CFR Part 1926. For trench depths greater than 5 feet, trench protection shall be utilized according to the applicable standards for workplace safety. The contractor should be required to provide, in writing, their procedures for fulfilling the safety requirements for trench protection. Excavation bracing systems should be designed by a Structural Engineer registered in the State of Illinois.

As previously stated, short term groundwater measurements obtained from bore holes at the time of drilling may not be indicative of long-term groundwater levels that may be encountered during construction. Accordingly, groundwater and surface water infiltration should be anticipated during excavation, especially if construction occurs during or after periods of increased precipitation, or if the excavations encounter areas of more permeable backfill soils associated with other utilities present within the utility right of way. The contractor should provide and maintain ample means and devices with which to promptly remove and properly dispose of all water entering the excavation and other parts of the work until all work to be performed therein has been completed. Adequate dewatering of the trench should be sole responsibility of the contractor and costs associated with dewatering should be included in their bid.

The trench should be backfilled in accordance with requirements of the IDOT Standard Specifications, particularly Section 550, Article 550.07. The material for pipe bedding and trench backfill should consist of wet coarse aggregate or moist fine aggregate in accordance with Article 208.02 of the Standard Specifications. Permissible material is referenced in Article 1003.04 for fine aggregate and 1004.05 for coarse aggregate. Suitable material excavated from the trench may be used as backfill, unless the backfill comprises the subgrade of a proposed improvement, and trenches where the inner edge of the trench is located within 2 feet of the edge of pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk. In these instances, trench backfill as specified above should be used to backfill the trench.

Where trench backfill is used, we recommend that the backfill material be deposited and compacted as specified in Method 1 of the Standard Specifications, Section 550, Article 550.07(a). The lifts should not exceed 8 inches in depth, loose measurement, and each lift shall be compacted to 95 percent of the Standard Proctor density as determined by AASHTO T-99.

GEOCON recommends protecting the water sewer construction, especially compacted backfill soils, from the effects of frost when construction is carried out during cold weather. GEOCON recommends that the evaluation of the subgrade and selection of fill materials for various applications should be done in consultation with the geotechnical engineer, and placement of fill for structural applications be monitored and tested by a representative of the geotechnical engineer.

#### Seismic Considerations

The maximum depth of soil exploration for this project was 30 feet below ground surface. Based on the data obtained from the borings within this depth and knowledge of the area geology, a Seismic Site Classification of "D" should be considered in accordance with the 2015 Edition of the IBC. The following tables contain Site Coefficients and Seismic Design Parameters for the project as per the 2021 International Building Code (IBC).

1		0	-	0	
	Site Class	Ss	Fa	SMS	SDS
	D	11% (0.11)	1.6	0.17	0.11

Table 2A: Values for Short Time Periods

 $S_s$ : The maximum considered earthquake ground motion for a short time period at the project area is 11% (0.11) based on Figure 1613.2.1(2) from the IBC code.

Fa: The site coefficient for short time periods from Table 1613.2.3(1) from the IBC code.

S<sub>MS</sub>: Maximum considered earthquake spectral response accelerations for short time periods.

S<sub>DS</sub>: Five percent damped design spectral response accelerations for short time periods.

Table 2B: Values for 1-Second Periods

Site Class	S <sub>1</sub>	Fv	SM1	S <sub>D1</sub>
D	6% (0.06)	2.4	0.14	0.1

S<sub>1</sub>: The maximum considered earthquake ground motion for a 1-second time period at the project area is 6% (0.06) based on Eigure 1613.2.1(4) from the JBC code

6% (0.06) based on Figure 1613.2.1(4) from the IBC code.

F<sub>V</sub>: The site coefficient for 1-second time periods from Table 1613.2.3(2) from the IBC code.

S<sub>MS</sub>: Maximum considered earthquake spectral response accelerations for 1-second time periods.

S<sub>DS</sub>: Five percent damped design spectral response accelerations for 1-second time periods.

### CONSTRUCTION CONSIDERATIONS

#### **Excavations**

All excavations should comply with the requirements of OSHA 29CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes.

### Construction Groundwater Control

We anticipate that a combination of a groundwater control system and an earth retention system will be required to facilitate construction. Recommendations for the design and construction of these systems are beyond the scope of this report and are typically provided by the contractor(s) involved in the construction. It should be noted that lowering a groundwater level increases the effective stress of soils and can contribute to settlement of adjacent structures. Special design and construction considerations will therefore be required for this project due to the proximity of existing improvements.

Water bearing soils were encountered in most borings within the anticipated depth of excavation. Excavations extending into the water bearing soils prior to dewatering will result in excavation sloughing or failure of the excavation side walls and is not recommended. Accordingly, dewatering systems should be in-place and operating prior to beginning excavation. A deep well system or well points should be considered and should be designed to lower and maintain the groundwater level at least 2 feet below the maximum anticipated excavation depth. A sheet pile earth retention system could be used as a

groundwater cut-off to reduce the amount of dewatering necessary to reduce seepage into the excavations.

Design and implementation of an adequate dewatering system should be the sole responsibility of the contractor or their qualified dewatering subcontractor.

#### **GENERAL COMMENTS**

This geotechnical exploration and analysis has been conducted to aid in the evaluation of the subsurface conditions on the subject site. The recommendations presented herein are based on the available soil information obtained and the design information provided. Any changes in the soil conditions encountered during construction, design, or location should be brought to the attention of the soils engineer to determine if modifications in the recommendations are required. The final design plans and specifications should also be reviewed by the soils engineer to determine that the recommendations presented herein have been interpreted and implemented as intended. It is recommended that the earthwork and foundation operations be monitored by the Geotechnical Engineer, to test and evaluate the bearing capacities, and the selection, placement and compaction of controlled fills.

This geotechnical study has been conducted in a manner consistent with that level of care ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. The findings, recommendations, and opinions contained herein have been promulgated in accordance with generally accepted practice in the fields of foundation engineering, soils mechanics, and engineering geology. No other representations expressed or implied, and no warranty or guarantee is included or intended in this report.

Nottobeusedforbiddingpunposes











# BORING NO. SB-1 PAGE 1 OF 1

CLIEN	T Four	Rivers	Sanitatio	n Authority		_PRO	OJEC		ME Inters	tate Di	iversio	n Basi	in Trur	nk Ups	izing F	CIP #	<u>150D</u>
			24-G050 4/15/24		/ D.I/R.I	PR0_ יפח	) JEC			<u>≺ockfo</u> 25 in ⊦	rd, IL ISA						
			4/13/24		03/13					.5 III. I	ISA				ΔΤΤ	ERRE	RG
DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG		MATERIAL DESC	CRIPTION	SAMPLE TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	762.5		6" TO	PSOIL	/								X	X			
			black, GRAE with c loose	dark brown & brow DED SAND (FILL) hipped rock to very dense	m POORLY		SS 1 SS 2	100 100	3-3-3 (6) 4-7-7 (14)		~	5.2 10.3		. *			
	-		Ā				SS 3	100	18-32-45 (77)		6	9.1					
  10	-						SS 4	59	15-35- 50/5"			8.7					
	752.0		brown with c very c	CLAYEY SAND hipped rock lense			SS 5	56	10-75-25 (100)	-		11.3					
	-		brown trace mediu	i SANDY SILT (wet clay im dense			SS 6	67	6-7-10 (17)	-		16.1					
	744.5		brown trace loose	POORLY GRADE gravel to medium dense	D SAND (wet)	X	SS 7	56	9-6-6 (12)	-		20.9					
25				oe		X	SS 8	100	5-5-3 (8)	-		18.8					
5     	734.5		brown	SANDY CLAY			SS 9	100	4-5-10 (15)	1.75	1.8	11.0					
				Bottom of borehol	e at 30.0 feet.	r N	-		~~/								
	COMPLETION DEPTH _30 ft       GROUND ELEVATION _762.96 ft       NOTES         CAVE DEPTH _ft       BACKFILL _Soil Cuttings       Groundwater conditions were observed at the time of drilling and may not be representative during the time of construction.         GROUND WATER LEVELS:        AT TIME OF DRILLING _5.50 ft / Elev 757.46 ft       MOTES         AT END OF DRILLING        AFTER DRILLING																
	Lines of Demarcation represent an <b>approximate</b> boundary between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual. Dashed lines are indicative of potentially erratic or unknown changes.																
j																	



# BORING NO. SB-2 PAGE 1 OF 1

C	LIEN	T Four	Rivers	Sanitation Authority	_PROJE	ECT NA	ME Inters	tate D	iversio	n Bas	in Tru	nk Ups	sizing F	CIP #	<u> </u>
PI	roji	ECT NUN	IBER	_24-G0507	_PROJE	ECT LO		Rockfo	rd, IL						
D	ATE	COMPLE	TED	4/15/24 LOGGED BY DJ/RJ	DRILL	NG ME	THOD _ 3.2	25 in. F	ISA						
9.GP									(r				ATT	ERBE	RG
AFURD, IL/LAB/24-60907 LOGS	(ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (QL (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)	LIQUID	PLASTIC	
- - -	0	767.0	<u></u>									V			
	-	764.1		dark brown SANDY CLAY very stiff		100	2-3-4 (7)	2.25		19.3					
	5			brown POORLY GRADED SAND wet @ 6' ∑ with chipped rock @ 6'-8.5'		100	(6)	C		11.3					
	-				$\bigvee SS_3$	100	10-14-11 (25)		0	9.3					
	0					100	9-10-15 (25)	-		15.9					
	-					100,	50			8.6					
	5					100	9-19-10 (29)	-		8.1					
	-	749.1	·····				40.40.4								
	20			gray LEAN LCAY trace gravel hard	7	78	(14)	4.25	4.2	10.7					
	-	744.1		brown POORLY GRADED SAND (moist) medium dense		100	14-15-14 (29)			21.5					
	-														
	20	727 6	K		X ss	83	8-10-10	-		17.4					
	00	131.0		Bottom of borehole at 30.0 feet.	<u> </u>		(20)	1		1		1			
	COMPLETION DEPTH _30 ft       GROUND ELEVATION _767.57 ft       NOTES         CAVE DEPTH _ft       BACKFILL _Soil Cuttings       Ground water conditions were observed at the time of drilling and may not be representative during the time of construction.         ✓ AT TIME OF DRILLING _5.50 ft / Elev 762.07 ft       AT END OF DRILLING _5.50 ft / Elev 762.07 ft														
		AFTER D	RILLI	NG											
	L b	ines of D oring loca	emarca itions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are ind	oil types. licative o	Variati f potenti	ons may oc ially erratic o	cur be or unkn	tween own ch	sampl nanges	ing into	ervals	and be	tween	
				22774 Citation Road, Unit A Frankfort, IL 604	23 Pł	ione 8'	15-806-998	6 Fa	ix 815	-464-8	3691				



# BORING NO. SB-3 PAGE 1 OF 1

CL	IEN	T Four	Rivers	s Sanitation Authority	_PROJ	ECT NA	ME Inters	tate D	versio	n Bas	in Tru	nk Ups	sizing l	FCIP #	±150D
PF	roji	ECT NUM	<b>IBER</b>	_24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
D	ATE	COMPLE	TED	_4/15/24 LOGGED BY _DJ/RJ	DRILL	ING ME	THOD _ 3.2	25 in. F	ISA						
	(ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
		768.7	<u>, , , , , , , , , , , , , , , , , , , </u>	8" TOPSOIL	-						A	V			
	-	765.8		black and dark brown CLAY (FILL) soft		<sup>3</sup> 67	2-2-2 (4) 3-7-14	0.5	0.4	19.2					
	5			medium dense to dense		67 67 67	(21) 13-28-10 (38)		0	9.6					
	0	760.8		brown CLAYEY SAND (wet) loose		<sup>3</sup> 100	<b>4-4-5</b> (9)			8.9					
	-	758.3		brown SANDY CLAY with gravel medium stiff to very stiff		3 100	5-8-7 (15)	2.25	2.2	8.6					
	5					5 100	7-13-15 (28)	0.5		9.5					
	- 20 -			sedi		67	11-10-21 (31)	2.5	2.6	10.2					
	- - 2 <u>5</u> -	745.8		gray SANDY CLAY trace gravel very stiff		<sup>3</sup> 100	6-9-11 (20)	3.0	3.0	8.7					
	- - - 80	739.3		Bottom of borehole at 30.0 feet		<sup>3</sup> 100	8-13-16 (29)	3.0		8.5					
COMPLETION DEPTH _30 ft       GROUND ELEVATION _769.32 ft       NOTES         CAVE DEPTH _ft       BACKFILL _Soil Cuttings       Groundwater conditions were observed at the time of drilling and may not be representative during the time of construction												ıd			
	Ψ.	AT TIME AT END AFTER D	OF DF OF DF OF DR	RILLING <u>3.50 ft / Elev 765.82 ft</u> RILLING <u></u> NG	'				Jan	, uno ti		Sonat			
	L b	ines of D oring loca	emarca itions, a	ation represent an <b>approximate</b> boundary between s and the transition may be gradual. Dashed lines are in-	oil types dicative	. Variati of potenti	ons may oc ally erratic c	cur be or unkn	tween own ch	sampl nanges	ing int	ervals	and be	etween	
				22774 Citation Road, Unit A Frankfort, IL 60	423 P	hone 8'	15-806-998	6 Fa	x 815	-464-8	3691				



# BORING NO. SB-4 PAGE 1 OF 1

	CLIEN	<b>T</b> Four	Rivers	s Sanitation Authority	_PROJ	ECT NA	ME Interst	tate Di	versio	n Basi	in Tru	nk Ups	izing F	CIP #	150D
	PROJI		IBER	24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
2	DATE	COMPLE	TED	_4/15/24LOGGED BYDJ/RJ		ING ME	THOD <u>3.2</u>	5 in. F	ISA		1				
KFURD, ILLAB/24-GUOU/ LUGS.G	o DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
22		776.0		6" TOPSOIL							X	X			
		773.0		black CLAY (FILL) stiff		<sup>3</sup> 100	2-3-3 (6)	1.25	1.2	23.6					
DNIZICIU	5	770.5		brown SANDY CLAY trace gravel ∑ medium stiff		<sup>5</sup> 100	2-3-4 (7)	0.75	0.8	21.9					
		768.0		brown POORLY GRADED SAND (wet) trace gravel medium dense	3	<sup>5</sup> 100	8-13-13 (26)		0	10.7					
	10			brown SANDY CLAY (moist) medium stiff to hard		<sup>5</sup> 100	3-2-3 (5)	0.5	0.6	12.5					
					SS 5	i 100	3-9-9 (18)	2.0		10.9					
	 					33	6-7-6 (13)	0.5		13.0					
ECHNICAL/2024/2	20			sec	SS 7	<sup>3</sup> 100	7-8-7 (15)	4.5+	· · · ·	10.6					
1/24 U8:55 - K:/GEU	  			ver		<sup>5</sup> 100	8-11-12 (23)	2.5	2.4	12.4					
- TAIE.6UI - 3/2	  30	748.0		brown WELL GRADED SAND (wet) dense	SS 9	<sup>3</sup> 44	13-19-17 (36)			13.2					
		$\leftarrow C$	)	Bottom of borehole at 30.0 feet.											
	COMPLETION DEPTH _30 ft       GROUND ELEVATION _776.48 ft       NOTES         CAVE DEPTH _ft       BACKFILL _Soil Cuttings       Groundwater conditions were observed at the time of drilling and may not be representative during the time of construction.         GROUND WATER LEVELS:        AT TIME OF DRILLING _5.50 ft / Elev 770.98 ft														
SIANDARD	L	ines of D oring loca	emarca tions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are inc	oil types dicative o	. Variati of potenti	ons may oc ally erratic c	cur be	tween own ch	sampli	ing inte	ervals	and be	etween	
015				22774 Citation Road, Unit A Frankfort, IL 604	423 PI	hone 81	15-806-998	ю Fa	x 815	-464-8	3691				



# BORING NO. SB-5 PAGE 1 OF 1

CLIENT Four Rivers Sanitation Authority PROJECT NAME Interstate Diversion Basin Trunk Upsizing FCIP #15												150D		
PROJ	IECT NUN	<b>IBER</b>	_24-G0507	_PROJE	ECT LO		Rockfo	rd, IL						
DATE		TED	4/16/24 LOGGED BY DJ/RJ	DRILL	ING ME	THOD <u>3.2</u>	25 in. ⊦	ISA						
DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	779.3	<u>74 1<sup>N</sup> 77</u>	10" TOPSOIL								Y			
	776.7		black CLAY (FILL) medium stiff ∑ brown POORLY GRADED SAND (wet)		100	2-1-3 (4) 3-7-19	0.75		27.5		. Y			
5	774.2	····	trace gravel medium dense	2	100	(26)	C		13.3					
	-		brown CLAYEY SAND (wet) soft to very stiff	X 3	100	1-2-2 (4)	0.25		11.5					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
	-			SS 5	100	3-4-5 (9)	1.0		10.4					
15	-			SS 6	100	6-7-7 (14)	0.75	0.8	10.7					
	-		J.Sed to	SS 7	100	9-10-13 (23)	3.75	3.6	10.0					
25	756.7		brown & gray LEAN CLAY trace gravel hard	SS 8	78	12-18-28 (46)	4.5+		8.3					
5    	750.2		0	SS 9	100	16-31-45 (76)	4.5+		9.1					
			Bottom of borehole at 30.0 feet.											
	CAVE DEPTH _ftBACKFILL _Soil Cuttings       Ground water conditions were observed at the time of drilling and may not be representative during the time of construction.         Image: AT TIME OF DRILLING _3.50 ft / Elev 776.67 ft       AT END OF DRILLING         AFTER DRILLING       AFTER DRILLING													
	_ines of D poring loca	emarca itions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are inc 22774 Citation Road, Unit A Frankfort, IL 604	all types. dicative c	Variation of potenti none 81	ons may oc ally erratic c 5-806-998	curbe orunkn 6 Fa	tween own ch x 815	sampli langes -464-8	ng inte	ervals	and be	tween	



# BORING NO. SB-6 PAGE 1 OF 1

CLI	ENT _F	our	Rivers	s Sanitation Authority	_PR(	OJEC	CT NA	ME Interst	ate Di	versio	n Basi	in Trur	nk Ups	sizing I	CIP #	±150D
PR	OJECT	NUN	IBER	_24-G0507	_PR(	OJEC	CT LO		Rockfo	rd, IL						
DA	TE CON	IPLE	TED	4/16/24 LOGGED BY DJ/RJ	DR	LLIN	IG ME	THOD _3.2	5 in. F	ISA						
	(III) FI EVATION (ft.)		GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
2 2 2	78	1.1	7 <u>7</u> 7	10" TOPSOIL									X			
	-			black CLAY (FILL) very soft to stiff		SS 1 SS	100	1-2-2 (4) 2-2-2	1.25 0.25	1.2 0.2	36.9 27.9		. *			
781 D		50		$\nabla$	$ \square$	2		(4)								
	- 77	<u>3.9</u>	XXXX	gray SILTY SAND (wet) very loose	X	SS 3	100	1-WOH-2		0	21.8					
- 10 - 10	) 77(	0.9		brown & gray SANDY CLAY medium stiff	X.	SS 4	100	1-WOH-2	0.75		16.9					
	- 76	8.4		gray SILTY SAND (wet) very loose	X	SS 5	100	WOH- WOH-1			22.1					
		2.4		brown & gray CLAYEY SAND loose		SS 6	78	3-4-4 (8)			11.3					
	 	<u>3.4</u>		brown LEAN CLAY very stiff		SS 7	78	2-3-4 (7)	3.75	3.3	21.6					
74 08:35 - K.(GEOIE	- <u>75</u>	8.4		gray LEAN CLAY hard		SS 8	100	3-6-7 (13)	4.5+	5.2	20.3					
CALE:GUI - 3/28/	- - - - 75	1.9		9	X	SS 9	100	2-6-8 (14)	4.5+	4.6	19.7					
	*	C		Bottom of borehole at 30.0 feet.		1										
	COMPLETION DEPTH _30 ft       GROUND ELEVATION _781.93 ft       NOTES         CAVE DEPTH _ft       BACKFILL _Soil Cuttings       Groundwater conditions were observed at the time of drilling and may not be representative during the time of construction.         ✓ AT TIME OF DRILLING       AT END OF DRILLING       AFTER DRILLING															
	Lines boring	of De loca	emarca tions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are inc	oil typ dicativ	es. ' e of p	Variati potenti	ons may oc ally erratic o	cur be r unkn	tween	sampli	ing inte	ervals	and be	etween	
0				22774 Citation Road, Unit A Frankfort, IL 604	423	Pho	one 81	15-806-998	ö Fa	x 815	-464-8	3691				



# BORING NO. SB-7 PAGE 1 OF 1

		T Four	Rivers	Sanitation Authority	PRO			tate Di	versio	n Basi	in Trur	nk Ups	sizing l	FCIP #	<u>150D</u>
				<u>4/16/24</u> <b>LOGGED BY</b> <u>DJ/RJ</u>	DRIL	LING ME	THOD _3.2	5 in. F	ISA						
JKFURD, IL/LAB/24-GU9U/ LUGS.GPJ	0 DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NI IMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
אַר	-	786.0	XXXX 71 1 <sup>3</sup> 71	10" TOPSOIL		0	100				く	X			
	_ _ 	780.9		soft to stiff ∑		S 100 S 89	1-2-2 (4) 2-2-3 (5)	1.25 0.5	0.4	28.2 46.6					
I I I	-			brown SANDY CLAY (moist) very soft to hard	X s	S 100	2-2-2 (4)	0.25	0	12.6					
	10					S 100	5-6-7 (13)	1.25		9.7					
	-				X s	S 100	5-11-12 (23)	3.5		10.5					
	 				X s	<mark>S</mark> 100	12-19-30 (49)	4.5+	3.8	8.4					
	20	763 4		1500	S 7	S 100	14-25-28 (53)	2.75		8.5					
1 1 1 1 1 1 1	 	100.4		brown & gray SANDY CLAY stiff to very stiff	S E	S 100	9-20-20 (40)	3.5	3.4	8.8					
	30	756.9		Bottom of borehole at 30.0 feet.	X s	S 100	15-19-20 (39)	1.75	1.6	7.4					
ANDAKD GEUIECH בעם - על אוע עאוא ובו	Bottom of borehole at 30.0 feet.         COMPLETION DEPTH _30 ft GROUND ELEVATION _786.86 ft         CAVE DEPTH _ft BACKFILL _Soil Cuttings         GROUND WATER LEVELS:         V AT TIME OF DRILLING _5.50 ft / Elev 781.36 ft         AT END OF DRILLING         AFTER DRILLING         Lines of Demarcation represent an approximate boundary between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual. Dashed lines are indicative of potentially erratic or unknown changes.														
0019				22774 Citation Road, Unit A Frankfort, IL 604	23 F	Phone 81	15-806-998	6 Fa	x 815	-464-8	3691				



# BORING NO. SB-8 PAGE 1 OF 1

0	CLIEN	T Four	Rivers	Sanitation Authority	P	PROJE	CT NA	ME Interst	tate Di	versio	n Basi	in Trur	nk Ups	izing F	CIP #	150D
	PROJI		/IBER	24-G0507	P	PROJE			Rockfo	rd, IL						
	DATE	COMPLE	ETED	_4/16/24 _LOGGED BY _DJ/RJ	C	DRILLIN	IG ME	THOD _3.2	:5 in. ⊦	ISA						
	0 DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	٧	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
		801.1	<u>717</u> 71	11" TOPSOIL								X	X			
	-			brown SANDY CLAY (FILL) stiff to hard	X	ss 1 ss	100	4-4-5 (9) 3-4-3	4.25		14.4 14.7		· <b>Y</b>			
	5				Ľ	2	100	(7)								
	-	700.4				SS 3	100	3-4-8 (12)	1.5	0	17.5					
	10	793.1		brown & gray LEAN CLAY	<u>&gt;</u>	SS 4	100	(3-4-4 (8)	2.0	2.0	23.0					
	+	791.1		brown & gray CLAYEY SAND		/ ss		8-12-8			10.4					
	_	788.6		trace gravel medium dense	<u> </u>	5	100	(20)			10.4					
	15	100.0		brown & gray CLAYEY SAND		SS 6	100	2-3-3 (6)	0.25		11.6					
				sec		SS 7	100	3-6-9 (15)	2.25	2.2	9.6					
	25	778.6		brown & gray SILT medium dense to dense	X	SS 8	100	11-21-20 (41)			6.9					
AIE.GUI - 3/28/24		772 1	K	₹O V	X	SS 9	100	7-12-17 (29)			8.5					
				Bottom of borehole at 30.0	feet.	N -										
	COMPLETION DEPTH _30 ft       GROUND ELEVATION _802.05 ft       NOTES         CAVE DEPTH _ft       BACKFILL _Soil Cuttings       Groundwater conditions were observed at the time of drilling and may not be representative during the time of construction.															
	Li bi	ines of D oring loca	emarca itions, a	ation represent an <b>approximate</b> boundar and the transition may be gradual. Dashe 22774 Citation Road, Unit A Fran	ry between soil d lines are indica nkfort, IL 60423	types. ative of 3 Pho	Variati potenti one 81	ons may oc ally erratic c 15-806-998	cur be or unkn 6 Fa	tween own ch x 815	sampli langes -464-8	ing inte 3691	ervals :	and be	etween	



# BORING NO. SB-9 PAGE 1 OF 1

C	LIEN	T Four	Rivers	Sanitation Authority	_PROJ	ECT NA	ME Inters	tate Di	iversio	n Bas	in Tru	nk Ups	izing I	CIP #	<u> </u>
P	ROJI	ECT NUN	<b>IBER</b>	24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
	ATE	COMPLE	TED	4/16/24 LOGGED BY _DJ/RJ	DRILL	ING ME	THOD _ 3.2	25 in. H	ISA						
LUG9.6P						<u>`</u> 0		Qp)	(Qu)	<u> </u>		(	ATT L	ERBE	RG
	(ff)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPI NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. ( (tsf)	UNC. STRENGTH (tsf)	MOISTURE CONTENT (%	DRY UNIT WT (pcf)	ORGANIC CONTENT (%		PLASTIC	PLASTICITY
	0	902.7	<u>, , , , , , , , , , , , , , , , , , , </u>	11" TOPSOIL								$\mathbf{\nabla}$			
ź	-	802.7		black CLAY (FILL)	∖∕l ss	3 400	4-5-4	0.75	-	010	$\sim$				
	_			trace gravel very soft to medium stiff	<u> </u>	100	(9)	0.75		24.2	<b>)</b>				
	5				$\left  \begin{array}{c} ss \\ 2 \end{array} \right $	56	1-WOH-2	0.25		30.6					
	_				X ss	<sup>5</sup> 28	1-WOH-4	0.25	0	25.3					
	_			V							-				
	10			with chipped rock @ 8.5 to 10	$\begin{pmatrix} ss \\ 4 \end{pmatrix}$	17	(5)	0.25		14.1					
	_			buried railroad tie @ 11'	⊠ ss	<u> </u>	50/5"								
4 0 -	_	790.1		Σ		7									
	15			brown POORLY GRADED SAND (wet) medium dense		100	5-9-12 (21)			12.7					
	-	785 1													
	20	100.1		brown & gray LEAN CLAY hard		<sup>3</sup> 100	16-25-25 (50)	4.5+		6.7	-				
	-	780.1		15											
	25			brown & gray SANDY SILT (wet) medium dense		<sup>5</sup> 100	4-5-10 (15)			23.6					
1 1 1 1	-	775.1													
	30	773.6	K	brown & gray POORLY GRADED SAND medium dense	$\bigvee \frac{SS}{9}$	44	6-10-15 (25)			16.3					
				Bottom of borehole at 30.0 feet.											
	OMP	LETION	DEPT	H _30 ft GROUND ELEVATION _803.6 ft	N	IOTES									
C	AVE	DEPTH	ft	BACKFILL Soil Cuttings		Groundw	ater condit	ons w	ere ob	serve	d at th	e time	of dril	ling an	nd
° G		ND WAT	ER LE	EVELS:	n	nay not l	be represei	ntative	during	g the t	ime of	const	ructior	1.	
5	¥.	AT TIME	of di	RILLING 13.00 ft / Elev 790.60 ft											
	V		of Dr Rili I	NILLING NG 8.67 ft / Elev 794 93 ft	—										
		ines of De	emarca	ation represent an approximate boundary between so	oil types	. Variati	ons may or	cur he	tween	sampl	ina int	ervals	and be	etween	
	b	oring loca	itions, a	and the transition may be gradual. Dashed lines are ind	icative	of potenti	ially erratic o	or unkn	own ch	anges					
				22774 Citation Road, Unit A Frankfort, IL 604	23 P	hone 8'	15-806-998	6 Fa	ix 815	-464-8	3691				



	CLIEN	T Four	Rivers	Sanitation Authority		PROJE	CT NA	ME Inters	tate Di	versio	n Basi	n Trur	nk Ups	izing F	CIP #	150D
	PROJ	ECT NUM	IBER	24-G0507		PROJE	CT LO		Rockfor	d, IL						
	DATE	COMPLE	TED	4/18/24 LOGG	ED BYDJ/RJ	DRILLI	IG ME	THOD <u>3.2</u>	5 in. H	SA						
	O DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL	DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
		806.7		6" TOPSOIL black & dark browr with chipped rock medium stiff to ver with brick @ 6'-8.5 wet @ 8.5' ∑ brown SANDY CL/ with gravel	n CLAY (FILL) y stiff	$\begin{array}{ c c c c } & SS & 1 \\ \hline & SS & 2 \\ \hline & SS & 3 \\ \hline & SS & 4 \\ \hline & SS & 5 \\ \hline & SS & 5 \\ \hline \end{array}$	33 22 67 6 44	20-24-28 (52) 2-4-4 (8) 3-3-4 (7) (2-1-2 (3) 6-6-12 (18)	2.5 1.0 1.75 0.75 1.0	50	17.2 12.2 18.8 43.4 9.9	5	X			
				stiff to very stiff	1.5ed to	SS 6 SS 7 SS 7 SS 8	72 78 0	(10) 3-6-6 (12) 11-11-19 (30) (30)	3.75	3.6	9.2					
- הרו ביפרו		778.7		gray SANDY CLAY	/	X ss	80	38-50/4"	4.0	4.0	8.4					
	30	777.2		hard Bottom of b	orehole at 30.0 feet	9										
	COMP CAVE GROU	DEPTH ND WAT AT TIME AT END AFTER L	DEPTI ft ER LE OF DF OF DR RILLI	H <u>30 ft</u> GROUN BACKF VELS: RILLING <u>8.50 ft / Elev</u> ILLING	ID ELEVATION _807.18 ft	— NC — Gr — ma	DTES oundw ay not l	ater conditi be represer	ons we	ere ob during	serveo the ti	d at the	e time consti	of drill ruction	ling an	ıd
	L b	ines of D oring loca	emarca tions, a	ation represent an <b>appro</b> and the transition may be 22774 Citation Roa	oximate boundary between so gradual. Dashed lines are inc ad, Unit A Frankfort, IL 604	bil types. licative of 123 Pho	Variati potenti one 81	ons may oc ally erratic c 15-806-998	cur bei or unkno 6 Fa	ween own ch x 815	sampli anges -464-8	ng inte	ervals :	and be	etween	



CLIE	NT Four	Rivers	Sanitation Authority	_PROJ	ECT NA	ME Inters	tate Di	iversio	n Bas	in Trur	nk Ups	sizing I	CIP #	±150D
PRO	JECT NU	<b>IBER</b>	24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
		ETED	LOGGED BYDJ/RJ	DRILL	ING ME	THOD _ 3.2	25 in. F	ISA						
	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	820.5	1 <u>,1,1,1,1</u>	7" TOPSOIL							X	X			
	-		dark brown & brown CLAY (FILL) trace gravel stiff to very stiff		<sup>3</sup> 33 <sup>3</sup> 72	4-4-9 (13) 4-4-7 (11)	2.0 1.75		11.0 16.2		• *			
	814.6			V ss	3 70	3-3-4	1.95	0	16.0					
			brown SANDY CLAY stiff to very stiff	3	/0	(7)	1.29		10.9					
	-				<sup>3</sup> 89	3-5-9 (14)	2.0		8.4					
	-				89	7-6-9 (15)	1.0	-	8.3					
15 15 15	802.6			6	83	6-8-8 (16)	1.25		9.2					
	-		brown POORLY GRADED SAND with chipped rock very dense		67	35-37-29 (66)			6.1					
1 25 12876 -	-		ve o	SS 8	<u>5</u>	50/2"								
ביפר ביפר				V s	<u> </u>	16-41-43	-		0.0					
<u>د</u> 30	791.1	K	Bottom of borehole at 30.0 feet	9	44	(84)			8.9					
		DEPT	H 30 ft GROUND FI EVATION 821 11 ft											
	E DEPTH UND WAT AT TIME AT END AFTER I	of Dr Drilli	BACKFILL         Soil Cuttings           BACKFILL         Soil Cuttings           EVELS:         RILLING         28.50 ft / Elev 792.61 ft           RILLING          NG	( ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	NOTES Groundw nay not I	ater condit be represe	ions w	ere ob durinç	served	d at the	e time const	of dril ructior	ling an n.	ıd
	Lines of D boring loca	emarca ations, a	ation represent an <b>approximate</b> boundary between s and the transition may be gradual. Dashed lines are inc	oil types dicative	. Variati of potenti	ons may oo ally erratic o	ccur be or unkn	tween own ch	sampl anges	ing inte	ervals	and be	etween	
			22774 Citation Road, Unit A Frankfort, IL 604	423 P	hone 8'	15-806-998	6 Fa	ix 815	-464-8	3691				



C	LIEN	T Four	Rivers	s Sanitation Authority	_PROJE	CT NA	ME Interst	tate Di	iversio	n Bas	in Tru	nk Ups	sizing F	CIP #	<u> </u>
PI	roji	ECT NUN	<b>IBER</b>	_24-G0507	_PROJE	CT LO		Rockfo	rd, IL						
_ D.	ATE	COMPLE	ETED	4/18/24 LOGGED BY _DJ/RJ	DRILLI	NG ME	THOD _ 3.2	5 in. F	ISA						
1/ LUGS.GPJ					Ш	%		(Qp)	H (Qu)	ة %)	Л.	(%)	ATT L	ERBE	RG
	(#)	ELEVATION (ft	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYI NUMBER	RECOVERY (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	UNC. STRENGT (tsf)	MOISTURE CONTENT (°	DRY UNIT M (pcf)	ORGANIC CONTENT (		PLASTIC	PLASTICITY
Ď L	_	822.9	<u>x. 1.</u> <u>x</u>	10" TOPSOIL					-		$\mathbf{\Lambda}$	X			
- 1 - 1500	-			brown LEAN CLAY trace gravel stiff to hard	$\bigvee ss_1$	89	3-6-4 (10)	1.75		9.7					
	5				SS 2	94	3-3-5 (8)	1.75	1.6	9.1					
	-				SS 3	100	7-9-12 (21)	3.0	0	9.1					
	10				SS 4	89	8-16-21 (37)	4.5+		6.8					
	-				SS 5	50	14-33-45 (78)	4.5+		5.5					
	15				SS 6	100	17-30-37 (67)	4.0		6.8					
24-G0507 GE	-	805.3					15.05.04								
	20 - - -			very dense	7	89	(66)			7.6					
	2 <u>5</u> -			with chipped rock @ 23.5'-25'		100	15-35-31 (66)			7.3					
1 1	-	795.3			1 99		15 22 21				-				
	30	793.8		hard	X 9	89	(54)	4.5+		8.5					
L БМГ Г		. (		Bottom of borehole at 30.0 feet.											
	OMP	LETION	DEPT	H _30 ft GROUND ELEVATION _823.77 ft	N	DTES									
	AVE	DEPTH	ft	BACKFILL Soil Cuttings	Gi	oundw	ater conditi	ons w	ere ob	serve	d at th	e time	of drill	ing an	nd
G	κου ∇			EVELS:		ay not i	ne rebiesei	nauve	uunnų	Julet	ine of	CONSL	uction	•	
LOG	<u> </u>			20.00 IL/ EIEV / 90.27 IL	—										
GEOLECT		AFTER D	RILLI	NG											
ANDARD	L b	ines of D oring loca	emarca itions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are inc	oil types. licative of	Variati potenti	ons may oc ially erratic c	cur be or unkn	tween own ch	sampl anges	ing inte	ervals	and be	tween	
10 019 CL0 01				22774 Citation Road, Unit A Frankfort, IL 604	123 Ph	one 8'	15-806-998	6 Fa	ix 815	-464-8	3691				



CLIEN	T Four	Rivers	Sanitation Authority	_PROJ	ECT NA	ME Inters	tate Di	versio	n Bas	in Trui	nk Ups	sizing l	FCIP #	±150D
PROJ	ECT NUM	<b>IBER</b>	_24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
DATE	COMPLE	ETED	4/18/24 LOGGED BY _DJ/RJ	DRILI	ING ME	THOD <u>3.2</u>	25 in. H	ISA						
DEPTH	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	814.1	· \ 1, · \	6" TOPSOIL	-							V			
	811.1		dark brown & brown SANDY CLAY (FILL) very stiff		89	3-4-3 (7)	2.5		11.1		. *			
5			brown & gray SANDY CLAY trace gravel stiff to hard	2	5 78	3-3-5 (8)	1.75	1.6	10.1					
					83	2-3-4 (7)	1.25	1.2	9.5					
  					<sup>3</sup> 89	5-14-17 (31)	4.5+		6.9					
					5 78	9-13-19 (32)	1.0	1.0	7.4					
15					<sup>3</sup> 100	10-19-27 (46)	4.5+		6.7					
			¥ ⊻			17 20 22								
	•		1500	7	<sup>3</sup> 56	(62)	4.0		8.4					
<u> </u>			ve		<sup>3</sup> 78	19-24-33 (57)	4.5+	5.2	9.0					
	784.6		<u> </u>	× 59	<u> </u>	38-50/1"								
			Bottom of borehole at 30.0 feet.											
	PLETION DEPTH JND WAT	DEPT	H _30 ft GROUND ELEVATION _814.61 ft BACKFILL _Soil Cuttings EVELS: RILLING _18.50 ft / Flev 796 11 ft	I   C r	NOTES Groundw nay not I	ater conditi be represer	ons w ntative	ere ob durinç	serve g the ti	d at the	e time const	of dril ructior	ling an າ.	ıd
Ψ.	AT END	of Dr Drilli	NG         15.20 ft / Elev 799.41 ft											
	ines of D ooring loca	emarca itions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are inc	oil types dicative	. Variati of potenti	ons may oc ally erratic c	cur be or unkn	tween own ch	sampl anges	ing inte	ervals	and be	etween	
			22774 Citation Road, Unit A Frankfort, IL 604	423 F	hone 8'	15-806-998	6 Fa	x 815	-464-8	3691				



	CLIEN	T Four	Rivers	Sanitation Authority	_PROJ	ECT NA	ME Inters	tate Di	versio	n Bas	in Trur	nk Ups	sizing I	CIP #	<u>±150D</u>
	PROJI	ECT NUN	IBER	24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
_	DATE	COMPLE	TED	4/19/24 LOGGED BY _DJ/RJ	DRILL	ING ME	THOD _ 3.2	!5 in. ⊦	ISA						
	o DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	<u> </u>	806.5	<u>7 1 1 7</u>	11" TOPSOIL							A	X			
	-	803.9		black CLAY (FILL) stiff ∑ brown CLAYEY SAND (wet)		<sup>3</sup> 100	4-3-4 (7) 1-1-2	1.25		21.6		• ¥			
12121	5	801 /		very loose	/ 2		(3)		5						
	-	001.4		brown SANDY CLAY trace gravel stiff to hard		<sup>3</sup> 100	3-5-8 (13)	2.5	2.5	11.2					
	10				$\begin{pmatrix} ss \\ 4 \end{pmatrix}$	5 100	(9)	1.75	1.7	11.1					
	-					<sup>3</sup> 100	8-8-12 (20)	3.0		8.6					
	15					<sup>5</sup> 100	10-13-18 (31)	4.5+		6.7					
IICAL/20/24/24-G050/ (	- - 20			edite	X 55 7	<sup>3</sup> 100	11-25-26 (51)	4.5+	5.4	7.6					
	- - 25 -	783.9		gray POORLY GRADED SAND trace clay very dense		<sup>5</sup> 100	23-31-48 (79)			5.5					
	- - 30	778.9		brown & gray SANDY CLAY very stiff	X 55 9	<sup>3</sup> 100	21-34-47 (81)	2.25		10.1					
LN L				Bottom of borehole at 30.0 feet.	1										
ARD GEOLECH LOG - OZ SID DALA I I	COMP CAVE GROU	LETION DEPTH ND WAT AT TIME AT END AFTER D	DEPTI ft ER LE OF DF OF DR DRILLI	H <u>30 ft</u> GROUND ELEVATION <u>807.43 ft</u> BACKFILL <u>Soil Cuttings</u> VELS: RILLING <u>3.50 ft / Elev 803.93 ft</u> RILLING <u></u> NG <u></u>	il types	NOTES Groundwa nay not b	ater conditi pe represer	ons w ntative	ere ob durino tween	served g the ti	d at the	e time const	of dril ructior	ling an ı. etween	ıd
	ں ا			22774 Citation Road, Unit A Frankfort, IL 604	23 P	hone 81	15-806-998	6 Fa	x 815	-464-{	3691				



	CLIEN	<b>T</b> Four	Rivers	Sanitation Authority	_PROJE	CT NA	ME Inters	tate D	iversio	n Bas	in Tru	nk Ups	izing F	CIP #	±150D
	PROJ		IBER	24-G0507	_PROJE	CT LO	CATION _F	Rockfo	rd, IL						
	DATE	COMPLE		4/19/24 LOGGED BY DJ/RJ	DRILLI	NG ME	THOD _3.2	25 in. H	ISA						
AFURD, IL/LAB/24-GU5U/ LUGS.GP	C DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
Š.	0	815.4	<u>7 1</u>	11" TOPSOIL								V			
	   5	810.2		brown SANDY CLAY stiff to very stiff	$\begin{array}{ c c c } & SS \\ 1 \\ \hline SS \\ 2 \\ \end{array}$	100	3-2-3 (5) 2-5-8 (13)	1.5		16.8 9.7		. >			
	  	010.3		brown SANDY SILT medium dense	$\begin{array}{ c c c } & SS \\ \hline & 3 \\ \hline & SS \\ & 4 \\ \hline \end{array}$	100 100	9-12-11 (23) 8-9-10 (19)		0	7.4 8.4					
		805.3 802.8		brown POORLY GRADED SAND (moist) medium dense brown SANDY SILT	SS 5	100	12-11-11 (22) 13-24-21			9.3					
		797.8		dense ∑ brown POORLY GRADED SAND (wet) trace gravel medium dense to very dense	SS 7	100	(45) 10-13-14 (27)			10.5					
5/29/24 08:55 - K:\GEUIE		787 8		ver v		100	23-24-26 (50)			10.6					
- 19	30	786.3		brown SANDY CLAY	SS 9	100	17-21-25 (46)	3.0	1	13.0	1				
				Very stiff Bottom of borehole at 30.0 feet.	<u> </u>										
ANDARD GEOLECH LOG - OZ SID DALA LEM	COMP CAVE GROU Ţ	LETION DEPTH ND WAT AT TIME AT END AFTER D ines of Du oring loca	DEPTI ft ER LE OF DF OF DR DRILLI	Bottom of borenole at 30.0 reet.      GROUND ELEVATION <u>816.28 ft</u> BACKFILL <u>Soil Cuttings</u> EVELS:      RILLING <u>18.00 ft / Elev 798.28 ft</u> RILLING NG      ation represent an approximate boundary between so and the transition may be gradual. Dashed lines are income	NO     Support     No     Support     No     Support     No     Support     No     Support     Suport     Support     Support     Support     Sup	DTES oundw ay not l Variati potenti	ater condit be represer ons may oc ially erratic c	ons w ntative ccur be	ere ob during tween own ch	served g the ti sampl	d at the ime of ing inte	e time constr ervals	of drill ruction	ing an etween	ıd
GPS SI				22774 Citation Road, Unit A Frankfort, IL 604	123 Ph	one 8'	15-806-998	6 Fa	ix 815	-464-8	3691				



CL	ENT _	Four	Rivers	s Sanitation Authority	_PROJE	CT NA	ME Inters	tate Di	versior	n Basi	n Trur	nk Ups	sizing I	FCIP #	<u> 150D</u>
PR	OJECI		IBER	24-G0507	_PROJE	CT LO		Rockfo	rd, IL						
DA	TE CO	MPLE	TED		DRILLI	NG ME	THOD _ 3.2	25 in. H	ISA						
	(11)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	8	27.9	<u>71 1</u>	12" TOPSOIL								$\checkmark$			
	- 8	25.4		brown CLAYEY SAND loose	SS 1	100	1-2-2 (4)			8.8		· ¥			
				very stiff	$\sqrt{\frac{33}{2}}$	100	2-3-4 (7) 2-3-4	2.5	2.4	24.6					
	- <u>8</u> ; - <u>8</u> ;	20.4		brown & gray SATURATED LEAN CLAY vonv soft	∧ 3 ∧ SS	100	(7) 3-3-2	<0.25	<b>4</b>	25.1					
	- - -			very solt		100	1-2-2 (4)	<0.25		28.1					
	5			Ć	SS 6	100	2-1-1 (2)	<0.25		26.7					
	- - - -			cedit	SS 7	100	2-2-1 (3)	<0.25		23.8					
				ve ve	SS 8	100	2-2-5 (7)	0.25		22.0					
E.GUI - 3/28/2	- - <u>8</u> - ) 7	00.4 98.9		brewn CLAYEY SAND medium dense	SS 9	89	12-8-11 (19)	-	_	9.6					
	MPLE	TION	DEPTI	Bottom of borehole at 30.0 feet.											
	VE DE OUND VE AT AT	TIME	ft ER LE OF DF DF DR	BACKFILL <u>Soil Cuttings</u> EVELS: RILLING <u>8.00 ft / Elev 820.85 ft</u> RILLING NG	NG   G m 	OTES Toundw ay not l	ater conditi pe represer	ions w	ere obs during	serveo I the ti	d at the me of	e time const	of dril ructior	ling an ı.	ıd
	Lines	s of De	emarca tions, a	ation represent an <b>approximate</b> boundary between s and the transition may be gradual. Dashed lines are in	oil types.	Variati potenti	ons may oc ally erratic c	cur be or unkn	tween s own cha	sampli anges	ng inte	ervals	and be	etween	
				22774 Citation Road, Unit A Frankfort, IL 60	423 Ph	one 81	15-806-998	6 Fa	x 815-	-464-8	8691				



	CLIEN	T Four	Rivers	Sanitation Authority	_PRO	JECT NA	ME Interst	tate D	iversio	n Bas	in Trur	nk Ups	sizing I	CIP #	±150D
	PROJI	ECT NUN	IBER	_24-G0507	_PRO	JECT LO		Rockfo	rd, IL						
_ <b> </b>	DATE	COMPLE	TED	4/19/24 LOGGED BY _DJ/RJ	DRIL	LING ME	THOD _3.2	5 in. F	ISA						
	0 DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NIIMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
202	Ū	830.3	7 <u>7</u> 7	12" TOPSOIL								X			
				brown SANDY CLAY stiff		S 100 S 100	2-3-3 (6) 2-2-7 (9)	1.75 1.0	1.8	17.4 15.0					
I BEAM IAN	_	822.8		brown I FAN CLAY		S 100	4-6-9 (15) 7-11-20	1.5	1.6	9.4					
	10			hard		100 S	(31)	4.5+		7.3					
24-GU507 GEO IN IERSIAIE	- - 15 - -	812.8		<i>∠</i>		s 100 100	(35) 13-18-21 (39)	4.5+		7.5					
	 	012.0		brown SANDY CLAY very stiff	X s	S 100	7-13-15 (28)	3.0		10.6					
7 - GC:30 - 1/2/2/2/2 - 1/1/2	 	802.8		with chipped rock @ 23.5'-25'		S 67	11-29-20 (49)	2.0		10.2					
-AIE.	30	801.3	K	brown POORLY GRADED SAND (moist) dense	S S	S 56	6-18-18 (36)			14.8					
	COMP CAVE GROU	LETION DEPTH ND WAT AT TIME AT END AFTER D	DEPT ft ER LE OF DF OF DR DRILLI emarca	Bottom of borehole at 30.0 feet. H _30 ft GROUND ELEVATION _831.27 ft BACKFILL _Soil Cuttings EVELS: RILLING _13.00 ft / Elev 818.27 ft RILLING NG ation represent an approximate boundary between seand the transition may be gradual. Dashed lines are income	<pre>v N S v</pre>	NOTES Groundw may not b s. Variati of potenti	ater conditi pe represer ons may oc ally erratic c	ons w ntative cur be	ere ob during tween own ch	served the ti sampl	d at the ime of ing inte	e time consti ervals	of dril ructior and be	ling an i. etween	ıd
0019				22774 Citation Road, Unit A Frankfort, IL 604	423 F	Phone 81	15-806-998	6 Fa	ix 815	-464-8	3691				





# **GENERAL NOTES**

CLIENT Four Rivers Sanitation Authority

PROJECT NAME \_Interstate Diversion Basin Trunk Upsizing FCIP #150D

PROJECT NUMBER 24-G0507

GPS GEO GENERAL NOTES - OZ STD DATA TEMPLATE.GDT - 5/29/24 11:03 - K:/GEOTECHNICAL/2024/24-G0507 GEO INTERSTATE DIVERSION BEAM TANK UPSIZING FCIP 150D, ROCKFORD, IL/LAB/24-G0507 LOGS GPJ

#### SAMPLE IDENTIFICATION

PROJECT LOCATION Rockford, IL

Visual soil classifications are made in general accordance with the United Soil Classification System (USCS) on the basis of textural and particle size categorization, and various soil behavior characteristics. Visual classifications should be substantiated by appropriate laboratory testing when a more exact soil identification is required to satisfy specific project applications criteria.

### UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487-98)

MATERIAL TYPES	CRITEF	RIA FOR ASSIGNING SOIL GRO	DUP NA	AMES		GROUP SYMBOL	SOI	L GRO	JP NAMES	& LEG	END
	GRAVELS	CLEAN GRAVELS	C <sub>u</sub> ≥ 4	AND 1≤ C <sub>c</sub> ≤ 3		GW	WELL-	GRADE	D GRAVEL	• ]	
ILS	>50% OF COARSE	<5% FINES	C <sub>u</sub> ≥ 4	AND/OR 1≥ C <sub>c</sub> ≥ 3		GP	POOR	Y-GRA	DED GRAV	EL	2°°°
	ON NO 4. SIEVE	GRAVELS WITH FINES	FINES	CLASSIFY AS ML	OR CL	GM 🔺	SILTY	GRAVE	L	0	3020
AINE AINE SIE		>12% FINES	FINES	CLASSIFY AS CL	OR CH	GC	CLAYE	Y GRA	VEL	e e e	
E-GR RET 0. 200	SANDS	CLEAN SANDS	C <sub>u</sub> ≥ 6	AND 1≤ C <sub>c</sub> ≤ 3		SW	WELL-	GRADE	D SAND	••••	
ARSE >50% NC	>50% OF COARSE	<5% FINES	C <sub>u</sub> ≥ 6	AND/OR 1≥ Cc≥ 3		SP	POORI	_Y-GRA	DED SAND		
8	FRACTION PASSES ON NO 4. SIEVE	SANDS AND FINES	FINES	CLASSIFY AS ML	OR MH	SM	SILTY	SAND			
		>12% FINES	FINES	CLASSIFY AS CL	ÔR CH	SC	CLAYE	Y SANI	C		
(0	SILTS AND CLAYS		PI>7 A	ND PLOTS>"A" LIN	1E	CL	LEAN (	CLAY			
/E SOILS	LIQUID LIMIT<50	INORGANIC	PI⊳4 A	ND PLOTS<"A" LIN	1E	ML	SILT				
NED ( ASSE		ORGANIC	LL (ove	en dried)/LL (not drie	ed)<0.75	OL	ORGAI	NIC CL/	AY OR SILT		
GRAII 0% P 0. 200	SILTS AND CLAYS		PI PLC	)TS >"A" LINE		СН	FAT CI	_AY			
	LIQUID LIMIT>50	INORGANIC Y	PI PLC	DTS <"A" LINE		MH	ELAST	IC SILT			
		ORGANIC	LL (ove	en dried)/LL (not drie	ed)<0.75	ОН	ORGAI	NIC CL/	AY OR SILT	2555	
HIGHLY C	RGANIC SOILS	PRIMARILY ORGANIC MATTER, DARK IN C	olor, an	D ORGANIC ODOR		PT	PEAT			<u>,</u>	
PROJEC	T LITHOLOGIC SY	MBOLS (USCS)					PLAST	TICITY	Y CHARI	Г	
	CS Low Plasticity Clay	LS: USCS Low Plasticity andy Clay	L: Fill (mad	le ground)		80					
ML: USG	CS Silt	LS: USCS Sandy Silt SC	USCS CI	ayey Sand		60					$\square$
SM: US	CS Silty Sand	P: USCS Poorly-graded Sand	: USCS W	ell-graded Sand	NDEX (%)	50			СН	+	_
TOPSOI	L: Topsoil				STICITY I	40					
PROJEC	T SAMPLE TYPES				PLA	20	CL	A LINE	OH & MH	++	_
Split Spoon	(SS)					10				++	_
						0 10 20	30 40	50 60	70 80 90	100 110	120
								c			
SOIL REL	ATIVE DENSITY AND C	ION	ee (						9/1)		
					51 LII-3FUU	IN GAIVIFLE				/0]	

NON-COHES	IVE SOILS		COHESIVE SOILS	
RELATIVE DENSITY	N-VALUE*	CONSISTENCY	N-VALUE*	COMPRESSIVE STRENGTH (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 5	0.25 - 0.50
MEDIUM DENSE	10 - 30	MEDIUM STIFF	5 - 10	0.50 - 1.0
DENSE	30 - 50	STIFF	10 - 14	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	14 - 32	2.0 - 4.0
		HARD	OVER 32	OVER 4.0

\* N-VALUE: NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTML-1586 STANDARD PENETRATION TEST). ST

AU

MC

-200

Qp Qu - SHELBY TUBE SAMPLE

- MOISTURE CONTENT (%)

- PERCENT PASSING NO. 200 SIEVE

- POCKET PENETROMETER (TSF)

- UNCONFINED STRENGTH (TSF)

- AUGER SAMPLE

PL

ΡI

NP

סס

DCP

IBV

- PLASTIC LIMT (%)

- NON PLASTIC

- PLASTIC INDEX (%)

- DRY DENSITY (PCF)

- DYNAMIC CONE PENETROMETER

- IMMEDIATE BEARING VALUE

Boring	Depth (ft.)	PID Reading (ppm)
SB-1	1-2.5	168.4
SB-1	3.5-5	98.0
SB-1	6-7.5	66.5
SB-1	8.5-10	130.3
SB-1	11-12.5	44.0
SB-1	13.5-15	28.2
SB-1	18.5-20	13.3
SB-1	23.5-25	7.2
SB-1	28.5-30	11.8

Boring	Depth (ft.)	PID Reading (ppm)
SB-3	1-2.5	114.9
SB-3	3.5-5	42.7
SB-3	6-7.5	50.7
SB-3	8.5-10	18.5
SB-3	11-12.5	170.1
SB-3	13.5-15	136.0
SB-3	18.5-20	52.0
SB-3	23.5-25	22.7
SB-3	28.5-30	15.5

Boring	Depth (ft.)	PID Reading (ppm)	
SB-5	1-2.5	0.0	
SB-5	3.5-5	0.1	
SB-5	6-7.5	0.0	$\hat{}$
SB-5	8.5-10	0.2	$\bigcirc$
SB-5	11-12.5	0.0	
SB-5	13.5-15	0.0	
SB-5	18.5-20	0.0	
SB-5	23.5-25	-0.1	
SB-5	28.5-30	0.0	
2° <sup>×</sup>		2	

Boring	Depth (ft.)	PID Reading (ppm)
SB-2	1-2.5	257.3
SB-2	3.5-5	116.0
SB-2	6-7.5	120.8
SB-2	8.5-10	13.4
SB-2	11-12.5	12.8
SB-2	13.5-15	10.1
SB-2	18.5-20	7.3
SB-2	23.5-25	6.4
SB-2	28.5-30	5.3
		0,

Boring	Depth (ft.)	PID Reading (ppm)
SB-4	1-2.5	15.5
SB-4	3.5-5 🔺	2.7
SB-4	6-7.5	3.9
SB-4	8.5-10	4.5
SB-4	11-12.5	12.0
SB-4	13.5-15	13.9
SB-4	18.5-20	36.7
SB-4	23.5-25	14.1
SB-4	28.5-30	7.1

	3D-4	23.3-23	14.1
	SB-4	28.5-30	7.1
	$\sim$		
	Boring	Depth (ft.)	PID Reading (ppm)
	SB-6	1-2.5	0.0
	SB-6	3.5-5	0.0
	SB-6	6-7.5	0.0
)´	SB-6	8.5-10	0.1
	SB-6	11-12.5	0.1
	SB-6	13.5-15	0.0
	SB-6	18.5-20	0.3
	SB-6	23.5-25	0.0
	SB-6	28.5-30	0.2

Boring	Depth (ft.)	PID Reading (ppm)
SB-7	1-2.5	0.2
SB-7	3.5-5	0.1
SB-7	6-7.5	0.0
SB-7	8.5-10	0.0
SB-7	11-12.5	0.6
SB-7	13.5-15	0.2
SB-7	18.5-20	0.2
SB-7	23.5-25	0.3
SB-7	28.5-30	0.0

Boring	Depth (ft.)	PID Reading (ppm)
SB-9	1-2.5	0.2
SB-9	3.5-5	0.4
SB-9	6-7.5	1.6
SB-9	8.5-10	1.9
SB-9	11-12.5	1.5
SB-9	13.5-15	0.7
SB-9	18.5-20	2.3
SB-9	23.5-25	1.3
SB-9	28.5-30	11.9

	Boring	Depth (ft.)	PID Reading (ppm)	
	SB-12	1-2.5	0.0	
	SB-12	3.5-5	0.2	
	SB-12	6-7.5	0.2	$\sim$
	SB-12	8.5-10	0.2	$\bigcirc$
	SB-12	11-12.5	0.1	
	SB-12	13.5-15	0.1	
	SB-12	18.5-20	0.1	
	SB-12	23.5-25	-0.3	
	SB-12	28.5-30	0.1	
-			$\sim$	-
•	20		2	

Boring	Depth (ft.)	PID Reading (ppm)
SB-8	1-2.5	0.0
SB-8	3.5-5	0.0
SB-8	6-7.5	0.0
SB-8	8.5-10	0.0
SB-8	11-12.5	0.0
SB-8	13.5-15	0.0
SB-8	18.5-20	0.1
SB-8	23.5-25	0.0
SB-8	28.5-30	0.0
		0

Boring	Depth (ft.)	PID Reading (ppm)
SB-11	1-2.5	0.2
SB-11	3.5-5 🔺	0.5
SB-11	6-7.5	0.2
SB-11	8.5-10	0.3
SB-11	11-12.5	0.1
SB-11	13.5-15	0.6
SB-11	18.5-20	8.5
SB-11	23.5-25	0.0
SB-11	28.5-30	0.1

	SB-11	23.5-25	0.0
	SB-11	28.5-30	0.1
	Boring	Depth (ft.)	PID Reading (ppm)
	SB-13	1-2.5	0.1
	SB-13	3.5-5	0.1
	SB-13	6-7.5	0.2
)´	SB-13	8.5-10	0.1
,	SB-13	11-12.5	0.1
	SB-13	13.5-15	0.5
	SB-13	18.5-20	0.5
	SB-13	23.5-25	0.5
	SB-13	28.5-30	0.1

Boring	Depth (ft.)	PID Reading (ppm)
SB-14	1-2.5	0.8
SB-14	3.5-5	0.2
SB-14	6-7.5	0.2
SB-14	8.5-10	0.1
SB-14	11-12.5	0.2
SB-14	13.5-15	0.1
SB-14	18.5-20	0.1
SB-14	23.5-25	0.1
SB-14	28.5-30	0.0

Boring	Depth (ft.)	PID Reading (ppm)	
SB-16	1-2.5	0.0	
SB-16	3.5-5	0.0	
SB-16	6-7.5	0.1	
SB-16	8.5-10	0.0	
SB-16	11-12.5	0.0	
SB-16	13.5-15	0.1	
SB-16	18.5-20	0.0	
SB-16	23.5-25	2.9	
SB-16	28.5-30	1.1	

Depth (ft.)	PID Reading (ppm)
1-2.5	0.1
3.5-5	0.1
6-7.5	0.0
8.5-10	0.1
11-12.5	0.1
13.5-15	0.5
18.5-20	0,1
23.5-25	0.8
28.5-30	0.3
	Depth (ft.) 1-2.5 3.5-5 6-7.5 8.5-10 11-12.5 13.5-15 18.5-20 23.5-25 28.5-30

Boring	Depth (ft.)	PID Reading (ppm)
SB-15	1-2.5	0.5
SB-15	3.5-5	0.2
SB-15	6-7.5	0.9
SB-15	8.5-10	1.4
SB-15	11-12.5	1.0
SB-15	13.5-15	0.7
SB-15	18.5-20	2.1
SB-15	23.5-25	0.4
SB-15	28.5-30	0.1
		<b>O</b> Y

Boring	Depth (ft.)	PID Reading (ppm)
SB-17	1-2.5	0.1
SB-17	3.5-5 🔺	5.8
SB-17	6-7.5	0.9
SB-17	8.5-10	0.2
SB-17	11-12.5	0.1
SB-17	13.5-15	0.4
SB-17 🔺	18.5-20	0.1
SB-17	23.5-25	0.1
SB-17	28.5-30	0.1
510.0		



November 4, 2024

Mr. Christopher Baer, PE Director of Engineering Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109

Re: Geotechnical Engineering Report CN Railroad Jack and Bore Crossings FRSA Interstate Diversion Basin Trunk Upsizing FPCIP #150D Rockford, Illinois GEOCON Project No. 24-G0507.2

Dear Mr. Baer:

Pursuant to our proposal for geotechnical engineering services, we have completed subsurface exploration and geotechnical analyses for the CN Railroad jack and bore crossings planned as part of the FRSA Interstate Diversion Basin Trunk Upsizing project, in Rockford, Illinois. This electronic copy of the Geotechnical Engineering Report includes our findings and recommendations for the proposed project referenced above. Please contact our office if you require hard copies of the report.

GEOCON Professional Services, LLC. (GEOCON) appreciates the opportunity to be of service during this phase of the project. If there are any questions or comments you may have regarding the contents of this report, or if we may be of any further service, please contact us at your convenience.

Sincerely,

### **GEOCON Professional Services, LLC.**

Benjamin Skolek, EIT Project Engineer

Kenneth K. Rippy, PE Senior Engineer



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**Geotechnical Engineering Report** 

**CN Railroad Jack and Bore Crossings** FRSA Interstate Diversion Basin Trunk Upsizing **FPCIP #150D Rockford**, Illinois

> Mr. Christopher Baer, PE **Director of Engineering** Four Rivers Sanitation Authority 3501 Kishwaukee Street Rockford, Illinois 61109

Aotroper **Prepared By: GEOCON Professional Services, LLC.** 22774 Citation Road, Unit A Frankfort, Illinois 60423

November 4, 2024

GEOCON Project No. 24-G0507.2

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# **GEOTECHNICAL ENGINEERING REPORT**

CN Railroad Jack and Bore Crossings FRSA Interstate Diversion Basin Trunk Upsizing FPCIP #150D Rockford, Illinois

#### INTRODUCTION

This report presents the results of a subsurface exploration for the proposed FRSA Interstate Diversion Basin Truck Upsizing project near Alpine Road, in Rockford, Illinois. The purpose of this report was to determine and evaluate the subsurface conditions existing at the subject site, and to establish related geotechnical parameters to be utilized for the economical design and construction of the railroad crossings planned as part of this project.

#### **PREVIOUS REPORT**

GEOCON performed a subsurface investigation for this project and the results were presented in the **Preliminary** Geotechnical Report dated May 29, 2024. Refer to the previous report for additional information.

#### PROJECT AND SITE DESCRIPTION

The proposed project includes reconstruction of approximately 8,500 feet of sewer trunk line and 1,000 feet of connections to adjacent sewer mains located south of the Canadian National and Union Pacific Railroads and centered on Alpine Road in Rockford, Illinois which was originally constructed in the 1970's. Construction activities include excavation of existing sanitary sewer and placement of new sanitary sewer, sewer manholes, and bore and jacking steel casing pipe for the railroad crossings.

The west crossing is located near CN Railroad MP82 and between MH#12 at STA 601+00 feet and new MH#008-006 at STA 603+28.0 feet. The new 15-inch PVC SDR 26 sanitary sewer will be installed inside a 30-inch diameter steel casing bored and jacked below the CN Railroad and UP Railroad. The length of the casing will be 189.6 feet. Minimum cover will occur at the north end of the alignment and will be approximately 7 feet. Maximum cover will occur beneath the CN tracks and will be approximately 18 feet.

The east crossing is located just east of Alpine Road and is located between MH#15 at STA 701+00 and MH#16 at STA 702+91.88 feet. The new 42-inch sanitary sewer will be installed inside a 60-inch diameter steel casing bored and jacked below the CN Railroad. The length of the casing will be 109.6 feet. Minimum cover will occur at the ditch located on the south side of the tracks and will be approximately 5 feet. Maximum cover will occur at the south end of the alignment and will be approximately 20 feet.

The topography along the overall sewer route varies significantly with surface elevations at the boring locations ranging from El. 757.5 feet at previous boring B-1, located on the west end of the alignment, to

El. 831.3 feet at previous boring B-18, located on the east end of the alignment. The topography of the jack and bore crossings varies significantly as well. See Sheet 28 and 29 of the plan set for further information regarding the jack and bore crossings.

The design of the dewatering plan and sheeting or shoring for the bore pit excavations will be the responsibility of the contractor or their subcontractors, using the geotechnical parameters provided on the boring logs.

# SUBSURFACE EXPLORATION

The original scope of work included performance of seventeen (17) borings, labeled SB-1 to SB-9 and SB-11 to SB-18. This phase of drilling included performance of SB-10, which was inaccessible during the initial drilling phase, and extending SB-13 to a depth of 50 feet per CN requirements.

As a point of reference, borings SB-9 and SB-10 were drilled on either end of the west crossing and borings SB-13 and SB-14 were located on either end of the east crossing, near Alpine Road. These four boring logs are included in the Appendix to this report whereas the Preliminary Geotechnical Engineering Report dated May 29, 2024 contains the remainder of the boring logs referenced above.

The boring locations were staked in the field by the client prior to drilling, and the ground surface elevations were provided. The coordinates and ground surface elevations at the boring locations are tabulated on the Boring Location Diagrams provided in the Appendix.

After completion of the boring, the holes were backfilled with soil cuttings and patched with like materials as encountered at the boring. This procedure was performed for safety purposes and precluded the recording of water level readings except as encountered during or immediately after completion of drilling.

# Drilling and Sampling Procedures

The soil borings were performed with an ATV-mounted drilling rig equipped with a rotary head. Conventional, continuous flight, hollow-stem augers were used to advance the borings with representative samples obtained in the boring employing split-barrel sampling techniques in accordance with ASTM Procedure D-1586. Soil samples were taken at 2.5-foot intervals from the surface to a depth of 30 feet followed by 5- foot interval sampling to the termination depth of the borings.

The Standard Penetration Test (SPT) is defined as the number of blows required to advance a 2-inch O.D., split-barrel sampler a distance of one foot by a 140-pound hammer falling 30 inches, commonly described as the N-value. These sampler resistances provide a useful indication of the consistency or relative density of most soil deposits and are reported on the boring log presented in the Appendix. Samples of cohesive soils obtained from the borings were tested with a calibrated hand penetrometer to aid in evaluating the soil strength characteristics. The results from this testing is tabulated on the boring logs.

Water level observations made during drilling operations are noted on the boring logs.

It should be noted that it is difficult to determine the stratigraphy of the upper 2 to 3 feet of the profile from the soil borings due to the size of the bore hole, about 6 inches in diameter, and intermittent sample intervals. Further, the split spoon sampler tends to push through softer soils such as fill or topsoil, resulting in little or no sample recovery from these soils. It is recommended that test pits be

excavated to better define the depth of topsoil or fill if such information is required prior to construction.

#### Laboratory Tests

Additional characteristics of the foundation materials were determined in the laboratory to provide data on which to classify and estimate the engineering properties of the subsurface soil deposits encountered in the borings. All samples were visually classified by the geotechnical engineer according to the Unified Soil Classification System (ASTM D-2488). An explanation of the symbols used in this system is included in the Appendix.

Representative samples were tested in the laboratory to determine the natural moisture content of the soils. All moisture contents are expressed as a percentage of the dry weight of soil. Representative samples of the cohesive soils encountered in the borings were tested in the laboratory with a calibrated RIMAC spring tester to determine the approximate unconfined compressive strength of the soil samples.

The laboratory testing program selected for this project is intended to assist with determination of soil classification as well as strength and deformation characteristics of the subsurface soil deposits that will be useful in design of excavations and Earth Retention Systems (ERS). All laboratory testing was performed in general accordance with the respective ASTM Methods, as applicable, and the results are included on the boring logs included in the Appendix. Unless notified to the contrary, all samples will be disposed of after one month.

#### SOIL CONDITIONS

The types of subsurface materials encountered at the test boring locations are described on the Soil Boring Logs. The lines delineating the changes in strata on the logs represent an approximate boundary between the various soil classifications. It must be recognized that the soil descriptions are considered representative for the specific test hole location, but that variations may occur between the sampling intervals and at other locations on the site. A summary of the major soil profile components is described in the following paragraphs. A more detailed description and supporting data for the boring locations can be found on the individual boring logs.

**West Crossing SB-9 and SB-10.** Boring SB-9 was located on the south side of the west crossing and SB-10 was located on the north side. The surface at these boring locations was underlain by approximately one foot of respread topsoil followed by undocumented clay fill extending to depths ranging from 6 to 13.5 feet below grade. The clay fill was described as very soft to stiff with unconfined compressive strengths ranging from 0.25 to 1.75 tsf, with most values less than 1 tsf, and moisture contents ranging from 14.1 to 30.6 percent. The fill contained gravel and other deleterious materials such as a buried railroad tie encountered at SB-9 at a depth of 11 feet.

The native soil profile encountered below the fill consisted of interbedded layers of sandy clay, silty clay, sandy silt and sand which were saturated with groundwater below a depth of about 9 feet. The sandy clay layer encountered below the fill at SB-10 was described as very soft and contained organics. Unconfined compressive strengths of samples of the sandy clay ranged from 0.25 to 0.4 tsf and moisture contents ranged from 9.5 to 17.2 percent. This sandy clay layer extended to El. 783.2 feet, which coincides with the invert of the steel casing at this location, indicating the boring operation will be performed within this very soft sandy clay stratum.

The silty clay, sandy silt and sand strata encountered below the sandy clay at SB-10, and below the clay fill at SB-9, were stiffer or denser than the upper strata. N-values recorded during sampling within the lower strata ranged from 15 to 74 blows per foot and the samples were saturated with groundwater.

**East Crossing SB-13 and SB-14.** Boring SB-13 was located on the south side of the east crossing and SB-14 was located on the north side. The borings encountered 6 to 10 inches of topsoil and the topsoil at SB-14 was underlain by sandy clay fill extending to a depth of 3.5 feet below grade. The sandy clay fill was described as very stiff with an unconfined compressive strength of 2.5 tsf and a moisture content of 11.1 percent. The topsoil at SB-13, and the sandy clay fill at SB-14 were underlain by native cohesive soils consisting of sandy clay to lean clay and these native cohesive soils extended to a depth of 18.5 feet (El. 805.3) at SB-13 and the termination depth of SB-14, 30 feet. The consistency of the native clay strata was somewhat variable, mostly very stiff to hard with unconfined compressive strengths above 3 tsf but there were comparatively less stiff layers within the clay particularly in the upper 6 feet of the strata. Moisture contents were relatively low ranging from 5.5 to 10.1 percent. N-values correlated well with the unconfined compressive strengths of the individual samples.

At SB-13 brown sand was encountered from a depth of 18.5 feet, extending to a depth of 28.5 feet or El. 795.3 feet at the bottom of the stratum. The sand was described as very dense with N-value of 66 blows per foot and samples were saturated with groundwater below a depth of 23 feet or El. 800.5 feet. The invert of the casing at SB-13 is at or near El. 796 feet indicating the boring operation will be performed within the water bearing sand stratum.

At SB-13 interbedded strata of lean clay, silt and sand were encountered below El. 795.3 and the boring was terminated at a depth of 50 feet, or El. 773.8 feet. The layers were relatively strong and incompressible as indicated by N-values ranging from 38 to 46 blows per foot. Spoon refusal was encountered at a depth of 31 feet, which could be indicative of a cobble or boulder which is common in this glacial till geology.

Further information regarding the soil conditions can be found on the boring logs and subsurface profiles included in the Appendix.

# **GROUNDWATER CONDITIONS**

Groundwater measurements recorded during and after drilling are tabulated below:

**TABLE 1: GROUNDWATER MEASUREMENTS** 

	Boring No.	Surface Elevation, feet	<u>Groundwater depth</u> <u>measured at the time of</u> <u>drilling, feet</u>	<u>Groundwater</u> <u>elevation at the time</u> <u>of drilling, feet</u>	<u>Delayed groundwater</u> <u>elevation, feet</u>
7	SB-9	803.6	13	790.6	794.9*
	SB-10	706.7	9	787.7	793.4**
	SB-13	823.8	28.5	795.3	800.5**
	SB-14	814.6	18.5	795.3	799.4*

\*24-hour delayed groundwater measurement in the open bore hole \*\*Piezometer groundwater measurement taken on 10/30/24.

As indicated by the longer-term groundwater level measurements, the groundwater present in the confined sand layers appears to be subject to excess hydrostatic pressure, otherwise described artesian with respect to the top of the sand layer.

Fluctuations of the groundwater level will occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times during the lives of the structures may be different than the levels indicated on the boring logs. Also, groundwater can be perched within variable existing fill and granular materials within or above lower permeability soil. The possibility of groundwater level fluctuations and perched water should be considered when developing the dewatering plans for the project.

#### **ENGINEERING RECOMMENDATIONS**

Excavations for the sanitary sewer jack and bore will extend to a depth of about 20 feet below grade. The upper part of the soil profile encountered within the depth of excavation consisted of fill, which can be variable and may contain debris or other obstructions, generally underlain by soft sandy clay and layers of sand which was saturated with groundwater. Groundwater level measurements taken from piezometers indicate groundwater levels were above the casing invert and depth of excavation. In addition, groundwater present in the confined sand layers appeared to be subject to excess hydrostatic pressure. Due to the presence of wet sand within the jack and bore profile, specialized jack and bore methods may be required for this project, such as a guided bore or mud rotary drilling methods.

Dewatering along the entire jack and bore routes will be required to maintain groundwater levels during construction at a minimum of 2 feet below the invert of the bore operations. A series of deep wells will be required to facilitate the dewatering operations. If not properly dewatered, the sand layer when encountered in the bottom of the excavations or along the jack and bore route may become quick or semi-quick following the release in confining overburden pressure or from construction activity. Even if the excavations do not expose the sand but rather bottoms in the cohesive layers just above the sand, the water pressure in the sand layer could cause a blow out in the base of the excavations.

Settlement along the jack and bore route should be within tolerable limits provided the site is adequately dewatered and appropriate construction practices are implemented by the Contractor. A detailed settlement analysis based on the equipment used and soil conditions should be performed by the contractor or their subconsultant and the results should be included as part of their work plan submittal. A detailed settlement monitoring plan and contingency plan should be submitted by the contractor prior to beginning work and the construction activities should be closely monitored by a representative of the Geotechnical Engineer.

#### Earth Retention System Design

The excavation for the jack pits require an engineered earth retention system (ERS). A typical earth retention systema utilized in the area consists of trench boxes or interlocking steel sheeting. The sequence of the excavation process relative to the installation of the retention system will need to be carefully planned and executed. Steel sheeting should extend a sufficient distance into the underlying soils to provide sufficient

passive resistance, prevent a global stability failure, and allow the system to function as a groundwater cutoff. Due to the anticipated depth, a series of internal brace levels may be required to prevent excessive deflection and ensure adequate stability.

The design of the earth retention system is typically executed by the ERS contractor and completed under the supervision of a Registered Structural Engineer in Illinois. The design of the retention system will need to account for lateral forces not only due to the retained soil profile and groundwater table, but also anticipated surface surcharge loads, equipment loads, construction loads, and deflection limits.

Earth retention systems can be preliminarily designed using equivalent fluid pressures. Above the water table, a pressure of 42 psf per foot of excavation depth should be used for the design. Below the water table, a combined earth and water pressure of 85 psf per foot should be utilized. Adjustments to the recommended general pressure distributions may be necessary depending on construction staging, surcharge loading, or bracing requirements. If multiple brace levels are utilized, the appropriate "apparent earth pressure" distribution should be used in design after multiple brace levels are in place.

Any surcharge loads (due to adjacent roadways, foundations, or equipment) within the area that projects upward from the base of the cut on a 45-degree angle, should be included as additional lateral pressures on the system. A uniform surcharge of 250 psf (or an equivalent 2 feet of soil) should be assumed at the ground surface next to the retention system to represent general construction loading and/or traffic. Higher loading may be computed for specialty equipment such as large excavators, loaders or loaded trucks.

The stability of the base of the excavation from the overburden pressure of the retained soil must be checked prior to construction, based on the actual excavation depth. The stability of the base of the excavation is evaluated based on  $\gamma$ H/c<sub>b</sub>, where  $\gamma$  is the moist unit weight of the soil adjacent to the excavation, H is the depth of the excavation and c<sub>b</sub> is the cohesion of the soil below the excavation. The moist unit weight of the soil adjacent to the trench box can be taken as 125 pcf, accordingly, for an excavation depth of 20 feet, the correlation is as follows:

According to published literature, if  $\gamma$ H/c<sub>b</sub> is less than about 4, movements of the bracing system and heave of the clay below are small and considered to be within tolerable limits.

# CONSTRUCTION CONSIDERATIONS

# Controlled Compacted Fill

It is recommended that fill materials used for structural support consist of select granular fill such as IDOT CA-6 aggregate, and the fill should be free of organic matter or other deleterious material. All structural fill should be placed on firm subgrades, and the fill should be placed in lifts and properly compacted. All newly placed fill should be placed in 9 inch or less loose lifts and compacted to at least 95 percent of the maximum dry density as determined by ASTM D-698 (Standard Proctor) method of test. Further, the fill should be placed within (+/-) 2 percent of the optimum moisture content value determined by laboratory Proctor testing.

The site should be graded to promote runoff of surface water in order to minimize ponding of precipitation on the prepared subgrades, or in excavations. If the subgrade becomes saturated, or becomes deteriorated from repeated construction traffic, the affected material should be removed, and these materials should be

disked and recompacted or undercut and replaced with suitable fill prior to further construction in those areas.

GEOCON recommends that the evaluation of the subgrade and selection of fill materials for various applications should be done in consultation with the geotechnical engineer, and placement of fill for structural applications be monitored and tested by a representative of the geotechnical engineer.

#### Groundwater Control

Water bearing sand layers were encountered in the borings within the anticipated depth of excavation, and delayed groundwater level measurements recorded in the wells indicated groundwater was present at depths ranging from 3 to 23 feet below grade. The groundwater in the water bearing sand layers were subject to excess hydrostatic pressure and this information should be taken into consideration when designing the groundwater control or dewatering system used for this project.

We anticipate that a groundwater control system and an earth retention system will be required to install the sanitary sewer jack and bore. Recommendations for the design and construction of these systems are beyond the scope of this report and are typically provided by the contractor(s) involved in the construction. The design and implementation of the dewatering operations are the sole responsibility of the Contractor. It should be noted that lowering a groundwater level increases the effective stress of soils and can contribute to settlement of adjacent structures. Special design and construction considerations will therefore be required for this project due to the proximity of existing improvements.

#### Excavations

All excavations should comply with the requirements of OSHA 29CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes. This document states that the excavation safety is the sole responsibility of the contractor. Reference to this OSHA requirement should be included in the project specifications. Slope heights, slope inclinations and/or excavation depths should in no case exceed those specified in local, state, or federal safety regulations, including current OSHA excavation and trench safety standards. Where variable fill and/or groundwater is present, flatter slopes than those required by OSHA could be required to maintain the stability of the excavation(s). It should be noted that the subsurface soil types may vary between or beyond the boring locations.

Excavations near existing foundations, roads and utilities should be made with caution as disturbance within influence zones that support adjacent elements could result in damage and excessive settlement. If the proposed construction will extend into the influence zone of the existing structures or utilities, a shoring or underpinning system is required to protect or support the adjacent structures.

# **GENERAL COMMENTS**

This geotechnical exploration and analysis has been conducted to aid in the evaluation of the subsurface conditions on the subject site. The recommendations presented herein are based on the available soil information obtained and the design information provided. Any changes in the soil conditions encountered during construction, design, or location should be brought to the attention of the soils engineer to determine if modifications in the recommendations are required. The final design plans and specifications should also be reviewed by the soils engineer to determine that the recommendations presented herein have been interpreted and implemented as intended. It is recommended that the

earthwork and foundation operations be monitored by the Geotechnical Engineer, to test and evaluate the bearing capacities, and the selection, placement and compaction of controlled fills.

This geotechnical study has been conducted in a manner consistent with that level of care ordinarily ( exercised by members of the profession currently practicing in the same locality under similar conditions. The findings, recommendations, and opinions contained herein have been promulgated in and a second sec accordance with generally accepted practice in the fields of foundation engineering, soils mechanics, and engineering geology. No other representations expressed or implied, and no warranty or guarantee

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# BORING NO. SB-9 PAGE 1 OF 1

C	CLIENT Four Rivers Sanitation Authority PROJECT NAME Interstate Diversion Basin Trunk Upsizing FCIP #150D														
P	ROJI	ECT NUN	<b>IBER</b>	24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
	ATE	COMPLE	TED	4/16/24 LOGGED BY _DJ/RJ	DRILL	ING ME	THOD _ 3.2	25 in. H	ISA						
LUG9.6P						<u>`</u> 0		Qp)	(Qu)	<u> </u>		(	ATT L	ERBE	RG
	(ff)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPI NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. ( (tsf)	UNC. STRENGTH (tsf)	MOISTURE CONTENT (%	DRY UNIT WT (pcf)	ORGANIC CONTENT (%		PLASTIC	PLASTICITY
	0	902.7	<u>, , , , , , , , , , , , , , , , , , , </u>	11" TOPSOIL								$\mathbf{\nabla}$			
ź	-	802.7		black CLAY (FILL)	∖∕l ss	3 400	4-5-4	0.75	-	010					
	_			trace gravel very soft to medium stiff	<u> </u>	100	(9)	0.75		24.2	<b>)</b>				
	5				$\left  \begin{array}{c} ss \\ 2 \end{array} \right $	56	1-WOH-2	0.25		30.6					
	_				X ss	<sup>5</sup> 28	1-WOH-4	0.25	0	25.3					
	_														
	10			with chipped rock @ 8.5 to 10	$\begin{pmatrix} ss \\ 4 \end{pmatrix}$	17	(5)	0.25		14.1					
	_			buried railroad tie @ 11'	⊠ ss	<u>, 0</u>	50/5"								
4 0 -	_	790.1		Σ		7									
	15			brown POORLY GRADED SAND (wet) medium dense		100	5-9-12 (21)			12.7					
	-	785 1													
	20	100.1		brown & gray LEAN CLAY hard		<sup>3</sup> 100	16-25-25 (50)	4.5+		6.7	-				
	-	780.1		15											
	25			brown & gray SANDY SILT (wet) medium dense		<sup>5</sup> 100	4-5-10 (15)			23.6					
1 1 1 1	-	775.1													
	30	773.6	K	brown & gray POORLY GRADED SAND medium dense	$\bigvee \frac{SS}{9}$	44	6-10-15 (25)			16.3					
				Bottom of borehole at 30.0 feet.											
	OMP	LETION	DEPT	H _30 ft GROUND ELEVATION _803.6 ft	N	IOTES									
C	AVE	DEPTH	ft	BACKFILL Soil Cuttings		Groundw	ater condit	ons w	ere ob	serve	d at th	e time	of dril	ling an	nd
° G	GROUND WATER LEVELS:					nay not l	be represei	ntative	during	g the t	ime of	const	ructior	1.	
5															
	V		of Dr Rili I	NILLING NG 8.67 ft / Elev 794 93 ft	—										
		ines of De	emarca	ation represent an approximate boundary between so	oil types	. Variati	ons may or	cur he	tween	sampl	ina int	ervals	and be	etween	
	b	oring loca	itions, a	and the transition may be gradual. Dashed lines are ind	icative	of potenti	ially erratic o	or unkn	own ch	anges					
				22774 Citation Road, Unit A Frankfort, IL 604	23 P	hone 8'	15-806-998	6 Fa	ix 815	-464-8	3691				



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CLIENT Four Rivers Sanitation Authority PROJECT NUMBER 24-G0507					P				tate Di	iversio	n Basi	in Trur	nk Ups	sizing l	FCIP #	150D
	ATE		TED		P D	RILLIN	IG METHO	<b>D</b> <u>3.</u> 2	<u>15 in.</u> H	1 <u>5A</u>						
					<u> </u>	%			(Qp)	H (Qu)	()	Т	()	ATT L	ERBE	RG
		ELEVATION (ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYF NUMBER	RECOVERY (RQD)	BLOW COUNTS (N VALUE)	IBV VALUE	POCKET PEN. (tsf)	UNC. STRENGTH (tsf)	MOISTURE CONTENT (9	DRY UNIT W (pcf)	ORGANIC CONTENT (%		PLASTIC	PLASTICITY
קאמ		795.8	<u>, 17</u> <u>, 1</u> 17 , 17	11" TOPSOIL								く	X			
	-			dark brown CLAY FILL trace gravel medium stiff to stiff	SS 1	67	4-3-3 (6)		1.75		24.8					
	5				SS 2	39	2-2-2 (4)		0.75	0	22.4					
IUN BEAW LANN	-	790.7		brown SANDY CLAY (moist) very soft with roots & organics in SS 4	SS 3	83	1-3-2 (5)		0.5	0.4	9.5					
	- - 10			$\overline{\mathbb{Y}}$ saturated in SS 5	SS 4	39	3-9-4 (13)		<0.25		17.2					
	-			eg.	SS 5	39	3-5-6 (11)		<0.25		15.5					
	_ 15_	783.2		brown SILTY CLAY (wet) with sand & gravel very stiff	SS 6	100	9-14-18 (32)		2.5		10.3					
	-	780.7		brown SANDY SILT dense	SS 7	100	11-38-36 (74)				7.4					
	- - 20	778.2		gray SILTY CLAY with sand very stiff to hard	SS 8	83	11-14-20 (34)		4.5	4.4	7.5					
	OMP AVE ROU	LETION DEPTH ND WAT	DÉPT ft ER LE	H <u>35 ft</u> GROUND ELEVATION <u>796</u> BACKFILL <u>Soil Cuttings</u> EVELS:	.7 ft	– NC – Gro ma	D <b>TES</b> Dundwater o ly not be rej	conditi preser	ions w ntative	ere ob durinç	serveo g the ti	d at the me of	e time const	of dril ructior	ling an ı.	d
	<u>▼</u> ,	AT TIME AT END ( AFTER D	of di of dr Rilli	RILLING _9.00 ft / Elev 787.70 ft RILLING NG		We	ell set at El.	762 f	t with 2	20 ft of	fscree	n to E	1. 782	ft.		
	L	ines of De oring loca	emarca tions, a	ation represent an <b>approximate</b> boundary bet and the transition may be gradual. Dashed line	ween soil s are indica	types.	Variations n potentially e	nay oc rratic c	cur be or unkn	tween own cł	sampli nanges	ing inte	ervals	and be	etween	
				22774 Citation Road, Unit A Frankford	, IL 60423	B Pho	one 815-80	6-998	6 Fa	ix 815	5-464-8	3691				



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	CLIEN PROJ	IT <u>Four</u> ECT NUN	Rivers /IBER	Sanitation Authority 24-G0507	PROJECT NAME Interstate Diversion Basin Trunk Upsizing FCIP #150										<u>150D</u>	
	DATE	COMPLE	ETED	9/18/24 <b>LOGGED BY</b> RR/KE	D	RILLIN	IG METHO	<b>3</b> _3.2	25 in. H	ISA						
1L1LAB/24-6U3U1 LUGS.GPJ	DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	IBV VALUE	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	 			gray SILTY CLAY with sand very stiff to hard <i>(continued)</i>	SS 9	89	9-14-17 (31)		3.75	3.6	7.8	5	. ~			
I ANK UPSIZING FUI		770.7		Poor recovery due to possible obstruction from large gravel in SS 10	SS 10	6	15-19-23 (42)			6	14.3					
UIVERSIUN BEAM				brown & gray SANDY CLAY (wet) trace gravel very soft to very stiff	SS 11	67	3-2-2 (4)		0.75		12.2					
					12 12 SS 13	61 67	3-2-2 (4) 3-2-3 (5)		2.5 0.25		13.5					
HINICAL/2024/24-GUD	35	761.7			ss 14	100	2-5-8 (13)		1.5		12.9					
LUG - UZ SID DAIA IEMIPLAIE.601 - 10/30/24 11.04 - N.19EU IEC		70	5	Bottom of borenoie at 35.0 feet.												
EMEN	L	ines of D oring loca	emarca ations, a	ation represent an <b>approximate</b> boundary betw and the transition may be gradual. Dashed lines	veen soil are indica	ypes. tive of	Variations n	nay oc rratic c	cur be or unkn	tween own ch	sampl anges	ing inte	ervals	and be	etween	
GFO FAVI				22774 Citation Road, Unit A Frankfort,	IL 60423	Pho	one 815-80	6-998	6 Fa	x 815	-464-8	3691				



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	CLIEN PROJI	IT <u>Four</u> ECT NUN	Rivers /IBER	Sanitation Authority 24-G0507	PROJECT NAME Interstate Diversion Basin Trunk Upsizing FCIP #150D PROJECT LOCATION Rockford, IL											
	DATE	COMPLE	ETED	4/18/24 LOGGED BY DJ/RJ	D	RILLIN	IG METHOI	<b>b</b> <u>3.2</u>	25 in. H	ISA						
IL\LAB\24-G0507 LOGS.GPJ	o DEPTH (ff)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	IBV VALUE	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
OKD,		822.9	<u></u>		ļ							X	X			
150D, ROCKF	· -			trace gravel stiff to hard	ss 1	89	3-6-4 (10)		1.75	<	9.7					
PSIZING FCIP	5				SS 2	94	3-3-5 (8)		1.75	1.6	9.1					
BEAM TANK U	· _				$\begin{array}{ c c c } & SS \\ \hline & 3 \\ \hline & \\ \hline \\ \hline$	100	7-9-12 (21)		3.0		9.1					
E DIVERSION						89	6-16-21 (37)		4.5+		6.8					
O IN IEKSIAL	· _				5	50	(78)		4.5+		5.5					
NICAL/2024/24-GU5U/ GE		805.3		vsed	6	100	(67)		4.0		6.8					
1/24 11:04 - K:\GEO I ECH				brown POORLY GRADED SAND very dense	SS 7	89	15-35-31 (66)				7.6					
.GDI - 10/3(	25	<u> </u>		with chipped rock @ 23.5'-25'	SS 8	100	15-35-31 (66)				7.3					
LOG - 02 SID DAIA IEMPLAIE	COMP CAVE GROU	LETION DEPTH ND WAT AT TIME AT END AFTER D	Dépti ft er le of df of dr orilli	H _50 ft GROUND ELEVATION _823 BACKFILL _Soil Cuttings EVELS: RILLING _28.50 ft / Elev 795.27 ft BILLING NG	.77 ft	- <b>NO</b> - Gro ma - We -	TES bundwater o y not be re l set at El.	conditi preser 762 ft	ions w ntative t with 2	ere ob during 20 ft of	served the ti scree	d at the me of en to E	e time consti I. 782	of dril ructior ft.	ling an ı.	ıd
PAVEMENI	L b	ines of D oring loca	emarca itions, a	ation represent an <b>approximate</b> boundary betw and the transition may be gradual. Dashed lines	ween soil t	ypes. tive of	Variations n potentially e	nay oc rratic c	cur be or unkn	tween own ch	sampli anges	ing inte	ervals	and be	etween	
2020				22774 Citation Road, Unit A Frankfort,	, IL 60423	Pho	one 815-80	6-998	6 Fa	ix 815	-464-8	3691				



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CLIENT Four Rivers Sanitation Authority PROJECT NUMBER 24-G0507							PROJECT NAME _Interstate Diversion Basin Trunk Upsizing FCIP #150									<u>150D</u>
	DATE	COMPLI	ETED	4/18/24 LOGGED BY _DJ/RJ	D	RILLIN	IG METHO	<b>D</b> <u>3.2</u>	25 in. H	ISA						
L/LAB/24-60301 LOGS.GPJ	HLdad (#) 25	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	IBV VALUE	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
- ברי				brown POORLY GRADED SAND very dense (continued)								く	X			
	30	795.3			SS 9	89	15-23-31 (54)		4.5+	3	8.5					
	 	790.3		very dense	SS 10	100	50/4		0.75		11.7					
	35			brown CLAYEY SILT trace sand dense to very dense	ss 11	78	11-19-25 (44)		4.5+		8.7					
				<u> </u>		100	11-17-21 (38)		4.5+	4.8	9.2					
24-GUDU/ GE	40	782.8				89	(61)		4.5+		8.2					
				dense		100	(39)				7.7					
	45			Ne		72	(44)				8.0					
0/30/24 11:04		775.3		$\mathcal{O}$	SS 16	83	10-21-25 (46)				8.1					
	 50	773.8		brown POORLY GRADED SAND (wet) trace gravel	SS 17	89	27-24-20 (44)				10.5					
LUG - UZ SID DAIA IEMPLAIE.L		7		Bottom of borehole at 50.0 feet.												
	L	ines of D ooring loca	emarca ations, a	ation represent an <b>approximate</b> boundary bet and the transition may be gradual. Dashed lines	ween soil s are indica	types. ative of	Variations n potentially e	nay oo rratic o	cur be or unkn	tween own ch	sampli anges	ing inte	ervals	and be	etween	
				22774 Citation Road, Unit A Frankfort	, IL 60423	B Pho	one 815-80	6-998	6 Fa	x 815	-464-8	3691				



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CLIENT _Four Rivers Sanitation Authority PROJECT NAME _Interstate Diversion Basin Trunk Upsizing FCIP #150D														
PROJ	ECT NUM	<b>IBER</b>	_24-G0507	_PROJ	ECT LO		Rockfo	rd, IL						
DATE	COMPLE	ETED	4/18/24 LOGGED BY _DJ/RJ	DRILI	ING ME	THOD <u>3.2</u>	25 in. H	ISA						
DEPTH (ft)	ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (Qp) (tsf)	UNC. STRENGTH (Qu) (tsf)	MOISTURE CONTENT (%)	DRY UNIT WT. (pcf)	ORGANIC CONTENT (%)			
	814.1	· \ 1, · \	6" TOPSOIL	-							V			
	811.1		dark brown & brown SANDY CLAY (FILL) very stiff		89	3-4-3 (7)	2.5		11.1		. *			
5			brown & gray SANDY CLAY trace gravel stiff to hard	2	5 78	3-3-5 (8)	1.75	1.6	10.1					
					83	2-3-4 (7)	1.25	G.2	9.5					
  					<sup>3</sup> 89	5-14-17 (31)	4.5+		6.9					
					5 78	9-13-19 (32)	1.0	1.0	7.4					
15					<sup>3</sup> 100	10-19-27 (46)	4.5+		6.7					
			¥ ⊻			17 20 22								
	•		1500	7	<sup>3</sup> 56	(62)	4.0		8.4					
<u> </u>			ve		<sup>3</sup> 78	19-24-33 (57)	4.5+	5.2	9.0					
	784.6		<u> </u>	× 59	<u> </u>	38-50/1"								
			Bottom of borehole at 30.0 feet.											
	PLETION DEPTH JND WAT	DEPT	H _30 ft GROUND ELEVATION _814.61 ft BACKFILL _Soil Cuttings EVELS: RILLING _18.50 ft / Flev 796 11 ft	I   C r	NOTES Groundw nay not I	ater conditi be represer	ons w ntative	ere ob durinç	serve g the ti	d at the	e time const	of dril ructior	ling an າ.	ıd
Ψ.	AT END	of Dr Drilli	NG         15.20 ft / Elev 799.41 ft											
	ines of D ooring loca	emarca itions, a	ation represent an <b>approximate</b> boundary between so and the transition may be gradual. Dashed lines are inc	oil types dicative	. Variati of potenti	ons may oc ally erratic c	cur be or unkn	tween own ch	sampl anges	ing inte	ervals	and be	etween	
			22774 Citation Road, Unit A Frankfort, IL 604	423 F	hone 8'	15-806-998	6 Fa	x 815	-464-8	3691				



# **GENERAL NOTES**

CLIENT Four Rivers Sanitation Authority

PROJECT NAME \_Interstate Diversion Basin Trunk Upsizing FCIP #150D

PROJECT NUMBER 24-G0507

GPS GEO GENERAL NOTES - OZ STD DATA TEMPLATE.GDT - 5/29/24 11:03 - K:/GEOTECHNICAL/2024/24-G0507 GEO INTERSTATE DIVERSION BEAM TANK UPSIZING FCIP 150D, ROCKFORD, IL/LAB/24-G0507 LOGS GPJ

#### SAMPLE IDENTIFICATION

PROJECT LOCATION Rockford, IL

Visual soil classifications are made in general accordance with the United Soil Classification System (USCS) on the basis of textural and particle size categorization, and various soil behavior characteristics. Visual classifications should be substantiated by appropriate laboratory testing when a more exact soil identification is required to satisfy specific project applications criteria.

### UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487-98)

MATERIAL TYPES	CRITEF	DUP NA	AMES		GROUP SYMBOL	SOI	L GRO	JP NAMES	& LEG	END	
	GRAVELS	CLEAN GRAVELS	C <sub>u</sub> ≥ 4	AND 1≤ C <sub>c</sub> ≤ 3		GW	WELL-	GRADE	D GRAVEL	• ]	
ILS	>50% OF COARSE	<5% FINES	C <sub>u</sub> ≥ 4	AND/OR 1≥ C <sub>c</sub> ≥ 3		GP	POOR	Y-GRA	DED GRAV	EL	2°°°
	ON NO 4. SIEVE	GRAVELS WITH FINES	FINES	CLASSIFY AS ML	OR CL	GM 🔺	SILTY	GRAVE	L	0	3020
AINE AINE SIE		>12% FINES	FINES	CLASSIFY AS CL	OR CH	GC	CLAYE	Y GRA	VEL	e e e	
E-GR RET 0. 200	SANDS	CLEAN SANDS	C <sub>u</sub> ≥ 6	AND 1≤ C <sub>c</sub> ≤ 3		SW	WELL-	GRADE	D SAND	••••	
ARSE >50% NC	>50% OF COARSE	<5% FINES	C <sub>u</sub> ≥ 6	AND/OR 1≥ Cc≥ 3		SP	POORI	_Y-GRA	DED SAND		
8	FRACTION PASSES ON NO 4. SIEVE	SANDS AND FINES	FINES	CLASSIFY AS ML	OR MH	SM	SILTY	SAND			
		>12% FINES	FINES	CLASSIFY AS CL	ÔR CH	SC	CLAYE	Y SANI	C		
(0	SILTS AND CLAYS		PI>7 A	ND PLOTS>"A" LIN	1E	CL	LEAN (				
/E SOILS	LIQUID LIMIT<50	INORGANIC	PI⊳4 A	ND PLOTS<"A" LIN	ML	SILT					
NED ( ASSE		ORGANIC	LL (oven dried)/LL (not dried)<0.75			OL	ORGAI	NIC CL/	AY OR SILT		
GRAII 0% P 0. 200	SILTS AND CLAYS		PI PLC	)TS >"A" LINE		СН	FAT CLAY				
	LIQUID LIMIT>50	INORGANIC Y	PI PLC	DTS <"A" LINE	MH	ELAST	IC SILT				
		ORGANIC	LL (oven dried)/LL (not dried)<0.75			ОН	ORGAI	NIC CL/	AY OR SILT	2555	
HIGHLY C	RGANIC SOILS	PRIMARILY ORGANIC MATTER, DARK IN C	olor, an	D ORGANIC ODOR		PT	PEAT			<u>,</u>	
PROJEC	T LITHOLOGIC SY	MBOLS (USCS)					PLAST	TICITY	Y CHARI	Г	
	CS Low Plasticity Clay	LS: USCS Low Plasticity andy Clay	L: Fill (mad	le ground)		80					
ML: USG	CS Silt	LS: USCS Sandy Silt SC	USCS CI	ayey Sand		60					_
SM: US	CS Silty Sand	P: USCS Poorly-graded Sand	: USCS W	ell-graded Sand	NDEX (%)	50			СН	+	_
TOPSOI	L: Topsoil				STICITY I	40					
PROJEC	PROJECT SAMPLE TYPES				PLA	20	CL	A LINE	OH & MH	++	_
Split Spoon	Split Spoon (SS)					10				++	_
						0 10 20	30 40	50 60	70 80 90	100 110	120
									c		
SOIL REL	SOIL RELATIVE DENSITY AND CONSISTENCY CLASSIFICATIO									9/1)	
				51 LII-3FUU	IN GAIVIFLE				/0]		

NON-COHES	IVE SOILS		COHESIVE SOILS	
RELATIVE DENSITY	N-VALUE*	CONSISTENCY	N-VALUE*	COMPRESSIVE STRENGTH (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 5	0.25 - 0.50
MEDIUM DENSE	10 - 30	MEDIUM STIFF	5 - 10	0.50 - 1.0
DENSE	30 - 50	STIFF	10 - 14	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	14 - 32	2.0 - 4.0
		HARD	OVER 32	OVER 4.0

\* N-VALUE: NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1568 STANDARD PENETRATION TEST). ST

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-200

Qp Qu - SHELBY TUBE SAMPLE

- MOISTURE CONTENT (%)

- PERCENT PASSING NO. 200 SIEVE

- POCKET PENETROMETER (TSF)

- UNCONFINED STRENGTH (TSF)

- AUGER SAMPLE

PL

ΡI

NP

סס

DCP

IBV

- PLASTIC LIMT (%)

- NON PLASTIC

- PLASTIC INDEX (%)

- DRY DENSITY (PCF)

- DYNAMIC CONE PENETROMETER

- IMMEDIATE BEARING VALUE





# CHICAGO, CENTRAL & PACIFIC RAILROAD COMPANY REQUIREMENTS

- 1. Submit a Detailed Work Plan
  - a. Details of the proposed methodology the installation operations, methods of maintaining and adjusting line and grade, drilled/bored diameter, drill hole stabilization procedures, temporary dewatering measures and any mitigation procedures if sinkholes/settlement above the pipe occurs or excessive movement of the settlement monitors is observed.
  - b. The design of the crossing length, diameter and thickness of the casing, elevations of the crossing invert at both ends, excavation shoring details and methods of dealing with cobbles/boulders and obstructions.
  - c. Provide additional details for specific installation methodologies as follows:
  - d. Jack and Bore: size and location of the auger head relative to the casing, estimated jacking thrust required, method of monitoring casing elevation, thrust block design calculations, record keeping system to document casing advance and jacking pressures, bulk heading, and grouting procedures. Bore head should not extend more than 1" ahead of the casing.
  - e. Pipe Ramming: length, diameter and thickness of the casing, details of the reinforcing ring used at the leading edge of the pipe
  - f. HDD; slurry pressure and mitigation measures for frac out if applicable. Vents shall be installed on each side of the track(s) to prevent frac-outs.
  - g. TBM: type of machine, methods of primary ground support, grouting between the casing, ribs and lagging (primary support) and the surrounding soil/rock
- 2. Submit a Settlement Monitoring Plan including:
  - a. Summary of Proposed Settlement Monitoring
    - i. Geographical Location
    - ii. Number of Settlement Monitoring Probes
    - iii. Type of Probe & installation Method
    - iv. Expected Amount of Settlement (in)
    - v. Frequency of Monitoring
    - vi. Duration of Monitoring
  - b. Site Plan:

i,

- i. Site Plan
- ii. Identify Probe Locations and Offset Distances to Nearest Rails
- iii. Elevation of Top-of-Probes
- c. Probe Detail Drawing:
  - Show section through Railroad Track Road Bed
  - n. Existing Ground Line
  - iii. Depth of Bore
  - iv. Distance to Bottom-of-Probe to Top of Casing Pipe
  - v. Submit a dewatering plan.

- 3. Monitoring During Construction
  - a. Monitoring by a qualified geotechnical personnel and report to CN on a daily basis.
  - b. Installation in accordance with the Contractor's detailed work plan.
  - c. Over-excavation does not occur, and the liner / casing is installed tight to the excavation.
  - d. Report theoretical vs. actual volumes of spoils removed on per meter and total bases.
  - e. The excavation is fully supported until the liner / pipe installation is complete
  - f. The bulkhead is installed at the end of every work shift or during any prolonged stoppage of work.
  - g. Voids are fully grouted to refusal immediately after the completion of linery pipe installation. Report theoretical vs. actual volumes of grout pumped.
- 4. Reporting to CN during/post Construction
  - a. Progress of the contractor and pipe installation and what work was completed on that day,
  - b. A summary of the daily ground surface and subsurface movements showing a comparison to a baseline reading taken before the start of construction, settlements of greater than 3/8" shall be reported to CN immediately.
  - c. Any other geotechnical issues that may be of concern to CN.
  - d. Log of settlement survey results showing
    - i. Station

ZOKKC

- ii. Date and Elevation of Initial Readings
- iii. Date and Elevation of Subsequent Readings
- iv. Difference in Elevation
- e. Submit ground surface and subsurface monitoring reports to CN on a daily basis, showing a comparison to baseline readings taken prior to the commencement of construction. Settlement of 3/16" is to be reported to CN immediately, and a settlement of 3/8" or greater the work is stopped until a resolution is achieved.
- 5. Provide, in writing, the name and phone number of the Contractor's qualified site inspector who will be on the job site on a full-time basis for the duration of construction. Update if there are any changes.

Page | 2

# FISCHER EXCAVATING, INC.

LETTER OF TRANSMITTAL

1567 N. Heine Rd Freeport, Illinois 61032

		Date:	07/08/	21				
TO: ROCK RIVER MAYE	R	Attention:	1ATT CA	MIP	REI	EL.	PF	
RECUMATION DISTR	RICT	Re: C	FERV	1/AL	E	PA	RAI	11-7
3501 KISHWAUK	FE ST.	F	M; CAP	T.P	Rola	r. N	0 14	20
BOCKFORD FUL.	61126-7480	Z	EPA PA	POJ.	No	- 4	746	67
P.O.BOX 7480		-			(	$\bigcirc$		
We are sending you the following items:	X Attached		Under se	oarat	9 CO	<i>r</i> er		81
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If enclosures are not as noted, kindly notify us at once

Signed: All MIT THE HUN Pa

Dennis M. Ziemba 815-541-4113









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# 1. Introduction

# A. Purpose

- 1. The purpose of these Guidelines is to inform 3<sup>rd</sup> party Applicants, Contractors and others outside of the Railroad of the requirements and standards for the monitoring of track movement, both vertical and horizontal, and ground movement due to surrounding construction.
- 2. This document governs at all locations where the Railroad operates, regardless of track ownership or track status, either active or out of service.

# 2. Track and Ground Monitoring

# A. General track and ground monitoring requirements

- 1. Track and ground monitoring are required for any of the following three conditions:
  - i. For crossings with pipe diameter and depth (below base of rail) as shown below in Table 2-1
  - ii. For shoring within Zone A of any track, as shown below in Figure 2-1.
  - iii. Additional monitoring may be required by the Railroad on a case by case basis.
- 2. Monitoring schedule
  - i. Monitoring shall commence once any construction activity is within Zone A. See Figure 2-1.
  - ii. Monitoring shall continue, after installation is complete, for 7 days or as required by the Railroad.
    - a. For large and/or shallow pipeline installations monitoring may be required for up to 30 days.
- 3. General requirements
  - i. Temporary lighting may also be required by the Railroad to identify tripping hazards to train crewmen and other Railroad personnel.
  - ii. Any excavation, holes or trenches on the Railroad property shall be covered, guarded and/or protected. Handrails, fence, or other barrier methods must meet OSHA and FRA requirements.



see

### **B. Track Monitoring**

- 1. Track Deflection Limits
  - i. The top of rail shall not permanently deflect more than ¼ inch vertical or horizontal. This is not an "allowable" deflection. All estimated deflection should be eliminated to the greatest extent possible prior to construction.
- 2. Targets
  - i. Track monitoring shall not require track access other than to place the track monitoring targets.
  - ii. Monitoring targets should be placed such that monitoring is possible when a train is present. However, monitoring during the passing of a train is not required as the train will temporarily deflect the track.
  - iii. Adhesive backed reflective targets may be attached to the side of the rail temporarily. Targets should be removed once monitoring phase is complete.
  - iv. Note, there are normal and temporary vertical track deflections caused by the passage of a train which should be noted and established prior to construction.
- 3. Monitoring Plan
  - i. If the top of rail does deflect more than 1/4 inch, either vertical or horizontal, all operations shall stop until the matter is resolved.
  - ii. Provide established contingency plan, See Section 2.D, in the event of ground loss and/or the rail deviates ¼ inch vertical or horizontal.
  - iii. Establish a bench mark in the vicinity of the construction. Establish locations for shooting elevations on the top of rail at each area of construction.
    - a. Example locations for shooting rail elevations would be at:
      - At the centerline of an under track crossing.
      - At both outside edges of the crossing. ie. For a wide excavation.
      - At multiple locations from the crossing/excavation edge but no less than 10, 20, 30, 40 and 50 feet from the crossing.
  - iv. Monitoring shall be continuous and recorded in a field log book dedicated for this purpose. Copies of these field log entries can be made available to all concerned parties upon request at any time during construction.

# C. Ground Monitoring

- 1. Provide means for monitoring ground settlement. Submit monitoring plan for Railroad review.
- 2. Ground monitoring points should be in alignment above the proposed construction activities.

# D. Contingency Plans

- 1. The Contractor shall supply Contingency Plan(s), which anticipate reaching the Threshold and Shutdown values, for all construction activities which may result in horizontal and/or vertical track deflection.
  - i. Track monitoring values:
    - a. Threshold value 1/8 inch permanent vertical or horizontal deflection
    - b. Shutdown value = 1/4 inch permanent vertical or horizontal deflection
- 2. The Contingency Plans shall provide means and methods, with options if necessary.
- 3. The Contractor should anticipate the need to implement each Contingency Plan with required materials, equipment and personnel.
  - i. Once the Threshold value is met, the contractor shall determine the appropriate Contingency Plan(s) and immediately discuss this plan with, and receive approval confirmation from, the Railroad or authorized Railroad representative.
  - ii. Once the Shutdown value is met all project work shall stop and the chosen Contingency Plan shall commence.
    - a. The Railroad may choose to allow and/or require the immediate implementation of specific approved Contingency Plans, submitted by the Contractor, once the Shutdown value is met.

# 3. Excavation Requirements

# A. Shoring Design

1. For temporary earth retention design requirements on the Right-of-Way, see the Railroad Guidelines for Temporary Shoring. http://www.up.com/real\_estate/roadxing/industry/index.htm

#### **Excavation Safety** В.

- 1. Guardrails
  - i. Guardrails shall be provided to surround unattended excavations on Railroad Right-of-Way per OSHA Standard Number 1926.502 as follows:
    - a. The guardrail height shall be at least 42 inches above the walking surface.
    - b. The smallest dimension for openings in the guardrail shall be no greater than 19 inches
- downer a for c. Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any

# 4. Glossary

**Applicant:** Any party proposing to install a new, and/or abandon existing, pipelines or Wirelines on Railroad right-ofway or other Railroad operating location, regardless of track being active or out of service. This includes any contractor, employee or consultant hired by said party.

**Call Before You Dig:** A Union Pacific Railroad 24-hr by 7-day communication center to assist in protecting, documenting and notifying callers of other utilities installed within the Railroad right-of-way.

#### 1-800-336-9193

Crossing: Refers to a Utility which is crossing the Railroad track(s).

Carrier Pipe: Pipe used to transport the product.

Casing Pipe: Pipe through which the carrier pipe is installed.

**Cover:** Distance from either the base of rail or finished grade to the top of Pipeline or Wireline.

**Encroachment:** Utilities on Railroad right-of-way which are generally oriented parallel with Railroad right-of-way and/or track.

Centerline of Track: An imaginary line, that runs down the center of the two rails of a track.

**Construction Documents:** Design plans and calculations, project and/or standard specifications, geotechnical report and drainage report.

**Construction Window:** A timeframe in which construction or maintenance can be performed by the Contractor with the required presence of a Flagman.

**Contractor:** The individual, partnership, corporation or joint venture and all principals and representatives (including Applicant's subcontractors) with whom the contract is made by the Applicant for the construction of the Grade Separation Project.

**Facility:** Refers to the Applicant's pipeline, wireline, poles, manholes, handholes, splice boxes, storage tanks and other such structures which exist as part of the Applicant's infrastructure.

Flagman (Flagging): A qualified employee of the Railroad providing protection to and from Railroad operations per Railroad requirements.

Guidelines: Information contained in this document.

**Industry Track:** A secondary track designed to allow access to industries along the main track.

**Main Track:** A principle track, designated by Timetable or special instructions, upon which train movements are generally authorized and controlled by the train dispatcher. Main Track must not be occupied without proper authority.

Railroad Load: Cooper E-80 loading.

Railroad: Refers to Union Pacific Railroad.

**Railroad Manager of Track Maintenance (MTM):** Railroad representative responsible for maintenance of the track and supporting subgrade.

**Right-of-Entry Agreement**: An agreement between the Railroad and an Applicant or a Contractor allowing access to Railroad property.

Right-of-Way: The private property limits owned by the Railroad.

Tracks: The rails, ties and ballast and roadbed that compose the traveling surface used by trains.

Utility: Refers to a pipeline or wireline.

**Wireline:** Refers to electric power and communication utility systems including, but not limited to, all associated conductors, cables, support structures, and equipment.

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