

Alscott, Inc.
Surety Bonds
24901 Woodland Circle
Lee's Summit, MO 64086

Phone: (816) 674-8067
Fax: (816) 537-0441

December 21, 2021

Shedigs It, LLC
Ms. Cheryl Gerstner
600 SE Central
Blue Springs, MO 64014


RE: Project: Project No. 3256 WWT FACILITY IMPROVEMENTS JCPW VEHICLE SERVICE CENTER COUNTY BID NO. PW 08-2021
Bond No: RCB0035538
Obligee: JACKSON COUNTY PUBLIC WORKS

To whom it may Concern;

Please use this letter as your authority to date the bonds and power of attorney the same date as the contract. Upon signing of the contract, please advise us of the contract date, or forward us a copy of the dated and signed contract.

Thank you for your assistance and please call if you have any questions.

Sincerely,



David S. Salavitch
Attorney in Fact, RLI Insurance Company



SHEDIGS-01

KCHRISTIANSON

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

12/17/2021

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

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

PRODUCER Mike Keith Insurance, Inc. 103 West Franklin St Clinton, MO 64735	CONTACT NAME:		
	PHONE (A/C, No, Ext): (660) 885-5581	FAX (A/C, No): (660) 885-8278	
E-MAIL ADDRESS:			
INSURER(S) AFFORDING COVERAGE			NAIC #
INSURER A : United Fire & Casualty			13021
INSURER B : Accident Fund Insurance Co			10166
INSURER C : Westchester Surplus Lines Insurance Comapny			10172
INSURER D :			
INSURER E :			
INSURER F :			

INSURED
Shedigs It, LLC
600 SE Central Drive
Blue Springs, MO 64014-3311

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	X	60492726	7/1/2021	7/1/2022	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COM/OP AGG \$ 2,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	X	60492726	7/1/2021	7/1/2022	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$		60492726	7/1/2021	7/1/2022	EACH OCCURRENCE \$ 6,000,000 AGGREGATE \$ 6,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	WCV6145709	7/1/2021	7/1/2022	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - FA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Equipment Floater		60492726	7/1/2021	7/1/2022	Leased/Rented 750,000
C	Pollution		G28324856 002	6/15/2021	6/15/2022	Aggregate 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
 Project: 3256. WWT Facility Improvements JCPW Vehicle Service Center. Jackson County Missouri and its agencies, officials, officers and employees while acting within the scope of their authority are additional insured for services performed under this contract. 30 day notice of cancellation in favor of certificate holder.

CERTIFICATE HOLDER

Jackson County, Missouri
 Dept of Public Works Engineering Div.
 303 West Walnut St
 Independence, MO 64050

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

Harlem Christanson

Contract Documents, Technical Specifications and Plans

for

**WASTEWATER TREATMENT
FACILITY IMPROVEMENTS
AT JACKSON COUNTY
PUBLIC WORKS VEHICLE
SERVICE CENTER**

**County Project No. 3256
Bid No. PW 08-2021
September 28, 2021**

**Jackson County, Missouri
Department of Public Works
Engineering Division
303 West Walnut Street
Independence, Missouri 64050
(816) 881-4530**

Director of Public Works – Brian Gaddie, PE

Chief Engineer – Earl Newill, PE

Plans and Project Manual by Olsson Assoc – Michelle King, P.E.

Project Manual by JCPW – Chris Jenkins

JCPW Project Manager – Earl Newill

JCPW Project Manager Telephone – 816-881-4538

FILED

JAN 07 2022

**MARY JO SPINO
COUNTY CLERK**

POWER OF ATTORNEY

RLI Insurance Company Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, each an Illinois corporation, (separately and together, the "Company") do hereby make, constitute and appoint:

David S. Salavitch, Robert L. Cox, Luke P. Sealer, jointly or severally

in the City of Lees Summit, State of Missouri its true and lawful Agent(s) and Attorney(s) in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed Twenty Five Million Dollars (\$25,000,000.00) for any single obligation.

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of the Company.

RLI Insurance Company and/or Contractors Bonding and Insurance Company, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and is now in force, to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Vice President with its corporate seal affixed this 17th day of March, 2020.



**RLI Insurance Company
Contractors Bonding and Insurance Company**

By: Barton W. Davis
Barton W. Davis Vice President

State of Illinois }
County of Peoria } SS

CERTIFICATE

On this 17th day of March, 2020, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company and/or Contractors Bonding and Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

I, the undersigned officer of **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company and/or Contractors Bonding and Insurance Company** this _____ day of _____.

By: Gretchen L. Johnigk
Gretchen L. Johnigk Notary Public

**RLI Insurance Company
Contractors Bonding and Insurance Company**

By: Jeffrey D. Jick
Jeffrey D. Jick Corporate Secretary



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APPENDICES

Erosion Control Plan, Optional Borrow Site Plan at Sibley, MO., MCI Existing Fiber Optic Plans (NOT IN CONTRACT) as Reference Only, MDNR Construction Permit, Olsson, Inc. Geotechnical Engineering Report, and Olsson, Inc. Soil Morphological Report A thru F

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BIDDING REQUIREMENTS

ADVERTISEMENT FOR BIDS

**JACKSON COUNTY, MISSOURI
PUBLIC WORKS – ENGINEERING DIVISION
WASTEWATER TREATMENT FACILITY IMPROVEMENTS AT JACKSON COUNTY
PUBLIC WORKS VEHICLE SERVICE CENTER
COUNTY PROJECT NO. 3256 - COUNTY BID NO. PW 08-2021**

Bid documents will be available on **September 28, 2021**, for the **Wastewater Treatment Facility Improvements at Jackson County Public Works Vehicle Service Center**. All sealed proposal bids must be submitted to the office of the Director of Public Works, Engineering Division, 303 West Walnut Street, Independence, Missouri 64050, prior to 2:00 PM on **October 19, 2021**. Sealed proposals will be opened on **October 19, 2021** at 2:05 PM at that same address.

Project Location: Jackson County Public Works, Road Maintenance Division at 34900 E. Old U.S. 40 Highway, Grain Valley, MO. 64029.

Project Work Includes: The General Contractor shall furnish all materials, equipment, tools and labor required to perform the following on Wastewater Treatment Facility Improvements: 1. The demolition of the existing Wastewater Treatment Facility as shown on the plans. 2. Construction of a new WWT Absorption Field. 3. Install new Septic Tanks and Pumping Chambers. 4. Install new sanitary sewer force main. 5. Contractor does not have to be the installer of WWTF but must provide MDNR approved installer to oversee the installation. 6. All other incidental work in the most substantial and workmanlike manner for the new WWT Facility, and do everything required by the Contract Documents as defined herein.

Any Bidder, who has special needs addressed by the Americans with Disabilities Act, should notify the Project Manager at the number listed below, or through the Missouri Relay System. Jackson County hereby notifies all Bidders that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged, minority and women business enterprises will be afforded full opportunity to submit bids in response to this invitation, and will not be discriminated against on the grounds of race, color, gender or national origin, in consideration for an award. Furthermore, a 9.5% MBE (Minority Business Enterprise), 11.7% WBE (Women Business Enterprise), and 9.5% VBE (Veterans Business Enterprise) goals as established by the Compliance Review Office (CRO) are part of this contract. Contractor shall comply with all requirements of Jackson County Ordinance No. 4636. Contractor shall ensure that it and its subcontractors collectively meet both the MBE, WBE, and VBE goals established by the County or show good faith effort as to why those goals could not be met and comply with all reporting requirements.

The sealed Proposals and Bid must be made on the forms provided in the contract documents. Each Proposal must include: 1) the completed bidding documents; 2) a cashier's check drawn on an acceptable bank, or an acceptable bidder's bond, in an amount not less than five (5) percent of the total amount of the bid (all surety performance bonds and surety labor and material bonds must be with companies listed in the Department of the Treasury, Federal Register); and, 3) a completed **CERTIFICATE OF COMPLIANCE** with current (issued within the last 12 months) Jackson County Certificate of Compliance attached. Failure to complete this report or attach a current certificate as outlined above may result in the rejection of the bid. For information contact the Compliance Review Officer at (816) 881-3302.

Specifications, and other proposed Contract documents may be secured from the Engineering Division, 303 West Walnut Street, Independence, Missouri 64050, during regular business hours 7:30 AM to 4:00 PM. A fee of **\$20.00** will be required for each set of contract documents. Fees are not refundable. For an additional \$15.00 fee, plans can be mailed. Checks, if used for payments of deposits, shall be made in favor of the Manager, of Finance.

Bidders may also view and print contract documents for free on line at <https://www.jacksongov.org/Government/Departments/Public-Works/Bids-RFPs-RFQs/Vendor-Registration>. This website contains a link to the Public Purchase, a web-based e-Procurement service for posting and receiving Public Works related bids. Any bidder using on-line documents must check the website periodically for Notice of Addendums or call the Project Manager at the number listed below.

The successful Bidder, as a condition of the award of this contract must:

Have a surety company which (1) meets the minimum standard for an insurance carrier which currently is in effect for all coverage's purchased by Jackson County: and (2) is on the most current United States Treasury list as a surety whose bonds are acceptable to the United States Government.

The project will be awarded to the lowest, responsive, responsible bidder.

This project will be inspected by Jackson County, or its agent. For project information call Project Manager, Earl Newill at 816-881-4538. Design Plans and Project Manual both Michelle King, P.E., Olsson Associates Project Manager, Office: 816-361-1177 or Nolan Groff, Olsson Associates Water/Wastewater, Office: 816-442-6022, or Chris Jenkins, JCPW Project Manager, at 816-881-4429 for project information.

INSTRUCTIONS TO BIDDERS

1. **PROPOSALS:** Each Proposal shall be legibly printed in ink or typed on the form provided with this bound copy of the Contract documents. No alterations in Proposal, or in the printed forms therefore, by erasures, interpolations, or otherwise will be acceptable unless each such alteration is signed or initialed by the bidder; if initialed, the County may require the bidder to verify any alteration. No alteration in the Proposal, or in the form, on which it is submitted, shall be made after the Proposal has been submitted. All addenda to the Contract documents, properly signed by the Bidder, shall accompany the Proposal at the time of submittal.

Each Proposal shall be sealed in an envelope. The envelope shall be marked on the outside with the words "**FOR BIDDING PURPOSES – Wastewater Treatment Facility Improvements at Jackson County Public Works Vehicle Service Center, County Project Number: 3256**". No Bidder may submit more than one Proposal. Multiple Proposals from one firm or enterprise, but presented under different names, will not be accepted.

2. **NO PRE-BID SITE MEETING FOR THIS PROJECT:**
3. **BIDDER QUESTIONS / ADDENDA:** All questions shall be submitted in writing, with the final submittal accepted at 9:00 a.m. on October 12, 2021. Answers to questions will be provided via addenda issued by 5:00 p.m. on October 14, 2021.
4. **STATE SALES TAX EXEMPTION:** Jackson County is an exempt entity under 144.062, Revised Statutes of Missouri, and will issue the contractor and subcontractors an exemption certificate. Bidders are instructed not to include sales tax in their prices.
5. **PROPOSAL GUARANTEE:** Each Proposal shall be accompanied by a cashier's check drawn on an acceptable bank or an acceptable bidder's bond, in an amount not less than five percent (5%) of the total amount of the bid. **Bids received without a Bid Guarantee or a Bid Bond will not be considered.**

The successful Bidder, as a condition of the award of this contract must have a surety company which: (1) meets the minimum standard for an insurance carrier which currently is in effect for all coverage's purchased by Jackson County; and (2) is on the most current with United States Department of the Treasury list as a surety whose bonds are acceptable to the United States Government. See the following website:

<https://www.fiscal.treasury.gov/surety-bonds/list-certified-companies.html> to the Department of the Treasury's Listing of the Certified Companies for Surety Bonds as part of the Financial Management Service, a Bureau of the United States Department of the Treasury.

The Proposal Guarantee shall be made payable without condition to Jackson County, Missouri, hereinafter referred to as County. The Proposal Guarantee may be retained by and shall be forfeited to the County as liquidated damages if the Proposal is accepted and a Contract based thereon is awarded and the bidder should fail to enter into a Contract in the form prescribed, with legally responsible sureties, within ten (10) days after such award is made by the County.

6. **RETURN OF PROPOSAL GUARANTEE:** The Proposal Guarantee deposit of each unsuccessful bidder will be returned upon request, when their Proposal is rejected. Similarly, the Proposal

Guarantee deposit of the Bidder, to whom a Contract is awarded, will be returned when they execute a Contract and file a satisfactory performance bond. The Proposal deposit of the second lowest responsible bidder may be retained for a period not to exceed ninety (90) days, pending the execution of the contract and bond by the successful Bidder.

7. **WITHDRAWAL OF BID**: No bidder may withdraw their Proposal for ninety (90) days after the date and hour set for the opening. A bidder may withdraw their Proposal any time prior to expiration of the period during which Proposals may be submitted by a written request signed in the same manner and by the same person who signed the Proposal.
8. **ACCEPTANCE AND REJECTION OF BIDS**: The County reserves the right to accept the bid which, in its judgement, is the lowest and best bid; to reject any or all bids; and to waive irregularities or informalities in any bid. Bids received after the specified time of closing will be returned unopened.
9. **SIGNATURE OF BIDDERS**: Each bidder shall sign their Proposal using their usual signature and giving their full business address. Bids by partnerships shall be signed with the partnership name followed by the signature and designation of one of the partners or other authorized representative(s). Bids by corporations shall be signed with the name of the corporation followed by the signature and designation of the president, secretary, or other person authorized to bind the corporation. The names of all persons signing should also be typed or printed below the signature. A bid by a person who affixed to their signature the word "president", "secretary", "agent", or other designation without disclosing their principal, may be held to be the bid of the individual signing. When requested by the County, satisfactory evidence of the authority of the person signing shall be furnished.
10. **INTERPRETATION OF CONTRACT DOCUMENTS**: If any person who contemplated submitting a bid is in doubt as to the true meaning of any part of the Plans, Specifications, or other proposed Contract Documents, they may submit to the engineer a written request for an interpretation thereof. The person submitting the request shall be responsible for its prompt delivery. Interpretation of the proposed Contract documents will be made only by addendum. A copy of each addendum will be mailed or delivered to each person obtaining a set of Contract documents from the Director of Public Works. The County will not be responsible for any other explanations or interpretations of the proposed Contract documents.
11. **LOCAL CONDITIONS AFFECTING WORK**: Each Bidder shall visit the site of the work and shall completely inform themselves relative to construction hazards and procedure, labor, and all other conditions and factors, local and otherwise, which would affect prosecution and completion of the work and its cost. Such considerations shall include the arrangement and condition of existing structures and storage facilities, the procedure necessary for maintenance of uninterrupted operation of existing facilities for transportation, handling, and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the bidder's proposal. There will be no subsequent financial adjustment for lack of such prior information.
12. **INSURANCE**: Throughout the life of the contract, the contractor will be required to carry the types and amounts of insurance named in the General Conditions paragraph GC-33.

13. **PAYMENTS**: Payment for all work performed under the proposed Contract will be made by the County in the manner set forth in the Special Conditions.
14. **TIME OF COMPLETION**: The time of completion is an essential part of the contract and it will be necessary for each bidder to satisfy the County of their ability to complete the work within the allowable time set forth in the Proposal. In this connection, attention is directed to the provisions of the General Conditions and Special Conditions relative to delays, extensions of time, and liquidated damages.
15. **QUALIFICATIONS OF BIDDERS**: The Director of Public Works reserves the right to inspect and approve the bidder's equipment before the award of contract. Both the prime contractor and all potential subcontractors must comply with all Affirmative Action provisions of this contract. The Contractor's attention is directed to the General Conditions paragraph GC-37 regarding subcontractors and to the Affirmative Action sheets given in the bid documents. The contractor shall identify all potential subcontractors on or before the bid opening, whether or not they eventually request that they be approved, on this Affirmative Action sheet.
16. **MINORITY, WOMEN & VETERAN BUSINESS ENTERPRISE UTILIZATION**: Contractor shall comply with all requirements of Jackson County Ordinance No. 4636. Contractor shall ensure that it and its subcontractors collectively meet the MBE, WBE, and VBE goals established by the County, or show good faith effort as to why those goals could not be met, and comply with all reporting requirements.
- In addition, Final Payment shall be withheld until the Contractor and all Subcontractors have met all provisions of Jackson County, Missouri Chapter 6 Affirmative Action Programs-Contractors as determined by the Compliance Review Office.
17. **TAXES AND PERMITS**: Attention is directed to the requirements of the **TAX CLEARANCE FORM** regarding payment of taxes.
18. **PERFORMANCE BOND**: Each Bidder to whom a contract is awarded will be required to furnish a performance bond to the County in an amount equal to one hundred percent (100%) of the Contract Price. All surety performance and surety labor and material bonds must be with companies listed in the Department of the Treasury, Federal Register as surety companies acceptable on federal bonds. Accompanying the bond shall be a "Power of Attorney" authorizing the attorney-in-face to bind the surety company and certified to include the date of the bond.
19. **BID SUBMITTAL**: The bidder's attention is called to the packet, marked "FOR BIDDING PURPOSES", which is included with the bound copy. All necessary forms for bid submittal are found therein. **USE THE PACKET FORMS FOR SUBMITTING BIDS** instead of the proposal forms bound with the Specifications.
20. **COPIES OF PLANS AND SPECIFICATIONS**: Copies of the plans and specifications for use in preparing bids may be obtained from the Jackson County Public Works Department, Engineering Division, 303 West Walnut Street, Independence, Missouri 64050. A fee of **\$20.00** shall be required for each set of contract documents. Fees will not be refunded. Checks are to be made in favor of Manager, of Finance, Jackson County, Missouri.

21. **BUSINESS EXPECTANCY:** The lowest bidder shall not be considered as having received business expectancy merely because of submitting the lowest bid. Business expectancy does not exist until the contract is awarded by the Jackson County Legislature.
22. **RETAINAGE:** Contractor's attention is directed to the Special Conditions (SC-60), which provides for a reduced retainer as long as the project schedule is maintained.
23. **WAGE LAW:** The Contractor shall comply with all requirements of the prevailing wage law of Jackson County, Missouri Chapter 19 Prevailing Wage Compliance Program, including the latest amendments thereto.

In addition, Final Payment shall be withheld until the Contractor and all Subcontractors have met all provisions of Jackson County, Missouri Chapter 19 Prevailing Wage Compliance Program as determined by the Compliance Review Office.

24. **ADDITIONAL INFORMATION:** The County, in its sole discretion, may request additional information from any or all bidders.
25. **SUBSTITUTIONS:**
- A. Prior to receipt of bids, should bidder wish to incorporate in Base Bid, brands or products other than those named in Drawings and Specifications, he shall submit, on the form included herein, a written request for substitution to Engineer no later than 5:00 p.m. on **October 12, 2021**. Engineer will consider requests, and items approved will be listed in an Addendum issued to principal bidders.
 - B. By making requests for substitutions the bidder:
 - 1. Represents that the bidder has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified.
 - 2. Represents that the bidder will provide the same warranty for the substitution that would be provided for that specified.
 - 3. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

26. **WASTEWATER TREATMENT FACILITY INSTALLER:** The General Contractor does not have to be the licensed installer but must hire an installer whose role is to oversee the installation of the new Wastewater Treatment Facility Improvements, see Technical Specifications.

27. **DISCUSSIONS AND NEGOTIATIONS:** The County, in its sole discretion, may do any or all of the following:
- A. Evaluate bids and award a contract with or without discussions or negotiations with any or all of the bidders;
 - B. Discuss and negotiate anything and everything with the apparent low bidder at any time.
 - C. Request additional information from any or all bidders;
 - D. Request that the apparent low bidder submit his schedule of values or costs for any item in the bid and discuss or negotiated a lesser price for this item.
 - E. Request that the apparent low bidder enter into a period of discussion with the intent to value engineer, or find items of work which can be reduced in cost to the county and lower the bid price.

SUBSTITUTION REQUEST

TO: JACKSON COUNTY PUBLIC WORKS
 ENGINEERING DIVISION
 303 W. WALNUT
 INDEPENDENCE, MO. 64050

PROJECT: WASTEWATER TREATMENT FACILITY IMPROVEMENTS AT JACKSON COUNTY
 PUBLIC WORKS VEHICLE SERVICE CENTER
 COUNTY PROJECT NO. 3256

Section Page	Paragraph	Description
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PROPOSED SUBSTITUTION: _____
 Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable data portions. Included is highlighted information of comparative product elements from both specified and proposed substitution. Attached data also includes description of changes to Contract Documents and proposed substitution required for its proper installation.

- Undersigned certifies following items, unless modified by attachments, are correct:
1. Proposed substitution does not affect dimensions shown on Drawings.
 2. Undersigned pays for changes to building design, including engineering design, detailing, and construction costs caused by proposed substitution.
 3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
 4. Maintenance and service parts available locally or readily obtainable for proposed substitution.

Undersigned further certifies function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by:

_____ Name (Print)		For use by JCPW _____ Approved _____ Approved as Noted	
_____ Signature		_____ Not Approved _____ Received too late	
_____ Firm Name	_____ JCPW Representative	_____ Date	
_____ Firm Address			
_____ Firm City, State, Zip Remarks			
_____ Telephone		_____ JCPW Remarks	

THIS SHEET LEFT BLANK INTENTIONALLY.

PROPOSAL
Jackson County, Missouri

**TO THE JACKSON COUNTY LEGISLATURE
KANSAS CITY, MISSOURI**

THE UNDERSIGNED BIDDER, having examined the Plans, Specifications, General and Special Conditions, Appendix, other proposed Contract documents, and all addenda thereto; and being acquainted with and fully understanding; (a) the extend and character of the work covered by this Proposal; (b) the location, arrangement, and specified requirements of the proposed work; (c) the location, character, and condition of existing streets, roads, highways, railroads, pavements, surfacing, walks, driveways, curbs, gutters, trees, sewers, utilities, drainage courses and structures, and other installations both surface and underground, which may affect or be affected by the proposed work; (d) the nature, extent and type of excavations to be made, character and general conditions of materials to be excavated; (e) the necessary handling and re-handling of excavated materials, including construction of fills and embankments; (f) the location and extent of necessary or probable de-watering requirements; (g) the difficulties and hazards to the work which might be caused by storm and flood-water; (h) local conditions relative to labor, transportation, hauling, and rail delivery facilities; and (i) all other factors and conditions affecting or which may be affected by the work.

HEREBY PROPOSED, furnish all required materials, supplies, equipment, tools, and plant, to perform all necessary labor and supervision; and to construct, install, erect, equip, and complete all work stipulated as required by, and in accordance with the contract documents and the plans, specifications, and other documents referred to herein (as altered, amended, or modified by all addenda thereto) for and in consideration of the prices included in this proposal.

The undersigned bidder agrees to furnish the required bond and to enter into a contract within ten (10) calendar days after acceptance of the Proposal, and further agrees to complete the entire work covered in the contract award within **Ninety (90) WORKING DAYS** from the Notice to Proceed, after the date designated in a written order from the County to begin work thereon unless otherwise indicated on their proposal form.

Each Proposal submitted must be accompanied by a cashier's check or Proposal Guarantee bond in a minimum amount of five (5%) percent of the total amount of the bid. Checks shall be made in favor of Manager, Division of Finance, Jackson County, Missouri. Upon failure or refusal of the successful bidder to execute and deliver the contract and bond required within ten (10) days after they have been notified of the award of the Contract to them, as liquidated damages for such failure or refusal, the County may recover the full amount of the bond or in the event a cashier's check is furnished, an amount not-to-exceed five (5%) percent of the total amount of the bid.

In submitting this bid, it is understood that the right is reserved by the County to reject any and all bids, or to accept or reject any portion of any bid, and it is understood that this bid may not be withdrawn during a **period of ninety (90) days** after the scheduled time for the receipt of bids.

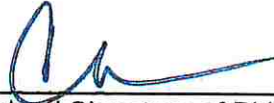
The undersigned bidder hereby certifies: (a) that this bid is genuine and is not made in the interest of, or in the behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; (b) that they have not directly or indirectly induced or solicited any other bidder to put in a false or sham bid; (c) that they have not solicited or induced any person, firm or corporation to refrain from bidding; and (d) that they have not sought by collusion to obtain for themselves any advantage over any other bidder or over the County.

PROPOSAL (continued)

ADDENDA CERTIFICATION

The undersigned acknowledges receipt of addenda through and including numbers

#1 - 9/29/2021, and that the bid submitted is in accordance with information, instructions and stipulations set forth thereby.



Authorized Signature of Bidder

SHERIDAN IT LLC

Company Name

10/19/2021

Date

BID FORM



Jackson County, Missouri
Public Works Department – Engineering Division

**PROPOSAL FOR
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS AT JACKSON COUNTY
PUBLIC WORKS VEHICLE SERVICE CENTER**
County Project No. 3256, Bid No. PW08-2021

Item No.	Description	Quantity	Units	Unit Price	Total Price
1	New Wastewater Treatment Facility	1	LUMP SUM	\$396,158 ^{00/8}	396,158 ⁰⁰
2	Force Account	1	LUMP SUM	\$15,000.00	\$15,000.00
Total Bid for Project =					\$411,158⁰⁰

FOUR-HUNDRED-SEVENTY-TWO-THOUSAND-ONE-FIFTY-EIGHT-DOLLARS AND NO CENTS
Total Amount of Bid for Project (Typed or Written)

SHEARIGS IT LLC

Firm Name

Notes:

1. The County reserves the right to adjust the quantities up or down to any and all bid items to accommodate the available funds.
2. The County will request that the apparent low bidder submit his schedule of values or costs for any item in the bid and discuss or negotiated a lesser price for this item.

PROPOSAL (continued)

The undersigned states that this Proposal is made in the character or capacity checked in this paragraph, that they are the agent of, and is duly authorized to sign for:

SHEARIS IT LLC

Legal Name of Firm

and that the Proposal is signed with the full understanding of the plans, provisions, specifications, and the foregoing terms of the Proposal.

- Missouri Individual Foreign Individual
- Missouri Partnership Foreign Partnership
- Missouri Corporation Foreign Corporation
Licensed in Missouri

Individual or Partnership, Missouri or Foreign, doing business in Missouri under fictitious name, registered in the office of Secretary of State. ~ LLC

Dated at BLUE SPRINGS, MISSOURI
City, State

this 19TH day of OCTOBER, 2021

SIGNATURES

Name and Address of all Partners

CHADY GASTNER

21201 E 35TH TRR CT. S.

INDEPENDENCE, MO. 64057

_____	_____
_____	_____
_____	_____
_____	_____

Ch

Authorized Signature

OPERATIONS MANAGER

Title of Person Signing

Attest (Seal)

BID BOND



Project Number 3256

Project Title WWT Facility Improvements JCPW Vehicle Service Center

Bond Number NA

KNOW ALL MEN BY THESE PRESENTS: That Shedigs It, LLC of Blue Springs, MO, as Principal, and RLI Insurance Company as Surety, hereby bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents unto JACKSON COUNTY, MISSOURI, a constitutionally home rule chartered governmental organization, as Obligee, in the sum of

Five Percent (5%) of Bid Amount Dollars (\$ 5% of Bid), lawful money of the United States.

WHEREAS, Principal is herewith submitting its Bid to enter into a contract with Jackson County for the above referenced project,

NOW, THEREFORE the condition of this obligation is such that if the Principal is awarded the contract the Principal will, within the time required, enter into a contract and give a good and sufficient surety bonds to secure the performance of the terms and conditions of the contract and for the prompt payment of all labor and material furnished in the prosecution thereof as required by the contract documents, then this obligation shall be void; otherwise the Principal and Surety will immediately pay unto the Obligee the full amount of this bond as liquidated damages for failure to fulfill the conditions of this obligation, but in no event shall the Surety's liability exceed the penal sum hereof.

Signed, sealed and delivered this 19th day of October, 2021.

BIDDER AND PRINCIPAL

Name, address and facsimile number of Bidder and Principal

Shedigs It, LLC

600 SE Central Dr.

Blue Springs, MO 64014

I hereby certify that I have authority to execute this document on behalf of Bidder and Principal.

By: [Signature]

Title: operating manager

(Attach corporate seal if applicable)

SURETY

Name, address and facsimile number of Surety:

RLI Insurance Company

PO Box 3967

Peoria, IL 61612

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: _____

Title: David S. Salavitch, Attorney in Fact

Date: October 19, 2021

(Attach seal and Power of Attorney)



POWER OF ATTORNEY

RLI Insurance Company Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, each an Illinois corporation, (separately and together, the "Company") do hereby make, constitute and appoint:

David S. Salavitch, Robert L. Cox, Luke P. Sealer, jointly or severally

in the City of Lees Summit, State of Missouri its true and lawful Agent(s) and Attorney(s) in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed Twenty Five Million Dollars (\$25,000,000.00) for any single obligation.

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of the Company.

RLI Insurance Company and/or **Contractors Bonding and Insurance Company**, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and is now in force, to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Vice President with its corporate seal affixed this 6th day of June, 2019.



RLI Insurance Company
Contractors Bonding and Insurance Company
By: Barton W. Davis
Vice President

State of Illinois }
County of Peoria } SS

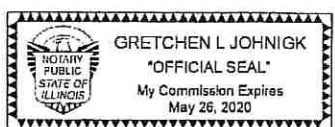
CERTIFICATE

On this 6th day of June, 2019, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

I, the undersigned officer of **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** this 19th day of October 2021

By: Gretchen L. Johnnigk
Gretchen L. Johnnigk Notary Public

RLI Insurance Company
Contractors Bonding and Insurance Company
By: Jean M. Stephenson
Jean M. Stephenson Corporate Secretary



PROPOSAL (continued)

ACKNOWLEDGEMENT

STATE OF Mo)
COUNTY OF Cass) ss.

Cheryl Garrison
Printed Name of Authorized Person with Bidding Entity

being duly sworn, deposes and says that they are

OPERATING MANAGER, with
(Title of Person Signing)

SHEDDIGS IT LLC
(Name of Bidding Organization)

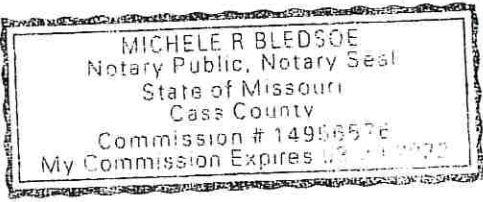
and that the answers to the foregoing questions and all statements therein contained are true and correct.

[Signature] 10/19/2021
(Signature of Authorized Person with Bidding Entity) Date

Sworn to before me this 19th day of October, 2021.

[Signature]
Notary Public

My commission expires 3/29/22



PROPOSAL (continued)

ANTI-COLLUSION STATEMENT

STATE OF MO)
COUNTY OF Cass) ss.

CHERYL GERSNER
(Printed Name of Authorized Person with Bidding Entity)

being duly sworn, deposes and says that they are

OPERATING MANAGER, with
(Title of Person Signing)

SHEDDIS IT LLC
(Name of Bidding Organization)

and that all statements made and facts set out in the proposal for the above project are true and correct, and that the bidder (the person, firm, association, or corporation making said bid) has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise competitive bidding in connection with such bid or any contract which may result from its acceptance.

[Signature] 10/19/2021
(Signature of Authorized Person with Bidding Entity) Date

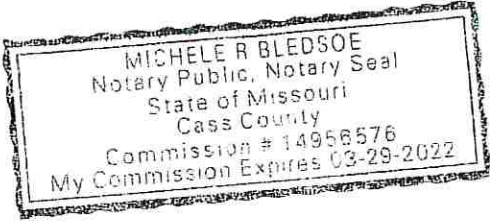
Affiliate further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project.

By _____
By _____
By _____

Sworn to before me this 19th day of OCT, 2021.

[Signature]
Notary Public

My commission expires 3/29/22



EQUIPMENT		SERIAL NO.
150 CONSTRUCTION EQUIPMENT		
Excavators		
101	2012 Doosan DX300LC Hydraulic Excavator	0000CECAJ-001017
102	2016 Caterpillar 314ELCR Hydraulic Excavator	Z1T01668
103	2016 John Deere 506 Compact Excavator	1FF050GK6GH284916
104	2012 Volvo EC20C Mini Excavator	VCEC3CDA000005140
105	2012 Volvo EC20C Mini Excavator	VCEC3CDA000005140
107	John Deere 135G Excavator	VCEC20CP000005652
108	2015 Wacker 8003 Track Excavator	1FF135GXCH500530
109	2018 Takeuchi TB290 EX	CE0805HPAL00701
110	2014 Kubota K008-3 Mini Excavator	185106077
111	2005 Komatsu 200LC-7L Hydraulic Excavator	40507
112	2014 John Deere 350G LC Hydraulic Excavator	KMTPC049J54A87800
113	2014 Cat 321D LCR excavator	1FF380GXEFE908808
114	2013 Komatsu PC490LC-10 Hyd Excavator	CAY0321DHMFGR0968
	Loaders	KMTPC239154A48234
201	Takeuchi TL12CR Loader #201200932	201200932
202	2017 John Deere 331G Compact Track Loader	1TUB33GVMKHFF313852
207	2006 Case 621D Wheel Loader	JFE0130599
208	Takeuchi TS70v skid steer loader	TSV97000195
209	2008 Cat 963D track loader	CAT963DCLCS00883
210	2011 Cat 963D Track Loader	0LCS01758
211	2020 Takeuchi TL12V2	4120003102
212	2020 Takeuchi TL12R2	412010170
213	2018 Takeuchi TL12R2	412100313
214	Boxer 320 Compact Utility Loader	3428
215	2017 Takeuchi TL12V2	412001076
216	2016 Cat 262D	DT805562
Other Utility Equipment		
301	2017 FKW FX55 Hydraulic Breaker	X55-06850
302	2017 FKW HP35 ME Plate Compactor	350929
303	Chicago Pneumatic RX38 Hydraulic Hammer	DEQ170778
305	FKW X175 Hydraulic Breaker	X175-01534
307	RX4H Hydraulic Breaker	896543
308	RX2H Hazmat Hydraulic Breaker	8E509824
309	2018 Tugger Assembly (pipe bursting)	1852284
310	Gen-Eye Prism Camera model SL6PRA	18724151F
311	Conquest H5-57 Marhole Saw (for skid steer)	
312	RC150 Hydraulic Compactor	DE0196058
313	2015 Wacker RD12A Tandem Vib. Roller	24248263
314	NPX GH-10 breaker for Cat321	
315	2005 Ingersoll Rand SD70D Roller	185447
Plumbing Equipment		
401	SDP Gen Eye Camera w/Locator	
Shop Equipment		
501	1999 Daewoo Forklift #1800	98-01800
502	Cat DP70N Forklift	AT20D10035

153 AUTOS/TRUCKS		VIN	Driver
1	2015 Utility Trailer 5RVH62020FP027414	5RVH62020FP027414	
2	2016 Lincoln Navigator	5LMUJ2T36EL12275	Sheri
3	2016 Ford F150 Supercrew	1F1EW1E66GFC07290	Dennis
4	2016 Ford F150	1FTMF1C82GK749236	Doug
5	2016 Ford F150	1FTMF1CPT6GK749323	Shawn
6	2017 Ford Super Duty	1FT7X2A6XHEC9465	Brandon
7	2017 Ford F150	1FTEX1E5SHKC24331	Jay
8	2018 Elite 102x25 Pintle Trailer	1E98F252915230123	
9	2016 Ford Transport Van	1FTY1YM5GKA43734	
10	2011 Ford F250 Super Crew Diesel	1FT7W2B2BEC00853	Matt
11	2004 GMC T7500 dump truck	1GDP7F1354F521784	
13	2014 Ford E350	1FDWE3FL5E0A74377	Joey
14	2018 Ford F150	1FTEX1EP1K043824	Rick
15	2007 Ford F750 XL2500 Gal Water Truck	3FRWF7E47V394287	
16	1999 GMC T7500 COE Dump Truck	1GDM7C1C3XU500709	
17	2013 Pro Hauler 4x7 Equip. Trailer	5631A1414DM001958	
19	2019 Elite Pintle Trailer	1E98F2528K5230227	
20	2019 Load Trail 102x22 Skid Trailer	4ZECH22XK1181505	
22	2011 Ford E350 Super Duty Van	1FDSE3FL08DA62325	
23	2011 Ford F750 Super Duty Van	3FRXX7P48Y401682	
24	2014 Ford F250 Super Duty SuperCab	1FT7X2A67EE884510	Drew
25	2015 Ford E350 Superduty Van	1EDWE3FL9FDA01627	Brian
28	2015 Ford F150	1FTEX1CP4FEA55296	Craig
30	2010 Int'l Workstar 7400 Dump Truck	1HTWHAZ19A1245254	
31	2014 Ford F250 Super Duty XL Super Cab	1FD7X2B1EEA0460	Mike
32	2012 F250 SuperDuty Crew Cab	1FT7W2B70CEA29568	Travis
34	2013 Ford 550	1FD0W5HT0DEA42889	Henry
35	Wesco Pressure Washer Trailer	1030006L35	
36	2010 Ford F250 XL 4x4 Plow/Sander Truck	1FDNF2B5ZAE837501	
37	2009 F450 Superduty XL Flashed	1FDGX46R99EA88050	



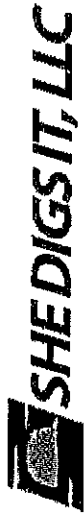
Projects In Progress

Project Name	Owner/General Contractor	Contact	Scope of Work	Contract Amount	Est. Completion Date	% Complete
19320 KCI Airport Terminal	US Engineering	816-753-6969	Plumbing	\$6,579,660.00	12/31/2021	99%
20161 Citywide Sewer Man Repairs	SAK Construction	636-385-1076	Sewer & Water Main	\$500,000.00	10/31/2021	95%
20221 KCI Parking Garage	Rodriguez Mechanical	913-281-1814	Plumbing	\$1,181,000.00	4/1/2022	35%
20230 Lee's Summit Middle School	McCown Gordon	816-602-0534	Site Utilities	\$1,074,955.00	10/31/2021	97%
20232 MCC Blue River	McCown Gordon	816-602-0534	Site Utilities	\$137,230.00	10/31/2021	99%
20233 Blue Valley ANTDAC	JE Dunn	816-426-8140	Storm, Water, Excavation	\$416,916.00	10/31/2021	99%
20250 Staley High School	McCown Gordon	816-602-0534	Site Utilities	\$150,292.65	10/31/2021	99%
20251 MCC Advanced Mfg Institute	McCown Gordon	816-602-0534	Site Utilities	\$46,773.00	1/31/2022	50%
21037 Spring Hill Middle School #3	JE Dunn	816-426-8140	Storm, Water, Excavation	\$1,277,910.00	12/31/2021	70%
21046 Stormwater Imp @ Rinker Rd	TanTyTum LLC	816-277-4139	Stormwater	\$180,536.00	9/15/2021	90%
19321 Pleasant Valley Baptist Church	Pearce Construction	816-941-3000	Plumbing	\$218,919.00	10/31/2021	85%
21067 120" Sewer Cleaning	Ace Pipe Cleaning	816-241-2891	Sewer Cleaning	\$1,000,000+	12/31/2021	50%
21133 15th St. Pump Station	KCMO Water Services	816-513-0568	Pump Station Upgrades	\$4,980,556.00	12/31/2022	0%
21074 New Reformation Church	Pearce Construction	816-941-3000	Plumbing	\$126,630.00	12/31/2021	55%
21084 Sanitary Sewer Repairs	Platte Co. Regional Sewer Dist	816-858-2052	Sanitary Sewer Repairs	\$427,465.00	10/31/2021	25%
21133 15th St Pump Station	KCMO Water Services	816-513-0568	Pump Station Upgrades	\$4,980,556.00	12/31/2022	5%
21144 Sanitary Sewer Imp 28th & Forest	KCMO Water Services	816-513-0568	Sanitary Sewer	\$154,609.00	12/31/2021	95%
21154 Hogan Prep	McCown Gordon	816-602-0534	Site Utilities	\$389,174.00	3/31/2022	0%
21160 120" Emergency Sewer Cleaning	KCMO Water Services	816-513-0568	Sewer Cleaning	\$560,000.00	3/1/2022	20%



Major Projects Completed

Project Name	Owner / General Contractor	Contact	Scope of Work	Amount	Completion Date
18009 WMR Mercier to Wayne	Leath & Sons Construction	816-353-8623	Water Main	\$185,712.00	6/24/2018
18015 Lakewood Greenway Trail	KCOMO Parks & Recreation	816-513-7628	Excavation, Utilities, Block Wall	\$799,762.00	10/5/2018
18037 Elementary 23 Road Widening	North Kansas City/JE Dunn	JE Dunn 816-292-8674	Excavation, Demo	\$563,638.00	8/20/2019
18045 Citywide Sewer Main Rehab	SAK Construction	636-385-1076	Utilities, Sewer, Water Main	\$2,813,313.00	4/30/2018
18050 City Wide Automated Metering	Leath & Sons Construction	816-353-8623	Utilities, Sewer, Water Main	\$304,948.00	12/20/2018
18089 Mill Creek Church	Pearce Construction Co.	816-941-3000	Plumbing	\$221,720.00	4/25/2019
18126 Fellowship of Grace	Pearce Construction Co.	816-941-3000	Plumbing	\$114,386.00	6/24/2019
18134 WMR Bales to Belmont	Leath & Sons Construction	816-353-8623	Water Main	\$112,000.00	1/19/2019
18224 Fellowship Greenwood	Pearce Construction Co.	816-941-3000	Plumbing, Site Utilities	\$537,013.00	10/17/2019
18231 Blue Springs South HS Addition	Blue Springs RA School Dist	JE Dunn 816-292-8674	Plumbing	\$114,702.00	12/20/2018
18254 Brush Creek Project Area 2	Leath & Sons Construction	816-353-8623	Utilities, Sewer, Water Main	\$110,000.00	5/23/2019
19010 WMR Hillcrest to Wallace	Leath & Sons Construction	816-353-8623	Water Main	\$42,351.00	2/21/2019
19043 KC Zoo Tropics Tent Catering Bldg	Centric	816-389-8300	Utilities, Sewer, Water Main	\$87,542.00	6/25/2019
19069 WMR College to James A Reed	Leath & Sons Construction	816-353-8623	Water Main	\$41,921.49	6/30/2019
19122 Ward Pkwy Flood Control	Leath & Sons Construction	816-353-8623	Emergency Utilities & Grading	\$193,854.00	9/4/2019
19172 Spira Care	KC Mechanical	913-334-1101	Site Utilities	\$59,855.00	9/16/2019
19133 Johnson Rd - City of Glenaire	City of Glenaire	816-792-4907	Utilities, Sewer, Water Main	\$235,412.42	11/1/2019
19142 Abundant Life Blue Springs	Pearce Construction	816-941-3000	Plumbing	\$136,698.00	10/31/2019
19159 WMR Ward Pkwy to Main	Leath & Sons Construction	816-353-8623	Water Main	\$89,620.00	10/31/2019
19194 Blue Springs Grounds Warehouse	Fogel Anderson	816-985-8897	Utilities, Sewer, Water Main	\$165,143.00	7/31/2019
19195 2019 Storm Repairs	City of Mission	913-676-8380	Stormwater	\$73,307.00	3/31/2019
19287 WMR Askew to Belmeade	Leath & Sons Construction	816-353-8623	Water Main	\$32,000.00	3/18/2019
19285 Blue Springs South High School	Blue Springs School Dist	JE Dunn 816-292-8674	Plumbing	\$1,122,957.00	4/24/2020
19054 Citywide Automated Metering	Leath & Sons Construction	816-353-8623	Water Meter Adjustments & Repairs	\$300,000.00	3/31/2020
19141 Blue Springs School Dist. Pkg #3	Blue Springs School Dist	Newkirk Novak	Plumbing	\$265,874.00	3/31/2020
19170 54" Sewer Rehab	SAK Construction	636-385-1076	Sewer	\$75,000.00	2/28/2020
19222 2019 Citywide Sewer Main Repairs	SAK Construction	636-385-1076	Sewer	\$1,308,257.00	4/30/2020
19223 Blue Springs Marine	B. Dean Construction	816-795-3733	Site Utilities, Plumbing	\$148,036.00	4/30/2020
19279 KC Logistics Trailer Complex	Universal Construction Co.	913-342-1150	Utilities, Sewer, Excavation	\$256,000.00	2/15/2020
19289 Collar Club	Jaco Construction	316-252-8200	Utilities, Plumbing	\$128,153.00	4/1/2020
20047 Pump Station 23	UGWYCO	913-573-5400	Utilities, Pump Station	\$141,200.00	10/15/2020
20065 MCP, Colbern Rd	JE Dunn	913-636-7663	Site Utilities	\$233,527.00	9/30/2020
20118 NKCHS Nordeley Parking Lot	Newkirk Novak	913-312-9635	Site Utilities & Grading	\$112,982.00	8/31/2020
20119 Grain Valley High School Phase 5	McCown Gordon	816-602-0534	Site Utilities	\$318,876.00	10/15/2020
20156 NK Early Childhood Ctr	McCown Gordon	816-602-0534	Site Utilities	\$135,874.00	10/31/2020
20191 89th & Lane Stormwater	Leath & Sons Construction	816-353-8623	Stormwater Repairs	\$36,790.00	12/31/2020
20041 Liggett Trail Elementary	Fogel Anderson	816-842-6914	Utilities, plumbing	\$538,944.00	3/31/2021
20042 Indian Creek Elementary	Newkirk Novak	913-312-9535	Plumbing, Excavation	\$627,925.00	3/31/2021
20080 Citywide Automated Metering	Leath & Sons Construction	816-353-8623	Water Meters	\$200,000.00	4/30/2021
20218 Winnetonka Athletic Upgrades	McCown Gordon	816-602-0534	Site Utilities	\$178,024.00	9/31/2021
21040 Cheddington Storm Sewer	Rainree Community	816-823-7331	Storm Sewer	\$182,403.00	6/30/2021
20231 Oak Park Athletic Upgrades	McCown Gordon	816-602-0534	Site Utilities	\$361,107.00	8/31/2021
20169 Blue Valley Elementary	McCown Gordon	816-602-0534	Site Utilities, Excavation	\$726,512.00	8/31/2021



Key Individual Experience			Years Experience
Key Individual	Position	Type of Work	
Cheryl Gerstner	Operating Manager	Financial & Administration Management	11
Dennis Johnson	Project Manager	Project Mgt. & Estimating - Heavy Const.	35
Roland Johnson	Project Manager	Project Mgt. & Estimating - Heavy Const.	29
Mike Akins	Project Manager	Project Mgt. & Estimating - Heavy Const.	40
Chris Rimel	Project Manager	Project Mgt. & Estimating - Plumbing	28
Linda Johnson	Project Admin/Safety	Project Administration & Safety Officer	10
Michele Bledsoe	Accounting Manager	Accounting, Human Resources	25

Trade References			Nature of Business Relationship
Company	Phone	Address	
Straub Construction Co.	913-451-8828	7775 Meadow View Dr, Shawnee, KS	General Contractor
Pearce Construction	816-941-3000	417 E 135th St, Kansas City, MO	General Contractor
SAK Construction	636-385-1019	864 Hoff Rd, O'Fallon, MO	General Contractor
Ace Pipe Cleaning	816241-2891	6601 Universal Ave, Kansas City, MO	General Contractor
Welch Silt Fence	816-651-7358	PO Box 526, Peculiar, MO	Subcontractor
Freedom Concrete	913-583-1150	PO Box 731, DeSoto, KS	Subcontractor
RDH Insulation	913-390-5300	PO Box 3916, Olathe, KS	Subcontractor
Grandview Winnelson	816-765-2555	13500 US 71 Hwy, Grandview, MO	Major Supplier
Blue Springs Winwater	816-224-5700	818 SE Sunnyside Rd, Blue Springs, MO	Major Supplier
Barbour Concrete	816-796-3344	21421 E Truman, Independence, MO	Major Supplier

Bank Reference	
UMB Bank	Bank Contact: Brianna Craig
1010 Grand Blvd	Bank Phone: 816-860-7936
Kansas City, MO 64106	Bank Fax: 816-860-7143
9871997936	Email: brianna.craig@umb.com

AFFIDAVIT

STATE OF MO)
COUNTY OF Cass)SS.

CHARYL GUESTNER of the City of BLUE SPRINGS
County of JACKSON State of Missouri being duly sworn on her or his oath, deposes and says;

1. That I am the OPERATIONS MANAGER (Title of Affiant) of SHEDIGS IT LLC (Name of Bidder) and have authorized by said Bidder to make this Affidavit upon by best information and belief, after reasonable inquiry as to the representations herein.

2. No Officer, Agent or Employee of Jackson County, Missouri is financially interested directly or indirectly what Bidder is offering to sell to the County pursuant to this Invitation (though no representation is made regarding potential ownership of publicly traded stock of bidder).

3. If Bidder were awarded any contract, job, work or service for Jackson County, Missouri, no Officer, Agent or Employee of the County would be interested in or receive any benefit from the profit or emolument of such.

4. Either Bidder is duly listed and assessed on the tax rolls of Jackson County, Missouri and is not delinquent in the payment of any taxes due to the County or Bidder did not have on December 31, 2020 any property subject to taxation by the County and if bidder is duly listed and assessed on the tax rolls of Jackson County, Missouri, bidder agrees to permit an audit of its records, if requested by the Jackson County Director of Assessment, as they relate to the assessment of Business Personal Property.

5. Bidder has not participated in collusion or committed any act in restraint of trade, directly or indirectly, which bears upon anyone's response or lack of response to the Invitation.

6. Bidder certifies and warrants that Bidder or Bidder's firm/organization is not listed on the General Services Administration's Report of Debarred and/or Suspended Parties; or the State of Missouri and City of Kansas City, Missouri Debarment List.

7. Bidder certifies and affirms its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services.

8. Bidder certifies and affirms that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

SHEDIGS IT LLC (Name of Bidder)

By: [Signature] (Signature of Affiant)

OPERATIONS MANAGER (Title of Affiant)

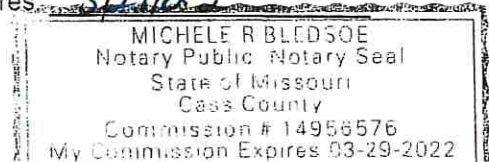
Subscribed and sworn to before me this 19th day of October, 2021.

[Signature]

NOTARY PUBLIC in and for the County of Cass (SEAL)

State of MO

My Commission Expires: 3/29/22



ANNUAL WORKER ELIGIBILITY VERIFICATION AFFIDAVIT

(for joint ventures, a separate affidavit is require for each business entity)

STATE OF MO)
) ss
COUNTY OF Cass)

On the 19TH day of OCTOBER, 2021, before me appeared CHERYL GERSTNER
(Affiant name)

personally know to me or proved to me on the basis of satisfactory evidence to be a person whose name is subscribed to this affidavit, who being by me duly sworn, stated as follows:

• I, the Affiant, am of sound mind, capable of making this affidavit, and personally certify the facts herein stated as required by Section 285.530, RSMo, to enter into any contract agreement with the County to perform any job, task, employment, labor, personal services, or any other activity for which compensation is provided, expected, or due, including but not limited to all activities conducted by business entities.

• I, the Affiant, am the OPERATING MANAGER of SNR06527 LLC
(Title) (Business Name)

and I am duly authorized, directed, and/or empowered to act officially and properly on behalf of this business entity.

• I, the Affiant, also hereby affirm and warrant that the aforementioned business entity is enrolled in a federal work authorization program operated by the United States Department of Homeland Security, and the aforementioned business entity shall participate in said program to verify the employment eligibility of newly hired employees working in connection with any services contracted by Jackson County, Missouri. I have attached documentation to this affidavit to evidence enrollment/participation by the aforementioned business entity in a federal work authorization program, as required by Section 285.530, RSMo.

• I, the Affiant, also hereby affirm and warrant that the aforementioned business entity does not and shall not knowingly employ, in connection with any services contracted by Jackson County, Missouri, any alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. § 1324a(h)(3).

• I, the Affiant, am aware and recognize that, unless certain contract and affidavit conditions are satisfied pursuant to Section 285.525, RSMo, the aforementioned business entity may be held liable under Sections 285.525 through 285.550, RSMo, for subcontractors that knowingly employee or continue to employ any unauthorized alien to work within the State of Missouri.

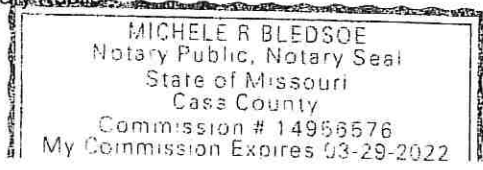
• I, the Affiant, acknowledge that I am signing this affidavit as a free act and deed of the aforementioned business entity and under duress.

Subscribed and sworn to before me, a Notary Public in and for Jackson County, Missouri, this

19TH day of OCTOBER, 2021.

My Commission Expires 3/29/22

[Signature]
Notary Public



TAX CLEARANCE

No person, firm, or corporation, resident in Jackson County, or otherwise legally within the taxing jurisdiction of the County, shall be eligible to provide any goods, contractual services or anything covered by the County Purchasing Ordinance, unless said person, firm, or corporation is duly listed and assessed on the County tax rolls and is in no way delinquent on any taxes payable to the County.

Where any individual, firm or corporation is a resident of Jackson County, or it otherwise appears that such firm is legally within the taxing jurisdiction of the County, and has made an offer, bid, or quotation for any County purchase, or has submitted an application to be given an opportunity to make quotations for County purchases, the Purchasing Manager shall cause a search to be made of the County tax rolls to determine the eligibility of that person, firm, or corporation under this section.

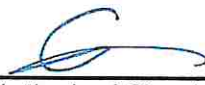
When the lowest responsible bidder is ineligible under this section, the Purchasing Manager may notify the bidder and allow three (3) days for the bidder to correct the deficiency or pay up any delinquency involved. If the bidder fails, after such notice, to comply within three (3) days, the Purchasing Manager shall proceed as though the lowest responsible bidder who is eligible under this section had entered the lowest bid.

Clerk of the Legislature
Jackson County Courthouse
306 West Kansas Avenue
Independence, Missouri 64050

Gentlemen:

I do hereby certify that year 2020 Personal Property and/or Merchants and Manufacturers Tax for State, County, School and other purposes have been paid in the amount of

\$ 12,784.16. I further certify that assessment returns as required by law for year 2020 were filed on behalf of the undersigned, including therein a full, accurate and complete listing of all tangible personal property, subject to assessment in Jackson County, Missouri.



Authorized Signature of Bidder
OPERATING MANAGER

Title

For: SHERIDGS IT LLC

Company Name

600 SB CENTRAL DR.

Street Address

BLUE SPRINGS MO 64057

City, State & Zip

816-295-1100

Telephone #


816-295-1627

Fax #

Federal I.D. # 45-5420688

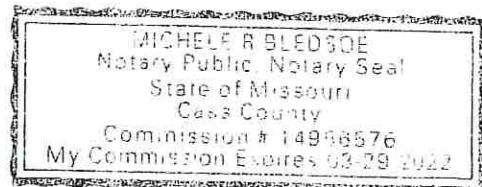
Subscribed and sworn to before me, a Notary Public in and for Jackson County, Missouri,

this 19TH day of OCTOBER, 20 21.



Notary Public

My commission expires 3/29/22.



EQUAL EMPLOYMENT OPPORTUNITY

The Contractor's attention is directed to Chapter 296, Section 296.010 to Section 296.070, inclusive, Revised Statutes of Missouri, "Discriminatory Employment Practices," including the latest amendments thereto, and to the Jackson County Ordinances, adopted by Ordinance Nos. 11, 479, and 1068, which provide in part, as follows:

"All contracts for labor services, supplies, and construction wherein Jackson County is a party, whether negotiated or formally advertised, shall contain a nondiscrimination in employment clause which shall provide that the contractor in the performance of the contract will not discriminate against any employee or applicant for employment because of race, creed, color, sex, age or national origin. Actions of the contractor shall include but not be limited to the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship."

The Contractor agrees to comply in all respects with all statutory provisions and the County Ordinances.

LIST OF INTENDED SUBCONTRACTORS

Bidder Name: SHEDIGS IT LLC

Will subcontractors be used to complete the work? Yes No

If yes, complete this form and submit it with your bid.

Subcontractor No. # 1

Name: TANTYUM CONTRACTORS

Address: 15605 E 76TH STREET

City & Zip Code: KCMO 64139 Jackson Co

Telephone No: 816-277-4139 Fax No: CHRIS@TANTYUMCONTRACTORS.COM

Description of work to be performed (include Bid Item Number, and Bid Item):

HAZARDOUS MATERIAL TO SITE & OFFSITE

Dollar Amount	\$ <u>39,060.00</u>
---------------	---------------------

Subcontractor No. # 2

Name: SMITHS ELECTRIC

Address: 1114 Valley Ridge Drive

City & Zip Code: BEAUMONT VALLEY MO 64029

Telephone No: 816-847-1800 Fax No: 816-847-1803

Description of work to be performed (include Bid Item Number, and Bid Item):

ALL ELECTRICAL WORK

Dollar Amount	\$ <u>10,273.00</u>
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(List of Subcontractors Continued)

Subcontractor No. _____

Name: _____

Address: _____

City & Zip Code: _____

Telephone No: _____ Fax No: _____

Description of work to be performed (include Bid Item Number, and Bid Item):

Dollar	\$
Amount	



Subcontractor No. _____

Name: _____

Address: _____

City & Zip Code: _____

Telephone No: _____ Fax No: _____

Description of work to be performed (include Bid Item Number, and Bid Item):

Dollar	\$
Amount	

Jackson County Missouri

Certificate of Compliance



In accordance with Jackson County Code Chapter(s) 6 and 10,
this Certificate of Compliance is hereby issued to:

Shedigs It, LLC
600 SE Central Dr
Blue Springs, MO 64014
2021 Certificate: 20211015VC808

Issued:2021-10-15
Expires:2021-12-31

The above named firm/agency has met the following requirements:

Is duly listed and assessed on the tax rolls of Jackson County, Missouri and is not delinquent in the payment of any taxes due to the County, or did not have on December 31st of the previous year any property subject to taxation by the County

Attests and agrees to Chapter 6 of the Jackson County Code which prohibits discriminatory employment practices and promotes equal employment opportunity by contractors doing business with Jackson County.

A handwritten signature in black ink, appearing to read "J. Song", is written over a horizontal line.

Chief Compliance Review Officer
Jackson County Missouri
816-881-3302
compliance@jacksonsongov.org

CERTIFICATE OF COMPLIANCE



OFFICE OF COUNTY AUDITOR
COMPLIANCE REVIEW OFFICE
415 East 12th Street, 2nd Floor
Kansas City, Missouri 64106
(816) 881-3302

CERTIFICATE OF COMPLIANCE NOTICE:

Effective September 21, 2020 all vendors doing business with Jackson County are required to obtain a Certificate of Compliance issued by Jackson County Compliance Review Office.

Certificates of Compliance will be required to be submitted with any bid response on September 21, 2020 or after. Failure to comply with this requirement may result in the REJECTION of a bid.

Vendors may complete a
Certificate of Compliance Application by visiting
www.jacomocompliance.com

A Certificate of Compliance will certify that vendors meet the following requirements:

1. Are duly listed and assessed on the tax rolls of Jackson County and are not delinquent in the payment of any taxes due to the County, or do not have on December 31st of the previous year any property subject to taxation by Jackson County.
2. Attest and agree to Chapter 6 of the Jackson County Code which prohibits discriminatory practices and promotes Equal Employment Opportunity by contractors doing business with Jackson County.

Certificate of Compliance Application must be submitted five (5) business days prior to a bid response deadline to allow sufficient time to process. A Certificate of Compliance is not guaranteed if this timeline is not met.

QUESTIONS? Email compliance@jacksongovorg

CONTRACTOR UTILIZATION PLAN

Bid Number: PW 08-2021
 Bid Title: Wastewater Treatment Facility Improvements at Jackson County Public Works Vehicle Service Center
 Contracting Department: Public Works Department (Engineering Division)

Bidder: SABRIS IT LLC

I, Cheryl Gustin, of lawful age and upon my oath state as follows:

- This Affidavit is made for the purpose of complying with the provisions of the MBE/WBE/VBE submittal requirements on the above Invitation to Bid and the MBE/WBE/VBE Program and is given on behalf of the Bidder listed above. It sets out the Bidder's plan to utilize MBE and/or WBE and/or VBE prime and subcontractors on the Bid.

The goals set by Jackson County, Missouri are:

9.5 %MBE 11.7 %WBE 9.5 %VBE

- Bidder stipulates that it will utilize a minimum of the following percentages of MBE/WBE participation in the above bid: over

9.5 %MBE 50% %WBE 0 %VBE

- The following are the MBE/WBE/VBE Contractors to be utilized on the above-named Bid. **Bidder maintains that it either has a formal contract or a conditional contract contingent upon award.**

Please note:

- If Bidder is a certified MBE, WBE, or VBE firm, it may list itself in the appropriate area below.
- No contractor may be listed under multiple categories below regardless of certifications

INTERNAL USE ONLY	
CUP RECEIVED: _____	CUP APPROVED: _____
GFW RECEIVED: _____	GFE APPROVED: _____
CUP REVISED: _____	REVISION APPROVED: _____
APPROVED GOALS: _____ MBE _____ WBE _____ VBE	
RES/ORD: _____	AMT AWARDED: _____
NOTES:	

MBE SUBCONTRACTORS

A.	MBE Firm:	TANITUM CONTRACTORS	INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:	15605 E 76TH STREET	
	Address line 2-including County:	KCMO 64139, JACKSON CO	
	Telephone Number:	816-277-4139	
	President/Owner:	CHRIS TAXIEM	
	Email Address:	CHRIS@TANITUM	
	Certifying Agency:	CONTRACTORS.COM / KCMO	
	Expiration Date of Certification:	7/2022	
	Scopes of Work Utilized:	TRACKING	
	Percentage of Contract Awarded:	9.5%	

B.	MBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

C.	MBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

TOTAL MBE VALUE:	\$ 39,060.00
------------------	--------------

*** Add Additional Pages as Necessary ***

WBE SUBCONTRACTORS

A.	WBE Firm:	SHERIDAN JT LLC	INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:	60056 Central DR	
	Address line 2-including County:	BLOOM SPRINGS MO 64014	
	Telephone Number:	JACKSON CO. 816-295-1100	
	President/Owner:	CHARL GIBSON	
	Email Address:	CGIBSON@SHERIDANJT.COM	
	Certifying Agency:	KCALD	
	Expiration Date of Certification:	6/2022	
	Scopes of Work Utilized:	PRINS / PIPs ECI	
	Percentage of Contract Awarded:	OVER 30% 50% +	

B.	WBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

C.	WBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

TOTAL WBE VALUE:	\$ 200,000.00 +
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*** Add Additional Pages as Necessary ***

VBE SUBCONTRACTORS

A.	VBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

B.	VBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

C.	VBE Firm:		INTERNAL USE ONLY Certifying Agency: _____ KCMO _____ State of MO Approved: Y N Contract Value: \$
	Address line 1:		
	Address line 2-including County:		
	Telephone Number:		
	President/Owner:		
	Email Address:		
	Certifying Agency:		
	Expiration Date of Certification:		
	Scopes of Work Utilized:		
	Percentage of Contract Awarded:		

TOTAL VBE VALUE:	\$
------------------	----

*** Add Additional Pages as Necessary ***

ACKNOWLEDGEMENT

Bidder acknowledges that it is responsible for considering the effect that any change order and/or amendments changing the total contract amount may have on its ability to meet or exceed the subcontractor participation goals.

Good Faith Effort: Bidder further acknowledges that it is responsible for submitting a Good Faith Effort Form if it will be unable to meet the participation goals. A **Good Faith Effort Form** documents the efforts a Bidder puts forth to achieve the MBE and/or WBE and/or VBE goals on a project. **Simply stating that goals cannot be met is not considered sufficient.**

Contract Modification Form: If, at any point during the life of the awarded contract, the contractor needs to substitute an approved subcontractor, a **Contractor Modification Form** must be submitted to the Compliance Review Office.

Any Good Faith Effort or Contractor Modification Form must be approved by the Compliance Review Office.

*** Contact the Compliance Review Office (816-881-3302) for assistance or to request forms. ***

I hereby certify that I am authorized to make this Affidavit on behalf of the Bidder named below and who shall abide by the terms set forth herein: I acknowledge that the assigned values determined by this Contractor Utilization Plan shall be enforceable under the contract terms and conditions.

Bidder Primary Contact: SHERDINGS IT LLC / CHERYL GERSTNER

Title: OPERATING MANAGER Email: CGERSTNER@SHERDINGSIT.COM

Date: 10/19/2021 Phone: 816-295-1100

Subscribed and sworn to before me this 19TH day of OCTOBER, 2021.

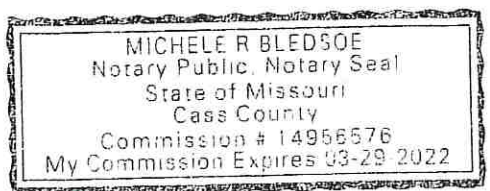
[Signature]
Notary Public

My Commission Expires: 3/29/22

(Attach corporate seal if applicable)

For questions on this form please contact:

Compliance Review Office
816-881-3302
CRO@jacksongov.org



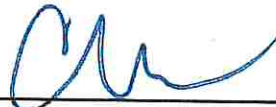
OSHA TEN HOUR TRAINING REQUIREMENTS

Missouri Law, Section 292.675, RSMo, requires any awarded contractor and its subcontractor(s) to provide a ten-hour Occupational Safety and Health Administration (OSHA) Construction Safety Program (or a similar program approved by the Missouri Department of Labor and Industrial Relations as a qualified substitute) for their on-site employees (laborers, workmen, drivers, equipment operators, and craftsmen) who have not previously completed such a program and are directly engaged in actual construction of the improvement (or working at a nearby or adjacent facility used for construction of the improvement). The awarded contractor and its subcontractor(s) shall require all such employees to complete this ten-hour program, pursuant to Section 292.675, RSMo, unless they hold documentation on their prior completion of said program. Penalties, for Non-Compliance include contractor forfeiture to the Contracting Authority in the amount of \$2,500, plus \$100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under Section 292.675, RSMo.

The undersigned bidder hereby certifies:

OSHA 10 CARD CERTIFICATION

The undersigned bidder hereby certifies and acknowledges receipt of OSHA 10 Card(s) as the contractor and for the subcontractor(s) of this project. Copies of the card(s) shall be provided to Jackson County, MO. to be reviewed by the Compliance Review Office.



Authorized Signature of Bidder

SHEARBS ET LLC
Company Name

10/19/2021
Date

STATE WAGE RATES

STATE OF MISSOURI WAGE RATES

General Conditions

Except as provided in subparagraph A., below, this Contract shall be based upon payment by the Contractor and its subcontractors of wage rates not less than the prevailing hourly wage rate for each craft or classification of workman engaged on the work as determined by the Industrial Commission of Missouri on behalf of the Department of Labor and Industrial Relations.

A. **Wage Law:** Except as provided in this subparagraph, the contractor shall comply with all requirements of the Jackson County Missouri Chapter 19 Prevailing Wage Compliance Program, including the latest amendments there to. Pursuant to Section 1905.2a, the provisions of the prevailing wage law do not apply to the construction of public works for which the engineer's estimate or the awarded contract cost is \$75,000 or less. The "total project cost" is based upon the entire project and not individual jobs within a larger project. The "total project cost" includes the total value of work performed on the project by every person paid by a contractor or subcontractor for that person's work on the project and additionally includes all materials and supplies purchased for the project. The provisions of this paragraph do not apply to any contract that is excluded from the applicability of the Jackson County Missouri Chapter 19 Prevailing Wage Program.

B. **Penalty:** The Contractor shall forfeit as a penalty to the County, One Hundred Dollars (\$100) for each workman employed, for each calendar day, or portion thereof, that such workman is paid less than the said stipulated rate for any work done under this contract by the Contractor or by any of its subcontractors.

C. **Withholding Payment:** The County has a duty to withhold and retain from payment, which is due to the Contractor under this contract all sums and amounts due and owing as a result of any violation of said laws. The County reserves the right to withhold payments throughout the duration of any resulting contract if a contractor is found to be delinquent in any aspect relating to compliance with Chapters 6 and 19 of the Jackson County Code. Payments may be held until all said delinquencies have been rectified to the satisfaction of the Compliance Review Office.

D. **Required Records:** The Contractor and each subcontractor shall keep an accurate record showing the names and occupations of all workmen employed, together with the actual wages paid to each workman. At all reasonable hours, such records shall be open to inspection by the representatives of the Industrial Commission of Missouri and the County. Said records shall be kept for a minimum of one (1) year after the project has been accepted and the Required Affidavit, outlined in subsection G, is received.

E. **No Adjustment for Changes In Rates:** During the life of this contract, the prevailing hourly rate of wages is subject to change by the Department of Labor and Industrial Relations or by court decision, as provided by law. Any such change shall not be the basis of any claim by the Contractor against the County, nor will deductions be made by the County against sums due to the Contractor by reason of any such change.

F. **Exceeding Rates and Hours:** The prevailing wage law does not prohibit payment of more than the prevailing rate of wages nor does it limit the hours of work which may be performed by any workman in a particular period of time.

G. Required Affidavit: No final payment for work under this contract will be made by the County until it has received from each contractor and subcontractor an affidavit stating that each has fully complied with the provisions and the requirements of said law.

H. Prevailing Wages: The current prevailing wage rate determination made by the Industrial Commission of Missouri and applicable during the term of this contract is reproduced verbatim herein.

I. Posting: Throughout the life of this contract, a copy of the wage determination and the rules promulgated by the Industrial Commission of Missouri, shall be displayed in a conspicuous place on the project under a heading of NOTICE, with the heading in letters at least one inch high.

J. Contract Work Hours and Safety Standards Act (42 U.S.C. Sect. 329): The Contractor is required to comply with Section 103 of the above Act.

K. Certified Payroll Records: An original copy of certified payroll records shall be emailed weekly to the Compliance Review Office at CRO@jacksongov.org. A copy of certified payroll records indicating applicable invoice number(s) shall also be emailed to the Project Supervisor.

Payroll Records must meet the following minimum requirements:

Workers must be classified according to the State's Occupational Title Rule. Workers listed as Journey Worker for Local Union XX is not acceptable. The specific classification must be named. The specific Group must be named. It is impossible to compare wage rates paid to the proper prevailing wage rate if the Group is not listed.

For all apprentices on each payroll, the apprentice letter must be attached confirming registration in the program, level in the program (i.e. 3rd Level, or 3rd 6-Month Period) and the percentage of the base wage rate the apprentice is to be paid. If the same apprentice is used more than one week, only one letter for each apprentice needs to be submitted the first time the apprentice is shown on the payroll.

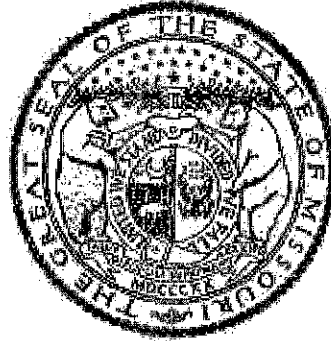
A one-to-one ratio of apprentices to journey workers must be followed. Any apprentice working out of ratio or without a journey worker present must be paid journey worker's level wages.

Fringe benefits must be indicated whether paid in cash or to a fund by checking the box on the certificate page of the payroll form. If fringe benefit contributions are not indicated by an hourly rate on the certificate payroll form, please submit a one-time letter with the next applicable payroll indicating the hourly breakdown of contributions made and to where.

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 28

Section 048
JACKSON COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by _____
Taylor Burks, Director
Division of Labor Standards

Filed With Secretary of State: _____ March 10, 2021

Last Date Objections May Be Filed: April 8, 2021

Prepared by Missouri Department of Labor and Industrial Relations

Building Construction Rates for
 JACKSON County

REPLACEMENT PAGE

Section D48

OCCUPATIONAL TITLE	*Prevailing Hourly Rate
Asbestos Worker	\$64.10
Boilermaker	*\$35.84
Bricklayer	\$57.79
Carpenter	\$58.91
Latimer	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$53.63
Plasterer	
Communications Technician	\$54.21
Electrician (Inside Wireman)	\$64.85
Electrician Outside Lineman	\$69.42
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	*\$35.84
Glazier	\$55.96
Ironworker	\$65.08
Laborer	\$47.93
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$52.40
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$69.15
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$48.71
Plumber	\$72.02
Pipe Fitter	
Rofer	\$56.28
Sheet Metal Worker	\$69.56
Sprinkler Fitter	\$61.52
Truck Driver	*\$35.84
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

Heavy Construction Rates for
JACKSON County

REPLACEMENT PAGE

Section 048

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$58.86
Millwright	
Pile Driver	
Electrician (Outside Lineman)	*\$35.84
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$48.78
General Laborer	
Skilled Laborer	
Operating Engineer	\$57.36
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$48.89
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OVERTIME and HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "overtime work" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project; provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.



MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
**PREVAILING WAGE
 PROJECT NOTIFICATION –
 CONTRACTOR INFORMATION**

New Update

The information below is requested pursuant to Sections 290.210 through 290.340, RSMo.

1. Date of Notification		2. Annual Wage Order Number Included in Bid Specifications	
3. Popular or Descriptive Name of Project			
4. Estimated Project Cost of Completion (total construction contracts to be awarded) \$			
5. Exact Location of Project		Country	City
6. Official Name of Public Body or Agency			
7. Name of Contact Person		8. Phone Number (include area code)	
9. Address			
10. Email Address		Website	
11. Contract Award Date	12. Estimated Date of Project Completion	13. Will There Be Any Federal Funds Used in this Contract? <input type="checkbox"/> Yes <input type="checkbox"/> No	

14. Contractor Information Notification

General Contractor:

Name _____

Address _____

City _____ State _____ ZIP _____

Phone Number _____ Email Address _____

Type of Craftsmen Needed by Project _____

Scope of Work _____

List all Subcontractors:

1. Name _____

Address _____

City _____ State _____ ZIP _____

Phone Number _____ Email Address _____

Type of Craftsmen Needed by Project _____

Scope of Work _____

2. Name _____

Address _____

City _____ State _____ ZIP _____

Phone Number _____ Email Address _____

Type of Craftsmen Needed by Project _____

Scope of Work _____

3. Name _____

Address _____

City _____ State _____ ZIP _____

Phone Number _____ Email Address _____

Type of Craftsmen Needed by Project _____

Scope of Work _____

(Subcontractors continued)

4. Name _____
 Address _____
 City _____ State _____ ZIP _____
 Phone Number _____ Email Address _____
 Type of Craftsmen Needed by Project _____
 Scope of Work _____

5. Name _____
 Address _____
 City _____ State _____ ZIP _____
 Phone Number _____ Email Address _____
 Type of Craftsmen Needed by Project _____
 Scope of Work _____

6. Name _____
 Address _____
 City _____ State _____ ZIP _____
 Phone Number _____ Email Address _____
 Type of Craftsmen Needed by Project _____
 Scope of Work _____

7. Name _____
 Address _____
 City _____ State _____ ZIP _____
 Phone Number _____ Email Address _____
 Type of Craftsmen Needed by Project _____
 Scope of Work _____

8. Name _____
 Address _____
 City _____ State _____ ZIP _____
 Phone Number _____ Email Address _____
 Type of Craftsmen Needed by Project _____
 Scope of Work _____

9. Name _____
 Address _____
 City _____ State _____ ZIP _____
 Phone Number _____ Email Address _____
 Type of Craftsmen Needed by Project _____
 Scope of Work _____

The state of Missouri requires workers on public works projects be paid the prevailing wage. Public bodies have duties as required under Section 290.210 - 290.340, RSMo.

Mail, Fax, or Email completed form to: DIVISION OF LABOR STANDARDS
 Attn: Prevailing Wage Section
 P.O. Box 449, Jefferson City, MO 65102-0449
 Phone: 573-751-3403 Fax: 573-751-3721
 Email: prevailingwage@labor.mo.gov
 Website: www.labor.mo.gov/DLS

SUBMIT

Missouri Department of Labor and Industrial Relations is an equal opportunity employer/program.
 TDD/TTY: 800-735-2966 Relay Missouri: 711



MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
AFFIDAVIT
COMPLIANCE WITH THE PREVAILING WAGE LAW

I, _____, upon being duly sworn upon my oath state that: (1) I am the
(Name)
_____ of _____; (2) all requirements of
(Title) (Name of Company)
§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects
have been fully satisfied with regard to this company's work on _____;
(Name of Project)

(3) I have reviewed and am familiar with the prevailing wage rules 8 CSR 30-3.010 to 8 CSR 30-3.060; (4) based upon my knowledge of these rules, including the occupational titles set out in 8 CSR 30-3.060, I have completed full and accurate records clearly indicating (a) the names, occupations, and crafts of every worker employed by this company in connection with this project together with an accurate record of the number of hours worked by each worker and the actual wages paid for each class or type of work performed, (b) the payroll deductions that have been made for each worker, and (c) the amounts paid to provide fringe benefits, if any, for each worker; (5) the amounts paid to provide fringe benefits, if any, were irrevocably made to a fund, plan, or program on behalf of the workers; (6) these payroll records are kept and have been provided for inspection to the authorized representative of the contracting public body and will be available, as often as may be necessary, to such body and the Missouri Department of Labor and Industrial Relations; (7) such records shall not be destroyed or removed from the state for one year following the completion of this company's work on this project; and (8) there has been no exception to the full and complete compliance with the provisions and requirements of General Wage Order No. _____ issued by the Missouri Division of Labor Standards and applicable to this MoDOT project located in _____ County, Missouri, and completed on the _____ day of _____, 20_____.

The matters stated herein are true to the best of my information, knowledge, and belief. I acknowledge that the falsification of any information set out above may subject me to criminal prosecution pursuant to §§290.340, 570.090, 575.040, 575.050, or 575.060, RSMo.

Signature

Subscribed and sworn to me this _____ day of _____
My commission expires _____

Notary Public

Receipt by Authorized Public Representative

SALES TAX EXEMPTION

Jackson County, Missouri is an exempt entity under Section 144.062, RSMo, and the purchase of tangible personal property and materials to be incorporated into or consumed in the construction of this project, can be made on a tax-exempt basis as provided in that statute. Jackson County will issue an exemption certificate to the contractor along with the contract. Sales tax paid due to the contractor's or any subcontractor's failure to take advantage of the county's tax exempt status will not be included in the contractor's invoice to the Owner.

Page 45 is the current exemption from the State of Missouri, issued to Jackson County and is included for information only.

Page 46 is the "Missouri Project Exception Certificate" (Form 5060) that will be issued to the contractor and subcontractors working on the same project after the contract has been awarded.

State of Missouri

EXEMPTION FROM MISSOURI SALES AND USE TAX ON PURCHASES

ISSUED TO:

MISSOURI TAX I.D.
NUMBER: 13643347

COUNTY OF JACKSON
415 E 12TH ST RM G-1
KANSAS CITY, MO 64106-2706

EFFECTIVE DATE: 07/11/2002
EXPIRATION DATE: Non-Expiring

YOUR APPLICATION FOR SALES/USE TAX EXEMPT STATUS HAS BEEN APPROVED PURSUANT TO CHAPTER 144.303.1, RSMo. THIS LETTER IS ISSUED AS DOCUMENTATION OF YOUR EXEMPT STATUS.

PURCHASES BY YOUR AGENCY ARE NOT SUBJECT TO SALES OR USE TAX IF WITHIN THE CONDUCT OF YOUR AGENCY'S EXEMPT FUNCTIONS & ACTIVITIES. WHEN PURCHASING WITH THIS EXEMPTION, FURNISH ALL SELLERS OR VENDORS A COPY OF THIS LETTER. THIS EXEMPTION MAY NOT BE USED BY INDIVIDUALS MAKING PERSONAL PURCHASES.

A CONTRACTOR MAY PURCHASE AND PAY FOR CONSTRUCTION MATERIALS EXEMPT FROM SALES TAX WHEN FURFILLING A CONTRACT WITH YOUR AGENCY ONLY IF YOU AGENCY ISSUES A PROJECT EXEMPTION CERTIFICATE AND THE CONTRACTOR MAKES PURCHASES IN COMPLIANCE WITH THE PROVISIONS OF SECTION 144.062, RSMo.

SALES BY YOUR AGENCY ARE SUBJECT TO ALL APPLICABLE STATE AND LOCAL SALES TAXES. IF YOU ENGAGE IN THE BUSINESS OF SELLING TANGIBLE PERSONAL PROPERTY OR TAXABLE SERVICES AT RETAIL, YOU MUST OBTAIN A MISSOURI RETAIL SALES LICENSE AND COLLECT AND REMIT SALES TAX.

A CONTRACTOR MAY PURCHASE AND PAY FOR CONSTRUCTION MATERIALS EXEMPT FROM SALES TAX WHEN FULFILLING A CONTRACT WITH YOUR GOVERNMENTAL AGENCY ONLY IF YOUR GOVERNMENTAL AGENCY ISSUES A PROJECT EXEMPTION CERTIFICATE AND THE CONTRACTOR MAKES PURCHASES IN COMPLIANCE WITH THE PROVISION OF SECTION 144.062, RSMO.

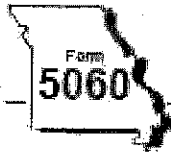
THIS IS A CONTINUING EXEMPTION SUBJECT TO LEGISLATIVE CHANGES AND REVIEW BY THE DIRECTOR OF REVENUE. IF IT IS DETERMINED THAT YOUR AGENCY CEASES TO QUALIFY AS AN EXEMPT ENTITY, THIS EXEMPTION WILL CEASE TO BE VALID. THIS EXEMPTION IS NOT ASSIGNABLE OR TRANSFERRABLE. IT IS AN EXEMPTION FROM SALES AND USE TAXES ONLY AND IS NOT AN EXEMPTION FROM REAL OR PERSONAL PROPERTY TAX.

ANY ALTERATION TO THIS EXEMPTION LETTER RENDERS IT INVALID.

IF YOU HAVE ANY QUESTIONS REGARDING THE USE OF THIS LETTER, PLEASE CONTACT THE SALES/USE TAX SECTION, MISSOURI DEPARTMENT OF REVENUE, P.O. BOX 3300, EFFERSON CITY, MO 65105-0840, PHONE 573-751-2836.

Reset Form

Print Form



Missouri Department of Revenue
 Project Exemption Certificate

This form is to be completed and given to your contractor.

Exempt Entity and Project Information	Name of Exempt Entity Issuing the Certificate JACKSON COUNTY, MISSOURI		Missouri Tax Exemption Number 1) 3 6 4 3 3 4 7		
	Address 415 EAST 12TH STREET, ROOM G-1		City KANSAS CITY	State MO	ZIP Code 64106
	E-mail Address				
	Project Number 3256	Project Begin Date (MM/DD/YYYY)	Estimated Project End Date (MM/DD/YYYY)		
	Description of Project WASTEWATER TREATMENT FACILITY IMPROVEMENTS AT JACKSON COUNTY PUBLIC WORKS VEHICLE SERVICE CENTER The General Contractor shall furnish all materials, equipment, tools and labor required to perform the following on Wastewater Treatment Facility Improvements: 1. The demolition of the existing Wastewater Treatment Facility as shown on the plans. 2. Construction of a new WWT Absorption Field. 3. Install new Septic Tanks and Pumping Chambers. 4. Install new sanitary sewer force main. 5. All other incidental work in the most substantial and workmanlike manner for the new WWT Facility, and do everything required by the Contract Documents as defined herein.				
	Project Location 415 E 12TH ST, KANSAS CITY, MISSOURI 64106		Certificate Expiration Date (MM/DD/YYYY)		
	Provide a signed copy of this certificate, along with a copy of the exempt entity's Missouri Sales and Use Tax Exemption Letter to each contractor or subcontractor who will be purchasing tangible personal property for use in this project. It is the responsibility of the exempt entity to ensure the validity of the information on the certificate. The exempt entity must issue a new certificate if any of the information changes.				
	Signature of Authorized Exempt Entity	Printed Name of Authorized Exempt Entity Chris Jenkins (Project Manager)	Date (MM/DD/YYYY)		

Contractor	The Missouri exempt entity named above hereby authorizes the purchase, without sales tax, of tangible personal property to be incorporated or consumed in the construction project identified herein and no other, pursuant to Section 144.062, RSMo. Under penalties of perjury, I declare that the above information and any attached supplement is true, complete, and correct.			
	Name of Purchasing Contractor	Signature of Contractor	Date (MM/DD/YYYY)	
	Address	City	State	ZIP Code

Subcontractor	Contractors - Present this to your supplier in order to purchase the necessary materials tax exempt. Complete the Subcontractor portion if extending the certificate to your subcontractor. The contractor must sign the form in the space provided below.			
	Name of Purchasing Subcontractor			
	Address	City	State	ZIP Code
	Signature of Contractor	Contractor's Printed Name	Date (MM/DD/YYYY)	

Form 5060 (Revised 08-2015)

Taxation Division Phone: (573) 751-2836
 P.O. Box 358 Fax: (573) 522-1271
 Jefferson City, MO 65105-0358 E-mail: salestaxexemptions@dor.mo.gov



Visit <http://dor.mo.gov/business/sales/sales-use-exemptions.php> for additional information.

CONTRACT FORMS

CONTRACT AGREEMENT

THIS AGREEMENT, is made and entered into by and between, Jackson County, Missouri, Party of the First Part and hereinafter called the County, and

Shedigs It, LLC

a Missouri Party of the Second Part and hereinafter called the Contractor,

WITNESSETH

THAT WHEREAS, in accordance with law, the County has caused contract documents to be prepared and an Advertisement calling for bids to be published for and in connection with Jackson County Project: **Wastewater Treatment Facility Improvements at Jackson County Public Works Vehicle Service Center, County Project Number: 3256**, and

WHEREAS, the Contractor, in response to the Advertisement, has submitted to the County, in the manner and at the time specified, a sealed proposal in accordance with the terms of the Advertisement, and

WHEREAS, the County, in the manner prescribed by law, has opened, examined, and canvassed the Proposal submitted, and has determined the aforesaid Contractor to be the lowest and best bidder for the work and has duly awarded to the said Contractor, a contract therefor, for the sum or sums named in the Contractor's Proposal, a copy thereof being attached to and made a part of this contract.

NOW THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties to these presents have agreed and hereby agree, the County for itself and its successors, and the Contractor for itself, himself, or themselves, and its, his, or their successors and assigns, and its, his, or their executors and administrators, as follows:

ARTICLE I. That the Contractor shall: (a) furnish all tools, equipment, supplies, superintendence, transportation, and other construction accessories, services, and facilities; (b) furnish all materials, supplies, and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good, substantial, and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the contract documents as defined in the attached General Conditions, Special Conditions, and Technical Specifications, said documents forming the contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the County's official award of this contract to the said Contractor, such award being based on the acceptance of the County of the Contractor's Proposal.

ARTICLE II. That the County shall pay to the Contractor for the performance of the work embraced in this contract, and the Contractor will accept as full compensation therefore, the sum (subject to adjustment as provided by the contract) of

Four Hundred Eleven thousand, One Hundred Fifty-Eight Dollars and 00 cents

(\$ 411,158.00) for all work covered by and included in the contract award and designated in the foregoing Article I; payment thereof to be made in cash or its equivalent, in the manner provided in the General Conditions.

ARTICLE III. That the Contractor shall start work within ten (10) days following the date stipulated in a written order from the County to proceed with the work to be performed hereunder, and that the Contractor shall complete the work within the number of days, after the authorized starting date, stipulated in the attached Proposal.


ARTICLE IV. That the Contractor expressly warrants that he has employed no third person to solicit or obtain this contract in his behalf, or to cause or produce the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement; and that he has not paid, or promised or agreed to pay, to any third person, in consideration of such procurement, or in compensation for services in connection therewith any brokerage, commission, or percentage upon the amount receivable by him here-under; and that he has not, in estimating the contract price demanded by him, included any sum by reason of any such brokerage, commission, or percentage, and that all monies payable to him hereunder are free from obligation of any other person for services rendered, or supposed to have been rendered, in the procurement of this contract. He further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this contract by the County and that the County may retain to its own use from any sums due or to become due hereunder an amount equal to any brokerage, commission, or percentage so paid, or agreed to be paid.

The County agrees to pay the Contractor in the manner and in the amount provided in the said specifications and proposal.

CONTRACT AGREEMENT (continued)

IN WITNESS WHEREOF, Jackson County, Missouri has caused by Resolution No. 20828
of December 13, 2021, these presents to be executed in its behalf by its duly authorized agent,
and the said Party of the Second Part (Contractor) has hereunto set its hand and seal.

Recommended by:



Brian D. Gaddie, P.E.
Director of Public Works

12.28.21

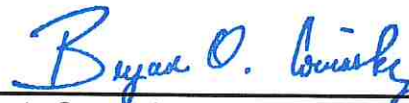
Date



Frank White, Jr.
County Executive

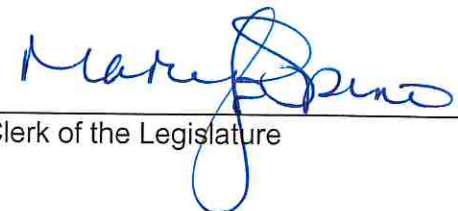
Date

Approved to form this 7th day of January, 2020, 2021.




County Counselor



Attest: 

Clerk of the Legislature



By: 

Second Party (Contractor)

Attest: 



PERFORMANCE BOND

Project Number 3256

Project Title WWT FACILITY IMPROVEMENTS JCPW VEHICLE SERVICE CENTER COUNTY BID NO. PW 08-2021

KNOW ALL MEN BY THESE PRESENTS: That

Shedigs It, LLC, as PRINCIPAL (CONTRACTOR), and

RLI Insurance Company, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Jackson County, Missouri, a constitutionally home rule chartered governmental organization, (COUNTY), as Obligee, in the penal sum

Of Four Hundred Eleven thousand, One Hundred Fifty-Eight Dollars and 00 cents

(\$ 411,158.00) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered a Contract with COUNTY WWT FACILITY IMPROVEMENTS JCPW VEHICLE SERVICE CENTER COUNTY BID NO. PW 08-2021 which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform said Contract including all duly authorized changes thereto, according to all the terms thereof, including those under which CONTRACTOR agrees to pay legally required wage rates including the prevailing hourly rate of wages in the locality, as determined by the Department of Labor and Industrial Relations or by final judicial determination, for each craft or type of workman required to execute the Contract and, further, shall defend, indemnify, and hold harmless COUNTY from all damages, including but not limited to liquidated damages, loss and expense occasioned by any failure whatsoever of said CONTRACTOR and SURETY to fully comply with and carry out each and every requirement of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the ____ day of _____, 2021.

CONTRACTOR

Name, address and facsimile number of Contractor

Shedigs It, LLC

600 SE Central Dr.

Blue Springs, MO 64014

I hereby certify that I have authority to execute this document on behalf of Contractor.

By: *CM*
Title: *operator*

(Attach corporate seal if applicable)

SURETY

Name, address and facsimile number of Surety:

RLI Insurance Company

PO Box 3967

Peoria, IL 61612

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies: as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: *D. Salavitch*
Title: David S. Salavitch, Attorney in Fact
Date: _____

(Attach seal and Power of Attorney)



POWER OF ATTORNEY

RLI Insurance Company Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, each an Illinois corporation, (separately and together, the "Company") do hereby make, constitute and appoint:

David S. Salavitch, Robert L. Cox, Luke P. Sealer, jointly or severally

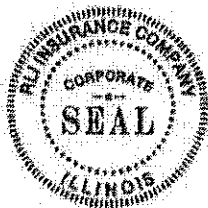
in the City of Lees Summit, State of Missouri its true and lawful Agent(s) and Attorney(s) in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed Twenty Five Million Dollars (\$25,000,000.00) for any single obligation.

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of the Company.

RLI Insurance Company and/or Contractors Bonding and Insurance Company, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and is now in force, to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Vice President with its corporate seal affixed this 17th day of March, 2020.



**RLI Insurance Company
Contractors Bonding and Insurance Company**

By: B. W. Davis
Barton W. Davis Vice President

State of Illinois }
County of Peoria } SS

CERTIFICATE

On this 17th day of March, 2020, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company and/or Contractors Bonding and Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

I, the undersigned officer of **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company and/or Contractors Bonding and Insurance Company** this _____ day of _____.

By: Gretchen L. Johnigk
Gretchen L. Johnigk Notary Public

**RLI Insurance Company
Contractors Bonding and Insurance Company**

By: Jeffrey D. Fick
Jeffrey D. Fick Corporate Secretary



JACKSON COUNTY PUBLIC WORKS COUNTY PROJECT 3256
WWT FACILITY IMPROVEMENTS JCPW VEHICLE SERVICE CENTER COUNTY BID NO. PW 08-2021

MAINTENANCE BOND



Project Number: 3256

Project Title: WWT FACILITY IMPROVEMENTS JCPW VEHICLE SERVICE CENTER COUNTY BID NO. PW 08-2021

KNOW ALL MEN BY THESE PRESENTS, that we,

Shedigs It, LLC

Legal Name of Contracting Firm

of Blue Springs, Missouri

City and State

hereinafter referred to as "Contractor," and

RLI Insurance Company

Name of Surety

a corporation organized under the laws of the State of Illinois,
and authorized to transact business in the State of Missouri, as "Surety," are held and firmly bound unto
the **County of Jackson, Missouri**, hereinafter referred to as "Owner," in the penal sum of

Four Hundred Eleven Thousand and One Hundred Fifty Eight and No/100 Dollars (\$411,158.00)
for the payment of which sum, well and truly to be made to the Owner, we bind ourselves and our heirs,
executors, administrators, successors, and assigns, jointly and severally, by these presents.

WHEREAS, on the _____ day of _____, _____, the Contractor
entered into a written contract with the Owner for the conditions of this obligation are such that if, during
a maintenance period of **one (1) year** from the date of acceptance of the contracted work, the Principal
upon receiving written notice of a need for repairs which are directly attributable to defective materials or
workmanship, shall diligently take the necessary steps to correct said defects within seven (7) days from
the date of said notice, then this obligation shall be null and void; otherwise it shall remain in full force
and effect.

As part of this obligation secured hereby and in addition to the face amount specified therefore, there
shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred
by the Owner in successfully enforcing such obligation, all to be taxed as costs and included in any
judgment rendered.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the
terms of this agreement or to the work to be performed there under or the specifications accompanying
the same shall in anywise 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 agreement or to the work or to the
specifications.

IN TESTIMONY WHEREOF, the Contractor has hereunto set his hand, and the Surety has caused these presents to be executed in its name and its corporate seal, to be affixed by its attorney-in-fact at

on the _____ day of _____,

Shedigs It, LLC _____ (SEAL)
Contractor

By: [Signature]

RLI Insurance Company _____
Surety Company



By: [Signature]
Attorney-in-Fact, David S. Saivitch

By: NA _____
Missouri Agent

(Accompany this bond with attorney-in-fact's authority from the Surety Company certified to include the date of the bond.)

REVENUE CERTIFICATE

I hereby certify that there is a balance otherwise unencumbered to the credit of the appropriation to which this contract is chargeable, and a cash balance otherwise unencumbered in the treasury from which payment is to be made, each sufficient to meet the obligation of \$ 411,158.00, which is hereby authorized.

1-5-2022



Manager, Division of Finance

CT 150721013 MR

Director of Finance

ACCOUNT NUMBER(S) TO BE CHARGED:

Department	Account Number	Amount

FMS CONTRACT NUMBER ASSIGNED TO THIS CONTRACT: _____

NOTICE TO CONTRACTORS

Under the laws of the State of Missouri, any changes made in this contract must be made in writing, approved of record by the County Legislature, Certified by the Manager, Division of Finance, and all made a matter of record before the County is liable therefore.

Manager, Division of Finance
Jackson County, Missouri

THIS SHEET LEFT BLANK INTENTIONALLY.

GENERAL CONDITIONS

GENERAL CONDITIONS

GC-1 SCOPE

The contract stipulations which follow are general in scope and may refer to conditions which will not be encountered in the performance of the work included in this contract, and which are not applicable thereto. Any requirement, provision, or other stipulation of these general conditions which pertains to a nonexistent condition, and is not applicable to the work to be performed hereunder, shall have no meaning in the contract.

GC-2 CONTRACT DOCUMENTS

It is understood and agreed that the advertisement, instruction to bidders, proposal, bond form(s), contract agreement, special conditions, general conditions, specifications, plans, addenda thereto, and duly authorized change orders, together with any and all supplementary drawings furnished by the Engineer-Architect as and when required to make clear, and to define in greater detail, the intent of the contract plans and specifications, other drawings, specifications, and engineering data furnished by the Contractor (when and as approved by the Owner or Engineer-Architect), and instructions furnished by the manufacturers of equipment for the installation thereof are each and all included in this contract, and the work shall be done in full compliance and accord therewith.

GC-3 DEFINITIONS

Any word, phrase, or other expression defined in this paragraph GC-3 and used in these contract documents shall have the meaning herein given:

- a. "Contract" or "contract documents" shall include all of the documents and drawings enumerated above in paragraph GC-2.
- b. "Owner" shall mean the corporation (municipal or otherwise), board, district, or other political subdivision, company, or firm, who is named and designated as the "Party of the First Part" in the contract agreement hereto attached and for whom the work covered by this contract is to be performed, acting through its duly authorized officers or agents."
- c. "Contractor" shall mean the corporation, company, partnership, firm, or individual, named and designated in the contract agreement as the "Party of the Second Part" and who has entered into this contract for the performance of the work covered thereby, and its, his, or their duly authorized agents and other legal representatives.
- d. "Engineer-Architect" or "A-E" shall mean the Director of the Jackson County Public Works Department, or his authorized agent.
- e. "Inspector" shall mean the engineering, architectural or technical inspector or inspectors duly authorized by the Owner or Engineer-Architect, limited in each case to the particular duties entrusted to him or them.
- f. "Date of Contract" or words equivalent thereto shall mean the date written in the first paragraph of the contract agreement.
- g. "Day" or "days" unless herein otherwise expressly defined shall mean a calendar day or days of 24-hours each.
- h. "The work" shall mean the work to be done and the equipment, supplies, and materials to be furnished under this contract, unless some other meaning is indicated by the context.
- i. "Plans" or "the plans" or "the contract plans" shall mean and include all:
 - (1) Drawings caused by the Owner to be prepared as a basis for proposals.
 - (2) All drawings submitted by the successful bidder with his proposal and by the Contractor to the Owner, when and as approved by the Engineer-Architect and

- (3) All drawings submitted by the Owner or Engineer-Architect to the Contractor during the progress of the work as provided for herein.
- j. Whenever in these contract documents the words "as ordered," "as directed," "as required," "as permitted," "as allowed," or words or phrases of like import are used, it shall be understood that the order, direction, requirement, permission or allowance of the Owner and Engineer-Architect is intended.
- k. Similarly, the words "approved," "reasonable," "suitable," "acceptable," "properly," "satisfactory," or words of like effect and import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the Owner and Engineer-Architect.

Whenever any statement is made in the contract documents concerning the expression "it is understood and agreed," or an expression of like import, such expression means the mutual understanding agreement of the parties executing the contract agreement of which these general conditions are a part.

GC-4 VERBAL STATEMENTS NOT BINDING

It is understood and agreed that the written terms and provisions of this agreement shall supersede all prior verbal statements of any and every official and/or other representative of the Owner, and such statements shall not be effective or be construed as entering into, or forming a part of, or altering in any way whatsoever, the written agreement.

GC-5 TITLES AND SUBHEADINGS

The titles or subheadings used in this contract and on the contract plans and drawings and in the specifications, are understood to be for convenience of reference only, and shall not be taken or considered as being a part thereof, or as having any bearing on the interpretation thereof.

GC-6 COPIES OF CONTRACT

Five (5) copies of the Contractor's proposal as submitted, bond form(s), a statutory bond where required, and the contract agreement shall be prepared. Five of these copies, each containing the bond (or bonds) properly executed and the contract agreement signed by the Contractor, shall be submitted to and signed by the Owner; two of the copies so signed shall be delivered to the Contractor—one for his surety company and one to the Engineer-Architect. Two copies shall remain with the Owner.

GC-7 SCOPE, NATURE, AND INTENT OF SPECIFICATIONS AND PLANS

The said specifications and plans are intended to supplement, but not necessarily duplicate each other, and together constitute one complete set of specifications and plans, so that any work exhibited in the one and not in the other, shall be executed just as if it had been set forth in both, in order that the work shall be completed according to the complete design or designs as decided and determined by the Engineer-Architect. Should anything be omitted from the specifications and plans which is necessary to clear understanding of the work, or should it appear various instructions are in conflict, then the Contractor shall secure written instructions from the Engineer-Architect before proceeding with the construction affected by such omissions or discrepancies. It is understood and agreed that the work shall be performed and completed according to the true spirit, meaning, and intent of the contract, specifications and plans. The Contractor's responsibility for construction covered by conflicting requirements, not provided for by addendum prior to the time of opening bids for the work represented thereby, shall not extend beyond the construction in conformity with the cheaper of the said conflicting requirements. Any increase in cost of work required to be done in excess of the cheaper of the conflicting requirements will be paid for as extra work as provided for herein.

GC-8 FIGURED DIMENSIONS TO GOVERN

Dimensions and elevations shown on the plans shall be accurately followed, even though they differ from scaled measurements. No work shown on the plans, the dimensions of which are not indicated, shall be executed until the required dimensions have been obtained from the Engineer-Architect.

GC-9 CONTRACTOR TO CHECK PLANS AND SCHEDULES

The Contractor shall check all dimensions, elevations, and quantities shown on the plans, and schedules given to him by the Engineer-Architect and shall notify the Engineer-Architect of any discrepancy between the plans and the conditions on the ground, or any error or omission in plans, or in the layout as given by stakes, points, or instructions, which he may discover in the course of the work. The Contractor will not be allowed to take advantage of any error or omission in the plans or contract documents, as full instructions will be furnished by the Engineer-Architect should such error or omission be discovered, and the Contractor shall carry out such instructions as if originally specified.

GC-10 DRAWINGS TO BE FURNISHED BY CONTRACTOR

The Contractor shall check and verify all field measurements and shall furnish/ all shop, fabrication, assembly, and other drawings required by the specifications; drawings of equipment and devices, offered by the Contractor for approval of the Engineer-Architect, in sufficient detail to adequately show the construction and operation thereof; drawings showing essential details of any changes in design of construction proposed, for consideration of the Owner, by the Contractor in lieu of the design or arrangement required by the contract or any item of extra work thereunder; and all required special wiring and piping layouts. Not less than three (3) preliminary copies of each such drawing shall be submitted to the Engineer-Architect for his check and approval, together with the same number of copies of each drawing required by the Engineer-Architect to be revised. On final approval, the Engineer-Architect shall be furnished with a total of not less than two (2) copies, and more when required, of each drawing as finally approved; such number to include any copies of preliminary or revised drawings which are approved as submitted. After due approval by the Engineer-Architect, all such drawings shall become a part of the contract documents and the work or equipment shown thereby shall be in conformity therewith unless required by the Owner. No work shall be performed in connection with the fabrication or manufacture of material or equipment shown by any drawing thereof, nor shall any accessory, appurtenance, or device not fabricated or manufactured by the Contractor or his subcontractor, be purchased until the drawing or drawings therefor have been approved as stipulated, except at the Contractor's own risk and responsibility. The Engineer-Architect's check and approval of drawings submitted by the Contractor will be for, and will cover, only general conformity to the plans and specifications and will not constitute a blanket approval of all dimensions, quantities, and details of the material or equipment shown nor shall such approval relieve the Contractor of his responsibility for errors contained in such drawings.

GC-11 APPROVED EQUAL

If the Contractor desires to substitute materials, appliances, equipment, etc., specified in the specifications, the Contractor shall request, in writing, an approval from the Engineer-Architect. Said materials; appliances, equipment, etc. can only be used as approved equal after receipt from the Engineer-Architect of written approval thereof. If the Engineer-Architect is not familiar with the products for which the Contractor desires approval as an equal, he will reserve the right to have the products submitted to an independent testing laboratory of his choosing, to determine if the substitute product is an equal. The costs of such tests shall be borne by the Contractor or the parties offering the product as an approved equal.

GC-12 OWNERSHIP OF DRAWINGS

All drawings, specifications and copies thereof furnished by the Engineer-Architect are his property. They are not to be used on other work, and, with the exception of the signed contract set, are to be returned to him on request, at the completion of the work.

GC-13 SAMPLES

The Contractor shall furnish for approval, with such promptness as to cause no delay in his own work or in that of any other Contractor, all samples as directed by the Engineer-Architect. The Engineer-Architect shall check and approve such samples, with reasonable promptness, only for conformance with the design concept of the project and for compliance with the information given in the contract documents. The work shall be in accordance with approved samples.

GC-14 CONTRACTOR TO FURNISH STAKES AND HELP

When the documents or specifications require that the Engineer-Architect perform staking, the Contractor shall furnish without charge, competent men from his force and such tools, stakes, and other materials as the Engineer-Architect may require for the proper staking out of the work, and in making measurements and surveys, and in establishing temporary or permanent reference marks in connection with said work the Contractor shall perform all work necessary to locate all construction on the site for building projects. A registered land surveyor employed by the Contractor shall locate the building corners.

GC-15 LINES AND GRADES

All work done under this contract shall be done to the lines, grades, and elevations shown on the plans. The Contractor shall keep the Engineer-Architect informed, a reasonable time in advance, of the times and places at which he wishes to do work, in order that lines and grades may be furnished and necessary measurements for record and payment may be made with the minimum of inconvenience to the Engineer-Architect and of delay to the Contractor. This paragraph applies to projects for which the Engineer-Architect is to make staking surveys and payment is on a unit price basis.

GC-16 WORK DONE WITHOUT LINES OR GRADES

Any work done without being properly located and established by base lines, offset stakes, benchmarks, or other basic reference points located, established, or checked by the Engineer-Architect, may be ordered removed and replaced at the Contractor's cost and expense.

GC-17 PRESERVATION OF MONUMENTS AND STAKES

The Contractor shall carefully preserve all monuments, bench marks, reference points, and stakes, and in case of wilful or careless destruction of the same will be charged with the resulting expense of replacement. The Contractor shall have no claim for damages or extension of time due to such destruction. In case of any permanent monuments, bench marks, section corner and quarter-section corner monuments which must be removed or disturbed during construction, the Contractor shall carefully protect and preserve the same until he has properly referenced for relocation and replacement. The Contractor shall furnish at his own expenses a duly qualified and licensed (Missouri) land surveyor to reference and reestablish, after completion of construction, with permanent markers as is normally used in these locations. The Contractor shall also furnish a certificate sealed by the land surveyor with a statement that the monument recovered was reset in the same location prior to final acceptance of the project by the Owner.

GC-18 LEGAL ADDRESS OF CONTRACTOR

Both the business address of the Contractor given in the bid or proposal upon which this contract is founded, and the Contractor's office in the vicinity of the work, are hereby designated as the places to which all notices, letters, and other communications to the Contractor may be mailed or delivered. The delivering at either of the above named addresses, or depositing in any mail box regularly maintained by the post office of any notice, letter, or other communication to the Contractor, shall be deemed sufficient service thereof upon the Contractor, and the date of said service shall be the date of such delivery or mailing. Such addresses may be changed at any time by an instrument in writing, executed by the Contractor and presented and delivered to the Engineer-Architect and to the Owner. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or communication upon the Contractor personally.

GC-19 CONTRACTOR'S OFFICE AT SITE OF WORK

During the performance of this contract, the Contractor shall maintain a suitable office at or near the site of the work which shall be the headquarters of a representative authorized to receive drawings, instructions, or other communications or articles from the Owner or the Owner's agents; and any such communications given to the said representative, or delivered at the Contractor's office at the site of the work in his absence, shall be deemed to have been given to the Contractor.

GC-20 RESPONSIBILITY OF CONTRACTOR

The Contractor shall furnish all transportation, tools, equipment, machinery, and plant, and all suitable appliances, requisite for the execution of this contract and shall be solely answerable for the same and for the safe, proper, and lawful construction, maintenance, and use thereof. He shall cover and protect his work from damage, and all injury to the same (before the completion and acceptance of this contract) shall be made good by him. The Contractor shall be solely answerable for all damage to the Owner or the property of the Owner, to other contractors or other employees of the Owner, to the neighboring premises, or to any private or personal property, due to improper, illegal, or negligent conduct of himself or his subcontractors, employees, or agents in and about said work, or in the execution of the work covered by this contract, or any extra work undertaken as herein provided, or to any defect in, or the improper use of, any scaffolding, shoring, apparatus, ways, works, machinery, or plant.

GC-21 PATENTS

It is mutually agreed by and between the parties to this contract that all royalties and fees for and in connection with patents or patent infringement claims for materials, articles, apparatus, devices or equipment (as distinguished from processes) used in or furnished for the work, shall be included in the contract amount and the Contractor shall satisfy all demands that may be made at any time for such, and he shall be liable for any damage or claims for patent infringements. The Contractor shall at his own cost and expense defend any and all suits or proceeding that may be instituted at any time against the Owner for infringement or alleged infringement of any such patents involved in the work, and, in case of an award of damages, the said Contractor shall pay such award. Final payment to the Contractor by the Owner will not be made while any such suit or claim remains unsettled. The Contractor, however, shall not be liable for the defense of any suit or other proceedings, nor for the payment of any damages or other costs in connection therewith, for the infringement or alleged infringement of any patented process required by the owner in the design of the work to be done under this contract or by the contract specifications therefor.

GC-22 INDEPENDENT CONTRACTOR

The right of general inspection of the Owner shall not make the Contractor an agent of the Owner, and the liability of the Contractor for all damages to persons, firms and corporations, arising from the Contractor's execution of the work, shall not be lessened because of such general supervision, but as to all such persons, firms, and corporations, and the damages, if any, to them or their property, the Contractor herein is an independent Contractor in respect to the work.

GC-23 RELATIONS WITH OTHER CONTRACTORS

The Contractor shall cooperate with all other contractors who may be performing work in behalf of the Owner, and workmen who may be employed by the Owner, on any work in the vicinity of the work to be done under this contract, and he shall so conduct his operations as to interfere to the least possible extent with the work of such contractors or workmen. He shall promptly make good, at his own expense, any injury or damage that may be sustained by other contractors or employees of the owner at his hands. Any difference or conflict which may arise between the Contractor and other contractors or between the Contractor and the workmen of the Owner, in regard to their work shall be adjusted and determined by the Engineer-Architect. If the work of the Contractor is delayed because of any acts or omissions of any other contractor or contractors, the Contractor shall have no claim against the Owner on that account other than for an extension of time. When two or more contracts are being executed at one time in such a manner that work on one contract may interfere with that of another, the Engineer-Architect shall decide which contractor shall cease work and which shall continue, or whether the work on both contracts shall progress at the same time, and in what manner. When the territory of one contract is the necessary or convenient means of access for the transportation or movement of men, materials, or appliances required for the execution of another contract, such privileges of access or any other reasonable privilege may be granted by the Engineer-Architect to the contractor so desiring, to the extent and amount, in the manner, and at the time, which may be reasonably necessary.

GC-24 DEFENSE OF SUITS

In case any action at law or suit in equity is brought against the Owner or any of its officers or agents for or on account of the failure, omission, or neglect of the contractor to do and perform any of the covenants, acts, matters, or things by this contract undertaken to be done or performed, or for any injury or damage caused by the negligence or alleged negligence, of the Contractor or his subcontractors, or his or their employees or agents, the Contractor shall indemnify and save harmless the Owner, and officers and agents of the Owner, of and from all losses, costs, damages, expenses, judgments, or decrees whatever arising out of such actions or suits as may be brought as aforesaid.

GC-25 METHODS OF OPERATION

The Contractor shall give to the Engineer-Architect full information in advance as to his plans for carrying on any part of the work. If at any time before the beginning or during the progress of the work, any part of the Contractor's plant or equipment or any of his methods of executing the work, appear to the Engineer-Architect to be unsafe, inefficient, or inadequate to ensure the required quality, or rate of progress, of the work, he may order the Contractor to increase or improve his facilities or methods, and the Contractor shall promptly comply with such orders, but neither compliance with such orders nor failure of the Engineer-Architect to issue such orders shall relieve the Contractor from his obligations to secure the degree of safety, the quality of work, and the rate of progress required by this contract. The Contractor alone shall be responsible for the safety, adequacy, and efficiency of his plant, equipment, and methods. The approval by the Engineer-Architect of any plan or method of work proposed by the Contractor shall not relieve the Contractor of any responsibility therefor, and such approval shall not be considered as an assumption by the Owner, or any officer, agent, or employee thereof, of any risk or liability, and the Contractor shall have no claim under this contract on account of the failure or inefficiency of any plan or method so approved. Such approval shall be considered, and shall mean that the Engineer-Architect has no objection to the Contractor's use or adoption, at his risk and responsibility, of the plan or method so proposed by the Contractor.

GC-26 SUGGESTION TO CONTRACTOR ADOPTED AT HIS OWN RISK

Any plan or method of work suggested by the Engineer-Architect, or other representative of the Owner, to the Contractor, but not specified or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor, and the Engineer-Architect and the Owner will assume no responsibility therefor.

GC-27 AUTHORITY AND DUTY OF THE ENGINEER-ARCHITECT

It is mutually agreed by and between the parties to this contract, that the Engineer-Architect shall inspect all work included herein. In order to prevent delays and disputes and to discourage litigation, it is further agreed by and between the parties to this contract that the Engineer-Architect shall in all cases determine the amounts and quantities of the several kinds of work which are to be paid for under this contract; that he shall determine all questions in relation to said work and the construction thereof; that he shall in all cases decide every question which may arise relative to the execution of this contract on the part of said contractor; that his decisions and findings shall be the conditions precedent to the right, of the parties hereto, to any action on the contract, and to any rights of the Contractor to receive any money under this contract provided, however, that should the Engineer-Architect render any decision or give any directions which, in the opinion of the Contractor, is not in accordance with the meaning and intent of this contract, the Contractor may file with the Engineer-Architect within thirty (30) days, his written objection to the decision or direction so rendered. It is the intent of this agreement that there shall be no delay in the execution of the work, and the decision or directions of the Engineer-Architect as rendered shall be promptly carried out.

GC-28 INSPECTION

It is agreed by the Contractor that the Owner shall be and is hereby authorized to appoint or employ (either directly or through the Engineer-Architect) such architects, engineers, and inspectors as the Owner may deem proper, to inspect the materials furnished and the work performed under this contract, and to see that the said materials are furnished, and the said work performed, in accordance with the plans and specifications therefore. The Contractor shall furnish all reasonable aid and assistance required by the Engineer-Architect, or by the inspectors, for the proper inspection and examination of the work and all parts thereof. The Contractor shall regard and obey the directions and instructions of the Engineer-Architect, or any inspector so appointed, when the same are consistent with the obligations of this contract and the specifications therefore, provided, however, that should the Contractor object to any order given by any subordinate architect, engineer, or inspector, the contractor may make written appeal to the Engineer-Architect for his decision. Architects, engineers, inspectors and other properly authorized representatives of the Owner or Engineer-Architect shall be free at all times to perform their duties, and intimidation or attempted intimidation of any one of them by the Contractor or by any of his employees shall be sufficient reason, if the Owner so decides, to annul the contract. Such inspection shall not relieve the Contractor from any obligation to perform said work strictly in accordance with the plans and specifications or any modifications thereof as herein provided, and work not so constructed shall be removed and made good by the Contractor at his own expense, and free of all expenses to the Owner, whenever so ordered by the Engineer-Architect, without reference to any previous oversight or error in inspection. The Engineer-Architect does not assume any responsibility for work or action of the Contractor.

If work on any project is subject to the approval of the Federal Highway Administration, representatives of the Missouri Highways and Transportation Commission and the Federal Highway Administration shall have access to the project for the purpose of inspecting and reviewing work being performed by any contractor or subcontractor on the project. Contractors and subcontractors shall maintain books, account, ledgers, invoices, drafts, documents, pages, and other business records pertaining to the performance of this project and shall require that such materials be available at the contractors field or permanent business offices at all reasonable times during the performance of the contract and for three

years from date of final FHWA voucher acceptance under the contract, for inspection by authorized representatives of the Commission and/or the Federal Highway Administration.

GC-29 NO WAIVER OF RIGHTS

Neither the inspection by the Owner or any of the owner's officials, employees, or agents, nor any order by the owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the Owner or Engineer-Architect, nor any extension of time, nor any possession taken by the Owner or its employees, shall operate as a waiver of any provision of this contract, or of any power herein reserved to the Owner, or any right to damages herein provided, or shall any waiver of any breach in this contract be held to be a waiver of any other or subsequent breach.

GC-30 SUPERINTENDENCE OF WORK

The Contractor shall provide and maintain, continually on the site of the work during its progress, adequate and competent superintendent of all operations for and in connection with the work being performed under this contract, either personal or by a duly authorized superintendent or other representative. The superintendent or other representative of the Contractor on the work, and who has charge thereof, shall be fully authorized to act for the Contractor and to receive whatever orders as may be given for the proper prosecution of the work, or notices in connection therewith.

GC-31 ORDERS TO CONTRACTOR'S AGENT

Whenever the Contractor is not present on any part of work where it may be desired to give directions, orders may be given by the Engineer-Architect or his representative, to, and shall be received and obeyed by, the superintendent or foreman who may have charge of the particular part of the work in reference to which such orders are given.

GC-32 PROTECTION OF PROPERTY AND PUBLIC LIABILITY

The Contractor shall assume full responsibility for the protection of all public and private property, structures, sewers, and utilities, both above and below ground, along, beneath, above, across, or near the site or sites of the work being performed under this contract, or which are in any manner affected by the prosecution of the work or the transportation of men or materials in connection therewith. Barriers shall be kept placed at all times to protect persons other than those engaged on or about the work from accident, and the Contractor will be held responsible for all accidents to persons or property through any negligence of himself or his employees. The Contractor shall indemnify, defend, and save harmless the Owner against all damages to such property, structures, and utilities, together with all claims for damages for personal injury, including accidental death, arising out of his operations in connection with this contract. All property so damaged shall be repaired or replaced to a condition equal to its condition immediately prior to the time of damage, and to the satisfaction of the owner thereof. The Contractor shall give reasonable notice to the owner or owners of public or private property and utilities when such property is liable to injury or damage through the performance of the work, and shall make all necessary arrangements with such owner or owners relative to the removal and replacement or protection of such property or utilities. All permits and licenses required in the prosecution of any and all parts of the work shall be obtained and paid for by the Contractor. The Contractor shall satisfactorily shore, support, and protect any and all structures, and all pipes, sewers, drains, conduits, and other facilities, and shall be responsible for any damage resulting thereto. The Contractor shall not be entitled to any damages or extra pay on account of any postponement, interference, or delay caused by any such structures and facilities being on the line of the work, whether they are shown on the plans or not.

GC-33 INSURANCE

The Contractor shall procure and maintain in effect throughout this duration of the contract insurance coverage not less than the types and amounts specified in this section. If the nature of the goods

and/or services provided by the contractor is such that they may be excluded from the coverage listed below, an addendum shall be made to the contract requesting the coverage and limits required.

All subcontractors are required to carry the same coverage and limits as the prime contractor. All required Liability policies are to be written on an "occurrence" basis unless an agreement, in writing, has been made with Jackson County.

COMMERCIAL GENERAL LIABILITY

Commercial General Liability Insurance with limits of not less than \$1,000,000 per occurrence and \$2,000,000 Annual Aggregate (both General and Products-Completed Operations). Aggregate shall be on a per project basis where more than one project is to be performed by the contractor under this contract. Policy shall include Severability of Interests coverage applying to Additional Insureds and also include Contractual Liability with no limitation endorsements. Policy shall include \$100,000 limit each occurrence for Damage to Rented Premise, \$1,000,000 limit each occurrence for Personal & Advertising injury liability, \$5,000 Medical Expense (any one person), and Employee Benefits Liability coverage with a \$1,000,000 limit.

COMMERCIAL AUTOMOBILE LIABILITY

Commercial Automobile Liability Insurance with a limit not less than \$1,000,000 Combined Single Limit for Bodily Injury and Property Damage Limit (each accident), covering owned, hired, borrowed, and non-owned vehicles. Coverage shall be provided on a "any auto" basis and be on a Commercial Business Auto form, or acceptable equivalent, and will protect against claims arising out of the operation of motor vehicles in connection with this contract.

WORKERS COMPENSATION AND EMPLOYERS LIABILITY COVERAGE

Contractor shall provide coverage for Workers Compensation and Employers Liability for all claims by employees of the contractor or by anyone for whose acts it may be liable under the statutes of the State of Missouri with limits of:

- Workers Compensation Statutory
- Employers Liability \$500,000 each accident
- \$500,000 Disease – each employee
- \$500,000 Disease – Policy Limit

EXCESS/UMBRELLA LIABILITY COVERAGE

Contractor shall provide Excess/Umbrella liability on a n occurrence basis, with \$10,000 Retention, to provide coverage limits over all liability coverage listed above, at a limit not less than \$1,000,000 each occurrence and \$1,000,000 Aggregate.

ADDITIONAL INSURED & CERTIFICATE OF INSURANCE

The Commercial General and Automobile Liability Insurance specified above shall provide Jackson County Missouri and its agencies, officials, officers and employees, while acting within the scope of their authority, will be named as additional insureds for the services performed under this contract.

A Certificate of Insurance shall be filed with the County's Director of Purchasing for review and approval before commencement of work. The Certificate shall contain a provision that the policies may not be

cancelled by the insurance carrier without 30 days written notice of cancellation, 10 days for non-payment of premium, to Jackson County. In the case of multi-year, renewable, or extended term on the contract, Contractor must supply the Director with current Certificate(s) on any coverage mentioned above within thirty (30) days prior to the expiration date of coverage. The Director of Purchasing may request copies of the Contractor's insurance policies for verification of coverage.

QUALIFICATIONS INSURANCE CARRIERS

All insurance coverage must be written by companies that have an A.M. Best's rating of "B+ V" or better or Lloyds of London, and are licensed and approved by the State to do business in Missouri.

FAILURE TO MAINTAIN INSURANCE COVERAGE

Regardless of any approval by Jackson County, it is the responsibility of the contractor to maintain the required insurance coverage in force at all times; its failure to do so will not relieve the contractor of any contractual obligation of responsibility. In the event of the Contractor's failure to maintain the required insurance, Jackson County may order work to stop immediately and, upon 10 days written notice and an opportunity to cure, may pursue its remedies for breach of this contract as provided for herein and by law.

GC-34 MODIFICATIONS AND ALTERATIONS

In executing the contract agreement, the Contractor agrees that the Owner shall have the right to make such modifications, changes, and alterations, as the Owner may see fit, in the line, grade, form, arrangements, dimensions, extent, or plan, of the work agreed to be done or any part thereof, or in the materials to be used therein, either before or after the beginning of construction thereof, without affecting the validity of the contract and the performance, payment, and maintenance bond contained therein. Where any modification, change, or alteration increases the quantity of work to be performed and is within the scope of a fair interpretation thereof, such increase shall be paid for according to the quantity of the work actually done, either at unit prices included in the contract, or, in the absence of such unit prices, as extra work. Modifications and alterations, which reduce the quantity of work to be done, shall not constitute a claim for damages or for anticipated profits on work involved in such reduction. The Engineer-Architect shall determine, on an equitable basis, the amount of:

- a. Credit due the Owner for contract work not performed, as a result of modifications or alterations authorized hereunder, where the value of the omitted work is not fixed by unit prices in the contract.
- b. Allowance to the Contractor for any actual loss incurred in connection with the purchase, delivery, and subsequent disposal of materials and equipment required for use on the work as originally planned but which could not be used in any part of the work as actually built.
- c. Any other adjustment of the contract amount where the method to be used in making such adjustment is not clearly defined in the contract documents. All orders for modifications, changes, or alterations in the work as herein provided shall be in writing, either by the Engineer-Architect under the authority of the Owner or by the Owner directly.

GC-35 EXTRA WORK

The term "extra work" as used in this contract, shall be understood to mean and to include all work that may be required by the Engineer-Architect or Owner to be performed by the Contractor to accomplish any change or alterations in, or addition to, the work shown by the contract plans, or required or reasonably implied by the specifications, which is not covered by the proposal and not otherwise provided under "Modifications and Alterations" herein. It is agreed that the Contractor shall perform all extra work under the direction of the Engineer-Architect, when and as so ordered in writing by the Engineer-Architect or Owner. When such extra work is ordered, it shall be paid for either by a lump

sum or by unit prices mutually agreed upon by the Owner and Contractor in writing, or if such agreement cannot be made, on a force account basis, to be compensated in the following manner:

- (1) **Labor.** For all labor and foreman in direct charge of the specific operations, the Contractor shall receive the rate of wage (or scale) agreed upon in writing before beginning work for each and every hour that said labor and foreman are actually engaged in such work.
The Contractor shall receive the actual costs paid to, or in behalf of, workmen by reason of subsistence and travel allowances, health and welfare benefits, pension fund benefits or other benefits, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work.
An amount equal to 20 percent of the sum of the above items will also be paid the Contractor.
- (2) **Bond Insurance and Tax.** For property damage, liability, and workmen's compensation insurance premiums, unemployment insurance contributions and social security taxes on the force account work, the Contractor shall receive the actual cost, to which cost six percent will be added. The Contractor shall furnish satisfactory evidence of the rates paid for such bond, insurance, and tax.
- (3) **Materials.** For materials accepted by the Engineer-Architect and used, the Contractor shall receive the actual cost of such materials delivered on the work, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost 15 percent will be added.
- (4) **Equipment.** For any machinery or special equipment (other than small tools) including fuel and lubricants, plus transportation costs, the use of which has been authorized by the Engineer-Architect, the Contractor shall receive the rental rates agreed upon in writing before such work is begun for the actual time that such equipment is in operation on the work, to which rental sum 15 percent will be added.
- (5) **Miscellaneous.** No additional allowance will be made for general superintendent, the use of small tools, or other costs for which no specific allowance is herein provided.
- (6) **Compensation.** The Contractor's representative and the Engineer-Architect shall compare records of the cost of work done as ordered on a force account basis.
- (7) **Statements.** No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer-Architect with duplicate itemized statements of the cost of such force account work detailed as follows:
 - (a) Name, classification, date, daily hours, total hours rate, and extension for each laborer and foreman.
 - (b) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - (c) Quantities of materials, prices, and extensions.
 - (d) Transportation of materials.
 - (e) Cost of property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, and social security tax.
 - (f) Statements shall be accompanied and supported by received invoices for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

The Contractor shall not begin any work for which price payments under classifications are not provided in the contract without first bringing the matter to the attention of the Engineer-Architect and no bills or charges for "Extra Work" will be allowed except for that ordered in writing before its execution.

GC-36 PROVISION FOR EMERGENCIES

Whenever, in the opinion of the Engineer-Architect, the Contractor has not taken sufficient precaution for the safety of the public or the protection of the work to be constructed under this contract, or of adjacent structures or property which may be injured by processes of construction on account of such neglect, and whenever, in the opinion of the Engineer-Architect, an emergency shall arise and immediate action shall be considered necessary in order to protect public or private, personal or property interests, then the Engineer-Architect, with or without notice to the Contractor, may provide suitable protection to the said interests by causing such work to be done and material to be furnished and placed as the Engineer-Architect may consider necessary and adequate. The cost and expense of such work and materials so furnished shall be borne by the Contractor, and, if the same shall not be paid on presentation of the bills therefore, such costs shall be deducted from any amounts due (or to become due) the Contractor. The performance of such emergency work under the direction of the Engineer-Architect shall in no way relieve the Contractor of responsibility for damages which may occur during or after such precaution has been duly taken by the Engineer-Architect.

GC-37 ASSIGNMENT AND SUBLETTING OF CONTRACT

Except for the furnishing and transportation of materials, the Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of any portion of his contract to any individual firm or corporation without written consent of the Owner. This consent of the Owner, will not be given unless, and until, the Contractor has submitted satisfactory evidence that the proposed subcontractor is qualified to execute the work and has an Affirmative Action Plan acceptable to the County, together with a complete copy of the subcontract if so requested by the Engineer. The subcontract shall bind the subcontractor to comply with all requirements of this contract, for example, wage rates, equal employment opportunity regulations, submittal of payrolls, etc. Assignment of the entire contract may be made only upon written consent of the Owner. The Contractor's own forces and equipment shall perform not less than 50 percent of the contract work.

No assigning, transferring or subletting, even though consented to, shall relieve the Contractor of his liabilities under his contract.

The Contractor shall give his personal attention of any portion of his contract, which has been sublet, and he shall be responsible for its proper construction.

The prime Contractor, as a condition of this contract, is responsible for assuring submission of proof or documentation regarding Affirmative Action compliance by his subcontractors and for the subsequent Affirmative Action performance by such subcontractors.

GC-38 RIGHT OF OWNER TO TERMINATE CONTRACT

If the work to be done under this contract shall be abandoned by the Contractor; or if this contract shall be assigned by him otherwise than as herein provided; or if the Contractor should be adjudged a bankrupt, or if a general assignment of his assets be made for the benefit of his creditors, or if a receiver should be appointed for the Contractor or any of his property; or if at any time the Engineer-Architect shall certify in writing to the Owner that the performance of the work under this contract is being unnecessarily delayed, or that the Contractor is willfully violating any of the conditions or covenants of this contract or the specifications therefore, or that he is executing the same in bad faith or otherwise not in accordance with the terms of said contract, or if the work be not substantially completed within the time to which such completion date may be extended; then the Owner may serve written notice upon the Contractor and his surety of said Owner's intention to terminate this contract, and, unless within five (5) days after the serving of such notice upon the Contractor, a satisfactory arrangement be made for the continuance thereof, this contract shall cease and terminate. In the event

of such termination, the Owner shall immediately serve notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and complete the work, provided, however, that if the surety does not commence performance thereof within thirty (30) days from the date of said notice of termination, the Owner may take over the work and prosecute same to completion, by contract or otherwise, for the account of the Contractor. The Contractor and his surety shall be liable to the Owner for any and all excess cost sustained by the Owner by reason of such prosecution and completion including compensation for additional architectural, engineering, managerial and administrative expense; and in such event the Owner may take possession of, and utilize in completing the work, all such materials, equipment, tools, and plant as may be on the site of the work and necessary therefore.

GC-39 SUSPENSION OF WORK ON NOTICE

The Contractor shall delay or suspend the progress of the work or any part thereof, whenever he shall be so required by verbal order of the Owner or Engineer-Architect at the moment it is issued. Said verbal order will be confirmed by written order at the request of the Contractor which shall note the time the verbal order was issued. The Contractor shall delay or suspend the progress for such periods of time as required to comply with directions issued by Owner or Engineer-Architect, provided that, in the event such delay or suspension of the progress of the work, or any part thereof, the time for completion of the work so suspended or delayed by such suspensions shall be extended for a period equivalent to the time lost; however, such order of the Owner or Engineer-Architect shall not otherwise modify or invalidate any of the provisions of this contract. In the event that the work shall be stopped by order of the Owner or Engineer-Architect, any expense which, in the opinion and judgment of the Engineer-Architect, is caused thereby shall be paid by the Owner to the Contractor.

GC-40 LOSSES FROM NATURAL CAUSES

All loss or damage arising out of the nature of the work to be done, or from the action of the elements, or from floods or overflows, or from ground water, or from unusual obstructions or difficulties, or any other natural or existing circumstance either known or unforeseen, which may be encountered in the prosecution of the said work shall be sustained and borne by the Contractor at his own cost and expense.

GC-41 LAWS AND ORDINANCES

The Contractor shall keep himself fully informed of all existing and current regulations of the Owner and County, State and National laws which in any way limit or control the actions or operations of those engaged upon the work or affecting the materials supplied to or by them. He shall at all times observe and comply with all ordinances, laws, and regulations, and shall protect and indemnify the Owner and the Owner's officers and agents against any claims or liability arising from or based on any violation of the same.

GC-42 SANITARY REGULATIONS

In general, the operations of the Contractor shall be in full conformity with all of the rules and regulations of boards and bodies having jurisdiction with respect to sanitation. The Contractor shall supply safe and sufficient drinking water to all of his employees. The Contractor shall obey and enforce all sanitary regulations and orders, and shall take precautions against infectious diseases and the spread of same.

GC-43 CHARACTER OF WORKMEN

The Contractor shall employ only workmen, who are competent to perform the work assigned to them and (in the case of skilled labor), who are adequately trained and experienced in their respective trades and who do satisfactory work. In all cases, local labor shall be given preference when available. Whenever the Engineer-Architect shall notify the Contractor that any man on the work is, in his opinion, incompetent, unfaithful, or disorderly, or who uses threatening or abusive language when on the work

to any person representing the Owner, such man shall be immediately discharged from the work and shall not be reemploy thereon except with the consent of the Engineer-Architect.

GC-44 SATURDAY, SUNDAY, HOLIDAY, AND NIGHT WORK

No work shall be done between the hours of 6:00 p.m. and 8:00 a.m., nor on Saturdays, Sundays, or legal holidays, without the written approval or permission of the Engineer-Architect in each case, except such work as may be necessary for proper care, maintenance, and protection of work already done or equipment, or in the case of an emergency. The Contractor may establish night work as a regular procedure, with the written permission of the Engineer-Architect. The Engineer-Architect, however, may revoke such permission, at any time if the Contractor fails to maintain at night, adequate equipment for the proper prosecution and control of the work, and all operations performed thereunder.

GC-45 UNFAVORABLE CONSTRUCTION CONDITIONS

During unfavorable weather, wet ground, or other unsuitable construction condition, the Contractor shall confine his operations to work, which will not be affected adversely thereby. No portion of the work shall be constructed under conditions, which would affect adversely the quality of efficiency thereof unless, by special means or precautions approved by the Engineer-Architect, the Contractor shall be able to perform the work in a proper and satisfactory manner.

GC-46 BEGINNING, PROGRESS, AND TIME OF COMPLETION OF WORK

The Contractor shall, within ten (10) days after being instructed to do so in a written notice from the Owner, commence the work to be done under this contract; and the rate of progress shall be such that the work shall have been completed in accordance with the terms of the contract on or before the termination of the construction period named in the proposal, subject to any extension or extensions of such time made as hereinafter provided. The Contractor may be required to furnish the Engineer-Architect with a tentative schedule setting forth in detail the procedure he proposes to follow, and giving the dates on which he expects to start and to complete separate portions of the work. If at any time, in the opinion of the Engineer-Architect, proper progress is not being maintained, such changes shall be made in the schedule of operations as the Engineer-Architect shall direct or approve.

GC-47 HINDRANCES AND DELAYS

In executing the contract agreement, the Contractor expressly covenants and agrees that, in undertaking to complete the work within the time therein fixed, he has taken into consideration and made allowances for all hindrances and delays incident to such work, whether growing out of delays in securing materials or workmen or otherwise. The Contractor shall make no charge for hindrances or delays from any cause during the progress of the work, or any portion thereof, embraced in this contract, except as provided in the paragraph on "Suspension of Work on Notice" of these GENERAL CONDITIONS.

GC-48 EXTENSION OF TIME

Should the Contractor be delayed in the final completion of the work by any act or neglect of the Owner or Engineer-Architect, or of any employee of either, or by any other contractor employed by the Owner, or by strikes, fire, or other cause or causes outside of and beyond the control of the Contractor and which could have been neither anticipated nor avoided, then an extension of time sufficient to compensate for the delay shall be granted by the Owner provided, however, that the Contractor shall give the Owner, and the Engineer-Architect, within ten (10) consecutive days from the start of such delay, notice in writing of the cause of delay in each case. Extensions of time will not be granted for delays caused by unfavorable weather, unsuitable ground conditions, inadequate construction force, or the failure of the Contractor to place orders for equipment or materials a sufficient time in advance to ensure delivery when needed.

GC-49 LIQUIDATED DAMAGES

It is mutually understood and agreed by and between the parties to this contract, in signing the agreement thereof, that time is of the essence of this contract, and that in the event that the said Contractor shall fail in the performance of the work specified and required to be performed within the period of time stipulated therefor in the contract agreement binding said parties, after due allowance for any extension or extensions of time which may be granted under the provisions of the preceding paragraph, the said Contractor shall pay unto the said Owner, as stipulated liquidated damages and not as a penalty, the sum indicated in the Special Conditions for each and every calendar day that the Contractor shall be in default. In case of joint responsibility for any delay in the final completion of the work covered by this contract, where two or more separate contracts are in force at the same time and cover work on the same project and at the same site, the total amount of liquidated damages assessed against all contractors under such contracts, for any one (1) day of delay in the final completion of the work, will not be greater than the amount listed in SPECIAL PROVISIONS, and the amount assessed against any one Contractor for one (1) day of delay will be based upon the individual responsibility of such Contractor for the aforesaid delay as determined by, and in judgment of the Owner. The Owner shall have the right to deduct said liquidated damages from any moneys in its hands, otherwise due, or to become due, to said Contractor, or to sue for and recover compensation for damage for nonperformance of this contract at the time stipulated herein and provided for.

GC-50 TESTS OF MATERIALS OFFERED BY CONTRACTOR

All specified and required tests for approval of source of materials shall be made at the expense of the Contractor by a properly equipped laboratory of established reputation, whose work and testing facilities shall be approved by the Owner. Approval of materials based on acceptable tests will apply only while such materials as furnished equal or exceed the tested samples or test specimens in quality and minimum requirements. Any change in origin, method of preparation, or manufacture of such materials will require new tests and approval thereof. Reports of all tests shall be furnished to the Owner in as many certified counterparts as may be required by the said owner.

GC-51 TESTING OF COMPLETED WORK

Before final acceptance, all parts of the work shall be tested and each part shall be in good condition and working order and shall be placed in such condition and order, at the expense of the Contractor. All tests of completed work required under this contract shall be made under the direction of the Engineer-Architect by and at the expense of the Contractor, whom shall repair at his own expense all damage resulting from the testing.

GC-52 REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES

The Contractor shall remove from the site of the work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the work, and upon his failure to do so, or to make satisfactory progress in so doing, within forty-eight (48) hours after the serving of a written notice from the Engineer-Architect ordering such removal, the condemned material or structures may be removed by the owner and the cost of such removal be taken out of the money that may be due or may become due the Contractor on account of or by virtue of this contract. No such rejected or condemned material shall again be offered for use by the Contractor under this or any other contract under this project.

GC-53 PLACING WORK IN SERVICE

If desired by the Owner, portions of the work may be placed in service when completed and the Contractor shall give proper access to the work for this purpose, but such use and operation shall not constitute an acceptance of the work, and the Contractor shall be liable for defects due to faulty construction until the entire work under this contract is finally accepted and for a year thereafter as stipulated in paragraph GC-55.

GC-54 DISPOSAL OF TRASH AND DEBRIS

The Contractor shall not allow the site of the work to become littered with trash and waste materials but shall maintain the same in a neat and orderly condition throughout the construction period. The Engineer-Architect shall have the right to determine what is or is not waste material or rubbish and manner and place of disposal. On or before the completion of the work the Contractor shall (without charge) carefully clean out all pits, pipes, chambers, or conduits, and shall tear down and remove all temporary structures built by him and shall remove all rubbish of every kind from the tracts or grounds which he has occupied and shall leave them in a first class condition.

GC-55 DEFECTIVE WORKMANSHIP AND MATERIALS

During a period of one (1) year from and after the date the final acceptance by the Owner of the work embraced by this contract, the Contractor shall make all needed repairs arising out of defective workmanship or materials, or both, which, in the judgment of the Owner, shall become necessary during such period. If within ten (10) days after the mailing of a notice in writing to the Contractor, or his agent, the said Contractor shall neglect to make, or undertake with due diligence to make, the aforesaid repairs, the Owner is hereby authorized to make such repairs at the Contractor's expense providing, however, that in case of an emergency where, in the judgment of the Owner, delay would cause serious loss or damage, repairs may be made without notice being sent to the Contractor, and the Contractor shall pay the cost thereof.

GC-56 EQUIPMENT GUARANTY

All mechanical and electrical equipment and devices, and every part thereof, which are furnished by the Contractor under the terms of this contract shall be guaranteed by the Contractor and his surety against defective workmanship, faulty design, mechanical and physical defects, leakage, breakage, and other damage or failure, under normal operation of the equipment and devices under specified conditions, for a period of one (1) year, unless specified in the Specifications for a longer period from and after the date of acceptance thereof by the Owner, and each item of equipment or part thereof thus proving to be defective within the specified period of the guaranty shall be replaced (without cost to the Owner) by the manufacturer of the defective item of equipment, by the Contractor, or by his surety under the terms of the performance, payment and maintenance bond. This equipment guaranty shall also apply to, and shall include, any and all replacements of defective equipment or parts made thereunder, and the period of the guaranty of each such replacement shall be from and after the date of installation thereof.

GC-57 CLAIMS FOR LABOR AND MATERIALS

The Contractor shall indemnify and save harmless the Owner from all claims for labor and materials furnished under this contract, or any alterations or modifications thereof, and shall furnish the owner with satisfactory evidence, when called for by it, and that all persons, firms, or corporations, who have done work or furnished materials under this contract, for which the Owner may become liable under the laws of the State, have been fully paid or satisfactorily secured, and in case such evidence is not furnished, an amount necessary or sufficient, within the discretion of the Owner, to meet the claims of the persons, firms and corporations, aforesaid, in addition to any other moneys that are to be retained, as herein specified, from the money due the Contractor under this contract, shall be retained until the liabilities aforesaid shall be fully discharged or satisfactorily secured.

GC-58 PERFORMANCE, PAYMENT, AND MAINTENANCE BOND

The performance, payment, and maintenance bond shall be executed by the Contractor with a surety company which: (1) meets the minimum standard for an insurance carrier which currently is in effect for all coverages purchased by Jackson County; and (2) is on the most current United States Treasury list as a surety whose bonds are acceptable to the United States Government.

- a. For the faithful performance and completion of the work in strict accordance with the terms of the contract, and each and every covenant, condition, and part thereof, according to the true intent and meaning of contract documents and herein defined;

- b. For payment of all just claims for labor performed and material furnished; and
- c. For the repair, or replacement where required, or the cost thereof, of all work performed under the terms of the contract, where such repair or replacement is required because of defective workmanship or materials, or both, and for the replacement of defective equipment or parts thereof, within a period of one (1) year after the date of acceptance as herein provided. The Owner agrees to mail a notice to the Contractor, calling his attention to any failure to comply with the requirements of the bond, not less than ten (10) days before notifying his surety of such failure.

GC-59 ESTIMATED QUANTITIES

(Where total bid is the sum of unit price extensions.) The Contractor agrees that the quantities of work as stated in his proposal and bid, or indicated on the plans, are accurate for the construction shown, and that during the progress of the work the Owner may find it advisable, and it shall have the right, to omit portions of the work and to increase or decrease the quantities, and that the Owner reserves the right to add to or take from any items as may be deemed necessary or desirable. Under no circumstances or conditions will the Contractor be paid anything on account of anticipated profits upon the work or any portion thereof covered by this contract, which has not actually entered into the construction of said improvements.

GC-60 MONTHLY ESTIMATES AND PAYMENTS

- a. Unit Price Contracts: On or about the first day of each month, the Engineer-Architect will make an approximate estimate of the value of the work done and unused materials delivered for, and stored on, the site of the work during the previous calendar month. The Contractor shall furnish to the Engineer-Architect such detailed information as requested to aid him as a guide in the preparation of monthly estimates.
- b. Lump Sum Contracts: On or about the first day of each month the Contractor shall submit to the Engineer - Architect an itemized application for payment, supported to the extent required by the Engineer-Architect by receipts or other vouchers, showing payments for materials and labor, payments to subcontractors and such other evidence of the Contractor's right to payment as the Engineer-Architect may direct. If payments are made on valuation of work done, the Contractor shall, before the first application, submit to the Engineer-Architect a schedule of values of the various parts of the work, including quantities, aggregating the total sum of the contract, divided so as to facilitate payments to subcontractors in accordance with such forms as the Engineer-Architect and the Contractor may agree upon, and, if required, supported by such evidence as to its correctness as the Engineer-Architect may direct. This schedule, when approved by the Engineer-Architect shall be used as a basis for Certificates for Payment, unless it is found to be in error. In applying for payments, the Contractor shall submit a statement based upon this schedule. If payments are made on account of materials not incorporated in the work but delivered and suitably stored at the site, or at some other location agreed upon in writing, such payments shall be conditioned upon submission by the Contractor of bills of sale or such other procedure as will establish the Owner's title to such material or otherwise adequately protect the Owner's interest including applicable insurance.
- c. Certification for Payments: On or about the 10th day of the month the Engineer-Architect shall submit payment estimates or certificates of payment to the Owner. After the Owner shall have approved each such estimate, the Owner shall pay to the Contractor ninety-five (95) percent of the amount of such estimated sum within thirty (30) days after receipt of payment certificate. If the Owner shall at any time fail to make the Contractor a monthly estimate at the time herein specified, such failure shall not be held to vitiate or void this contract.

GC-61 LIENS

Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete release of all liens arising out of the Contract, or receipts in full in

lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed, but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

GC-62 COMPLETION AND ACCEPTANCE OF WORK

The Contractor shall make final corrections promptly as instructed and/or listed in writing by the Engineer-Architect. Upon completion of the work the Engineer-Architect shall satisfy himself, by examination and test, that the work has been finally and fully completed in accordance with the Plans, Specifications, and contract and report such completion to the Owner.

GC-63 FINAL ESTIMATE AND PAYMENT

After official approval and acceptance of the work by the Owner, the Engineer-Architect shall be authorized to prepare a final estimate of the work done under this contract and the value thereof. Such final estimate shall be submitted to the Owner within ten (10) days after its preparation has been authorized as aforesaid, and the Owner shall within thirty (30) days after said final estimate is made and certified, pay the entire sum found to be due hereunder, after deducting all amounts to be kept and retained under any provision of this contract. All prior estimates and payments shall be subject to correction in the final estimate and payment, but in the absence of error or manifest mistake, it is agreed that all estimates, when approved by the Owner, shall be conclusive evidence of the work done and materials furnished.

GC-64 RELEASE OF LIABILITY

The acceptance by the Contractor of the last payment shall operate as, and shall be, a release to the Owner and every officer and agent thereof, from all claims and liability to the Contractor for anything done or furnished for, or relating to the work, or for any act or neglect of the Owner or any person relating to or affecting the work, and following such acceptance, no persons, firm, or corporation, other than the signer of this contract as Contractor, will have any interest hereunder, and no claim shall be made or be valid, and neither the Owner nor any employee or agent thereof shall be liable or be held to pay any money, except as herein provided.

GC-65 CLAIMS FOR ADJUSTMENT AND DISPUTES

If for any reason the Contractor deems that additional compensation is due him for work or materials not clearly provided for in the contract, plans, or specifications, or previously authorized as extra work, he shall notify the Engineer in writing of his intention to claim such additional compensation before he begins the work on which he bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation.

Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim.

When the work, on which the claim for additional compensation is based, is work that has been completed, the Contractor shall, within fifteen (15) calendar days after completion of the work in question, submit his written claim to the Engineer who will present it to the Owner for consideration. Claims submitted at times other than those herein specified will not be considered. Each notice of claim shall contain an itemized statement showing completely and fully the items and amounts forming the basis of the claim.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

GC-66 SAFETY TRAINING REQUIREMENT FOR ALL ON-SITE EMPLOYEES

The contractor to whom the contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty days of beginning work on such construction project. The contractor shall provide certification of compliance with this condition following the award of the contract and before work commences on the project.

GC-67 HOMELAND SECURITY AFFIDAVIT

As a condition for the award of any contract or grant in excess of five thousand dollars by the County to a business entity, the business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. Any entity contracting with the County shall only be required to provide the affidavits required in this subsection to the County on an annual basis.

END OF SECTION

SPECIAL CONDITIONS

SPECIAL CONDITIONS

These Special Conditions constitute modifications, deletions and additions to the General Conditions (GC). Where any part of the General Conditions is so modified by these Special Conditions the unaltered provision shall remain in effect.

SC-1 SCOPE OF WORK (GC-1)

The work provided for in these specifications shall consist of furnishing all labor, materials, equipment, and other services necessary to construct the Wastewater Treatment Facility Improvements: 1. The demolition of the existing Wastewater Treatment Facility as shown on the plans. 2. Construction of a new WWT Absorption Field. 3. Install new Septic Tanks and Pumping Chambers. 4. Install new sanitary sewer force main. 5. Contractor does not have to be the installer of WWTF but must provide MDNR approved installer to oversee the installation. 6. All other incidental work in the most substantial and workmanlike manner for the new WWT Facility, and do everything required by the Contract Documents as defined herein.

SC-6 COPIES OF CONTRACT (GC-6)

Six (6) copies of the contract documents will be prepared by the County. All copies will be submitted to the Contractor and the Contractor shall execute the Contract Agreements, insert executed copies of the required Performance Bonds, Certificate of Liability Insurances, Power of Attorney, and submit all copies to the County. THE DATE OF THE CONTRACT AGREEMENT AND BOND FORMS SHALL BE LEFT BLANK FOR FILLING IN BY THE COUNTY. The County will execute all copies, insert the date of contract on the Performance Bonds and Power of Attorney, retain four (4) copies, and forward two (2) copies to the Contractor, one of which should be forwarded to the surety company.

SC-7 SCOPE, NATURE AND INTENT OF SPECIFICATIONS AND PLANS (GC-7)

- A. All work on this project shall conform to the project drawings County Project No. 3256 and to the Contract Documents.
- B. The work shall also conform to referenced standard drawings and to other drawings or information thereto as may be furnished by the Owner prior to the opening of the proposals or during construction.
- C. The following specifications are hereby incorporated into the Contract Documents:
 - a. The "Missouri Standard Specifications for Highway Construction", 2021 edition plus quarterly supplements as published by the Missouri Department of Transportation (MoDOT) are hereby incorporated into the Contract Documents
 - b. "Standard Specifications and Design Criteria", Current Edition as published by the Kansas City Metropolitan Chapter of the American Public Works Association (APWA)
 - c. 2009 International Building Code published by the International Code Council
 - d. 2009 Uniform Plumbing Code
 - e. 2009 International Mechanical Code
 - f. 2008 National Electrical Code published by the International Code Council
 - g. 2009 International Uniform Fire Code published by the International Code Council
 - h. 2009 International Existing Building Code

- D. All work shall be in accordance with the Technical Specifications incorporated into this Project Manual except where a conflict occurs. Should any conflict arise in the Contract Documents, Standard Specifications or Plans the following order of precedence shall be used:
 - 1. Plans – or Appendix sheets
 - 2. Technical Specifications
 - 3. Special Conditions
 - 4. General Conditions

- E. The Contractor, Subcontractors, and fabricators shall be in compliance with all Local, State and Federal Regulations:
 - a. Occupational Safety and Health Act of 1970, (29CFR1910) Public Law #91-956, current provisions and regulations as pertains to Work being performed on this project. (OSHA)
 - b. Occupational Safety and Health Standards, Part 1910, Chapter 17 of Title 29, Code of Federal Regulations, current provisions and regulations as pertains to Work being performed on this project.
 - c. The Consumer Product Safety Act as it relates to building materials and construction.
 - d. Safety and Health Regulations for Construction, Part 1518, Chapter 13 of Title 29, Code of Federal Regulations, current provisions and regulations as pertains to Work being performed on this project.

SC-9 CONTRACTOR TO CHECK PLANS AND SCHEDULE (GC-9)

Modify GC-9 as follows:

- A. The Contractor shall submit a proposed progress schedule for all work in the Contract. Scheduling shall provide for the least practical inconvenience to the traveling public and to the residents along the project.

- B. The construction schedule shall be in a form approved by the Owner and shall include at least the following information for each significant work item:
 - 1. Beginning date.
 - 2. Scheduled percentage of completion at the end of each calendar month.
 - 3. Ending date.

The schedule shall also show the scheduled percentage complete for the entire contract at monthly intervals.

- C. The Owner will review the proposed progress schedule and may require the Contractor to revise it if, in the Owner's judgment, changes are required to accurately reflect the scheduled progress of the work or provide for completion of the project within the contract time. The revised schedule shall be submitted to the Owner for his approval within fourteen (14) days of notification to the Contractor that a revised schedule is required.

- D. The Contractor will be required to revise his original approved progress schedules any time actual progress of the Work on the Contract lags the schedule progress by fifteen percent or more. A revised schedule shall be submitted to the Owner for his approval within fourteen (14) days of written

- notification to the Contractor that a revised schedule is required.
- E. Prior to the beginning or during the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and the affected work is performed.
 - F. Upon written notification the County will investigate the conditions and if they determine that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment will be made and the contract modified in writing accordingly. The County will notify the Contractor of their determination whether or not an adjustment of the Contract is warranted.
 - G. No contract adjustment, which results in a benefit to the Contractor, will be allowed unless the Contractor has provided the required written notice.

SC-12 OWNERSHIP OF DRAWINGS (GC-12)

General Conditions GC-12 is modified as follows:

All drawings, specifications, calculations, electronic files and copies developed by the Contractor and/or their subcontractors for components of the project are the property of the County. They are not to be used on work unrelated to this project, and, with exception of the Contractor's signed contract sets, are to be returned to the County on request, upon completion of the work.

SC-14 CONTRACTOR TO FURNISH STAKES AND HELP (GC-14)

The Contractor shall provide all construction staking and shall supply all equipment, materials and competent manpower necessary to accurately complete the work. No construction shall commence without the approval of the County construction staking. The contractor shall notify the County in writing of any and all discrepancies with the staking. Any modifications shall be approved by the County. **Direct payment will be made for construction staking.** See Technical Specifications of this contract for "Contractor Furnished Surveying & Staking" of the Right-of-Way and Easements as Lump Sum.

SC-15 WORK DONE WITHOUT LINES OR GRADES (GC-15)

Add the following to GC-15

- A. The Engineer has established control points and benchmarks in a preliminary survey, which are shown on the construction plans for reference in layouts and staking of the work.
- B. The Contractor shall furnish competent surveyors to lay out and stake all of the work from control points and benchmarks shown on the plans, and make all measurements and elevation determinations required for construction of all work in this contract. The detailed staking shall be to the satisfaction of the Engineer.
- C. The Contractor shall be responsible for the cost of re-establishing control points and benchmarks, which may have been placed by the Engineer and are damaged or in any way disturbed by the Contractor's operations.
- D. At the locations indicated on the drawings, the Contractor, by using a Missouri Registered

Land Surveyor, shall establish suitable reference points from which these control points may be accurately re-established following construction. These reference points shall be carefully preserved during construction.

- E. No Direct payment will be made for construction staking. See Technical Specifications of this contract for "Contractor Furnished Surveying & Staking" of the Right-of-Way and Easements as Lump Sum to the unit Bid for "New WWT Facility Improvements".

SC-19 CONTRACTOR'S OFFICE AT SITE OF WORK (GC-19)

General Conditions GC-19 is modified by adding the following:

- A. **The Contractor is not required to have a field office at the project site** and no provisions have been made by the County for the field office, shops, or storage areas to be used by the Contractor. However, if desired, the Contractor may, on his own initiative, provide for any or all of the above items. The Contractor may store a limited amount of material and equipment in the ROW area.
- B. **No direct payment will be made for the Contractor's office, shops or storage areas.**
- C. Common-Use Field Office: Of sufficient size to accommodate needs of County, Engineer and construction personnel office activities and to accommodate Project meetings. Keep office clean and orderly.
- D. Storage and Fabrication Sheds: None allowed on site. Use interior space as approved by the County only as necessary.

SC-20 RESPONSIBILITY OF CONTRACTOR (GC-20)

General Conditions GC-20 is modified by adding the following:

Modify GC-20, Responsibility of Contractor, by adding the following:

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.
- C. The Contractor shall take the necessary precautions to keep loose aggregate, mud and debris from being deposited onto open lanes of the existing, or offsite, paving during construction operations. Should aggregate mud and debris become deposited upon such open lanes of existing paving, the Contractor shall promptly remove it at no additional cost to the County.
- D. Before the work will be accepted by the County, the Contractor shall be required to remove all aggregate and debris resulting from his operation, which also includes cleaning of streets, ditches, creeks, and driveways of earth, sod or other objectionable material and shall dispose of such debris off the project. This cleanup shall be limited to the project limits.
- E. It is the responsibility of the Contractor to coordinate all removal and construction activities with Utility Owners.
- F. The Contractor at his sole cost and expense will provide all potable and non-potable water, power, and telephone service required along the project route in connection with the work to be performed.

- G. All power for lighting, operation of the Contractor's equipment, or for any other use by the Contractor, shall be provided by the Contractor at his sole cost and expenses.
- H. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary and permanent utility before use. Obtain required certifications and permits.
- I. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- J. Locate facilities within the building where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- K. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
- a. Provide additional telephone lines for the following:
 - i. Provide a dedicated telephone line for each facsimile machine in each field office.
 - b. At each telephone, post a list of important telephone numbers.
 - i. Police and fire departments.
 - ii. Ambulance service.
 - iii. Contractor's home office.
 - iv. Contractor's emergency after-hours telephone number.
 - v. Engineers' offices.
 - vi. Owner's office.
 - vii. Principal subcontractors' field and home offices.
 - c. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
- L. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
- a. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - b. Remove snow and ice as required to minimize accumulations.
- M. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
- N. SECURITY AND PROTECTION FACILITIES INSTALLATION
- a. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

- b. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- c. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- d. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- e. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather-tight enclosure for building exterior.
 - i. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- f. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire prevention program.
 - i. Prohibit smoking at Project site.
 - ii. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - iii. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

O. MOISTURE AND MOLD CONTROL

- a. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- b. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent Heating systems, maintain as follows:
 - i. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - ii. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

P. OPERATION, TERMINATION, AND REMOVAL

- a. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- b. Maintenance: Maintain facilities in good operating condition until removal.
 - i. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 - ii. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

- iii. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period.

Q. Temporary Traffic Control:

1. Flagging and traffic control signing shall be in accordance with the contract documents and the MUTCD. It shall be the contractor's responsibility to check the traffic control devices each evening to make sure they are in place before leaving the jobsite.
2. As an obligation of the contract, the Contractor shall sign all road closures and establish such detours as needed and as approved by the County.
3. **Direct payment will be made for Traffic Control. See Technical Specifications of this contract for "Traffic Control" as Lump Sum for Unit Bid of New Wastewater Treatment Facility.**
3. Additionally the Contractor shall install proper signage to warn motorists of loose gravel and oil.
4. All personnel utilized in traffic control shall be fluent in English. Fluency shall be as determined by the Engineer in the Field Personnel not meeting this requirement shall not be utilized in the work.
5. Additionally drivers operating vehicles or equipment on public roads shall possess valid driver's licenses issued in the United States. The driver's license must be appropriate to the vehicle they are operating.

R. Water, Power and Sanitation:

- a. Arrange with utility company and Owner for time when service can be interrupted, if necessary, to make connections for temporary services. Contractor must secure all necessary permits to cut and/or cap all utilities including water, gas, electricity, and sewer; contact Missouri One Call System (1-800-344-7483 (DIG-RITE) and coordinate identification of all underground utilities; and consult with Evergy to coordinate the protection of power lines adjacent to the building.
- b. Water: All water required for the project in connection with the work to be performed will be provided by the Contractor at his sole cost and expense. If the project is performed during the Winter, the Contractor at his or her expense will provide all water required along the project route in connection with the work to be performed. **Contractor shall coordinate with Public Water Supply District No. 15 and No. 17 prior to start of construction.**
- c. Power: All power for lighting, operation of the Contractor's equipment, or for any other use by the Contractor, shall be provided by the Contractor at his sole cost and expense.
- d. Sanitation: The Contractor and subcontractor shall provide sanitary facilities at the job site.
- e. The Contractor is to note that there is utilities on the project site, see Construction Plan sheets.

S. RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- a. General: Recycle paper and beverage containers used by on-site workers.
- b. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be shared equally by Owner and Contractor.
- c. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 - i. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - ii. Inspect containers and bins for contamination and remove contaminated materials if found.
 - iii. Stockpile processed materials on-site without intermixing with other materials.
 - iv. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

T. RECYCLING DEMOLITION WASTE

- a. **Wood Materials**: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- b. **Metals**: Separate metals by type.
 - i. **Structural Steel**: Stack members according to size, type of member, and length.
 - ii. Remove and dispose of bolts, nuts, washers, and other rough hardware.
 - iii. **Gypsum Board**: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
 - iv. **Piping**: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
 - v. **Conduit**: Reduce conduit to straight lengths and store by type and size.

U. DISPOSAL OF WASTE

- a. **General**: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - i. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - ii. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- b. **Burning**: Do not burn waste materials.

V. Disposal: Remove waste materials from Owner's property and legally dispose of them.

W. Storage: Offsite Storage of materials and equipment shall conform to manufacturer's recommendations. Offsite storage arrangements shall be approved by the County. Such offsite storage arrangements shall be presented in writing and shall afford adequate and satisfactory security and protection by the contractor. Offsite storage facilities shall be bonded and accessible to the

County. Onsite storage of materials and equipment shall conform to manufacture's recommendations. Onsite Storage shall not interfere with public access and/or safety.

- X. **Smoking is NOT permitted any time by the General Contractor and their Sub-contractor(s) at the construction site on Jackson County, MO. property before or during the duration of the construction.**

SC-25 METHODS OF OPERATION (GC-25)

General Conditions GC-25 is modified by adding the following:

- A. In accordance with generally accepted construction practices, the Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property.
- B. Provide temporary barricades, as required to protect the public from harm due to construction activities.

SC-27 AUTHORITY AND DUTY OF THE ENGINEER-ARCHITECT (GC-27)

The progression of the project will be observed by the County personnel and will provide the inspection.

SC-28 INSPECTION (GC-28)

- A. This project will be observed by the County personnel and will provide the inspection.
- B. This project will use MODOT standard inspections protocol. Also, the contractor shall follow the MODOT Standards for Traffic Safety.
- C. All workers within Jackson County, MO. Right-of-Way, Jackson County Parking Lots, Jackson County Sites (Demolition areas or new work) who are exposed to traffic or construction activities or construction equipment shall wear at all times High-Visibility Safety Apparel meeting Class 2 or Class 3 requirements of ANSI/ISEA 107-2004 Publication Entitled, "American National Standard for High-Visibility Safety Apparel and Headwear".
- D. Contractor shall follow all Occupational Safety and Health Administration (OSHA) construction safety standards and requirements.
- E. Contractor shall notify his subcontractors, Owner and all Contractors and subcontractors under the Owner, when he is ready for them to install their portions of their work and see that they comply within a reasonable amount of time. Neither enclose nor cover any piping, wiring, ducts, equipment or other items until proper tests, observations and/or inspections have been made by the Owner and/or proper authorities.
- F. Contractor or subcontractor may not put in place any work which will prevent observation and approval of previous work without first notifying the Owner, and/or proper authorities.

SC-29 NO WAIVER OF RIGHT (GC-29)

Neither the inspection or evaluations by the County or any of the County's officials, employees, or agents, nor any order by the County for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the County or Engineer-Architect, nor any extension of time, nor any possession taken by the County or its employees, shall operate as a waiver of any provision of this contract, or of any power herein reserved to the County, or any right to damages herein provided, or shall any waiver of any breach in this contract be held to be a waiver of any other or subsequent breach.

SC-32 PROTECTION OF PROPERTY AND PUBLIC LIABILITY (GC-32)

General Condition GC-32 is modified by adding the following:

- A. The Contractor shall be liable for any and all damage caused by him to County's premises. The Contractor shall hold and save the County, his agents and representatives, free and harmless from liability of any nature or any kind arising from any use, trespass or damage occasioned by his operations on premises or third persons.
- B. The Contractor shall confine all work, equipment and personnel within the limits of the existing project Right-of-Ways, Easements, and Construction Limits noted on the Construction Plans. The Contractor shall make no claim for additional payment for confining his operations within these areas.
- C. The Contractor shall take all precautions required to preserve and protect all existing trees, shrubs, and other improvements located within the project right-of-way and easements designated to be saved by this contract.
- D. The Contractor shall protect and preserve the Control Point survey pins as shown on the Construction Plans. If disturbed it is the contractor's responsibility to reset the pin by a licensed surveyor at the Contractor expense.
- E. The Contractor shall be responsible for the restoration of any paved, graveled, or grassed areas disturbed by construction. Any areas so affected shall be restored to a condition as nearly as possible to that existing prior to construction. Paved and graveled areas shall be resurfaced with materials meeting the requirements of the technical specifications, and grassed areas shall be seeded and mulched. No direct measurement or payment will be made for restoration of areas disturbed by activities outside of the limits designated on the Drawings.

SC-34 MODIFICATIONS AND ALTERATIONS (GC-34)

General Conditions GC-34 is modified by adding the following:

The Contractor may submit to the County, in writing, proposals for modifying the plans, specifications or other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, and ease of maintenance, desired appearance, or design and safety standards. Cost reduction proposals shall contain the following information:

- A. A description of both the existing contract requirements for performing the work and the proposed changes.
- B. An itemization of the contract requirements that must be changed if the proposal is adopted.

- C. A detailed estimate of the cost of performing the work under the existing contract and under the proposed change.
- D. A statement of the time within which the County must make a decision thereon.
- E. The contract items of work affected by the proposed changes, including any quantity variation attributable thereto.
- F. This Special Condition shall not be construed to require the County to consider any cost reduction proposal which may be submitted hereunder; proposed change in basic design of a bridge or of a pavement type will not be considered as an acceptable cost reduction proposal; the Owner will not be liable to the Contractor for failure to accept or act upon any cost reduction proposal submitted pursuant to this section nor for any delays to the work attributable to any such proposal. If a cost reduction proposal is similar to a change in the plans or specifications for the project under consideration by the Owner at the time said proposal is submitted, the County will not accept such proposal and the Owner reserves the right to make such changes without compensation to the Contractor under the provisions of this article.
- G. The Contractor shall continue to perform the work in accordance with the requirements of the contract until an executed change order incorporating the cost reduction proposal has been issued. If an executed change order has not been issued by the date upon which the Contractor's cost reduction proposal specified that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such cost reduction proposal shall be deemed rejected.
- H. The County shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in construction costs from the adoption of all or any part of such proposal. In determining the estimated net savings, the right is reserved to disregard the contract bid prices if, in the judgment of the County, such prices do not represent a fair measure of the value of work to be performed or to be deleted.
- I. The Owner reserves the right where he deems such action appropriate to require the Contractor to share in the Owner's cost of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall indicate his acceptance thereof in writing, and such acceptance shall constitute full authority for the Owner to deduct amounts payable to the Owner from any moneys due or that may become due to the Contractor under the contract.
- J. If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a contract change order, which shall specifically state that it is executed pursuant to this Article. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted to be put into effect, and shall include any conditions upon which the Owner's approval thereof is based if the approval of the Owner is conditional. The change order shall also set forth the estimated net savings in the cost of performing the work attributable to the cost reduction proposal effectuated by the change order and shall further provide the

Contractor be paid fifty (50) percent of said estimated net savings amount.

- K. Acceptance of the cost reduction proposal and performance of the work there under shall not extend the time of completion of the contract unless specifically provided for in the contract change order authorizing the use of the cost reduction proposal.
- L. The amount specified to be paid to the Contractor in the change order which effectuates a cost reduction proposal shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work thereof pursuant to the said change orders.
- M. The Owner expressly reserves the right to adopt a cost reduction proposal for general use on contracts administered by the Owner when it determines that said proposal is suitable for application to other contracts. When an accepted cost reduction proposal is adopted for general use, only the Contractor who first submitted such proposal will be eligible for compensation pursuant to this section, and, in that case, only as to those contracts awarded to him prior to submission of the accepted cost reduction proposal. Cost reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under the provisions of this article if the identical or similar previously submitted proposals were not adopted for general application to other contracts administered by the Owner. Subject to the provisions contained herein, the Owner shall have the right to use all or any part of any submitted cost reduction proposal without obligation or compensation of any kind to the Contractor.
- N. This article of the specifications shall apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.
 - a. The County reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the surety, and the Contractor agrees to perform the work as altered.
 - b. If the alterations or changes in quantities significantly change the character of the work under the Contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contract in such an amount as the County may determine to be fair and equitable.
 - c. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.
- O. The term "significant change" shall be construed to apply only to the following circumstances:
 - a. When the character of the work as altered differs materially in kind or nature from that

involved or included in the original proposed construction or;

- b. When a major item of work, as defined elsewhere in the Contract is increased in excess of 125 percent or decrease below 75 percent of the original Contract quantity. Any allowance for an increase in quantity shall apply only to the portion of the work in excess of 125 percent of original Contract item quantity, or in the case of decrease below 75 percent, to the actual amount of work performed.
- c. The Contractor's attention is called to the **BID FORM** and/or bid proposal which allows the County to adjust the quantities upward or downward to be based upon the available funding. This may be in excess of the percentages noted above.

SC-35 EXTRA WORK (GC-35)

General Conditions GC-35 is modified as follows for numbers 2, 3 and 4 of GC-35 as follows:

- A. An amount equal to 20% percent will be added to the bond, insurance and taxes and not the 6% noted in the General Condition.
- B. An amount equal to 20% percent will be added to the materials and not the 15% noted in the General Condition.
- C. An amount equal to 20% percent will be added to all rental costs and not the 15% noted in the General Condition.

SC-37 ASSIGNMENT AND SUBLETTING OF CONTRACT (GC-37)

Add to GC-37 the following requirement.

- A. "No Second-Tier subcontracting will be permitted. It shall be the responsibility of the Contractor to ensure that his/her subcontractors do not in turn subcontract any portion of the work."
- B. **The 50% of the contract work, noted in the General Conditions, shall be reduced to 30% for this project.**
- C. Assigning, transferring or subletting, even though consented to, shall not relieve the Contractor of his liabilities under his contract. The Contractor shall give his personal attention to any and all portions of the contract which has been sublet and he shall be responsible for its proper construction.
- D. The prime Contractor, as a condition of this contract, is responsible for assuring submission of proof or documentation regarding Affirmative Action compliance by his subcontractors and for the subsequent Affirmative Action performance by such subcontractors.

SC-39 SUSPENSION OF WORK ON NOTICE (GC-39)

General Conditions GC-39 is modified by adding the following:

- A. If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable length of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to Engineer, in writing, a request for adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the

reasons and support for such adjustment.

- B. Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.
- C. No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.
- D. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract. No contract adjustment will be made for utility delays.

SC-41 LAWS AND ORDINANCES (GC-41)

The following is added to GC-41:

No burning will be allowed.

SC-43 CHARACTER OF WORKMEN (GC-43)

Add the following to GC-43:

Workman who may have occasion to speak with the general public (i.e. flaggers) must be able to communicate in clear English.

SC-45 UNFAVORABLE CONSTRUCTION CONDITIONS (GC-45)

Modify GC-45, Unfavorable construction conditions, by adding the following:

Contractor shall take precautions by watering or other means to ensure that excessive dust or lime does not become airborne during construction.

SC-46 BEGINNING, PROGRESS, AND TIME OF COMPLETION OF WORK (GC-46)

Modify GC-46 by adding the following:

- A. The time for completion of the work is an essential part of the Contract. It shall begin on the date stated in the Notice to Proceed, and shall be the number of working days as stated in the Proposal and in accordance with MoDOT Standard Specification Section 108, except as follows: "No working days will be counted from December 15 to March 15, both days inclusive unless work may proceed on a continuous basis beyond December 15 or may start or restart on a continuous basis before March 15. Working days will not be counted within this time frame after continuous work stops or before continuous work begins. Saturdays, Sundays, national holidays and holidays established by the laws of the state will not be counted as working days any time during the year."
- B. Contractor's attention is directed to conditions of GC-44 and GC-46. Holidays: Saturdays, Sundays, and holidays established by the laws of the County will not be counted as working days.

2021 List of Jackson County, Missouri Holidays

New Year's Day	Friday, January 1 st
Martin Luther King, Jr Day	Monday, January 18 th
Presidents' Day	Monday, February 15 th
Truman's Birthday	Friday, May 7 th
Memorial Day	Monday, May 31 st
Juneteenth	Friday, June 18 th
Independence Day	Monday, July 5 th
Labor Day	Monday, September 6 th
Veterans' Day	Thursday, November 11 th
Thanksgiving Day	Thursday, November 25 th
Thanksgiving Friday	Friday, November 26 th
Christmas Day	Friday, December 24 th

- C. The Contractor will need to coordinate with the County and/or their designated representative on the after-work week hours and weekend schedules. The standard work week hours that the Contractor can work are from 7:30 A.M. to 6:00 P.M.
- D. Weekend work schedule(s) shall be coordinated and approved with the County prior to any construction.
- E. The Contractor shall take, at no additional cost to the County, whatever means are necessary including, but not necessarily limited to, working nights and weekends and double shifts, and providing temporary weather enclosures and temporary heat/ventilation during inclement weather to assure substantial completion of all work during the Contract Time.
- F. Prior to starting work, a pre-construction conference will be held to discuss the project, its scheduling, and its coordination with the work of others. It is expected that this conference will be attended by representatives of the County, the Engineer, the Contractor and his subcontractors, and the will attend this conference, and the striping contractor that is to accomplish the permanent striping, if applicable, as well as representatives of any other affected agencies which the County may wish to invite.
- G. Substantial Completion shall be the stage in the progress of the Work where the Work is sufficiently complete in accordance with the Contract Documents so that the County can occupy or utilize the Work for its intended user.
- H. Substantial Completion shall be the stage in the progress of the Work where the Work is sufficiently complete in accordance with the Contract Documents so that the County can occupy or utilize the Work for its intended user.

SC-48 EXTENSION OF TIME (GC-48)

Add to GC-48 by adding the following:

- A. The County has shown on the Plans, from the information available, existing aboveground and underground installations and structures which may be affected by the work but there is no guarantee that all such facilities are shown. The location, depth and size of each facility shown on the Plans are approximate only and are not guaranteed correct. If utilities are damaged through carelessness or neglectful action by the Contractor, they will be repaired by the Contractor or authorities having control

- of the same, but the cost of such repairs shall be paid by the Contractor.
- B. Delays due to utility conflicts will not be cause for extension of time or adjustments in contract amount.
 - C. The Contractor shall contact each utility agency or other owner of public or private property in advance of any operations which may affect any of the agencies' or property owners' facilities and shall enlist their assistance in the location of their existing or relocated utilities.
 - D. The Contractor shall make every effort to locate all existing facilities, which may be affected by the work, including prospecting or excavating beneath the surface. No payment will be made to the Contractor in connection with location of existing facilities.
 - E. All fire hydrants and water control valves shall be kept free from obstructions and available for use at all times, except as herein allowed.
 - F. In the event of interruption to utility services as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with the said authority in the restoration of service. If utility service is interrupted, continuous cooperation will be required until the service is restored.

SC-49 LIQUIDATED DAMAGES (GC-49)

- A. In accordance with GC-49, Liquidated Damages (also referred to as "Schedule of Deductions"), the Contractor will be assessed liquidated damages for each calendar day of delay in completion of work. See the following schedule:

<u>Contract Amount</u>		<u>Calendar Day Assessment</u>
\$ 25,001	\$ 50,000	\$ 475
\$ 50,001	\$ 100,000	\$ 500
\$ 100,001	\$ 500,000	\$ 700
\$ 500,001	\$ 1,000,000	\$ 950
\$ 1,000,001	\$ 2,000,000	\$ 1,100

SC-50 TEST OF MATERIALS OFFERED BY CONTRACTOR (GC-50)

Modify GC-50, Tests of Materials offered by Contractor, by adding the following:

- A. Submission of all Compliance Submittals shall be scheduled to permit review, fabrication, and delivery in time to cause no delay in the Work of Contractor or his subcontractors or any other contractors as described herein. Contractor shall allow fifteen (15) days in County's office for reviewing original submittals and fifteen (15) days in County's office for reviewing re-submittals.
- B. Compliance submittals of materials furnished by subcontractors, manufacturers, and suppliers shall be submitted by the Prime Contractor.
- C. In general, the Specifications identify required materials and equipment by naming one or more manufacturer's brand, model, catalog number and/or other identification; first-named manufacturer's product used as the basis for design; other named brands considered equivalent. Equivalent brand manufacturers named must furnish products consistent with Specifications for

first-named product, as determined by County. Base Bid shall include only those brands named, except as hereinafter provided.

- D. Where materials or equipment are described but not named, Contractor shall provide required first quality items, adequate in every respect for intended use, such items subject to County's approval prior to procurement.
- E. Submit certificates for the following materials:
- 1) 1 inch Diameter PVC Pipe and elbows
 - 2) 2 inch Diameter PVC Pipe and elbows
 - 3) 3 inch Diameter PVC Pipe and elbows
 - 4) 4 inch Diameter PVC Pipe and elbows
 - 5) 8 inch Diameter PVC Pipe and elbows
 - 6) 8 inch Diameter Casing Pipe with Casing Spacers
 - 7) 2 inch Diameter Manifold Piping
 - 8) Capped Turn-Up
 - 9) Septic Tanks and Pumping Chambers
 - 10) Septic Tank Effluent Pumps
 - 11) 4 ft Interior Diameter Precast Concrete Manholes
 - 12) 24 inch Diameter Manhole Lid
 - 13) 36 inch Diameter Manhole Lid
 - 14) 4" x 3" Reducer
 - 15) 4" x 2" Reducing Tee
 - 16) 4" Check Valve
 - 17) Air/Vacuum Release Valve Manhole
 - 18) Air/Vacuum Release Valve
 - 19) Concrete Blocks
 - 20) Pump Control Panel with Alarm Light
 - 21) Electrical PVC conduits and wirings
 - 22) 2 inch Diameter PVC Coated Rigid Steel Conduit for Electrical
 - 23) Stainless Steel J-Hooks and Stainless Steel Wire Mesh Cable Straps for Electrical
 - 24) Course Aggregate Type A1 Granular Embedment Materials
 - 25) Course Aggregate Type A2 Crushed Rock Foundation Material
 - 26) Aggregates for Portland Cement Concrete
 - 27) Portland cement
 - 28) Hydrated Lime
 - 29) Hydro Seeding, Mulch, and Fertilizer
 - 30) Reinforcing steel
 - 31) Type S4 Topsoil
 - 32) Type S3 Soil Fill (Sandy loam or loamy sand)
 - 33) Erosion Control Materials
 - 34) Silt Fence
 - 35) Permanent Erosion Control Fabric
 - 36) Rock Ditch Check
 - 37) Guardrail, if applicable
 - 38) Guardrail End Terminal Section, if applicable
 - 39) Granular bedding material for Manholes
 - 40) Portland cement concrete and admixtures
- F. Submit gradation for the following materials:
- a. Aggregates
 - b. Concrete mixes

- c. Non-shrink grout
 - d. Reinforcing for Structures
- G. Submit shop drawings, specification sheet, certificates, warranties, and manufacturing installation recommendations for all products.
- H. Engineer's Selection and Approval of Materials
 - a. Where approval of Engineer for material or equipment is required, secure such approval before procurement.
 - b. The esthetic values of every material and installation, such as shape, proportion, texture, finish and color, will be an important consideration to Engineer and his/her decisions concerning same shall be final.
- I. County's Selection and Approval of Materials: Where approval of County for material or equipment is required, secure such approval before procurement.
- J. Laboratory tests of materials and equipment, which are normally conducted by the manufacturer or material supplier, and tests shall be furnished by the Contractor and approved by the County.
- K. All quality control testing not specified to be performed by the Contractor will be performed by an independent testing laboratory, selected by the Owner, or by the Owner's designee. All such tests performed by the independent testing laboratory shall be paid by the Owner.
- L. Assigning, transferring or subletting, even though consented to, shall not relieve the Contractor of his liabilities under his contract. The Contractor shall give his personal attention to any and all portions of the contract which have been sublet and he shall be responsible for its proper construction.
- M. Receiving and Storing Materials: Remove from premises materials showing deterioration or damage and replace with new.
 - a. On receipt of materials, check for in-transit damage in ample time to replace any damaged materials prior to installation time.
 - b. Where possible, deliver materials and equipment to project site in manufacturer's original packages, keeping labels intact until final cleaning. Where items are to be job assembled label, tag, mark or otherwise properly identify each component part until incorporated in building.
 - c. Store materials in manner to prevent deterioration, staining, soiling and intrusion of foreign materials. Provide waterproof well-ventilated enclosures for material subject to deterioration by dampness. Protect materials subject to damage by freezing and frost.
 - d. Remove from premises materials showing deterioration or damage and replace with new.
- N. Equipment Verification
 - a. Contractor shall check physical sizes of all equipment furnished under this contract or furnished by Owner and require other contractors to verify sizes of their equipment, in time to allow ample room for transporting equipment to and installing in its final location before enclosing spaces for it. Notify Engineer in writing of any required openings or ceiling heights; such notice in ample time for Engineer to direct necessary adjustments before such openings, ceilings or enclosures are placed.

- b. Before construction proceeds to point that would prevent necessary modifications, Contractor shall check Drawings, Specifications, shop drawings and change orders and notify Engineer in writing of any mechanical/electrical services and/or connections required but not indicated, or incorrectly indicated, for equipment furnished. Failing to do so, Contractor furnishing equipment provide required services and/or connections at his own expense.
- O. Unless Owner grants permission to repair any defective work, remove defective work from project and replace with new work in accordance with contract documents. Permission to repair such work shall not constitute a waiver of Contractor's right to require complete replacement of defective work if repair operation does not restore quality and appearance of member or surface to Owner's satisfaction. If permission is granted, repair according to Owner's directions.
- P. The prime Contractor, as a condition of this contract, is responsible for assuring submission of proof or documentation regarding Affirmative Action compliance by his Subcontractors and for the subsequent Affirmative Action performance by such Subcontractors

SC-54 DISPOSAL OF TRASH AND DEBRIS (GC-54)

The following is added to GC-54:

- A. The Contractor shall take the necessary precautions to keep aggregate, mud, debris from being deposited onto roadway and private entrances during construction operations. Should debris become deposited on such areas, the Contractor shall promptly remove it at no additional cost to the Owner. Debris shall be disposed of in accordance with all local codes.
- B. Keep covered materials, cavities and holes subject to damage by falling materials or deposits of water, snow or ice.
- C. Transport, handle, store and erect materials in a manner to keep from injury.
- D. Protect previously placed work by suitable coverings or other protection during installation of subsequent work. Clean off foreign materials accidentally deposited on finish surfaces and, where such would stain, corrode or otherwise disfigure, clean same immediately with material that will not damage finished work.
- E. Before the work will be accepted by the Owner, the Contractor shall be required to remove all aggregate and debris resulting from his operation, which also includes cleaning of earth, sod or other objectionable material and shall dispose of such debris off the project. This cleanup shall be limited to the project limits.
- F. **Final Cleanup shall be at no additional cost to the Owner.**

SC-58 PERFORMANCE, PAYMENT, AND MAINTENANCE BOND (GC-58)

Delete the first paragraph of GC-58 and replace it with the following:

- A. **PERFORMANCE AND PAYMENT BOND:** The performance and payment bond shall be executed by the Contractor with a surety company which: (1) meets the minimum standard for an insurance carrier which currently is in effect for all coverage's purchased by Jackson County; and (2) is on the most current United States Treasury list as a surety whose bonds are acceptable to the United States Government.

- B. **MAINTENANCE BOND:** The Contractor's attention is called to paragraph "c" of GC-58, which requires a one-year (1-year) maintenance bond. Contractor shall submit a Maintenance Bond to Jackson County Public Works (JCPW) upon the Final Acceptance by the County. The Final Acceptance Letter from JCPW Engineering staff member will be certified mailed to the Contractor. The Final Completion Date stated on the Final Acceptance Letter will be the start date of the Maintenance Bond. The Contractor is required to use this date on the Maintenance Bond.

SC-59 ESTIMATED QUANTITIES (GC-59)

Add the following to bottom of GC-59:

It is the intent of the contract documents that the total bid, as submitted, shall cover all work required by the contract documents. All costs in connection with the work, including furnishing of all materials, equipment, supplies and appurtenances; providing all necessary labor to fully complete the work shall be included in the unit and lump sum prices named in the proposal. No item of work that is required by the contract documents for the proper and successful completion of the contract will be paid for outside of, or in addition to, the prices submitted in the proposal. All such work not specifically set forth in the proposal as a pay item shall be considered a **SUBSIDIARY** obligation of the Contractor and all costs in connection therewith shall be included in the prices named in the proposal. On the plans, or in the specifications, certain quantities may be given which do not appear in the proposal. These quantities are given for the convenience of the contractor only and are considered **SUBSIDIARY** for payment purposes as given above.

SC-60 MONTHLY ESTIMATES AND PAYMENTS (GC-60)

Modify GC-60, Monthly Estimates and Payments, by adding the following:

- a. **Owner shall retain ten percent (10%) of each partial payment until completion and acceptance of the Work covered by the Contract and final payment is due.**
- b. The method of measurement and basis of payment for each item as listed in the Proposal will be as stipulated in the sections of the Technical Specifications and on the Plans and in this article.
- c. There shall be no measurement or separate payment for any item of work which is not specifically identified and listed in the Proposal and all costs pertaining thereto shall be included in the contract unit prices for related items which are listed in the proposal.
- d. Pay limits given in the Specifications and Plans are maximum. Where actual quantities are less than as computed by said pay limits, the Contractor will be paid only for the actual quantities.
- e. All work completed under the Contract will be measured according to United States Imperial system. The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the Contract will be those methods generally recognized as conforming to good engineering practices.
- f. All materials, which are measured or proportioned by weight, shall be weighed on platform scales furnished by the Contractor, or on public scales at the Contractor's expense. The scales shall comply with all state laws governing the use of scales and shall be tested and sealed by an authorized public official, at the expense of the Contractor, as often as the Engineer may deem it necessary to ensure their accuracy. The Contractor shall furnish the Engineer a waybill for each truckload, signed by the weigh master and truck driver.
- g. The Contractor shall maintain a running balance of weights of materials versus areas covered, furnishing this data to the County, in order that corrections for overrun or under run may be made when desired.

- h. The County will not pay for, or be responsible for, unused materials, which may have been ordered by the Contractor in accordance with the quantities listed in the proposal.
- i. The Contractor shall make an approximate estimate of the value of the work done and unused materials delivered for, and stored on, the site of the work during the previous calendar month. The Contractor shall furnish to the Engineer such detailed information as requested to aid him as a guide in the review of the payment application.
- j. The Contractor shall submit payment estimates or certificates of payment to the County.

SC-62 COMPLETION AND ACCEPTANCE OF WORK (GC-62)

- A. "Substantial Completion" shall be the stage in the progress of the Work where the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended user.
- B. The Contractor shall be responsible for the restoration of any paved, graveled, or grassed areas disturbed by construction. Any areas so affected shall be restored to a condition as nearly as possible to that existing prior to construction. Paved and graveled areas shall be resurfaced with materials meeting the requirements of the technical specifications, and grassed areas shall be seeded and mulched. No direct measurement or payment will be made for restoration of areas disturbed by the construction which are outside of the limits designated on the Drawings.

SC-63 FINAL ESTIMATE AND PAYMENT (GC-63)

General Conditions GC-63 is modified by adding the following:

- A. Contractor shall notify the County when he has completed all work in accordance with the Drawings and Specifications. He shall avail himself for an on-site inspection of the project with the Owner and the County. Any items found to be incomplete or improperly constructed shall be listed, and the Contractor shall take prompt action to correct such items. Upon completion of all such work, a final inspection will be scheduled to include the Contractor's representative, the Owner's representative, and the County. Should the Contractor fail to complete the items listed (thereby causing final inspection to be repeated), the cost of engineering or any other costs incurred by the Owner, due to such repeated inspections, shall be at the expense of the Contractor and will be deducted from the final contract amount.
- B. **Prior to the Final Inspection, the Contractor shall provide to Jackson County Public Works the AS-BUILTS drawings based on any and all redlines, modifications, addition or deletions, and changes to the project.**

SC-65 CLAIMS FOR ADJUSTMENT AND DISPUTES (GC-65)

General Conditions GC-65 is modified by adding the following:

- A. Each Contractor must form their own opinion of the character and condition of materials to be encountered from an inspection of the site and from other such investigations as they may desire to undertake.
- B. The Contractor is solely responsible for determination of existing conditions. All claims for adjustments in contract price or quantity of removals shall be denied.

SC-67 HOMELAND SECURITY AFFIDAVIT (GC-67)

The following is added to GC-67:

The Contractor must return the Affidavit of Compliance within this Contract, with their memorandum of understanding (MOU) with homeland security, with their Bids.

SC-68 DIFFERING SITE CONDITIONS (GC-68)

The following requirement is hereby added to the contract:

- A. Prior to the beginning or during the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and the affected work is performed.
- B. Upon written notification the County will investigate the conditions and if he/she determines that the conditions of the pavement materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment will be made and the contract modified in writing accordingly. The County will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.
- C. No contract adjustment, which results in a benefit to he/she Contractor, will be allowed unless the Contractor has provided the required written notice.

SC-69 CLEAN UP

- A. Final Cleanup of roadway right-of-way shall be in accordance with Missouri Standard Specifications for Highway Construction 2020 Edition, Section 104 Scope of Work, Subsection 104.11 Final Clean-Up except as herein modified:

Before the work will be accepted by the Owner, the Contractor shall be required to remove all aggregate and debris resulting from his operation, which also includes cleaning streets, ditches creeks, and driveways of earth, sod or other objectionable material and shall dispose of such debris off the project. This cleanup shall be limited to the project limits.

- B. Final Cleanup shall be at no additional cost to the Owner.

SC-70 SURFACE RESTORATION

Re-establishment of any disturbed areas on public right's of way will be accomplished by the Contractor. Should the Contractor elect to use private property to stockpile materials, restoration shall be by the Contractor with no direct payment being made.

SC-71 SUBSTANTIAL COMPLETION

Substantial Completion shall be the stage in the progress of the Work where the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended user.

SC-72 SAFETY TRAINING REQUIREMENTS FOR ALL ON-SITE EMPLOYEES

The Contractor to whom the contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete a ten-hour Occupational Safety and Health Administration

(OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty days of beginning work on such construction project. The Contractor shall provide certification of compliance with this condition following the award of the contract and before work commences on the project.

SC-73 CHAPTER 10 PURCHASING SECTION 1072 CONSTRUCTION PROJECTS – REQUIREMENTS TO BID – WAGES AND BENEFITS – CERTAIN EMPLOYERS

- A. This contract has a requirement related to paying wage rates for certain delivery truck drivers. Bidders are advised to read Jackson County, MO. Ordinance #4465 repealing Section 1072 enacted by the Jackson County Legislature on October 15, 2012 relating to Jackson County Code Chapter 10 Purchasing. See the below Section 1072 requirements.
- B. Section 1072. Construction Projects – Requirements To Bid – Wages and Benefits– Certain Employers. Jackson County reaffirms its long-standing policy that no less than the prevailing hourly rate of wages shall be paid to all workers performing work on construction projects on behalf of Jackson County. As a condition of eligibility to bid for or perform work on any Jackson County construction project funded in whole or in part by the County, producers or suppliers of dirt, sand, rock, asphalt, fly ash and/or concrete must pay their delivery employees no less than the prevailing rate of wages for work associated with the county construction project, as defined by section 290.210(5), RSMo, and the occupational titles listed in 8 CSR 30-3.060(Z). Wage rates for delivery employees shall be derived from the Missouri Annual Wage Order incorporated into the bid for the construction work. Delivery employees are covered under this section when delivering from an off-site location or a designated site location to the work site as outlined under 8 CSR-30—3.020(1) and (2). This section shall not apply to owners/operators of truck hauling millings or delivering asphalt on a County construction project. (Ord. 3839, Eff. 11/28/06; Ord. 4297, Eff. 03/01/11; Ord. 4465, Eff. 10/15/12)
- C. 1072.1 Compliance Review Officer. In addition to the duties set forth in Chapter 6 of this code, it shall be the duty of the Compliance Review Officer to monitor the producers or suppliers of the commodities enumerated in this section awarded County contracts to insure compliance with the prevailing rate of wages. (Ord. 3839, Eff. 11/28/06).

END OF SECTION

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TECHNICAL SPECIFICATIONS

TS-1 EMERGENCY PROVISIONS AND INCIDENT MANAGEMENT

- A. The Contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from the police or other emergency agencies for incident management. In case of traffic accidents or the need for police to direct or restore traffic flow, the Contractor shall notify the Sheriff's Department or other emergency agencies immediately as needed. The County shall also be notified when the Contractor requests emergency assistance.
- a. Design Engineer: Michelle King, P.E., Olsson Associates Project Manager, Office: 816-361-1177 or Nolan Groff, Olsson Associates Water/Wastewater, Office: 816-442-6022
 - b. County Project Manager: Earl Newill, PE (Office: 816-881-4538; Cell: 816-401-6401)
 - c. County Project Manager: Chris Jenkins (Office: 816-881-4429; Cell: 816-810-1008)
 - d. Construction Manager: Ric Johnson, PE (Office: 816-881-4499; Cell: 913-912-0933)
 - e. Construction Inspector: XXXXXXXX (Cell: 816-XXX-XXXX), to be determined.
 - f. Road & Bridge Supervisor: Jim Evans (Office: 816-847-7053; Cell: 816-401-6393)
- B. In addition to the 911 emergency telephone number for ambulance, fire, or police services, the following agencies may also be notified for accident or emergency situation with the project limits.
- a. Sheriff's Department: 816-541-8017
 - b. City of Grain Valley Police Department: 816-847-6250
 - c. Missouri Highway Patrol, Troop A (Lee's Summit): 816-622-0800
 - d. Sni Valley Fire Protection District Station 1: 816-690-6990

This list is not inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate police agency. The Contractor shall notify enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the Contractor completes this notification with enforcement and emergency agencies, a report shall be furnished to the County on the status of incident management.

- C. No direct pay will be made to the Contractor to recover the cost of the communication equipment, labor, materials or time required to fulfill the above provisions.

TS-2 GENERAL

- A. Contract Specifications: The detailed specifications, which follow shall govern the materials furnished and work performed in the construction of the work covered by this contract. No attempt has been made in the foregoing designated specifications to segregate work to be performed by any trade, subcontract, or proposal item, under any one section of the specifications.
- B. Any segregation between trade or craft jurisdiction limits, and the establishment of subcontract limits, will be solely a matter of agreement between the Contractor and his employees and his Subcontractors. The specifications will govern the construction of the entire work, and the provisions thereof shall govern each item and unit of work to which such provisions apply.
- C. The latest editions of the following specifications are incorporated into the Contract Documents by reference:
- The "Missouri Standard Specifications for Highway Construction", 2021 edition plus quarterly supplements as published by the Missouri Department of Transportation (MoDOT) are hereby incorporated into the Contract Documents

- "Standard Specifications and Design Criteria", Current Edition as published by the Kansas City Metropolitan Chapter of the American Public Works Association (APWA)
 - 2009 International Building Code published by the International Code Council
 - 2009 Uniform Plumbing Code
 - 2009 International Mechanical Code
 - 2008 National Electrical Code published by the International Code Council
 - 2009 International Uniform Fire Code published by the International Code Council
 - 2009 International Existing Building Code
 - Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD), current edition.
- D. Technical Specifications for the work shall consist of the above referenced specifications with such revisions, amendments, and supplements as are contained herein. The work shall be constructed in accordance with these technical specifications and any attached plans or drawings. Any omission found in these Technical Specifications, and/or the appropriate Standard Specification, shall govern the plans where applicable sections in the Standard Specifications are found.
- E. Applicable Codes and Standards: Where referred to in the technical specifications or plans, portions of organizations' specifications are incorporated into the Contract. Wherever a part of any standard specification (ASTM, AASHTO, etc.) is referred to in the technical specifications or plans, the following conditions shall apply unless otherwise provided in the technical specifications or plans:
- Only the specifically referred to part of the standard specification shall apply to this Contract. Whenever any provision of a standard specification conflicts with any of the Contract Documents, said Contract Documents shall govern.
- F. Construction Testing: All sampling and testing deemed necessary by the County to determine if materials or methods are in compliance with the specifications shall be performed by a testing laboratory selected by the County. The cost of all such tests showing compliance with the specifications shall be paid by the County unless otherwise noted in the technical specifications. In the event that any test indicates non-compliance with specifications, at least one (1) additional test will be paid for by the Contractor to determine acceptability of material or methods. All documentation verifying compliance shall be submitted to the County for compliance review.
- G. Construction Schedule: Before work is started, the Contractor shall prepare a detailed schedule of all construction operations that shall indicate the sequence of the work and also the time of starting and completing each part. The schedule shall be submitted to the County for their approval.
- H. Losses From Natural Causes: All loss or damage arising out of the nature of the work to be done, or from the action of the elements, or from floods or overflows, or from ground water, or from unusual obstructions or difficulties, or any other natural or existing circumstances either known or unforeseen, which may be encountered in the prosecution of the said work shall be sustained and borne by the Contractor at his own cost and expense.
- I. Unfavorable Construction Conditions: During unfavorable weather, or other unfavorable conditions for construction operations, the Contractor shall pursue only such portions of the work as will not be damaged thereby. No portions of the work, the satisfactory quality or efficiency of which will be affected by any unfavorable conditions, shall be constructed while these conditions exist, unless by special means or precautions approved by County, the Contractor shall be able to perform the work in a proper and satisfactory manner.
- J. Protection and Maintenance of Public and Private Property: All existing underground utilities shown in the Plans were provided by each utility company. Before starting work, the Contractor shall notify all

utilities involved, and shall request them for cooperation in locating lines in advance of the work. The Contractor shall make reasonable effort to avoid breaking utility lines. The utility shall be notified immediately should a break occur in a line during construction under this Contract.

- K. Any lines that are broken by the Contractor shall be repaired according to the utility company's standards at the expense of the Contractor. Wherever the work is along existing pavement which is to be retained, traction equipment with lugs will not be permitted. The Contractor shall use utmost care not to damage or destroy any existing pavement. Any pavement damaged or destroyed due to the operations of the Contractor, which is not within the construction limits shall be replaced in accordance with these specifications.
- L. The Contractor shall be held responsible for all damage to roads, highways, shoulders, ditches, bridges, , and other property, caused by them or their subcontractors in transporting materials to or from the site of work, regardless of location of such damage, and shall pay for or place such damaged property to the satisfaction of the owner of such property.
- M. Clearing and Cleaning Up: The Contractor shall do all necessary clearing and demolition work prior to excavation for the proposed construction. The Contractor shall not allow the site of the work to become littered with trash and waste material but shall maintain same in a neat and orderly condition during the process of the work to completion. The Contractor shall clean up all dirt from paved surfaces, not allow same to pack on the roadway or create a traffic nuisance.

TS-3 UTILITIES

- A. Description: For informational purposes only, the following is a list of names, addresses, and telephone numbers of the known utility companies in the area for the construction work for this project.

<u>Utility Name</u>	<u>Known Required Adjustment</u>
Evergy 1105 E 40 Highway Blue Springs, MO 64014 Janet Waddell (816) 729-5128 Michelle Arps (816) 769-4765	No Adjustment.
AT&T 2121 E. 63 rd Street Kansas City, MO 64130 Ron Gipfert (816) 772-0318	No Adjustment
Comcast 4700 Little Blue Parkway Independence, MO 64057 Andrew Bell (816) 795-2255	No Adjustment
Centurylink 210 East Market Street Warrensburg, MO 64093 Jeff Wallace (660) 429-7199	No Adjustment
Unite Private Networks 7200 NW 86 th St. Ste M Kansas City, MO 64153	No Adjustment.

Brandon Myers (816) 206-4257

Spire Energy No Adjustment
3025 SE Clover Drive
Lee's Summit, MO 64082
Katelynn Liberty (816) 260-6581

PWSD No. 15 No Adjustment
13213 E Lone Jack Ls Rd
Lee's Summit, MO 64086
Howard Pritchett (816) 697-5472

PWSD No. 17 No Adjustment
PO Box 256
Grain Valley, MO 64082
Jason Herman (816) 229-3838

- B. MCI Communications constructed in 2020 fiber optic lines on the south side of Old U.S. 40 Highway within the Jackson County, MO. existing Right-of-Way. See Appendix A for the Reference Drawings showing the existing fiber optic lines near the project area. The contractor shall not disturb the existing lines throughout the duration. If the contractor disturbs the existing fiber optic lines, then he/she shall coordinate with MCI Communication on the pot holing, relocation or replacement at no additional cost to the County. The location and depth of the existing fiber optic line are approximately shown on the plans. Contractor shall field verify all Utilities prior to any work.
- C. The existence and approximate location of the utility facilities known to exist, as shown on the Plans, are based upon the best information available to the County at this time. This information is provided by the County and the County expressly disclaims any representation or warranty as to the completeness, accuracy, or suitability of the information for any use. Reliance upon this information is done at the risk and peril of the user, and the County shall not be liable for any damages that may arise from any error in the information. It is, therefore, the responsibility of the Contractor to verify the list below indicating existence, location, and status of any facility. Such verification includes direct contact with the listed utilities.
- D. The Contractor agrees that any effects of the presence of the utilities, their relocation, Contractor's coordination of work with the utilities and any delay in utility relocation shall not be compensable as a suspension of work, extra work, a change in work, as a differing site condition or otherwise including but, without limitation, delay, impact, incidental or consequential damages. The Contractor's sole remedy for the effects of the presence of utilities, delay in their relocation or any other effects shall be an excusable delay provided Contractor notifies the County in writing of the delay at the time it occurs. The Contractor waives, for itself, its subcontractors and suppliers the compensability of the presence of utilities, delay in their relocation and any cost to the Contractor, its subcontractors and suppliers in any claim or action arising out of or in relation to the work under the Contract.
- E. The Contractor shall be solely responsible and liable for incidental and consequential damage to any utility facilities or interruption of the service caused by it or its subcontractors operation. The Contractor shall hold and save harmless the County from damages to any utility facilities interruption of service by it or its subcontractors operation.
- F. The Contractor shall coordinate their operations with the work of utility owners making necessary adjustments, removals, or construction of new fixtures, and shall permit free access to the site for such work.

- G. It is understood and agreed that the Contractor has considered in their bid all of the permanent and temporary utility appurtenances in their present or relocated positions whether or not shown on the Plans and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by them due to any interference from the said utility appurtenances or the operation of moving them.
- H. The general location of railroad facilities, of principal water mains, sewer pipes, telephone conduits, gas mains, pipe lines, pole lines, and other public and private utility facilities which will affect construction operations are indicated on the Plans based on One-Call utility locates. Some of these utilities may remain in place; others may be removed entirely or in part by the facility owners for relocation elsewhere.
- I. When the failure of the facility owners to cooperate and coordinate their work with that of the Contractor results in actual delay to the Contractor in the over-all completion of their work, such delay will be considered in the count of construction days or date specified for completion, provided the Contractor notifies the County's Representative in writing of the delay at the time it occurs.
- J. Should there be located within the right-of-way any public or private utility facilities which are to remain in place and which will interfere with the Contractor's proposed operation, the Contractor shall make all necessary arrangements with the facility owners for any temporary or permanent removal or relocation of such facilities desired for their convenience. Any cost involved shall be borne by the Contractor.
- K. The Contractor shall use every precaution necessary to prevent damage to all public and private utility wires, lines, pipes, poles, cables, and conduits within the right-of-way. The Contractor shall be responsible for all damage to any utility facility due directly to their operations regardless of location and they shall repair and replace as necessary any such damaged facility or make payment to the facility owner for repair or replacement. See cover sheet of Plans for list of utility companies and contact information.
- L. No direct pay will be made to the Contractor to recover the cost of coordination with the utility companies. All costs pertaining to this item shall be included in the contract prices of other items.
- M. Care should be taken when removing trees that intertwine with the overhead lines. DO NOT DAMAGE.

TS-4 PROTECTION OF PROPERTY

- A. The Contractor shall protect existing public and private property from damage by construction operations.
- a. Confine all work, equipment, and personnel within the limits of the project right-of-way and easements shown on the Plans.
 - b. Take all precautions required to preserve and protect all existing trees, shrubs, and other improvements located within the project right-of-way and easements, except those items designated to be removed.
 - c. Where fences are to be breached on private property, the property owners shall be contacted and arrangements made to ensure proper protection of any property and livestock exposed to the open condition.
 - d. Before acceptance of the Work by County, Contractor shall replace or repair all existing improvements damaged by their operations. This shall include, but not be limited to; damage to existing pavement beyond the immediate project limits, side roads, curbs, and entrances.
 - e. All property pins removed or displaced shall be reset to its original location by a licensed Surveyor

registered in the State of Missouri.

- B. No separate payment will be made for the protection of property. All costs pertaining to this item shall be included in the contract prices of other items

TS-5 JOB SITE ADMINISTRATION

- A. The Contractor shall give the Work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the County and other contractors in every way possible.
- B. The Contractor shall have on the work site at all times, as his agent, a competent superintendent capable of reading and thoroughly understanding the plans and Specifications and thoroughly experienced in the type of work being performed, who shall receive instructions from the County. The superintendent shall have full authority to execute orders or directions of the County without delay, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required. Such superintendence shall be furnished regardless of the quantity of work sublet.
- C. No separate payment will be made for job site administration. All costs pertaining thereto shall be included in the contract prices for other items.

TS-6 PRECONSTRUCTION MEETING

- A. Prior to starting work, a preconstruction conference will be held to discuss the project, its scheduling and its coordination with the work of others. It is expected that this conference will be attended by representatives of the County, the Contractor, and his subcontractors, utility representatives, as well as representatives of any other affected agencies that the County may wish to invite. The Contractor shall bring to the conference a tentative schedule of construction progress, shop drawing submittals and other required submittals and certifications. Discussion items of significance that could affect project progress may include the following:
- a. Tentative construction schedule.
 - b. Critical work sequencing.
 - c. Coordination with the County.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and change orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of contract documents.
 - h. Submittal of shop drawings and product data.
 - i. Preparation of record documents.
 - j. Use of the premises.
 - k. Working hours.
- B. The County will schedule a Preconstruction Conference at location to be determined, no later than 20 days after the effective date of the Agreement and prior to commencement of construction activities. The County will conduct the meeting to review responsibilities and personnel assignments.
- C. Attendees will include representative from the County, the Contractor, subcontractors, manufacturers, suppliers, utility companies, and other concerned parties shall be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- D. The agenda will review items of significance that could affect progress, including topics such as the

following:

- a. Introduction of attendees.
 - b. Distribution of Contract Documents.
 - c. Designation of responsible personnel.
 - d. Tentative construction schedule, including critical work sequencing.
 - e. Critical work sequencing.
 - f. Designation of responsible personnel.
 - g. Coordination with County.
 - h. Submittal of certified payrolls, wage interviews, and compliance with minority participation.
 - i. Procedures for processing field decisions and change orders.
 - j. Submittal of shop drawings and product data.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of contract documents.
 - m. Preparation of record documents by the Contractor.
 - n. Use of the premises (right-of-way and easements)ay and easements).
 - o. Working hours and holidays.
- E. No separate payment will be made for the preparation, attendance of the preconstruction meeting, maintenance of the construction schedule. All costs pertaining to this item shall be included in the contract prices of other items.

TS-7 BUY AMERICA REQUIREMENT

- A. On all County, state, and federal-aid projects, the Contractor's attention is directed to Title 23 CFR 635.410 Buy America Requirements. Where steel or iron products are to be permanently incorporated into the contract work, steel and iron material shall be manufactured in the USA except for "minor usage" as described herein. Furthermore, any coating process of the steel or iron shall be performed in the USA. The use of pig iron and processed, pelletized and reduced iron ore manufactured outside of the USA will be permitted in the domestic manufacturing process for steel or iron material.
- B. Any sources other than the USA as defined will be considered foreign. The required domestic manufacturing process shall include formation of ingots and any subsequent process. Coatings shall include any surface finish that protects or adds value to the product.
- C. "Minor usage" of foreign steel, iron or coating processes will be permitted, provided the cost of such products does not exceed 1/10 of one percent of the total contract cost or \$2,500.00, whichever is greater. If foreign steel, iron or coating processes are used, invoices to document the cost of the foreign portion, as delivered to the project, shall be provided and the engineer's written approval obtained prior to placing the material in any work.
- D. Buy America requirements include a step certification for all fabrication processes of all steel or iron materials that are accepted per MoDOT Specification Section 1000.
- E. Items designated as Category 1 will consist of steel girders, piling, and reinforcing steel installed on site. Category 1 items require supporting documentation prior to incorporation into the project showing all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements. This includes the Mill Test Report from the original producing steel mill and certifications documenting the manufacturing process for all subsequent fabrication, including coatings. The certification shall include language that certifies the following. That all steel and iron materials permanently incorporated in this project was procured and processed domestically and all manufacturing processes, including coating, as being completed in

the United States and in accordance with CFR Title 23 Section 635.410.

- F. Items designated as Category 2 will include all other steel or iron products not in Category 1 and permanently incorporated in the project. Category 2 items shall consist of, but not be limited to items such as fencing, guardrail, signing, lighting and signal supports. The prime contractor is required to submit a material of origin form certification prior to incorporation into the project from the fabricator for each item that the product is domestic. The Certificate of Materials Origin form (https://epg.modot.org/forms/CM/CERTIFICATE_OF_MATERIALS_ORIGIN.pdf) from the fabricator must show all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements and be signed by a fabricator representative. The Engineer reserves the right to request additional information and documentation to verify that all Buy America requirements have been satisfied. These documents shall be submitted upon request by the Engineer and retained for a period of 3 years after the last reimbursement of the material.
- G. Any minor miscellaneous steel or iron items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically. Examples of these items would be bolts for sign posts, anchorage inserts, etc. The certification shall read "I certify that all steel and iron materials permanently incorporated in this project during all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements procured and processed domestically in accordance with CFR Title 23 Section 635.410 Buy America Requirements. Any foreign steel used was submitted and accepted under minor usage". The certification shall be signed by an authorized representative of the prime contractor.
- H. When permitted in the contract, alternate bids may be submitted for foreign steel and iron products. The award of the contract when alternate bids are permitted will be based on the lowest total bid of the contract based on furnishing domestic steel or iron products or 125 percent of the lowest total bid based on furnishing foreign steel or iron products. If foreign steel or iron products are awarded the contract, domestic steel or iron products may be used; however, payment will be at the contract unit price for foreign steel or iron products.

TS-8 SUBMITTALS

- A. General: The Contractor is required to provide documentation for the performance of the Work. These submittals are divided into administrative and procedural categories. They include, but are limited to the following:
 - a. Administrative Submittals
 - 1. Permits
 - 2. Applications for payment
 - 3. Performance and maintenance bonds
 - 4. Insurance certificates
 - 5. List of approved subcontractors
 - 6. M/W/VBE compliance
 - 7. Certified payrolls (Contractor and subcontractors)
 - b. Procedural Submittals
 - 1. Contractor's project schedule
 - 2. Shop drawings
 - 3. Product data certifications

B. Submittal Procedures:

- a. Coordinate preparation and processing of submittals with performance or construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

Coordinate each submittal with fabrication, purchasing, testing of submittals for related activities that require sequential activity.

Coordinate transmittal of difference types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

The County reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- b. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

1. Allow two (2) weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The County will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

2. If an intermediate submittal is necessary, process the same as the initial submittal.

3. Allow two (2) weeks for reprocessing each submittal.

4. No extension of Contract Time will be authorized because of failure to transmit submittals to the County sufficiently in advance of the Work to permit processing.

- c. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. The transmittal form should have the following information. Submittals received from sources other than the Contractor will be returned without action.

1. Project name

2. Project number

3. Date

4. Name and address of contractor

5. Name and address of subcontractor (if needed)

6. Name and address of supplier/manufacturer

7. Number and title of appropriate specification section

8. Drawing number and detail reference

- C. Shop Drawings: Submit newly prepared information drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered a Shop Drawing. The Contractor shall not use any Shop Drawing without an appropriate final stamp indicating action taken in connection with construction.

- a. Shop Drawings include fabrication and installation drawings, layout drawings for reinforcing steel, falsework/forms, schedules, patterns, templates, and similar drawings. Include the following information:

1. Dimensions
 2. Identification of products and materials included
 3. Compliance with specified standards
 4. Notation of coordination requirements
 5. Notation of dimensions established by field measurement
- b. Sheet Size: except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 22" x 34".
- c. Quantity Requirements: Except as otherwise specified, transmit six (6) copies all manufacturer's or fabricator's Shop Drawings to the County. Three (3) copies will be returned to Contractor.
- d. Construction Record Drawings: The Contractor shall supply one full size (34" x 22") and one half size (17" x 11") AS-Built Construction Plans that includes AS-Built Surveyed drawings and electronic PDF (Portable Document Format) and AutoCadd drawings, current version, to the County. The AS-Built Construction Plans shall be provide to the County upon the completion of the construction project.
- D. Product Data: Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
- a. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
1. Manufacturer's printed recommendations
 2. Compliance with recognized testing agency standards
 3. Application of testing agency labels and seals
 4. Notation of dimensions verified by field measurement
 5. Notation of coordination requirements
- b. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- c. Quantity Requirements: Except as otherwise specified, transmit six (6) copies all submittals of product data to the County. Three (3) copies will be returned to Contractor.
- d. Distribution: Furnish copies of final submittal to installers, Subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
1. Do not proceed with installation until an approved copy of the applicable Product Data is in the installer's possession.
 2. Do not permit use of unmarked copies of Product Data in connection with construction.
- E. County's Action: Except for submittals for record, information, or similar purposes where action and return is required or requested, the County will review each submittal, mark to indicate action taken, and return promptly. Compliance with specified characteristics is the Contractor's responsibility.
- a. Action Stamp: The County will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
1. Approved: Where submittals are marked "Approved", that part of the Work covered by the

submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

2. Approved As Noted: When submittals are marked "Approved as Noted", that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
3. Revise and Resubmit: When submittals are marked "Revise and Resubmit", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat, if necessary, to obtain a different action mark. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
4. Rejected: When submittals are marked "Rejected", do not proceed with that part of the Work covered by the submittal. The information provided does not comply with the parameters noted in the Plans. The submittal shall be revised to meet the design requirements and resubmitted to the County for review.
5. Not Subject To Review: When submittals are marked "Not Subject To Review", the information provided is accepted as additional data for the files. No further action is required.

- b. Regardless of how the submittal is stamped, the review and approval neither extends nor alters any contractual obligations of the County of the Contractor.

F. GUIDELINES FOR OPEN EXCAVATIONS

- a. Required excavations shall be restored to the level of the adjacent surfaces as soon as practicable. Unsupervised open excavations on public properties are not permitted. Every person who for any purpose makes or causes to be made any excavation in, upon, under, through or adjoining any street, sidewalk, alley, park, boulevard, parkway or any other public properties, and shall leave any part or portion thereof open shall provide effective protection to the public.
 - b. All excavations in roadways shall be protected and secured in compliance with existing federal, state and local codes and standards, including, but not limited to the most current edition of the Manual of Uniform Traffic Control Devices.
 - c. All unsupervised excavations not within roadways shall be protected and secured. A protective cover over an excavation shall be installed so that it can sustain the weight of any persons and/or objects placed upon it. The cover shall be fixed to the ground so it cannot be moved. Protective covers shall have no opening(s) or protuberance(s) of sufficient size to cause a fall and/or injury. Protective coverings shall meet OSHA requirements. Advance warning devices shall be installed as necessary.
 - d. Any excavation that is not covered shall be fenced in such a way that it surrounds that entire area under excavation so as to prevent entry by any persons day or night. The protective fencing shall be a minimum of 42" in height and Orange color. The protective fence shall be constructed in such a manner that it is adequately secured and will remain upright at all times under normal site conditions. Protective fencing shall meet OSHA requirements.
 - e. All protective coverings and/or fences on excavations shall be inspected at least daily to assure integrity. Protective coverings and/or fences in heavily trafficked areas shall be inspected more often as necessary.
- G. All necessary and applicable permits shall be secured for any work contemplated on public properties before commencing any activity. In all instances the applicant agrees to perform all work in accordance with the permit and to indemnify and hold harmless the County from all liability, judgments, costs, expenses and claims growing out of damages or alleged damages, of any nature to any person to property arising out of performance or non-performance of said work or the

existence of facilities and/or appurtenances thereof.

- H. No separate payment will be made for any of the submittals associated with the completion of the Work. All costs pertaining to these items shall be included in the other contract prices.

TS-9 QUALITY REQUIREMENTS

- A. General: The Contractor will be fully responsible for complying with the Technical Specifications, Plans and other Contract Documents and shall obtain such certificates of compliance and have such tests made as will assure full compliance. Copies of such certificates and test reports shall be furnished to the County, prior to payment of pay items.
- a. Related Sections:
1. General Conditions: responsibilities of inspection, correction, removal and acceptance
 2. Supplemental Conditions: responsibilities of testing
 3. Technical Specifications: submittal procedures
- b. References:
1. American Society for Testing and Materials (ASTM): technical standards for the various materials used on the project, including testing procedures
 2. Federal Highway Administration (FHWA): specifications and details for traffic control and safety
 3. American Association of State Highway and Transportation Officials (AASHTO): guidelines, specifications, and details for roadway safety
 4. Missouri Department of Transportation (MoDOT): standard details, specifications, guidelines, and procedures for roadway and structures
 5. Kansas City Chapter of American Public Works Association (KCAPWA): standard details, specifications, guidelines, and procedures for roadway and structures
- c. Testing Agency: Prior to start of the Work, the County will identify the testing agency that will be used on the project from their Term & Supply Contract.
- d. Test Reports: After each test inspection two (2) copies of the report to the County to share with the Contractor. The report shall include:
1. Date issued
 2. Project title and number
 3. Name of inspector
 4. Date and time of sampling or inspection
 5. Identification of product and specifications section
 6. Location in the Project
 7. Type of test/inspection
 8. Date of test/inspection
 9. Results of test/inspection
 10. Conformance with Contract Documents
- e. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor to the County, in quantities specified for Product Data.
- f. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the County's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- g. Manufacturer's Field Reports: Submit reports for the County's benefit as contract administrator. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

B. Control of Installation:

- a. The Contractor shall notify the County a minimum of 48 hours prior to expected time for operations requiring inspection and laboratory testing services. Such testing, or failure to test, on the part of the County shall in no way relieve the Contractor of complete responsibility for furnishing materials and constructing the Project in accordance with all of the Contract Documents. Testing services arranged and paid by the County.
- b. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- c. Comply with manufacturers' instructions, including each step in sequence. If manufacturer's instructions conflict with Contract Documents, request clarification from the County before proceeding.
- d. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- e. Have Work performed by persons qualified to produce required and specified quality.
- f. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer. Once installed, secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

C. Certificates of Compliance:

- a. The Contractor, prior to payment for the pay items, shall submit, in triplicate, certificate of compliance from manufacturers, producers, fabricators and suppliers of items to be incorporated in the work attesting that all items and materials supplied in connection with the work conform to the requirements of the Specifications, as provided in the various sections of these Contract Documents.
- b. Whenever the items so certified deviate from the requirements of the Technical Specifications, Plans and other Contract Documents, then the Contractor shall point out such deviation in the letter of transmittal. Unless this procedure is followed and such deviations are specifically approved by the County in writing, then the County's approval of such certifications will not constitute approval of the deviations.
- c. Said certificates may be accepted by the County as adequate evidence of compliance with the Contract Documents. However, at its option, the County may test any or all of said items for compliance. If found to be in compliance with the Contract Documents, the cost of testing will be borne by the County. If found to be not in compliance, the Contractor shall pay for such testing.

- D. Payment for testing shall be paid by the County in conformance with the Special Conditions. Retesting required because of non-conformance to specified requirements shall be performed by the same testing firm on instructions by the County. The Contractor shall bear all costs from such retesting at no additional cost to the County.

TS-10 TEMPORARY FACILITIES

- A. Water: Any water required to prepare concrete, mortar, for the project, or other construction

products shall be from a potable source. Water from a stream, pond, etc. is unacceptable.

- B. Power: All power for lighting, operations of the Contractor's equipment, or for any other use which may be required for proper completion of the Work shall be provided by the Contractor.
- C. Sanitary Facilities: Contractor shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.

Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the site.

- D. Fences: All existing fences affected by the Work shall be maintained by Contractor until completion of the Work. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

On completion of the Work across any tract of land, Contractor shall restore all fences to their original or to better condition and to their original location.

- E. Parking: Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, County's operations, or construction activities.
- F. Noise Control: Contractor shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.

Construction activities, such as excavation, demolition, installation, erection, alteration, or repairs, adjacent to residential areas shall be limited to 7:00 a.m. and 8:00 p.m. on weekdays. In the case of urgent necessity in the interest of public safety, the Contractor may request a letter of permission from the County.

- G. Dust Control: Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical suppressant. When practicable, dusty materials in piles or in transit shall be covered to prevent blowing.
- H. Pollution Control: Contractor shall prevent the pollution of watercourses by sanitary wastes, sediment, debris, and other substances resulting from the construction activities. No sanitary wastes will be permitted to enter any watercourse other than sanitary sewers. No sediment, debris, or other substance will be permitted to enter sanitary sewers, and reasonable measures will be taken to prevent such materials from entering any watercourse.
- I. No separate payment will be made for the installation, maintenance, and removal of any temporary facility needed for the completion of the Work. All costs pertaining to these items shall be included in the other contract prices.

TS-11 DEBRIS CONTROL

- A. During construction, care shall be taken to ensure public safety in the project area. The Contractor shall maintain the project area so that it is free of debris at all times. As each major component of work is completed, excess materials and unnecessary equipment shall be removed from the project area and corresponding backfilling and clean up shall be done promptly.
- B. No separate payment will be made for the debris control. All costs pertaining to this item shall be included in the contract prices of other items.

TS-12 MOBILIZATION

- A. Description: This item shall consist of the preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of construction offices and other facilities necessary for work on the project, including contract bonds and insurance, and for all other work and operations that must be performed or costs incurred prior to beginning work on the various items on the project site.
- B. Mobilization shall conform to Section 618 of the MoDOT Standard Specifications.
- C. Basis of Payment: Payment for mobilization will be made incrementally. Payment item for Mobilization will be Lump Sum of the Unit Bid for "**New Wastewater Treatment Facility**".
 - a. Partial Payments. Each partial payment will be 25 percent (25%) of the contract price for mobilization. For purposes of this calculation, the original contract price will be construed as the total dollar value of all contract line items. The partial payments for mobilization will be paid incrementally as follows:
 - 1. The first partial payment will be made when five percent (5%) of the original contract amount is earned.
 - 2. The second partial payment will be made when ten (10%) percent of the original contract amount is earned.
 - 3. The third partial payment will be made when 25 percent (25%) of the original contract amount is earned.
 - 4. The fourth partial payment will be made when 50 percent (50%) of the original contract amount is earned.

TS-13 CLEARING AND GRUBBING

- A. Clearing and grubbing shall conform to Section 2101, "Clearing and Grubbing", a subsection of Section 2100 "Grading and Site Preparation", and 2101, "Clearing and Grubbing", of the APWA Standard Specifications except as herein modified. Measurement and Payment shall be in accordance with Section 2103, "Measurement and Payment".
- B. Add to Section 2101.3.A, "Clearing, Grubbing and Site Preparation", a subsection of "Definitions", the following:
 - a. Jackson County Public Works has existing channel easements for this project.
 - b. Right-of-way and easement lines, as shown on the Plans, shall be set by the Contractor prior to beginning clearing, grubbing, and demolition operations.

- c. The limits of clearing and grubbing for the roadway and channel construction shall be the construction limits where practical but in no case shall they extend beyond the easement and/or Right-of-Way lines. For isolated areas such as pipe runs the area shall be limited to the minimum practical area of construction. The Contractor shall establish all right of way and easement lines and will designate all trees, shrubs, and plants that are to remain. The County will review the trees that are marked for removal and approve the selection. No removals shall be made until this review has been made. See Special Conditions for more information on construction staking.
- C. Add to Section 2101.3.E., "Trees", the following:
- a. Individual trees shall not be classified or measured. All tree removals shall be **SUBSIDIARY** to the unit price bid for "**New Wastewater Treatment Facility**".
- b. The drawing may not show all trees, the Contractor shall make his own determination as to the number, types and sizes of trees to be removed.
- c. If the Contractor chips or grinds the timber debris the Contractor shall dispose of the material, legally, in approved disposal sites at no additional cost to the County.
- D. Add to Section 2101.3. "Brush" the following:
- a. Brush shall not be classified or measured. All brush removals shall be **SUBSIDIARY** to the unit price bid for "**New Wastewater Treatment Facility**".
- b. Open burning will not be permitted. Controlled burning will be permitted. Contractor will need to acquire permit from Missouri Department to Natural Resources and from **Sni Valley Fire Protection District Station 1**. The County does not issue burning permits. The applications and approvals for a burning permit on this project shall be made to **Sni Valley Fire Protection District Station 1 at (816) 690-6990**. The permit shall be posted at the project site prior to and during any burning operations.
- E. Modify Section 2103.2, "Method of Measurement", by adding the following:
- No Measurement will be made of "Clearing and Grubbing".
- F. Modify Section 2103.3, Basis of Payment, by adding the following:
- Payment for "Clearing and Grubbing" will be at the plan quantities and unit bid price per Acre. Tree removal for the project shall be **SUBSIDIARY** to the bid item, "**New Wastewater Treatment Facility**".

TS-14 REMOVAL OF IMPROVEMENTS

- A. Removal of the existing structure shall conform to the requirements of Section 202, "Removal of Roadways and Buildings", of the MoDOT Standard Specifications except as herein modified.
- a. Removal of all other existing improvements on the project shall conform to the requirements of Section 202.30, "Removal of Improvements for Roadway Contracts", except as herein modified.
- b. Add to Section 202.30.1, "Description", the following:

1. This work shall include the removal of remnants of construction from the existing asphaltic concrete surface roadway to allow for a new roadway pavement and new structure.
- c. Add to Section 202.30.1.1, a subsection of "Disposal of Materials", Section 202.3 "Construction Requirements", the following:
 1. All material removed shall become the property of the Contractor and shall be removed and disposed of by the Contractor.
 2. The Contractor shall remove the existing fencing in the right-of-way to the limits as specified in the Plans.
 3. Contractor shall notify the Property Owner(s) in such case, **72 hours before removal**. No additional payment shall be made for this work.
 4. If the Contractor encounters an Existing standard UPS Mailbox near an Existing Driveway within the work area that is in the way of construction, then the Existing Mailbox will be temporarily removed to a location as agreed upon by the UPS and Property Owner. If the Existing Mailbox is a non-standard UPS Mailbox (custom), then the Contractor shall communicate with the County prior to any and all relocations. The removal, relocating and installation of the Existing Mailbox shall be **SUBSIDIARY** to unit price for "Removal of Improvements".
- d. Add to Section 202.30.1.2, "Description", subsection of Section 202.30 "Removal of Improvements for Roadway Contracts", the following:

The Plans may not show all items to be removed. Other removals, necessary for construction of the proposed improvements, shall be as approved or directed by the Engineer. No additional compensation will be made for such removals.

B. Measurement

- a. Modify Section 202.30.2, Method of Measurement, by adding the following:
 1. No Measurement will be made of Removal of Improvements.

C. Payment

- a. Modify Section 202.30.3, Basis of Payment, by adding the following:
 1. Payment for Removal of Improvements will be at the plan quantities and contract Lump Sum price for "**New Wastewater Treatment Facility**".

TS-15 EROSION AND SEDIMENT CONTROL DEVICES

- A. This work shall consist of furnishing, installing, maintaining, and removing temporary control measures as ordered by the County. This work shall conform to the general requirements of Division 800, "Roadside Development", of the MoDOT Standard Specifications as modified by this Technical Specification. The control of water pollution will be accomplished with Silt Fences, Rock Ditch Checks, Wattle Logs, and Biodegradable Log Inlet Protection in accordance with these specifications.

- B. The temporary pollution control provisions contained herein shall be coordinated with the permanent erosion control features specified elsewhere in the contract to assure economical, effective, and continuous erosion control. These provisions shall also apply to work within easements designated by the Engineer.
- C. The purpose of these specifications is to set forth certain temporary water pollution control measures, which shall be required of the contractor. The contractor shall exercise best management practices throughout the life of the project to control water pollution. Pollutants such as chemicals, fuels, lubricants, bitumens, concrete wash water or deleterious construction materials, raw sewage, or other harmful material shall not be discharged from the project.
- D. Prior to the pre-construction conference and prior to the start of construction the contractor shall submit for acceptance his schedules for the implementation of temporary and permanent erosion control work, as are applicable for each phase of construction. No work shall be started until the appropriate erosion control measures have been installed and approved by the County.
- E. Measurement:
 - a. Field measurement of the Rock Ditch Checks, Silt Fence, Wattle Log, Biodegradable Log Inlet Protection will be made per Lineal Foot.
- F. Payment:
 - a. Contractor will be paid for in-place field quantities of Rock Ditch Checks, Silt Fence, Wattle Log, and Biodegradable Log Inlet Protection by the Contract Unit bid price per Lineal Foot for **Unit Bid for "New Wastewater Treatment Facility"**.

TS-16 TEMPORARY SEEDING AND MULCHING

- A. When directed by the Engineer, the Contractor shall apply temporary seeding to all areas to minimize erosion control measures.
- B. Temporary seeding and mulching shall be in accordance with APWA Standard Specification Section 2153.5. The Contractor shall apply the Type "TR" Seed or Type "TM" Seed based on the time of year that the seed and mulch are being applied.
- C. Temporary seeding and mulching including any necessary site preparation work and watering shall be **SUBSIDIARY** to the contract unit price for **"New Wastewater Treatment Facility"**. No direct measurement or payment will be made for temporary seeding and mulching.

TS-17 SEEDING

- A. This work shall consist of seeding, fertilizing and mulching all disturbed areas within the project limits unless otherwise directed by the County. This work shall be in accordance with the APWA Standard Specifications Section 2404, "Hydroseeding". The seed mix for steeper slope projects (Type 1) is as follows:

PLS Rate: Lbs/Ac	Seed Name
50	Indiangrass (Cheyenne)
55	Little Bluestem (Cimarron)
45	Switchgrass (Alamo)

55	Annual Ryegrass
25	Perennial Ryegrass
15	Partridge Pea (Comanche)
25	White Prairie Clover
85	Side Oats Gramma (El Reno)
25	Coreopsis
55	Creeping Red Fescue
435	= Pounds Seed / Acres
10 Lbs/1,000 SF	= Minimum Application Rate
Per Manufacturer	Fertilizer (13-13-13)

- B. Unless otherwise noted in Plans, Erosion control blanket to be installed in these areas per current APWA requirements.
- C. Type 2 seeding shall be used in areas with flatter slopes (4:1 slope or flatter). The seed mix for turf areas (Type 2) consists of the following:

Festuca arundinacea, Fineleaf Tall Fescue. Varieties- Houndog V. Rebel Jr., Rebel III, Rebel 3D, Barlexas, Millennium, Southern Choice, Tar Heel, Wolf Pack, Bonsai 2000, Shortstop II Coyote, or other pre-approved substitutes	87.5%
Lolium multiflorum – annual ryegrass.....	12.5%

- A. Mix required to meet percentage by weight of pure live seed in each lot of seed, as listed above.

D. Measurement:

- a. Seeding will be measured by in-place area per Acre. There will be no measurement or separate payment for any items of work not specifically identified and listed in the Contract Documents.

E. Payment:

- a. The Contractor will be paid the contract unit bid price per Acre. All labor and materials (including but not limited to; seed, mulch, tackifier, fertilizer, water, herbicides, etc) needed to prepare the soil, scalp existing vegetation, compaction, provide, maintain, repair, clean-up and re-seed shall be considered **SUBSIDIARY** to “**New Wastewater Treatment Facility**”.
- b. County approval is required before final payment will be made. Seeded areas shall be observed to consist of a healthy stand of green grass.

TS-18 ACCESS AND RESTORATION

Re-establishment of any disturbed areas within public right-of-way will be accomplished by the Contractor. Should the Contractor elect to use private property to stockpile materials, restoration shall be by the Contractor with no direct payment being made. Contractor shall obtain written permission via temporary easement from private property owners and provide a copy of this documentation to the County, if necessary.

TS-19 DISPOSAL OF EXCESS MATERIAL

Excess materials shall be legally disposed of at locations outside the right-of-way and provided by the Contractor. No direct payment will be made for this work.

TS-20 FORCE ACCOUNT

- A. Force Account shall conform to Section 105.1.1 Authority of Engineer, Section 109.4.3 Equitable Adjustment, Section 109.4.4 Application of Force Account, and Section 109.5 Force Account Computation of the Missouri Standard Specifications for Highway Construction (2021).
- B. The Contractor shall perform other unforeseen work, for which there is no condition included in the contract, whenever it is deemed necessary or desirable to complete the work as designated by the County. Such work shall be performed in accordance with the Standard Specifications and as directed by the County.
- C. Payment for the work performed under this Technical Specification shall be made in accordance with the proposal unit prices where the requested work is covered by an item listed in the proposal. If the work is not represented by a unit price listed in the proposal, payment will be in accordance with the General Conditions and more specifically GC-35 "Extra Work".

TS-21 ITEMS NOT LISTED IN THE PROPOSAL

There will be no measurement or separate payment for any items of work not specifically identified and listed in the Proposal, and all costs pertaining thereto will be included in the contract unit prices for other items listed in the Proposal.

TS-22 SUBSIDIARY WORK

All work shown in the plans or referred to in the Technical Specifications and not specifically set forth in the Itemized Proposal as a pay item shall be considered a **SUBSIDIARY** obligation of the Contractor and all costs in connection therewith shall be included in the prices named in the proposal.

TS-23 ESTIMATED QUANTITIES

- A. Payment for the following listed items will be based on the contract quantity shown on the plans. No final measurement of quantities will be made. The following items are **SUBSIDIARY** to the Unit Bid for "New Wastewater Treatment Facility".
- a. Clearing and Grubbing
 - b. Course Aggregate Type A1 Granular Embedment Materials
 - c. Course Aggregate Type A2 Crushed Rock Foundation Material
 - d. Type S4 Topsoil
 - e. Type S3 Soil Fill (Sandy loam or loamy sand)
 - f. Removal of Improvements
 - g. Seeding, Fertilizing, and Mulching
- B. In the event of authorized changes, during construction, or appreciable error found in an estimated quantity, the Contractor may request in writing that a final measurement for payment be made of that item. Additionally for the above noted reasons the Engineer may make a final measurement for payment. If a measurement and re-computation of the quantity is done it shall be accordance with these Technical Specifications and the Standard Specifications and payment made based on the unit price noted in the proposal.

TS-24 ONSITE WASTEWATER TREATMENT SYSTEM INSTALLERS LIST

The contractor shall provide an installer to work on the Onsite Wastewater Treatment Facility that is on the

following list: <https://health.mo.gov/living/environment/onsite/counties/index.php>. This website is with the Missouri department of Health & Senior Services for Registered Onsite Wastewater Treatment System (OWTS) Installers List. The contractor shall choose the installer who serve Jackson County, MO. To verify registration status of an individual not listed, contact the Onsite Wastewater Treatment Program at 573-751-6095 or call for information. The General Contractor does not have to be the licensed installer but must hire an installer whose role is to oversee the installation of the new Wastewater Treatment Facility Improvements. **The County will verify that the installer is on the MDNR list and will have the final approval.**

TS-25 EROSION CONTROL PLAN

Jackson County Public Works provided a **Construction plan Sheet AP-A "EROSION CONTROL PLAN"** for the project. All erosion control shall be in place throughout the duration of the project. Contractor shall provide to the County weekly Storm Water Pollution Prevention (SWPPP) construction inspection records.

TS-26 SILT FENCE AND SEDIMENT REMOVAL

- A. Description: This work shall consist of furnishing, installing, maintaining, removing and disposing of sediment, and removing of a silt fence to control sediment along slopes and other designated areas. The quantity of silt fence shown on the plans may be increased or decreased, as directed by the County. The County may also modify the location as necessary to improve the effectiveness of the silt fence.
- B. Materials:
- a. Geotextile Fabric: The geotextile fabric shall meet the requirements of AASHTO M 288, which include requirements for elongation, grab strength, permittivity, apparent opening size, and ultraviolet stability. Regardless of the actual support conditions or post spacing to be used in the field, the geotextile supplied shall meet the quality requirements given in AASHTO M 288 for "unsupported temporary silt fence, 4 foot maximum post spacing."
 - b. Posts: Wood, steel or synthetic posts may be used. Posts shall be of sufficient length, but no less than 4 feet, to ensure adequate embedment while fully supporting the fence and shall have sufficient strength to resist damage during installation and to support applied loads while in service.
- C. Construction and Maintenance Requirements:
- a. Silt Fence: The contractor shall install silt fence as shown on the plans and at other locations directed by the County. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading. Fabric at the bottom of the fence shall be buried a minimum of 6 inches to prevent flow under the barrier. The trench shall be backfilled, and the soil compacted over the fabric. Fabric splices with a minimum 2-foot overlay shall be located only at a support post. Any installation method acceptable to the County will be allowed as long as the effectiveness and intent of the silt fence is achieved.
 - b. Posts: The post spacing shall not exceed 4-feet. Posts shall be driven a sufficient depth into the ground or placed on closer spacing as necessary to ensure adequate resistance to applied loads. The silt fence shall be fastened securely to the upslope side of the post. When wire support fence is used, the wire shall extend into the trench a minimum of 2 inches.

- D. Maintenance: The contractor shall monitor the condition of all fences and repair or replace fences that are not functional as long as the fences are necessary to contain sediment runoff. Any deficiencies shall be corrected by the contractor in accordance with the SWPPP. In addition, the contractor shall review the effectiveness of silt fences in areas where construction activities have changed the natural contour and drainage runoff. Where deficiencies exist, additional silt fences shall be installed as approved or directed by the County.

The contractor shall monitor sediment levels in all sediment control devices and remove sediment prior to the level reaching approximately one-half the fence height. The County may require sediment removal from devices prior to levels reaching the specified limits. The contractor shall dispose of the sediment in a location that does not allow the sediment to erode back into the sediment devices or to pollute streams or other bodies of water. Segments of silt fence that receive heavy sediment loading may require a secondary silt fence or installation of other controls to adequately contain sediment.

Once the project is complete and project site has been seeded, the silt fence shall be removed. The contractor shall remove and dispose of any excess silt accumulation along the fence, shall restore the area to match existing ground condition, and seeding and mulching.

- E. Method of Measurement: The silt fence will be measured to the nearest linear foot from end to end of each separate installation. In addition, the measurement of sediment removal will be made to the nearest tenth of a cubic yard.
- F. Basis of Payment: The accepted quantity of Silt Fence and Sediment Removal will be paid for at the contract unit price for "**New Wastewater Treatment Facility**".

TS-27 CONTRACTOR FURNISHED BORROW

- A. Description: This work will consist of providing approved borrow material required for the construction of embankment or for other portions of the work, and shall be obtained either from borrow areas shown on the plans or from areas designated or approved by the County. The contractor shall notify the County sufficiently in advance of opening any borrow areas so the necessary cross sections or measurements may be taken. A signed, written agreement with the property owner of the borrow site shall be submitted by the contractor to the County prior to excavating any material on that property. **THE COUNTY SHALL NOT BE NAMED AS A THIRD PARTY TO THE AGREEMENT.**
- B. If sources of material are not designated on the plans or described in the contract, or if the contractor desires to use material from sources other than those designated, the contractor shall acquire the necessary rights to take material from the sources and shall pay all costs related thereto, including any that may result from an increase in length of haul. All costs of exploring, meeting environmental requirements and developing such other sources shall be at the contractor's expense. Environmental compliance documentation shall follow MoDOT requirements for contractor furnished borrow, and shall be submitted to the County for review and approval. The use of material from other than designated sources will not be permitted until representative samples taken by the contractor in the presence of the engineer have been approved and written authority is issued for the use thereof. If sources of material or material deposits are provided by the contractor, the engineer will test the samples and determine the suitability of the material.
- C. Environmental Clearances: Environmental clearances under applicable federal and state laws and regulations will include, but are not limited to the following: Clean Water Act (COE and MDNR), the Endangered Species Act (USFW and MDC), the National Historic Preservation Act (SHPO), the

Farmland Protection Act (NRCS), Resource Conservation and Recovery Act (MDNR), Comprehensive Environmental Response (MDNR), Compensation, and Liability Act (MDNR) and RSMo Chapter 194, Section 194.400 Unmarked Human Burial Sites (SHPO). Certification shall be obtained in advance of the proposed use of a borrow site and furnished to the County. Certification shall include clearance letters and other evidence of coordination from the appropriate regulatory agencies as attachments. Guidelines for obtaining environmental clearances for contractor furnished borrow sites may be obtained from the project contact as designated in the contract proposal.

- D. **Optional Borrow Site: Appendix AP-B "OPTIONAL BORROW SITE" shows a location site in Sibley, Missouri. Contractor shall follow all the notes on this plan sheet.**
- E. Method of Measurement: This work will not be measured for payment. The quantities of contractor furnished borrow for which payment will be made will be those shown in the contract, provided the project is constructed essentially to the lines and grades shown on the plans. A partial check of existing ground elevations will be made at the time slope stakes are set, and of the finished work for deviations in the grade, width or slope from the authorized grade or typical section.
- F. Basis of Payment: Payment will be **SUBSIDIARY** to the Unit Bid for "**New Wastewater Treatment Facility**".

TS-28 OLSSON, INC. TECHNICAL SPECIFICATIONS

Additional Technical Specifications have been provided by Olsson, Inc. for this project for JCPW. These pages are numbered 126 to 281. On 9-28-2021, Olsson provided an Addendum 1 to their Technical Specifications, see page 281. All items on this Technical Specification is **SUBSIDIARY** to the Unit Bid for "**New Wastewater Treatment Facility**".

TS-29 PERMITS

The County will provide the General Contractor a permit from the Building Inspector with JCPW Planning and Zoning, at no additional cost.

END OF SECTION

Technical Specifications

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS
JACKSON COUNTY PUBLIC WORKS
VEHICLE SERVICE CENTER
OAK GROVE, MISSOURI
2021**

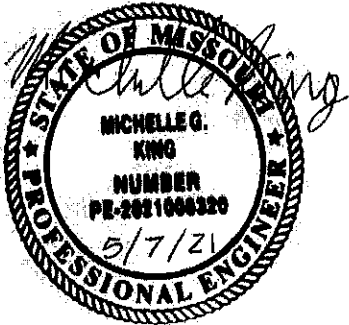

olsson[®]

Olsson Project No. 019-2424

May 2021

Technical Specifications

**WASTEWATER TREATMENT FACILITY IMPROVEMENTS
JACKSON COUNTY PUBLIC WORKS VEHICLE SERVICE CENTER
OAK GROVE, MISSOURI
2021**

SEAL AND SIGNATURE	APPLICABLE SECTIONS
<p>Michelle King, P.E.</p> 	<p>Division 01 Division 02 Division 31 Division 32 Division 33 Division 40</p>
<p>Tim Danner, P.E.</p> 	<p>Division 26</p>

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SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Project information.
- 2. Work covered by Contract Documents.
- 3. Contractor's use of site and premises.
- 4. Specification and Drawing conventions.

- B. Related Requirements:

- 1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

- A. Project Identification: Wastewater Treatment Facility Improvements, Jackson County Public Works Vehicle Service Center.

- 1. Project Location: 34900 E Old US Highway 40, Oak Grove, MO.

- B. Owner: Jackson County Public Works Department.

- 1. Owner's Representative: Earl Newill, PE (enewill@jacksongov.org).

- C. Engineer: Olsson.

- 1. Engineer's Representative: Mike Milius, PE.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:
1. Abandon and demolish existing wastewater treatment plant, install septic tanks and pumping chamber, install approximately 1,200 linear feet of new 4" force main, install approximately 3,500 linear feet of 1" distribution piping, and other Work indicated in the Contract Documents.

1.6 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated by the Contract limits and as indicated by requirements of this Section.
- B. Limits on Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Limits on Use of Site: Confine construction operations to existing wastewater treatment plant, proposed force main alignment, and proposed absorption field as noted on plans.
 2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

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SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance.
- B. Product options.
- C. Product substitution procedures.

1.2 QUALITY ASSURANCE

- A. Contract is based on products and standards established in Contract Documents without consideration of proposed substitutions.
- B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.
- C. Substitution Proposals: Permitted for specified products except where specified otherwise. Do not substitute products unless substitution has been accepted and approved in writing by Owner.

1.3 PRODUCT OPTIONS

- A. See Section 01 60 00 - Product Requirements.

1.4 PRODUCT SUBSTITUTION PROCEDURES

- A. Engineer will consider requests for substitutions only within 30 days after date established in Notice to Proceed.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data, substantiating compliance of proposed substitution with Contract Documents, including:
 - 1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.
 - 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.
 - 3. Reference to Article and Paragraph numbers in Specification Section.

4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 5. Changes required in other Work.
 6. Availability of maintenance service and source of replacement parts as applicable.
 7. Certified test data to show compliance with performance characteristics specified.
 8. Samples when applicable or requested.
 9. Other information as necessary to assist Engineer's evaluation.
- D. A request constitutes a representation that Contractor:
1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 2. Will provide same warranty for substitution as for specified product.
 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Will coordinate installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
 6. Will reimburse Owner and Engineer for review or redesign services associated with reapproval by authorities having jurisdiction.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request or when acceptance will require revision to Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit requests for substitutions on CSI Form 13.1A Substitution Request-After the Bidding/Negotiating Stage .
 2. Submit three copies of Request for Substitution for consideration. Limit each request to one proposed substitution.
 3. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 4. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 25 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Construction progress schedules.
- D. Proposed product list.
- E. Product data.
- F. Shop Drawings.
- G. Samples.
- H. Other submittals.
- I. Design data.
- J. Test reports.
- K. Certificates.
- L. Manufacturer's instructions.
- M. Manufacturer's field reports.
- N. Contractor review.
- O. Owner review.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action.
- B. Informational Submittals: Written and graphic information and physical Samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Owner-accepted form.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and submit electronic submittals via email as PDF electronic files. Coordinate submission of related items.
- F. For each submittal for review, allow 21 days excluding delivery time to and from Contractor.
- G. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- H. Allow space on submittals for Contractor and Owner review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized nor processed.
- L. Incomplete Submittals: Owner will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Owner.

1.4 PROPOSED PRODUCT LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Owner for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus three copies Owner will retain.
- C. Submit electronic submittals via email as PDF electronic files.
- D. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- E. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- F. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Owner for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit electronic submittals via email as PDF electronic files.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.7 SAMPLES

- A. Samples: Action Submittal: Submit to Owner for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
 - 1. Submit to Owner for aesthetic, color, and finish selection.
 - 2. Submit Samples of finishes, textures, and patterns for Owner selection.
- C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.
- D. Include identification on each Sample, with full Project information.
- E. Submit number of Samples specified in individual Specification Sections; Engineer will retain one Sample.
- F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.
- G. Samples will not be used for testing purposes unless specifically stated in Specification Section.
- H. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.8 OTHER SUBMITTALS

- A. Closeout Submittals: Comply with Section 01 70 00 - Execution and Closeout Requirements.
- B. Informational Submittal: Submit data for Owner's knowledge as Contract administrator or for Owner.
- C. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

1.9 TEST REPORTS

- A. Informational Submittal: Submit reports for Owner's knowledge as Contract administrator or for Owner.
- B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.10 CERTIFICATES

- A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or Contractor to Owner, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Owner.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Owner's knowledge as Contract administrator or for Owner.
- B. Submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to Owner in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Informational Submittal: Submit reports for Owner.
- B. Submit report within 14 days of observation to Owner for information.
- C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.13 CONTRACTOR REVIEW

- A. Review for compliance with Contract Documents and approve submittals before transmitting to Owner.
- B. Contractor: Responsible for:
 - 1. Determination and verification of materials including manufacturer's catalog numbers.
 - 2. Determination and verification of field measurements and field construction criteria.
 - 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 - 4. Determination of accuracy and completeness of dimensions and quantities.
 - 5. Confirmation and coordination of dimensions and field conditions at Site.

6. Construction means, techniques, sequences, and procedures.
7. Safety precautions.
8. Coordination and performance of Work of all trades.

- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Owner.

1.14 OWNER REVIEW

- A. Do not make "mass submittals" to Owner. "Mass submittals" are defined as six or more submittals or items in one day or 15 or more submittals or items in one week. If "mass submittals" are received, Owner's review time stated above will be extended as necessary to perform proper review. Owner will review "mass submittals" based on priority determined by Owner after consultation with Contractor.
- B. Informational submittals and other similar data are for Owner's information, do not require Owner's responsive action, and will not be reviewed or returned with comment.
- C. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- D. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order or Work Change Directive.
- E. Owner may withhold monies due to Contractor to cover additional costs beyond the second submittal review.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Labeling.
- E. Manufacturers' field services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.6 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer is subject to approval of Owner.
- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

- D. Refer to Section 01 33 00 - Submittal Procedures, "Manufacturer's Field Reports" Article.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 40 00

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SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Construction Facilities:
 - 1. Vehicular access.
 - 2. Parking.
 - 3. Progress cleaning and waste removal.
- B. Temporary Controls:
 - 1. Water control.
 - 2. Dust control.
 - 3. Erosion and sediment control.
- C. Removal of utilities, facilities, and controls.

1.2 VEHICULAR ACCESS

- A. Provide unimpeded access for emergency vehicles. Maintain 20 foot-wide driveways with turning space between and around combustible materials.
- B. Provide and maintain access to fire hydrants and control valves free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Use existing on-Site roads for construction traffic.

1.3 PARKING

- A. Arrange for temporary gravel surface parking areas to accommodate construction personnel.
- B. Locate as approved by Owner.
- C. If Site space is not adequate, provide additional off-Site parking.
- D. Use of existing on-Site streets and driveways used for construction traffic is permitted. Tracked vehicles are not allowed on paved areas.
- E. Use of existing parking facilities used by construction personnel is not permitted.
- F. Do not allow heavy vehicles or construction equipment in parking areas.

- G. Do not allow vehicle parking on existing pavement.
 - H. Maintenance:
 - 1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, ice, and the like.
 - 2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.
 - I. Removal, Repair:
 - 1. Remove temporary materials and construction before Substantial Completion.
 - 2. Remove underground Work and compacted materials to depth of 2 feet; fill and grade Site as indicated.
 - 3. Repair existing facilities damaged by use, to original condition.
 - J. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.
- 1.4 PROGRESS CLEANING AND WASTE REMOVAL
- A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.
 - B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, before enclosing spaces.
 - C. Collect and remove waste materials, debris, and rubbish from Site periodically and dispose of off-Site.
 - D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.
- 1.5 WATER CONTROL
- A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.
 - B. Protect Site from puddles or running water.
- 1.6 DUST CONTROL
- A. Execute Work by methods that minimize raising dust from construction operations.
 - B. Provide positive means to prevent airborne dust from dispersing into atmosphere and into Owner-occupied areas.

1.7 EROSION AND SEDIMENT CONTROL

- A. Comply with sediment and erosion control plan indicated in Appendix A.

1.8 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.9 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials before Substantial Completion inspection.
- B. Remove underground installations to minimum depth of 2 feet unless otherwise noted.
- C. Clean and repair damage caused by installation or use of temporary Work.
- D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 50 00

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SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Equipment electrical characteristics and components.

1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide bonded off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named, according to Section 01 25 00 - Substitution Procedures.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 60 00

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Examination.
- B. Preparation.
- C. Execution.
- D. Protecting installed construction.
- E. Starting of systems.
- F. Demonstration and instruction.
- G. Testing, adjusting, and balancing.
- H. Closeout procedures.
- I. Project record documents.
- J. Operation and maintenance data.
- K. Manual for materials and finishes.
- L. Manual for equipment and systems.
- M. Spare parts and maintenance products.
- N. Product warranties and product bonds.
- O. Final cleaning.

1.2 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.

- D. Verify that utility services are available with correct characteristics and in correct locations.

1.3 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance according to manufacturer's instructions.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer-required or -recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

1.4 FIELD ENGINEERING

- A. Employ land surveyor registered at Project location and acceptable to [Architect/Engineer] <Owner>.
- B. Locate and protect survey controls and reference points. Promptly notify Owner of discrepancies discovered.
- C. Control datum for survey is indicated on Drawings.
- D. Verify setbacks and easements; confirm Drawing dimensions and elevations.
- E. Provide field engineering services. Establish elevations, lines, and levels using recognized engineering survey practices.
- F. Submit copy of Site drawing and certificate signed by land surveyor certifying elevations and locations of the Work are in conformance with Contract Documents.
- G. Maintain complete and accurate log of control and survey Work as Work progresses.

1.5 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 2. Physically separate products in place and provide electrical insulation or protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual effect choices to Engineer for final decision.
- E. Allow for expansion of materials and building movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- G. Mounting Heights: Where not indicated, mount individual units of Work at industry-recognized standard mounting heights for particular application indicated.
1. Refer questionable mounting height choices to Engineer for final decision.
- H. Adjust operating products and equipment to ensure smooth and unhindered operation.
- I. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.
- 1.6 PROTECTING INSTALLED CONSTRUCTION
- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
 - B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
 - C. Prohibit traffic from landscaped areas.
- 1.7 STARTING OF SYSTEMS
- A. Coordinate schedule for startup of various equipment and systems.
 - B. Notify Owner seven days prior to startup of each item.
 - C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
 - D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.

- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute startup under supervision of manufacturer's representative or Contractors' personnel according to manufacturer's instructions.
- G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01 33 00 - Submittal Procedures stating that equipment or system has been properly installed and is functioning correctly.

1.8 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment as instructed by manufacturer's representative who is knowledgeable about the Project.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate startup, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at designated location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- F. Allot the required instruction time for each item of equipment and system as specified in individual Specification Sections.

1.9 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
 - 1. Submit maintenance manuals, Project record documents, digital images of construction photographs, and other similar final record data in compliance with this Section.
 - 2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.

3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
5. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
6. Make final change-over of locks and transmit keys directly to Owner. Advise Owner's personnel of change-over in security provisions.
7. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
8. Perform final cleaning according to this Section.

B. Substantial Completion Inspection:

1. When Contractor considers Work to be substantially complete, submit to Engineer:
 - a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
2. Within seven days after receipt of request for Substantial Completion, Engineer will make inspection to determine whether Work or designated portion is substantially complete.
3. Should Engineer determine that Work is not substantially complete:
 - a. Engineer will promptly notify Contractor in writing, stating reasons for its opinion.
 - b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Engineer.
 - c. Engineer will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's inspection.
4. When Engineer finds that Work is substantially complete, Engineer will:
 - a. Prepare Certificate of Substantial Completion on EJCDC C-625 - Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Engineer and Owner (final punch list).
 - b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
5. After Work is substantially complete, Contractor shall:

- a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - b. Complete Work listed for completion or correction within time period stipulated.
6. Owner will occupy all of building as specified in Section 01 10 00 - Summary.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
 1. When Contractor considers Work to be complete, submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been examined for compliance with Contract Documents.
 - c. Work has been completed according to Contract Documents.
 - d. Work is completed and ready for final inspection.
 2. Submittals: Submit following:
 - a. Final punch list indicating all items have been completed or corrected.
 - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 - d. Accounting statement for final changes to Contract Sum.
 - e. Contractor's affidavit of payment of debts and claims on AIA G706 - Contractor's Affidavit of Payment of Debts and Claims.
 - f. Contractor affidavit of release of liens on AIA G706A - Contractor's Affidavit of Release of Liens.
 - g. Consent of surety to final payment on AIA G707 - Consent of Surety to Final Payment Form.
 3. Perform final cleaning for Contractor-soiled areas according to this Section.
- D. Final Completion Inspection:
 1. Within seven days after receipt of request for final inspection, Engineer will make inspection to determine whether Work or designated portion is complete.
 2. Should Engineer consider Work to be incomplete or defective:
 - a. Engineer will promptly notify Contractor in writing, listing incomplete or defective Work.
 - b. Contractor shall remedy stated deficiencies and send second written request to Engineer that Work is complete.
 - c. Engineer will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's inspection.

1.10 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Reviewed Shop Drawings, product data, and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates used.
 3. Changes made by Addenda, bulletin, Change Order, and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 2. Include locations of concealed elements of the Work.
 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 5. Identify and locate existing buried or concealed items encountered during Project.
 6. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 7. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 8. Field changes of dimension and detail.
 9. Details not on original Drawings.
- G. Submit PDF electronic files of marked-up documents to Engineer with claim for final Application for Payment.

1.11 OPERATION AND MAINTENANCE DATA

- A. Submit in PDF composite electronic indexed file.
- B. Submit data bound in 8-1/2 x 11-inch text pages, three D side ring binders with durable plastic covers.
- C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project, and subject matter of binder when multiple binders are required.
- D. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- F. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - g. Safety precautions to be taken when operating and maintaining or working near equipment.
 3. Part 3: Project documents and certificates, including the following:
 - a. Shop Drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Originals of warranties and bonds.

1.12 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes before Substantial Completion. Completed volumes, with Engineer comments, will be returned after Substantial Completion. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes within 10 days after final inspection.
- E. Submit in PDF composite electronic indexed file of final volumes within 10 days after final inspection.
- F. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations.
- G. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- H. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
- I. Additional Requirements: As specified in individual product Specification Sections.
- J. Include listing in table of contents for design data, with tabbed fly sheet and space for insertion of data.

1.13 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes before Substantial Completion. Completed volumes, with Engineer comments, will be returned after final inspection. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes within ten days after final inspection.

- E. Submit in PDF composite electronic indexed file of final volumes within ten days after final inspection.
- F. Equipment and Systems: Include description of unit or system and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- G. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed by label machine.
- H. Include color-coded wiring diagrams as installed.
- I. Operating Procedures: Include startup, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.
- J. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- K. Include servicing and lubrication schedule and list of lubricants required.
- L. Include manufacturer's printed operation and maintenance instructions.
- M. Include sequence of operation by controls manufacturer.
- N. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- O. Include control diagrams by controls manufacturer as installed.
- P. Include Contractor's coordination drawings indicating installed color-coded piping diagrams.
- Q. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- R. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- S. Include test and balancing reports as specified in Section 01 40 00 - Quality Requirements.
- T. Additional Requirements: As specified in individual product Specification Sections.
- U. Include listing in table of contents for design data with tabbed dividers and space for insertion of data.

1.14 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.
- B. Deliver to Project Site and place in location as directed by Owner; obtain receipt prior to final payment.

1.15 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.
- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include table of contents and assemble in three D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 - 2. Make other submittals within ten days after date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.16 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment.
 - 1. Employ experienced personnel or professional cleaning firm.
- B. Clean equipment and fixtures to sanitary condition with appropriate cleaning materials.
- C. Clean filters of operating equipment.

- D. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- E. Remove waste and surplus materials, rubbish, and construction facilities from Site.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 70 00

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected site elements.

1.2 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. Hazardous materials will be removed by Owner before start of the Work.
 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.4 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
- B. Remove temporary barricades and protections where hazards no longer exist.

3.2 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated in Drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Dispose of demolished items and materials promptly.
- B. Wastewater Treatment Plant Basins: Clean out basins prior to demolition. Dispose of waste material in accordance with Missouri Department of Natural Resources requirements.
- C. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.3 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.4 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

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SECTION 26 00 00 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sleeves for raceways and cables.
2. Sleeve seals.
3. Grout.
4. Common electrical installation requirements.

1.2 SPECIFICATION FORM AND DEFINITIONS

- A. Design Engineer, hereinafter abbreviated D/E shall mean the Engineering firm, Olsson, Inc., 1301 Burlington Street, Suite 100, North Kansas City, MO 64116. Contact person: Tim Danner.
- B. All drawings and specifications on the project are complementary, each to all other sets, and they shall be used in combination for the execution of this work. Division 26 work shown on any one set of drawings, including all drawings for general work and equipment, and Division 26 work called for under any section of the project specifications, shall be considered as included in this work unless specifically excluded by inclusion in some other branch of the work. This shall include roughing-in for connections and equipment as called for or inferred. The Contractor shall check all drawings and specifications for the project and shall be responsible for the installation of all Division 26 work.
- C. The contract drawings for Division 26 work are in part schematic, intended to convey the scope of work and indicate the general layout, design and arrangement. The Contractor shall follow these drawings in the layout of his work and shall consult general intent construction drawings, structural drawings mechanical drawings and all other drawings for this project to determine all conditions affecting the Division 26 work. The contract drawings are not to be scaled and the Contractor shall verify spaces and conditions in which the Division 26 work is to be installed.
- D. Where specific details and dimensions for Division 26 work are not shown on the drawings, the Contractor shall take measurements and make layouts as required for the proper installation of the work and coordination with all other work on the project. In case of any discrepancies between the drawings and the specifications that have not been clarified by addendum prior to bidding, it shall be assumed by the signing of the contract that the higher cost (if any difference in costs) is included in the contract price, and the Contractor shall perform the work in accordance with the drawings or with the specifications and no additional costs shall be allowed by the contract price.

1.3 WORK INCLUDED

- A. This work shall include all plant, labor, material, and equipment as required to furnish and install Division 26 work including demolition as shown on drawings and as hereinafter specified. Work shall also include all plant, labor, material, and equipment not shown on drawings and not specified but necessary and reasonably incidental to comply with the intent of contract to provide first class and complete installations of Division 26 work. Furnish and install all materials, equipment, devices, and accessories not specifically called for by item but that are necessary to provide the requirements in operation and function that is established by the design and by the equipment specified.
- B. Work shall also include:
1. The procurement of and payment for all permits and licenses required for the performance of the work;
 2. All fees and direct expenses involved in any inspections required for the project;
 3. All job measurements and shop layouts required for the proper installation of material and equipment included in the work.
 4. All lights, guards, and signs as required by safety regulations applicable to the work;
 5. The removal from the premises, as it accumulates, of all dirt and refuse resulting from the performance of the work;
 6. Any modifications or revisions required to existing plant, facility, or systems necessary to perform work as called for or inferred.
- C. The work shall include revisions, modifications, and rework of the existing plant, facility, or systems as required for installation of new work, and for connections between existing work and new work where required. The work shall also include the completion of existing electrical and control circuits, for devices and equipment that are to remain in service, if the circuits are broken by demolition work, or by the removal or cutting of existing building construction, existing devices or equipment. Existing conduit and wiring shall be rerouted where necessary.
- D. Electrical work includes, but is not limited to:
1. Removal and relocation of existing motor starters.
 2. Provide circuit breakers, power outlets, convenience outlets, switches, and/or other equipment forming part of system;
 3. Connection of all appliances and equipment including Owner furnished equipment;
 4. Complete temporary facilities for construction power.

1.4 SHOP DRAWINGS AND SAMPLES

- A. Acceptance of the work shall be subject to the Engineer's approval of shop drawings, product data and samples. Shop drawings shall include manufacturer's detail drawings of equipment and material and Contractor's shop drawings of equipment and material and Contractor's shop details for installation of material and equipment. Descriptive literature shall include catalog data covering design, size and capacity of material and equipment. Samples shall be parts or complete units of material and equipment made available for inspection by the Engineer. Samples shall be as requested by the Engineer.
- B. Submittals shall include the manufacturer's model number, capacity, performance data, electrical characteristics, etc., all clearly shown and marked for the specific item of equipment to be furnished on this project. General catalog data that does not indicate the specifics for the item to be furnished for this project will not be accepted. Performance data shown or marked on the submittals shall be at the actual specified operating conditions for this project.
- C. The Contractor shall, prior to forwarding shop drawings to the Engineer, review all shop drawings, check all conditions and make all corrections and sign and date each set. No shop drawings will be reviewed by the Engineer without signature of Contractor which will signify that he has checked drawings.
- D. Other requirements for shop drawings shall be as specified in the "General Conditions" of these specifications, and in each appropriate specification section.

1.5 RECORD DRAWINGS

- A. The Contractor shall keep a day-to-day record of all changes or variations made from the contract drawings and at the end of the project shall obtain reproducible prints, at the Contractor's cost, of the original contract drawings for Division 26 work and show all changes from the original plans made during the installation of his work. Any reference to Addendum and Change Orders shall be deleted from prints. Drawings shall indicate but not be limited to the following:
 - 1. The correct location of lighting fixtures, feeder conduits, and other equipment where it differs from the location shown on the drawings
 - 2. The location of all switches, receptacles, security devices, panelboards, junction boxes, et cetera.
 - 3. Any other information of a pertinent or useful nature
 - 4. Any change order items not issued on supplementary drawings
- B. All notations shall be made in a neat and legible manner with any additional explanatory drawings or sketches necessary.

- C. The complete set of Record Drawings shall be delivered to the Engineer/Owner at the completion of the work. Final payment will not be made until Record Drawings are received. Requirements for how "Record Drawings" are received and kept in a facility should be coordinated with the Facility Operations Manager.

1.6 CONDUCT AND SEQUENCE IN PERFORMING WORK

- A. The Contractor shall be responsible for a scheduled sequence in performing the work so that it will not interfere with the general operation of the existing building and/or equipment. Before any work is started, the Contractor shall consult with the Owner's designated Representative and arrange a satisfactory schedule. The schedule shall be as approved by the Engineer. Make temporary alterations as required to execute work so that all operations and services in the existing well are maintained with the minimum possible interruption. Temporary shutdowns shall be segregated and shall be of the shortest possible duration. All facilities shall be kept in continuous operation unless specific permission to the contrary is arranged by the Engineer and or the Owner's designated Representative.
- B. The Contractor shall provide to the Owner's designated Representative, prior to any shut down of power or systems, a typewritten detailed proposed procedure of shut down outlining each step including estimated time during the shutdown procedure, during the actual shut down, and during the start procedure. These procedures shall also indicate all equipment and systems that will be affected by the shutdown. The Contractor shall not proceed with any shut down without approval of the procedure from the Owner's designated Representative or the Owner.

1.7 EXISTING MATERIAL AND EQUIPMENT

- A. Existing material and equipment removed from existing construction and not shown or required to be reused shall become the property of the Owner, if they so elect. The Contractor shall present the equipment and materials removed to the Owner's designated Representative and he shall select the equipment and materials which he elects to retain. Material and equipment not retained shall become the property of the Contractor and shall be promptly removed from the site.
- B. Any existing material or equipment which is to be reused or left in place and is damaged by performance of work under this contract shall be repaired or shall be replaced with new equipment and material at the expense of the Contractor, to the satisfaction of the Owner and the Engineer.

1.8 MATERIAL AND MANUFACTURE

- A. All material and equipment shall be new except as stated otherwise; shall be of the best quality and design; shall be free from defects and imperfections and shall have markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. As possible, all material and equipment of the same type shall be of the same manufacturer. Equipment shall function and perform efficiently and quietly at the required capacity without producing objectionable noise within the occupied areas of the building; if not, the Contractor shall remedy the condition or replace the equipment at no additional cost to the contract.

1.9 SUBSTITUTIONS

- A. Reference in the specifications to any article, device, product, material, fixture, equipment, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Any article, device, product, material, fixtures, equipment, form or type of construction other than those specified may be substituted, in accordance with the preliminary matters, general conditions, supplemental conditions applicable unless otherwise specified if in the opinion of the Engineer, it is equal in every respect to that specified.
- B. All products proposed for use, including those specified by required attributes and performance shall require approval by the Engineer/Engineer before being incorporated into the work. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Engineer. Approved substitutions for proprietary materials and systems will be considered, however, approval must be requested prior to use. Burden of proof of equal quality, appearance, performance, and utility rests with the Contractor. Submit technical data and other pertinent information to the Engineer.
- C. Where the phrase "or equal" or "approved equal" occurs in the contract documents, do not assume that materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the Engineer/Engineer. The decision of the Engineer/Engineer shall be final.

1.10 LABOR, WORKMANSHIP, AND SUPERVISION

- A. All labor for the installation of material and equipment furnished under the Division 26 work shall be done by experienced mechanics of the proper trade and all workmanship shall be first class and in compliance with the specific requirements of drawings and specifications.

- B. All material and equipment for the Division 26 work shall be installed under competent supervisory service furnished by the Contractor. Where necessary, this shall include the services of special erection and operation personnel.

1.11 SAFETY REGULATIONS

- A. All Division 26 work shall be performed in compliance with all applicable and governing safety regulations including the regulations of the Occupational and Safety Health Act. All safety lights, signs and guards required for performance of Division 26 work shall be provided by the Contractor.

1.12 PERMITS AND LICENSES

- A. All permits and licenses that are required by governing authorities for the performance of Division 26 work shall be procured and paid for by the Contractor.

1.13 CODES, ORDINANCES, REGULATIONS, AND U.L. APPROVAL

- A. All Division 26 work shall conform to the requirements of all applicable codes, ordinances and regulations including the current rules and regulations of the National Electrical Code, the National Fire Protection Association, O.S.H.A. and all state and local laws, codes and ordinances.
- B. Laws, codes, ordinances, and regulations shall take precedent excepting only where the work called for by the drawings and specifications exceeds by quality and quantity.
- C. Fixtures, appliances, equipment, and materials which are subject to Underwriter's Laboratory tests shall bear such approval.

1.14 CONTRACTOR'S EQUIPMENT

- A. All hoists, scaffolds, staging, runways, tools, machinery, and equipment required for the performance of the Division 26 work shall be furnished by the Contractor.

1.15 COORDINATION AND COOPERATION

- A. The Division 26 trades shall cooperate and confer with all other trades on the project, as to locations of their materials and equipment before erecting the work so as to avoid interference and delay in progress of construction. In instances where interference may develop, the Contractor shall relocate his work as approved by the Engineer/Engineer, to depart from such interferences at no additions to the contract price. Where it is necessary to make adjustments in the locations or routing of conduits, wireways, or other installations (from that shown on drawings) to clear obstructions or other installed work, the Contractor shall be responsible for making these adjustments as a part of the contract work.

- B. The Contractors shall coordinate with the Owner's designated Representative as to scheduling his work in all areas and shall obtain approval from the Owner's designated Representative prior to any disruption of services or activity. All shut down of services shall be maintained to a minimum.

1.16 STORAGE AND PROTECTION

- A. Material and equipment for the Division 26 work shall be protected from dirt and damage and maintained in a clean condition during the performance of the work. This shall include adequate protection from the weather if storage is outside. All parts of material and equipment that have become rusted or damaged shall be replaced or restored to an acceptable condition as approved by the Owner's designated Representative. This shall include factory finishes damaged during construction. Any refinishing shall be spray painted, brush applied paint will not be acceptable.

PART 2 - PRODUCTS

2.1 EQUIPMENT FURNISHED BY OWNER OR OTHER TRADES

- A. Owner furnished equipment includes the following:
 - 1. None
- B. Equipment furnished by other trades includes the following:
 - 1. WWTP Mechanical Pumps (if applicable)
 - 2. PLC cabling, devices, transmitters, sensors
- C. The Contractor shall be responsible for coordinating with the manufacturer for installation of the equipment furnished above as shown on drawings. The Contractor shall be responsible for warranty work required and shall coordinate with the manufacturer of the equipment to accomplish warranty work including any labor and additional cost for such warranty work. The Equipment Manufacturer shall provide the Contractor with installation manuals and instructions to the Contractor. The Contractor shall receive and install this equipment for a complete furnished and installed installation including all accessories as specified within these specifications and as shown on drawings.
- D. The Contractor shall check equipment and trim delivered to job site by Equipment Supplier against approved shop drawings or other required documentation. The Contractor shall report all discrepancies, shortages, or lack of data to the Owner and Equipment Supplier for adjustments within 1 week after equipment is received. If such report is not made within one week, it shall be assumed no discrepancies, shortages, or lack of data has been found.

- E. The Contractor shall be responsible for the installation of, interfacing with, and connection to equipment, whether new, pre-ordered or existing, to ensure complete and operating systems.

2.2 MANUFACTURER'S STANDARD PRODUCTS

- A. It is the intention of these contract documents, drawings and specifications, to require manufacturers' standard products, equipment, components and accessories to complete the work.
- B. The equipment, components and accessories furnished by the Contractor shall be the manufacturer's standard, off-the-shelf products as modified only by the manufacturer's standard options and accessories. Do not provide prototypical equipment, components and accessories when standard, off-the-shelf products are available. Standard products that do not meet these specifications shall not be custom-manufactured or otherwise modified to meet the specifications but shall be rejected.
- C. The Engineer shall make the final determination whether standard, off-the-shelf products are available, and whether any given product is the manufacturer's standard product.
- D. The products of approved manufacturers meet the intent of these specifications.

2.3 ADJUSTING, ALIGNING, AND TESTING

- A. All electrical equipment furnished under this Division shall be adjusted and tested by this Contractor. Motors and other equipment furnished by others, to which electrical connections are made under this Division, shall be checked for short circuit and open circuits before energizing. Motors shall be checked for proper phasing and rotation. The thermal overload protection devices shall be checked in all motor starters, and equipment and all protection device size, motor nameplate full load amperage, and voltage rating for protection of the motor shall be listed (include equipment designation, rating of heater, motor nameplate horsepower, full load amps and voltage) and 4 copies of list shall be submitted to the Engineer.
- B. Mechanism of all electrical equipment shall be checked, adjusted, and tested for proper operation. Protective devices and parts shall be checked and tested for specified and required application and adjusted as required. Adjustable parts of all lighting fixtures and electrical equipment shall be checked, tested, and adjusted as required to produce the intended performance.
- C. Completed wiring systems shall be free from short circuits and after completion, perform tests for insulation resistance in accordance with the requirements of the National Electrical Code.

- D. The Contractor shall be held responsible for the operation, service, and maintenance of electrical equipment during construction and prior to acceptance by the Owner. All electrical equipment shall be maintained in the best operating condition. Operational failure caused by defective material and/or labor furnished under this Division shall be immediately corrected. Engineer shall be immediately notified of any operational failures caused by defective material and/or labor covered under other Divisions or furnished by others.

2.4 ELECTRICAL CIRCUITRY FOR EQUIPMENT

- A. The electrical circuits, components, and controls for all equipment are selected and sized, based on the equipment specified. If substitutions and/or equivalent equipment are furnished, it shall be the responsibility of all parties concerned, involved in, and furnishing the substitute and/or equivalent equipment to verify and compare the electrical characteristics and requirements of that furnished to that specified and/or shown. If greater capacity or more materials or labor is required for the rough-in, circuitry or connections than for the item specified and provided for, then it shall be the responsibility of the parties involved in providing the substitute and/or equivalent items of equipment to provide all compensation for additional charges made for the proper rough-in, circuitry and connections for the equipment furnished. No additional charges above the Base Bid shall be allowed for such revisions.
- B. Before rough-in of circuitry or connecting to equipment, the Contractor shall verify the electrical characteristics and requirements of the equipment being furnished, and for that specified and shown on drawings.

2.5 CLEARANCES

- A. All electrical equipment shall be so installed to maintain proper clearance and headroom as required by the National Electrical Code.

2.6 CUTTING AND PATCHING

- A. The responsibility for any cutting of construction which is required for the installation of Division 26 work, shall be by the Contractor. The Contractor shall coordinate with all other Contractors and the Owner before any cutting and obtain approval from the Engineer prior to any cutting. All patching and finishing shall be by the Contractor.

2.7 EXCAVATION AND BACKFILLING

- A. Perform all excavating and backfilling necessary for the construction and installation of the work included under this Division. Lines shall be used to layout the trenches for all underground work and there shall be no variation from the drawings except upon written order from the Engineer. Trenches close to walls, foundations, and columns shall not be excavated without prior consultation with the Engineer or his Representatives.
- B. All excavations shall be properly protected by the necessary bracing and timbers to prevent any cave-ins or injury to adjacent improvements. Where required to prevent caving, the sides of the trenches shall be securely held by bracing or sheathing, which bracing, or sheathing shall not be removed until the level of the backfill has reached the point where such removal can be safely carried out. Where adjacent improvements might be damaged by the removal of such bracing, the braces shall be left in place to prevent such damage. The thickness of the sheathing and the dimensions of the cross braces, shoes and miscellaneous supports to be used by the Contractor shall be as required and of type to properly protect the sides of the trench and to prevent injurious cave-ins or erosions.
- C. Perform all pumping and bailing necessary to keep all excavations free of water and provide for the uninterrupted flow of the surface water adjacent to the line of work during the progress of the work. Inspect the ground where excavation is required to ascertain the structure of the soil.
- D. In cases where existing water, sewer, gas, electric or other pipes or conduits are encountered, they shall not be displaced or molested unless necessary, in which case, they shall promptly be replaced in good condition. All water, sewer, gas, conduits, or electric lines damaged or molested in the construction shall be replaced or repaired at the Contractor's expense. Prior to opening an excavation, every effort shall be made to determine whether underground installations will be encountered (by examining all available records, by explorations, by hand excavations, by carefully probing, and all other means), and if so, where underground installations are located. When the excavation approaches the approximate location of the underground installations, they shall be carefully uncovered (by hand excavation where required) and shall be protected from damage after uncovering. All known Owners of underground facilities in the area concerned shall be notified of the proposed work at least 48 hours prior to the start of excavation.
- E. Provide all temporary bridges, barricades, lanterns and such other signs and signals as shall be necessary to warn the public of the dangers caused by excavations and other obstructions.
- F. The backfilling of trenches shall be carried out as rapidly as the finished work is approved and will permit. The trench shall be backfilled in layers not to exceed 6" with good selected dry earth thoroughly tamped with pneumatic tamper. Note: Broken stones, cinders, frozen earth, and rubbish are not acceptable for backfilling.

- G. After backfilling, all surplus excavated material shall be removed from the grounds.
- H. The work shall be executed so that existing culverts, drains, catch basins, retaining walls, fences, or any other permanent structure along and adjacent to the new work are properly protected. Any damage occurring to these structures shall be repaired by the Contractor at his own expense.
- I. Make a field inspection of the location along which the underground work is to be constructed and note all obstructions and improvements at the surface and overhead which may affect the method of operation. Such obstructions which may be existing, or which may be encountered shall be protected by the Contractor during this construction. Any expense or inconvenience caused by their existence, and the necessary protection required, shall be considered as covered and included in the contract, without additional cost to the Owner.
- J. Materials to be excavated are not classified under the base bid. Excavation work shall include the removal and subsequent handling of earth, clay, shale, loose rock, solid rock, debris or any other materials encountered within the limits of the work required by the drawings and specifications to the elevations indicated.
- K. Blasting will not be permitted.
- L. Proceed with caution when work is being performed near trees or shrubbery. Provide adequate protection to prevent damage. Trenches shall be kept a minimum distance of 10 ft. from the base of trees where possible, and in no case shall trenching be less than 5 ft. from the base of tree trunks. Any shrubbery damaged shall be replaced with healthy, first quality stock of the same type, variety, and size as existing and the replacement shall be as approved by the Owner. Replacements shall be watered and planted to assure proper growth.

PART 3 - EXECUTION

3.1 DEMOLITION

- A. This work shall include demolition by this Contractor. Demolition shall consist of but not be limited to removal of existing wire, conduit, boxes, existing lighting fixtures, existing devices, as shown on plans or that is in the way of New Construction. This work shall include removal of all the aforementioned items as specified or noted on drawings. It will be the Contractor's responsibility to maintain circuits and circuitry to keep areas in operation not included in demolition work but affected by the demolition work.
- B. The Contractors bidding on this work shall be responsible to visit the project site and determine the existing conditions and shall include in their bid the total cost for this demolition work, and cartage as specified above.

3.2 SAFETY AND LOCKOUT/TAGOUT PROCEDURES

- A. Safety of all personnel during work performed is the responsibility of the Contractor. Working on and around electrical equipment and circuits requires more than normal precautions. Obtain checklist for lockout and tagout of all energy driven equipment from Engineer/Engineer prior to construction.

3.3 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items, unless otherwise noted.
- B. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- C. Right of Way: Give to piping systems installed at a required slope.

END OF SECTION 26 00 00

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Copper Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.
- C. Multi-conductor Cable: Comply with NEMA WC 70 for metal-clad cable, Type MC with ground wire.

2.2 CONNECTORS AND SPLICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. AFC Cable Systems, Inc.
 2. Hubbell Power Systems, Inc.
 3. O-Z/Gedney; EGS Electrical Group LLC.
 4. 3M; Electrical Products Division.
 5. Tyco Electronics Corp.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
- C. Install splice and tap connectors which possess equivalent or better mechanical strength and insulation rating than conductors being spliced. For conductors #8 AWG and smaller, splice and tap connectors shall be spring connectors with molded vinyl caps. For conductors #6 AWG and larger, splice and tap connectors shall be split bolt or compression type installed with hydraulic tool of proper capacity as recommended by the manufacturer for the size of conductor on which the connector is used.

- D. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than #10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.
- E. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A and UL 486B.
- F. Induction motors are to be terminated with bolted pressure connections and insulated with varnished cambric, then Scotch 130C rubber tape and covered with a minimum of three laps of scotch 33+ electrical tape.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper for feeders smaller than No. 4 AWG; copper for feeders No. 4 AWG and larger. Solid or stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger. Sizes noted on drawings are for copper.
- B. Branch Circuits: Copper. Solid or stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. Use no conductors smaller than No. 12 gauge unless specifically called for or approved by Design Engineer. Size wire for 120-volt branch Circuits for 3% maximum voltage drop. Size feeder circuits for 2 percent maximum voltage drop. Combined voltage drop of feeders and branch circuits shall not exceed 5 percent maximum.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Wire in conduit shall be cross-linked polyethylene type XHHW.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW, single conductors in raceway.
- D. Exposed Branch Circuits, Including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

- F. Branch Circuits, below Slabs-on-Grade, and Underground: Type XHHW, cross-linked polyethylene.
- G. Class 1 Control Circuits: Type THHN-THWN, in raceway.
- H. Class 2 Control Circuits: Type THHN-THWN, in raceway Power-limited cable, concealed in building finishes.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Run conductors in conduit continuous between outlets and junction boxes with no splices or taps pulled into conduits.
- B. Neatly route, tie and support conductors terminating at switchboards, motor control centers, panelboards, sound equipment, etc., with Thomas & Betts Ty-Rap cable ties and clamps or equivalent by Electrovert or Panduit.
- C. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- D. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- E. Provide factory-applied nylon or PVC external jacketed wires and cables for pulls in raceways over 100-feet in length, for pulls in raceways with more than three equivalent 90° bends, for pulls in conduits underground or under slabs on grade, and where indicated.
- F. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- G. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.
- H. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- I. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
 - 2. Make circuit conductor splices with Buchanan B-Cap nylon insulated connectors or equivalent by Ideal or 3M.
 - 3. Make fixture and device taps with Scotchlock self-stripping electrical tap connectors.

4. Terminate solid conductors at equipment terminal strips and other similar terminal point with insulated solderless terminal connectors. Terminate all stranded conductor terminal points with insulated solderless terminal connectors. Provide Thomas & Betts Sta-Kon insulated terminals and connectors or equivalent by API/AMP Blackburn, Buchanan or Scotchlock.
5. Where a total of six (6) or more control and feeder conductors terminate in a multiple device panel or enclosure that has no built-in terminal blocks, provide mounting channel and see-thru covers. Equivalent terminal blocks by General Electric, Square D or Westinghouse.
6. Wrap conductor taps and connections requiring additional insulation with a minimum of three (3) overlapped layers of 3M Scotch vinyl plastic electrical tape No. 88 or equivalent.

J. No wiring or conduit shall be placed in the concrete slab.

K. All cables shall be installed in conduit.

3.4 FIELD QUALITY CONTROL

- A. Prior to energizing, check installed wires and cables with megohm meter to determine insulation resistance levels.
- B. Prior to energizing, test wires and cables for electrical continuity and for short circuits.
- C. Subsequent to wire and cable hookups, energize circuits and demonstrate proper functioning. Correct malfunctioning units, and retest to demonstrate compliance.
- D. Color code secondary service, feeder, and branch circuit conductors with factory applied color as follows: For conductors #8 and larger, provide a minimum of 10 wraps of color-coded vinyl tape within 6" of conductor termination points or color-coded insulation.

END OF SECTION 26 05 19

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes methods and materials for grounding systems and equipment. Provide a grounding system as required by the National Electric Code (NEC) and local authorities.

1.2 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.
 - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 0.25-inch diameter.
 - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1.625 inches wide and 0.0625-inch thick.
 - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1.625 inches wide and 0.0625-inch thick.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid or stranded conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 3/0 AWG minimum. Bury at least 24 inches below grade.
- C. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits (exterior only).
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Three-phase motor and appliance branch circuits.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
- B. Report measured ground resistances that exceed the following values:
 1. Power System with Capacity 500 kVA and Less: 5 ohms.
 2. Power System with Capacity 500 to 1000 kVA: 5 ohms.
 3. Power System with Capacity More Than 1000 kVA: 3 ohms.
 4. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm.
- C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.

END OF SECTION 26 05 26

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SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, details, and attachments to other work.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.
- C. Comply with applicable requirements of UL 50, UL 514 Series, and UL 886 pertaining to electrical boxes and fittings. Provide electrical boxes and fittings which are UL listed and labeled.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: Hot dipped galvanized with clear lacquer finish complying with ANSI C80.1.
- B. PVC coated rigid metal conduit complying with ANSI C80.1, UL 6 and NEMA RN-1. Match existing used at for OR Isolation Panel circuits.
- C. Fittings for Conduit (Including all Types and Flexible and Liquidtight), and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

- 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.

2. Fittings for conduit: Steel, compression type.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. ENT: NEMA TC 13.
- B. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- C. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- D. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized, cast iron with gasketed cover.
- E. Hinged-Cover Enclosures: NEMA 250, Type 4, with continuous-hinge cover with flush latch, unless otherwise indicated.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Comply with the following indoor applications, unless otherwise indicated:
 1. Exposed, Not Subject to Physical Damage: Rigid steel conduit.
 2. Exposed, Not Subject to Severe Physical Damage: Rigid steel conduit.
 3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit.
 4. Damp or Wet Locations: Rigid steel conduit.
 5. Boxes and Enclosures: NEMA 250, Type 3R, except use NEMA 250, Type 4, stainless-steel in damp or wet locations.
- B. Minimum Raceway Size: 0.75-inch trade size.
- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
 2. Setscrew fittings shall not be allowed.
- D. Plastic conduit shall not be used above grade for any purpose.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Complete raceway installation before starting conductor installation. Provide insulated throat fittings prior to conductor installation. Failure to do so may result in re-pulling of wiring.
- C. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- D. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
- E. Make conduit connection to motors and equipment on resilient mounts with liquid-tight flexible conduit.
- F. Where conduits cross building expansion joints, provide expansion fittings as required.
- G. Raceways Embedded in Slabs:
 - 1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
 - 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
 - 3. Change from ENT to rigid steel conduit, before rising above the floor.
- H. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.
- I. All below grade non-metallic conduit shall be provided with tracer wire.

END OF SECTION 26 05 33

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SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Equipment identification labels.
7. Miscellaneous identification products.

1.2 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system service type.

C. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

D. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pre-tensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

- E. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pre-tensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- F. Write-On Tags: Polyester tag, 0.010-inch-thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2 METAL-CLAD CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Colors for Raceways Carrying Circuits at 600 V and Less:
 - 1. Black letters on an orange field.
 - 2. Legend: Indicate voltage and system or service type.
- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

2.3 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Write-On Tags: Polyester tag, 0.010-inch-thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

- D. Snap-Around Labels: Slit, pre-tensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- E. Snap-Around, Color-Coding Bands: Slit, pre-tensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.4 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- D. Write-On Tags: Polyester tag, 0.010-inch-thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.5 EQUIPMENT IDENTIFICATION LABELS

- A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 0.375-inch. Overlay shall provide a weatherproof and UV-resistant seal for label.
- B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 0.375-inch.
- C. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

2.6 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in Division 09 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

3.2 IDENTIFICATION SCHEDULE

- A. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
- B. Panelboard Labeling:
 - 1. Provide new circuit directories at all panelboards in which a load alteration has occurred. Labels shall be typed, posted to the inside of the panelboard door and indicate all new and existing loads.

END OF SECTION 26 05 53

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SECTION 31 05 13 - SOILS FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subsoil materials.
2. Topsoil materials.

B. Related Requirements:

1. Section 31 05 16 - Aggregates for Earthwork: Coarse and fine aggregate materials.
2. Section 31 23 16.13 - Trenching: Excavating as required for building foundations and utilities within building perimeter.
3. Section 32 92 19 - Seeding: Fertilizing, seeding, hydroseeding, mulching, and maintenance.

1.2 REFERENCE STANDARDS

A. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
3. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
4. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit name of imported materials source.
- C. Samples: Submit, in airtight containers, 3 -lb. sample of each type of fill to testing laboratory.

1.4 QUALITY ASSURANCE

- A. Furnish each subsoil and topsoil material from single source throughout Work.

- B. Maintain one copy of each standard affecting Work of this Section on Site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Subsoil:

1. Type S1 (Subsoil Fill):
 - a. Excavated and reused material. Select or local borrow.
 - b. Graded.
 - c. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - d. Comply with ASTM D2487 Group Symbol CL.
2. Type S2 (Structural Fill):
 - a. Excavated and reused material Select or local borrow.
 - b. Graded.
 - c. Free of lumps larger than 3 inches, rocks larger than 1 inches, and debris.
 - d. Comply with ASTM D2487 Group Symbol CL.
3. Type S3 (Soil Fill)
 - a. Sandy loam or loamy sand, per Jackson County Missouri Department of Public Works Environmental Health Division On-Site Sewage Disposal Rules and Regulations, Section 10.5.
 - b. Select or local borrow.
 - c. Graded.
 - d. Free of lumps larger than 3 inches, rock larger than 2 inches, and debris.

B. Topsoil:

1. Type S4:
 - a. Excavated and reused material Select or local borrow.
 - b. Graded and single screened.
 - c. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds, and foreign matter.
 - d. Comply with ASTM D2487 Group Symbol OH.

2.2 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Testing and Analysis:

1. Subsoil Material: Comply with ASTM D698 .
2. Topsoil Material: Comply with ASTM D698 .
3. If tests indicate materials do not meet specified requirements, change material and retest.

C. Certificate of Compliance:

1. If supplier is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at source conforms to Contract Documents.
2. Specified source tests are not required for Work performed by approved supplier.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Excavation:

1. Excavate subsoil and topsoil from designated areas.
2. Strip topsoil to full depth of topsoil in designated areas.
3. Remove excess excavated materials, subsoil, and topsoil not intended for reuse from Site.
4. Remove excavated materials not meeting requirements for subsoil and topsoil materials from Site.

B. Stockpiling:

1. Stockpile excavated material meeting requirements for subsoil and topsoil materials.
2. Stockpile materials on Site at locations as designated by Engineer.
3. Stockpile in sufficient quantities to meet Project schedule and requirements.
4. Separate differing materials with dividers or stockpile apart to prevent intermixing of soil types or contamination.
5. Stockpile topsoil maximum 8 feet high.
6. Direct surface water away from stockpile to prevent erosion or deterioration of materials.

3.2 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Leave unused materials in neat, compact stockpile.

END OF SECTION 31 05 13

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SECTION 31 05 16 - AGGREGATES FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Coarse-aggregate materials.
2. Fine-aggregate materials.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Fill and grading materials.
2. Section 31 23 16.13 - Trenching: Excavating as required for building foundations and utilities within building perimeter.
3. Section 33 31 00 - Sanitary Sewerage Piping: Pipe materials and accessories normally encountered with gravity sanitary building piping.
4. Section 33 34 13.13 - Concrete Septic Tanks: Materials and installation requirements for concrete septic tanks.
5. Section 33 34 51 - Drainage Field System: Materials and installation requirements for leach fields used to further treat effluent from septic tanks.

1.2 REFERENCE STANDARDS

A. ASTM International:

1. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
4. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
5. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
6. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit name of imported materials source.

- C. Supplier's Certificate: Certify that products meet or exceed specified requirements.
- D. Source Quality-Control Submittals: Indicate results of shop tests and inspections.

1.4 QUALITY ASSURANCE

- A. Furnish each coarse- and fine-aggregate materials from single source throughout Work.
- B. Maintain one copy of each standard affecting Work of this Section on Site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Coarse Aggregate:

- 1. Type A1 Granular Embedment Material:
 - a. Description: Limestone or crushed natural stone.
 - b. Quality: Free of clay, shale, and organic matter.
 - c. Grading: comply with ASTM C33.
 - d. Size: No. 57.
- 2. Type A2 Crushed Rock Foundation Material:
 - a. Description: Limestone or crushed natural stone.
 - b. Quality: Free of clay, shale, and organic matter.
 - c. Grading: comply with ASTM C33
 - d. Size: No. 357.

2.2 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Testing and Analysis:
 - 1. Coarse-Aggregate Material: Comply with ASTM C136/C136M ASTM D698 ASTM D1557 ASTM D4318 ASTM D6938.
 - 2. Fine Aggregate Material - Testing and Analysis: Perform according to ASTM C136/C136M ASTM D698 ASTM D1557 ASTM D4318ASTM D6938.
 - 3. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Certificate of Compliance:

1. If supplier is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at source conforms to Contract Documents.
2. Specified source tests are not required for Work performed by approved supplier.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Stockpiling:

1. Stockpile materials on Site at locations as designated by Engineer.
2. Stockpile excavated material meeting requirements for coarse-aggregate and fine-aggregate materials.
3. Stockpile in sufficient quantities to meet Project schedule and requirements.
4. Separate different aggregate materials with dividers or stockpile apart to prevent intermixing of aggregate types or contamination.
5. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.2 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Stockpile: Leave unused materials in neat, compact stockpile.

END OF SECTION 31 05 16

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SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Clearing and grubbing.

1.3 DEFINITIONS

- A. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify 1-800-DIG-RITE for area where Project is located before site clearing.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 05 13 "Soils for Earthwork."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 EXISTING UTILITIES

- A. Locate, identify, and disconnect utilities indicated to be abandoned in place.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- C. Excavate for and remove underground utilities indicated to be removed.

3.3 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.

3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

END OF SECTION 31 10 00

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SECTION 31 23 16.13 - TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating trenches for utilities.
2. Compacted fill from top of utility bedding to subgrade elevations.
3. Backfilling and compaction.

B. Related Sections:

1. Section 31 05 13 - Soils for Earthwork: Soils for fill.
2. Section 31 05 16 - Aggregates for Earthwork: Aggregates for fill.
3. Section 33 31 00 - Sanitary Utility Sewerage Piping: Sanitary sewer piping and bedding.
4. Section 33 34 13.13 - Concrete Septic Tanks.

1.2 REFERENCES

A. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort.
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 QUALITY ASSURANCE

- A. Maintain one copy of each document on site.

1.5 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.6 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: Type S2 as specified in Section 31 05 13.

PART 3 - EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

- A. Call Local Utility Line Information service at 1-800-DIG-RITE not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

3.3 TRENCHING

- A. Excavate subsoil required for utilities to utility service.
- B. Remove lumped subsoil, boulders, and rock up of 1/3 cubic yard, measured by volume.
- C. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements.
- D. Do not advance open trench more than 200 feet ahead of installed pipe.
- E. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- F. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- H. Do not interfere with 45 degree bearing splay of foundations.
- I. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls can not be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- J. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered.
- K. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type A2 and compact to density equal to or greater than requirements for subsequent backfill material.
- L. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- M. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
- N. Remove excess subsoil not intended for reuse, from site.
- O. Stockpile subsoil in area designated on site to depth not exceeding 8 feet and protect from erosion.

- P. Stockpile excavated material in area designated on site in accordance with Section 310516.

3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be left in place as part of the completed Work, cut off minimum 18 inches below finished grade.
- D. Design sheeting and shoring to be removed at completion of excavation work.
- E. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- F. Repair damage to new Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact in accordance with schedule at end of this section.
- D. Employ placement method that does not disturb or damage , utilities in trench, .
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Do not leave more than 50 feet of trench open at end of working day.
- G. Protect open trench to prevent danger to Owner.

3.6 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.

- B. Top Surface of General Backfilling: Plus or minus 1 inch (25 mm) from required elevations.

3.7 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.8 SCHEDULE

- A. Storm and Sanitary Piping:
 - 1. Cover pipe and bedding with Fill Type S2: To subgrade elevation.
 - 2. Compact uniformly to minimum 95 percent of maximum density.

END OF SECTION 31 23 16.13

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SECTION 32 92 00 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Seeding.
 - 2. Hydroseeding.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 INFORMATIONAL SUBMITTALS

- A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

- B. Product Certificates: For fertilizers, from manufacturer.
- C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
- C. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk materials with appropriate certificates.

1.6 FIELD CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
 - 1. Spring Planting: April 1 to July 1.
 - 2. Fall Planting: September 15 to November 15.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

1. 90% Turf-Type Fescue: Jaguar III or Coyote, Tulsa, Pixie, Falcon II and SR 8200 or equal; and 10% Turf-Type Perennial Ryegrass (Endophyte Enhanced) or equal; free of noxious weeds and crabgrass; 98% purity seeding rate: 8 pounds per 1,000 square feet. The Contractor, at his option, may submit an alternative seed mixture.

2.2 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 1. Composition:
 - a. 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Engineer and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
 - 2. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.
 - 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 2. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at indicated rates.
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with erosion-control mats where indicated on Drawings; install and anchor according to manufacturer's written instructions.
- F. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
 - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.
 - 2. Bond straw mulch by spraying with asphalt emulsion at a rate of 10 to 13 gal./1000 sq. ft.. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.
- G. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.

3.4 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, , and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
1. Mix slurry with tackifier.
 2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.
 3. Spray-apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry coat at a rate so that mulch component is deposited at not less than 500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate. Apply slurry cover coat of fiber mulch (hydromulching) at a rate of 1000 lb/acre.

3.5 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect/Engineer:
1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
 3. Satisfactory Plugged Turf: At end of maintenance period, the required number of plugs has been established as well-rooted, viable patches of grass, and areas between plugs are free of weeds and other undesirable vegetation.
 4. Satisfactory Sprigged Turf: At end of maintenance period, the required number of sprigs has been established as well-rooted, viable plants, and areas between sprigs are free of weeds and other undesirable vegetation.
- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.6 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 32 92 00

SECTION 33 05 07.13 - UTILITY DIRECTIONAL DRILLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavation for approach trenches and pits.
2. Horizontal directional drilling.
3. Pipe.
4. Drilling fluid system.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Subsoil fill as required by this Section.
2. Section 31 23 16.13 - Trenching: Trenching as required by this Section.
3. Section 33 61 00 - Hydronic Energy Distribution: Heating system pipe testing.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. American Water Works Association:

1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
2. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In., for Water Transmission and Distribution.
3. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. Through 3 In., for Water Service.
4. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 63 In., for Water Distribution and Transmission.

C. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort .
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort .
3. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
4. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

5. ASTM D2239 - Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.
6. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
7. ASTM D2464 - Standard Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
8. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
9. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
10. ASTM D2683 - Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.
11. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
12. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets.
13. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
14. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
15. ASTM D3261 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
16. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
17. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
18. ASTM F714 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter.
19. ASTM F1056 - Standard Specification for Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe or Tubing and Fittings.
20. ASTM F1962 - Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings.

D. North American Society for Trenchless Technology:

1. NASTT - Horizontal Directional Drilling Good Practices Guidelines.

E. Plastics Pipe Institute:

1. PPI TR-46 - Guidelines for Use of Mini-Horizontal Directional Drilling for Placement of High Density Polyethylene Pipe.

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

- B. Coordinate Work of this Section with Jackson County Department of Public Works and utilities within construction area.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 - 1. Identify source of water used for drilling.
 - 2. Submit copy of approvals and permits for use of water source.
- C. Shop Drawings:
 - 1. Submit technical data for equipment, method of installation, and proposed sequence of construction.
 - 2. Include information pertaining to pits, dewatering, method of spoils removal, and equipment size, capacity, and capabilities, including installing pipe on radius, type of drill bit, drilling fluid, method of monitoring line and grade, detection of surface movement, name plate data for drilling equipment, and mobile spoils removal unit.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- F. Qualifications Statement:
 - 1. Submit qualifications for driller.
- G. Submit Jackson County Department of Public Works occupancy permit for installations under public thoroughways and lands.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of pipe and centerline elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- D. Record actual depth of pipe at 25 -foot intervals.
- E. Record actual horizontal location of installed pipe.

- F. Show depth and location of abandoned bores.
- G. Record depth and location of drill bits and drill stems not removed from bore.

1.6 QUALITY ASSURANCE

- A. Perform Work according to following:
 - 1. NASST - Horizontal Directional Drilling Good Practices Guidelines.
 - 2. ASTM F1962.
 - 3. PPI TR-46.
- B. Maintain copy of each standard affecting Work of this Section on Site.

1.7 QUALIFICATIONS

- A. Driller: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling:
 - 1. Use shipping braces between layers of stacked pipe.
 - 2. Support pipes with nylon slings during handling.
- D. Storage:
 - 1. According to manufacturer instructions.
 - 2. Stack piping lengths no more than three layers high.
 - 3. Store field joint materials in original shipping containers in dry area indoors.
- E. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Protect pipe from entry of foreign materials and water by installing temporary covers, completing sections of Work, and isolating parts of completed system.
 - 3. Provide additional protection according to manufacturer instructions.

1.9 AMBIENT CONDITIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Maintain storage temperature of 60 to 85 degrees F.

1.10 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 HORIZONTAL DIRECTIONAL DRILLING

- A. Performance and Design Criteria:
 - 1. Drilling Steering System: Remote with continuous electronic monitoring of boring depth and location.
 - 2. Directional Change Capability: 90 degrees with 35-foot radius curve.
 - 3. Minimum distance for single bores and between boring pits:
 - a. Pipe Size 1 to 1-1/2 Inches: 400 feet.
 - b. Pipe Size 2 to 2-1/2 Inches: 350 feet.
 - c. Pipe Size 3 to 6 Inches: 300 feet.
 - 4. Ratio of Reaming Diameter to Pipe OD:
 - a. Nominal Pipe Diameter of 6 Inches and Smaller: Maximum of 1.5.
 - b. Nominal Pipe Diameter Larger Than 6 Inches: Submit recommended ratio and reaming procedures for review by Architect/Engineer.
- B. Water Source:
 - 1. Potable.
 - 2. Obtained from utility source.
- C. Underground Pipe Markers: As specified in Section 33 05 97 - Identification and Signage for Utilities.
- D. Materials:
 - 1. Drilling Fluid: Liquid bentonite clay slurry; totally inert with no environmental risk.

- E. Polyethylene (PE) Piping:
 - 1. Pipe: Comply with ASTM D3035, DR 17 for 100-psig pressure rating.
 - 2. Materials:
 - a. Comply with ASTM D3350.
 - b. Minimum Cell Classification: 345464-C.
 - 3. Fittings:
 - a. Comply with AWWA C906.
 - b. Style: Molded.
 - 4. Joints:
 - a. End Connections: Socket, solvent welded; ASTM D2855 .
- F. Subsoil Fill: Type S1, as specified in Section 31 05 13 - Soils for Earthwork; excavated and reused soil with no rocks more than 6 inches in diameter, frozen earth, or foreign matter.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that sizes, locations, and centerline elevations are according to Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Local Utility:
 - 1. Call local utility line information service at 1-800-DIG-RITE not less than three working days before performing Work.
 - 2. Request underground utilities to be located and marked within and surrounding construction areas.
 - 3. Request utility company to remove or relocate utilities.
- C. Maintain access to existing services indicated to remain; modify pipe installation to maintain access to existing facilities.
- D. Locate and identify utilities indicated to remain and protect from damage.

- E. Identify required lines, levels, contours, and data locations.
- F. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- G. Protect benchmarks and survey control points from excavating equipment and vehicular traffic.
- H. Establish pipe elevations with not less than 3.5 feet of cover.
- I. Establish minimum separation between force main and other services, as specified for tolerances.

3.3 INSTALLATION

A. Dewatering:

- 1. Intercept and divert surface drainage, precipitation, and ground water away from excavation using dikes, curb walls, ditches, pipes, sumps, or other approved means.
- 2. Develop and maintain substantially dry subgrade during drilling and pipe installation.
- 3. Comply with Jackson County requirements for discharging water to watercourse, preventing stream degradation, and controlling erosion and sediment.

B. Excavation:

- 1. Excavate subsoil as specified in Section 31 23 16.13 - Trenching.
- 2. Excavate approach trenches and pits according to Shop Drawings and as Site conditions require; minimize number of access pits.
- 3. Provide sump areas to contain drilling fluids.
- 4. Install excavation supports as specified in Section 31 23 16.13 - Trenching.
- 5. Restore areas after completion of drilling and carrier pipe installation.

C. Drilling:

- 1. Drill pilot bore with vertical and horizontal alignment as indicated on Drawings.
- 2. Surveying:
 - a. Survey entire drill path and mark entry and exit locations with stakes.
 - b. If a magnetic guidance system is used, survey drill path for surface geomagnetic variations or anomalies.
- 3. Guiding:
 - a. Guide drill remotely from ground surface to maintain alignment by monitoring signals transmitted from drill bit.
 - b. Monitor depth, pitch, and position.
 - c. Adjust drill head orientation to maintain correct alignment.

4. Drilling Fluid:
 - a. Inject drilling fluid into bore to stabilize hole, remove cuttings, and lubricate drill bit and pipe.
 - b. Continuously monitor drilling fluid pumping rate, pressure, viscosity, and density while drilling pilot bore, back reaming, and installing pipe to ensure adequate removal of soil cuttings and stabilization of bore.
 - c. Provide relief holes when required to relieve excess pressure.
 - d. Minimize heaving during pullback.
 5. Verification of Accuracy:
 - a. Calibrate and verify electronic monitor accuracy during first 50 feet of bore in presence of Architect/Engineer before proceeding with other drilling.
 - b. Excavate minimum of four test pits spaced along first 50 feet of bore to verify required accuracy.
 - c. If required accuracy is not met, adjust equipment or provide new equipment capable of meeting required accuracy.
 6. After completing pilot bore, remove drill bit.
- D. Drilling Obstructions:
1. If obstructions are encountered during drilling, notify Architect/Engineer immediately.
 2. Do not proceed around obstruction without approval of Architect/Engineer.
 3. For conditions requiring more than 3 feet of deviation in horizontal alignment, submit revised Shop Drawings to Architect/Engineer for approval before resuming Work.
 4. Maintain adjusted bore alignment within easement or right-of-way.
- E. Piping:
1. Install reamer and pipe pulling head; select reamer with minimum bore diameter required for pipe installation.
 2. Attach pipe to pipe pulling head and pull reamer and pipe to entry pit along pilot bore.
 3. Inject drilling fluid through reamer to stabilize bore and lubricate pipe.
 4. Install piping with horizontal and vertical alignment as shown on Drawings.
 5. Protect and support pipe being pulled into bore such that pipe moves freely and is not damaged during installation.
 6. Do not exceed pipe manufacturer's recommended pullback forces.
 7. Trace Wire:
 - a. Install trace wire continuous with each bore.
 - b. Splice trace wire only at intermediate bore pits.
 - c. Tape or insulate trace wire to prevent corrosion and maintain integrity of pipe detection.
 - d. Terminate trace wire for each pipe run at structures along pipe system.

- e. Provide extra length of trace wire at each structure such that trace wire can be pulled 3 feet out top of structure for connection to detection equipment.
 - f. Test trace wire for continuity for each bore before acceptance.
8. Mark location and depth of bore with spray paint on paved surfaces and on wooden stakes on non-paved surfaces at 25-foot intervals.
- F. Slurry Removal and Disposal:
1. Contain excess drilling fluids at entry and exit points until recycled or removed from Site; provide recovery system to remove drilling spoils from access pits.
 2. Drilling Spoils:
 - a. Remove, transport, and legally dispose of drilling spoils.
 - b. Do not discharge drilling spoils in sanitary sewers, storm sewers, or other drainage systems.
 - c. When drilling in suspected contaminated soil, test drilling fluid for contamination before disposal.
 3. If drilling fluid leaks to surface, immediately contain leak and barricade area from vehicular and pedestrian travel before resuming drilling operations.
 4. Complete cleanup of drilling fluid at end of each working day.
- G. Backfilling:
1. Install backfill as specified in Section 31 23 16.13 - Trenching.
 2. Backfill approach trenches and pits with subsoil fill to contours and elevations of surrounding existing grade.
 3. Compact subsoil fill as specified in Section 31 23 16.13 - Trenching to minimum 95 percent of maximum density.
- 3.4 TOLERANCES
- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
 - B. Maximum Variation from Horizontal Position: 12 inches.
 - C. Maximum Variation from Vertical Elevation: 2 inches.
 - D. Minimum Horizontal and Vertical Clearance from Other Utilities: 12 inches.
 - E. Deviation:
 1. If pipe installation deviates beyond specified tolerances, abandon bore, remove installed pipe, rebore, and reinstall pipe in correct alignment.
 2. Fill abandoned bores greater than 3 inches in diameter with grout or flowable fill material.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 01 70 00 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- C. Certify that equipment for drilling has been properly set up and is ready for drilling.

3.6 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Upon completion of drilling and pipe installation, remove drilling spoils, debris, and unacceptable material from approach trenches and pits.
- C. Clean up excess slurry from ground.
- D. Restore approach trenches and pits to original condition.
- E. Remove temporary facilities for drilling operations as specified in Section 01 50 00 - Temporary Facilities and Controls.

END OF SECTION 33 05 07.13

SECTION 33 05 61 CONCRETE MANHOLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Modular precast concrete manholes and structures with tongue-and-groove joints and transition to cover frame, covers, anchorage, and accessories.
2. Doghouse manhole connections to existing sanitary sewer lines.
3. Bedding and cover materials.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Soils for backfill in trenches.
2. Section 31 05 16 - Aggregates for Earthwork: Aggregate for backfill in trenches.
3. Section 33 31 00 - Sanitary Sewerage Piping: Piping connections to manholes.
4. Section 33 31 23 - Sanitary Sewerage Force Main Piping:

1.2 DEFINITIONS

- A. Bedding: Specialized material placed under manhole prior to installation and subsequent backfill operations.

1.3 REFERENCE STANDARDS

A. American Association of State Highway Transportation Officials:

1. AASHTO M91 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
2. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
3. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures.

C. ASTM International:

1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
4. ASTM C55 - Standard Specification for Concrete Building Brick.
5. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
6. ASTM C361M - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe (Metric).
7. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
8. ASTM C478M - Standard Specification for Precast Reinforced Concrete Manhole Sections (Metric).
9. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
10. ASTM C497M - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile (Metric).
11. ASTM C877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
12. ASTM C877M - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections (Metric).
13. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
14. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
15. ASTM C923M - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals (Metric).
16. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
17. ASTM C990M - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants (Metric).
18. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
19. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information for manhole covers, component construction, features, configuration, and dimensions .
- C. Shop Drawings:
 1. Indicate structure locations and elevations.
 2. Indicate sizes and elevations of piping and penetrations .
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- F. Source Quality-Control Submittals: Indicate results of factory tests and inspections.
- G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of manholes and connections, and record invert elevations.

1.6 QUALITY ASSURANCE

- A. Maintain one copy of each standard affecting Work of this Section on Site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling: Comply with precast concrete manufacturer instructions and ASTM C913 for unloading and moving precast manholes and drainage structures.
- D. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property.
 - 3. Repair property damaged from materials storage.
- E. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

1.9 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish five -year manufacturer's warranty for concrete manholes.

PART 2 - PRODUCTS

2.1 CONCRETE AND MASONRY MANHOLES

A. Manhole Sections:

1. Materials:
 - a. Reinforced Precast Concrete: Comply with ASTM C478.
 - b. Gaskets: Comply with ASTM C923.
2. Joints:
 - a. Comply with ASTM C913.
 - b. Maximum Leakage: 0.025 gal. per hour per foot of joint at 3 feet of head.

B. Concrete Block Units:

1. Comply with ASTM C55.
2. Weight: Normal.
3. Nominal Modular Size: 12 by 12 by 12 inches.

C. Shape: Cylindrical.

D. Clear Inside Dimensions:

1. Diameter: 48 inches.
2. As indicated on Drawings.

E. Design Depth:

1. As indicated on Drawings.

- F. Clear Cover Opening:
 - 1. Diameter: 24 inches.
- G. Pipe Entry: Furnish openings as indicated on Drawings.
- H. Structure Joint Sealant:
 - 1. Material: Mastic.

2.2 FRAMES AND COVERS

- A. Description:
 - 1. Material:
 - a. Cast iron.
 - b. Comply with AASHTO M306.
 - 2. Lid:
 - a. Bearing Surface: Machined flat.
 - b. Configuration: Removable.
 - c. Security: None.
 - 3. Cover Design: Closed.
 - 4. Nominal Lid Size: 24 inches.

2.3 RISER RINGS

- A. Riser Rings:
 - 1. Thickness of 4 to 6 Inches:
 - a. Precast concrete.
 - b. Comply with ASTM C478.
 - 2. Thickness Less Than 4 Inches:
 - a. Cast iron.
 - b. Comply with AASHTO M306.
 - 3. Rubber Seal Wraps:
 - a. Wraps and Band Widths: Comply with ASTM C877, Type III.
 - b. Cone/Riser Ring Joint: Minimum 3-inch overlap.
 - c. Frame/Riser Ring Joint: 2-inch overlap.
 - d. Additional Bands: Overlap upper band by 2 inches.

2.4 MATERIALS

A. Cover and Bedding:

1. Bedding: Fill Type A2, as specified in Section 31 05 16 - Aggregates for Earthwork.
2. Cover: Fill Type A1, as specified in Section 31 05 16 - Aggregates for Earthwork.

2.5 ACCESSORIES

A. Steps:

1. Rungs: Formed PP.
2. Fabrication: Formed integral with manhole sections.
3. Diameter: 3/4 inch.
4. Width:
 - a. 12 inches.
5. Spacing:
 - a. 16 inches o.c. vertically, set into structure wall.

2.6 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Provide shop inspection and testing of completed assembly.
- C. Certificate of Compliance:
 1. If manufacturer is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at manufacturer's facility conforms to Contract Documents.
 2. Specified shop tests are not required for Work performed by approved manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

- B. Verify that items provided by other Sections of Work are properly sized and located.
- C. Verify that built-in items are in proper location and are ready for roughing into Work.
- D. Verify that excavation base is ready to receive Work and excavations and that dimensions and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers as indicated on Drawings to indicate its intended use.
- C. Coordinate placement of inlet and outlet pipe or duct sleeves as required by other Sections.
- D. Do not install manholes and structures where Site conditions induce loads exceeding structural capacity of manholes or structures.
- E. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

- A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface structures or utilities in immediate or adjacent areas.
- B. Correct over-excavation with fine aggregate.
- C. Remove large stones or other hard matter impeding consistent backfilling or compaction.
- D. Protect manhole from damage or displacement while backfilling operation is in progress.
- E. Excavating:
 - 1. Provide clearance around sidewalls of manhole or structure for construction operations and granular backfill.
 - 2. If ground water is encountered, prevent accumulation of water in excavations; place manhole or structure in dry trench.
 - 3. Where possibility exists of watertight manhole or structure becoming buoyant in flooded excavation, anchor manhole or structure to avoid flotation as approved by Engineer.

F. Base and Alignment:

1. Install manholes supported at proper grade and alignment on compacted crushed-stone bedding.
2. Grout base of shaft sections to achieve slope to exit piping, trowel smooth, and contour to form continuous drainage channel.
3. Form and place manhole or structure cylinders plumb and level, to correct dimensions and elevations.

G. Attachments:

1. Cut and fit for pipe.
2. Set cover frames and covers level to correct elevations without tipping.

H. Backfilling: As specified in Section 31 05 13 - Soils for Earthwork.

I. Coating: Paint interior with two coats of bituminous interior coating at rate of 30 sq. ft./gal. for each coat.

J. Precast Concrete Manholes:

1. Lift precast components at lifting points designated by manufacturer.
2. When lowering manholes into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
3. Assembly:
 - a. Assemble multisection manholes and structures by lowering each section into excavation.
 - b. Install rubber gasket joints between precast sections according to manufacturer recommendations.
 - c. Lower, set level, and firmly position base section before placing additional sections.
4. Remove foreign materials from joint surfaces and verify that sealing materials are placed properly.
5. Maintain alignment between sections by using guide devices affixed to lower section.
6. Joint sealing materials may be installed on Site or at manufacturer's plant.
7. Verify that installed manholes meet required alignment and grade.
8. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe; fill annular spaces with mortar.
9. Shape inverts through manhole as indicated on Drawings.

K. Doghouse Manholes and Structures:

1. Stake out location and burial depth of existing sewer line in area of proposed manhole or structure.
2. Carefully excavate around existing sewer line to adequate depth for foundation slab installation.

3. Protect existing pipe from damage.
 4. Bear firmly and fully on compacted crushed stone bedding.
 5. Install precast concrete manhole or structure around existing pipe according to applicable Paragraphs in this Section.
 6. Grout pipe entrances.
- L. Installation Standards: Install Work according to Jackson County Department of Public Works standards.

END OF SECTION 33 05 61

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SECTION 33 31 00 - SANITARY SEWERAGE PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sanitary sewerage gravity piping.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Soil for backfill in trenches.
2. Section 31 05 16 - Aggregates for Earthwork: Aggregate for backfill in trenches.
3. Section 31 23 16.13 - Trenching: Requirements for trenching as required by this Section.

1.2 DEFINITIONS

- A. Bedding: Fill placed under, beside, and directly over pipe, prior to subsequent backfill operations.

1.3 REFERENCE STANDARDS

A. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
3. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
4. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
5. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
6. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems.
7. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
8. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.
9. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
10. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

11. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.4 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with termination of sanitary sewer connection outside building, connection to septic tanks and pumping chamber, and trenching.

1.5 CLOSEOUT SUBMITTALS

- A. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

- A. Maintain one copy of each standard affecting Work of this Section on Site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
 1. Store materials according to manufacturer instructions.
 2. Store valves in shipping containers with labeling in place.
- D. Protection:
 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 2. Block individual and stockpiled pipe lengths to prevent moving.
 3. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

- A. Field Measurements:
 1. Verify field measurements prior to fabrication.
 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 SANITARY SEWERAGE PIPING

A. Plastic Pipe:

1. Material: PVC.
2. Comply with ASTM D3034, SDR-26.
3. End Connections: Bell and spigot with rubber-ring-sealed gasket joint.
4. Fittings: PVC.
5. Joints:
 - a. Elastomeric gaskets.
 - b. Comply with ASTM F477.

2.2 FLEXIBLE COUPLINGS

A. Manufacturers:

1. Fernco Inc.
2. Romac Industries, Inc.
3. Substitutions: As specified in Section 01 60 00 - Product Requirements.

B. Description:

1. Material: Resilient, chemical-resistant, elastomeric PVC.
2. Attachment: Two Series-300 stainless-steel clamps, screws, and housings.

2.3 FLEXIBLE PIPE BOOTS FOR MANHOLE PIPE ENTRANCES

A. Manufacturers:

1. A-Lok.
2. Substitutions: As specified in Section 01 60 00 - Product Requirements.

B. Description:

1. Material: EPDM.
2. Comply with ASTM C923.
3. Attachment: Series-300 stainless-steel clamp and hardware.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that trench cut is ready to receive Work of this Section.
- B. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Correct over-excavation with fine aggregate.
- B. Remove large stones or other hard materials that could damage pipe or impede consistent backfilling or compaction.
- C. Protect and support existing sewer lines, utilities, and appurtenances.
- D. Utilities:
 - 1. Maintain profiles of utilities.
 - 2. Coordinate with other utilities to eliminate interference.
 - 3. Notify Engineer if crossing conflicts occur.

3.3 INSTALLATION

- A. Piping:
 - 1. Install pipe, fittings, and accessories according to ASTM D2321, and seal joints watertight.
 - 2. Lay pipe to slope gradients as indicated on Drawings.
 - 3. Begin at downstream end of system and progress upstream.
 - 4. Lay bell-and-spigot pipe with bells upstream.
 - 5. Backfill and compact as specified in Section 31 23 16.13 - Trenching.
 - 6. Do not displace or damage pipe when compacting.
 - 7. Connect to building sanitary sewer outlet .
 - 8. Installation Standards: Install Work according to Jackson County Department of Public Works standards.
- B. Backfilling:
 - 1. Backfill around sides and to top of pipe with cover fill in minimum lifts of 6 inches.
 - 2. Tamp fill in place, and compact to 95 percent of maximum density.
 - 3. Place and compact material immediately adjacent to pipes to avoid damage to pipe and prevent pipe misalignment.
 - 4. Maintain optimum moisture content of bedding material as required to attain specified compaction density.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
- B. Maximum Variation from Indicated Slope: 1/8 inch in 10 feet.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Testing:
 - 1. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.
 - 2. Perform testing on Site sanitary sewage system according to Jackson County Department of Public Work's standards.

3.6 PROTECTION

- A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.
- B. Cap open ends of piping during periods of Work stoppage.

END OF SECTION 33 31 00

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SECTION 33 31 23 - SANITARY SEWERAGE FORCE MAIN PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Force mains.
2. Bedding and cover materials.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Soil backfill from above pipe to finish grade.
2. Section 31 05 16 - Aggregates for Earthwork: Aggregate for pipe bedding and cover.
3. Section 31 23 16.13 - Trenching: Excavation, backfilling, compacting, and fill over underground pipe markers.

1.2 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
3. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
4. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
5. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In., for Water Transmission and Distribution.

B. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
3. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
4. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
5. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
6. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
7. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information indicating pipe material used, pipe accessories, valves, restrained joint details and materials.
- C. Shop Drawings:
 - 1. Indicate piping piece numbers and locations.
 - 2. Indicate restrained joint locations.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record centerline elevations and actual locations of pipe runs and connections.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

- A. Maintain one copy of each standard affecting Work of this Section on Site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
 - 1. Store materials according to manufacturer instructions.

2. Do not place materials on private property without written permission of property owner.
3. Do not stack pipe higher than recommended by pipe manufacturer.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Store gaskets for mechanical and push-on joints in cool and dry location, out of direct sunlight, and not in contact with petroleum products.
3. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PVC PIPE

A. PVC Pressure Sewer Pipe and Fittings, 12-Inch Nominal Size and Smaller:

1. Comply with ASTM D2241.
2. PVC 1120.
3. SDR: 26.
4. Fittings: Comply with ASTM D2466.
5. Tracer Wire: Green 12 Gauge THHN (Plastic-Coated) Copper Wire
6. Tracer Wire Splices: 3M DBR Water-Tight Connector, or Approved Equal.

2.2 MATERIALS

A. Bedding and Cover:

1. Bedding: Fill Type A1, as specified in Section 31 05 16 - Aggregates for Earthwork.
2. Cover: Fill Type A1, as specified in Section 31 05 16 - Aggregates for Earthwork.
3. Soil Backfill from above Pipe to Finish Grade: Soil Type S2, as specified in Section 31 05 13 - Soils for Earthwork.
4. Subsoil: No rocks more than 6 inches in diameter, frozen earth, or foreign matter.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that trench cut is ready to receive Work.
- B. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Correct over-excavation with coarse aggregate.
- B. Remove large stones or other hard matter capable of damaging pipe or of impeding consistent backfilling or compaction.

3.3 INSTALLATION

A. Bedding:

- 1. Excavate pipe trench as specified in Section 31 23 16.13 - Trenching.
- 2. Place bedding material at trench bottom.
- 3. Level materials in continuous layers not exceeding 6 inches in depth.
- 4. Maintain optimum moisture content of bedding material to attain required compaction density.

B. Piping:

- 1. Install pipe, fittings, and accessories as indicated on Drawings.
- 2. Route piping in straight line or as indicated on Drawings.
- 3. Provide tracer wire on all wastewater force mains. The wire shall be contiguous except at test stations, valve boxes, and where splicing is required. Terminate tracer wire at manholes and septic tanks. Coil a minimum of 24" of tracer wire inside capped riser pipe.
- 4. Install bedding at sides and over top of pipe to minimum compacted thickness of 12 inches.
- 5. Backfilling and Compacting:
 - a. As specified in Section 31 23 16.13 - Trenching.
 - b. Do not displace or damage pipe while compacting.

- C. Cradles and Encasements: Provide concrete cradles and encasements for pipelines where indicated on Drawings as specified in Section 03 30 00 - Cast-in-Place Concrete.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Pressure Testing:
 - 1. Pressure:
 - a. Not less than 50 psig.
 - b. Maintain pressure within plus or minus 5 psi of test pressure.
 - 2. Time: Conduct test for minimum of two hours.
 - 3. Initial Procedure:
 - a. Install corporation cocks at high points.
 - b. Slowly fill section to be tested with water, expelling air from piping at high points from air vents and by opening corporation cocks.
 - c. Close air vents and corporation cocks after air is expelled.
 - d. Raise pressure to specified test pressure.
 - 4. Testing:
 - a. Observe joints, fittings, and valves under test.
 - b. Remove and replace cracked pipes, joints, fittings, and valves showing visible leakage.
 - c. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
 - 5. Leakage:
 - a. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
 - b. Maximum Allowable Leakage:
 - 1) $L = SD \times \text{sqrt}(P)/C$.
 - 2) L = testing allowance, gph.
 - 3) S = length of pipe tested, feet.
 - 4) D = nominal diameter of pipe, inches.
 - 5) P = average test pressure during hydrostatic test, psig.
 - 6) C = 148,000.
 - c. If pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.
 - d. If test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
 - e. Correct visible leaks regardless of quantity of leakage.

3.5 PROTECTION

- A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION 33 31 23

cSECTION 33 32 19 - SEPTIC TANK EFFLUENT PUMPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Septic tank effluent pumps.
- B. Related Requirements:
 - 1. Section 33 31 00 - Sanitary Sewerage Piping: Connections to sanitary sewer system.
 - 2. Section 33 34 13.13 - Concrete Septic Tanks: Effluent wet well.

1.2 REFERENCE STANDARDS

- A. American Bearing Manufacturers Association:
 - 1. ABMA 9 - Load Ratings and Fatigue Life for Ball Bearings.
- B. ASTM International:
 - 1. ASTM A53/ (A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless).
- C. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

1.4 QUALITY ASSURANCE

- A. Perform Work according to Jackson County Department of Public Works standards.
- B. Maintain one of each standard affecting Work of this Section on Site.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling: Prepare pumps and accessories for shipment in a manner to prevent entry of foreign matter into body of item.
- D. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Do not store products directly on ground.
- E. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.6 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 EFFLUENT PUMPS

- A. Manufacturers:
 - 1. Liberty Pumps.
 - 2. Flygt.
 - 3. Substitutions: As specified in Section 01 60 00 - Product Requirements.
- B. Description:
 - 1. Casing: Cast iron.
 - 2. Impeller:
 - a. Type: Semi-open.
 - b. Material: cast iron.
- C. Performance and Design Criteria:
 - 1. Flow Capacity for Each Pump:
 - a. Design Point: 200 gpm at 72 feet total dynamic head (TDH).

D. Operation:

1. Electrical Characteristics:

- a. Minimum Horsepower: 10 hp.
- b. Voltage: 208 V, three phase, 60 Hz.
- c. Minimum Power Factor: 0.75 percent at rated load.

2. Motors:

- a. Type: Submersible.
- b. Windings: Open, operating in dielectric oil.
- c. Seals: Two carbon/ceramic mechanical shaft seals with oil chamber between seals.
- d. Moisture Detection: Mount electrode between seals to detect water leaking into seal chamber and to energize light on control panel.
- e. Motor and Pump Shaft: Integral stainless steel.
- f. Bearings:
 - 1) Upper and lower ball bearings to support rotor.
 - 2) Lower bronze sleeve or ball bearing for radial loads from impeller.
 - 3) Minimum L10 Life: 15,000 hours.
 - 4) Ball Bearings: Comply with ABMA 9.
- g. Fasteners: Stainless steel.
- h. Leads: Potted in epoxy compound to form leakproof seal.

3. Control Panel:

- a. Type: NEMA 250 Type 3R.
- b. Mounting:
 - 1) Pipe stand.
 - 2) Coordinate location with Engineer.
- c. Control Circuits: Wired completely separate from power circuits.
- d. Accessories:
 - 1) Control circuit and alarm transformers.
 - 2) Terminal strips for controls, pumps, and alarms.
 - 3) Circuit lightning protection.

4. Controls:

- a. Motor Thermostat:
 - 1) Protect motor with heat sensor thermostat to de-energize motor when overloaded.
 - 2) Automatically reset thermostat when temperature drops to designated level.

- b. Sealed float-type mercury switches to control wet-well liquid level and signal alarm.
 - c. Suspended mercury-tube switches sealed in shock-resistant solid polyurethane float.
 - d. Cords: Neoprene-jacketed, weighted, and suspended from NEMA 250 Type 4 junction box.
5. Disconnect Switch: Factory mounted in control panel.
6. Operation Sequences:
- a. Simplex Control Sequence:
 - 1) When basin liquid level increases to PUMP START setting, PUMP START switch energizes pump.
 - 2) When sump liquid level decreases to PUMP STOP setting, PUMP STOP switch de-energizes pump.
 - 3) If basin liquid level continues to rise, HIGH LEVEL alarm switch energizes alarm signal when liquid level reaches HIGH LEVEL setting.

2.2 ACCESSORIES:

A. Pump Discharge Piping:

- 1. Material:
 - a. PVC Pressure Sewer Pipe.
 - b. Comply with ASTM D2241.
 - c. SDR 26.
 - d. Connections: Solvent Welded.
- 2. Check Valve:
 - a. Type: Swing Check Valve.
 - b. Body: Ductile iron.
 - c. Mounting: Bronze.
 - d. Disc: Renewable.
 - e. Hydraulically sealed.
 - f. Discharge flange.

B. Pump Guide Rails:

- 1. Material: Stainless-steel piping.
- 2. Minimum Diameter: 2 inch.

C. Pump Mounting Plates, Guide Rail Braces, and Guide Rail Supports: Epoxy-coated steel.

D. Pump Lifting Chains: Stainless steel.

- E. Visual and Audible Alarm:
 - 1. Description: HIGH LEVEL alarm indicator light and audible alarm assembly to fit standard electrical wall box, for installation on exterior of premises.
 - 2. Signal Cable: According to local code requirements.
 - 3. Location: Coordinate with property Owner Engineer.
- F. Fasteners and Hardware: Stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that connections, sizes, and locations are as indicated on Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Conduct operations as not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures, utilities, and landscape in immediate or adjacent areas.

3.3 INSTALLATION

- A. According to manufacturer instructions.
- B. Install at depth such that discharge pipe to low-pressure sewer is located minimum 42 inches below finished grade.
- C. Provide necessary piping, fittings, and valves as indicated on Drawings.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Testing:
 - 1. Test each pump with clean water through minimum of four complete cycles of septic tank wet well, including HIGH LEVEL and LOW LEVEL conditions.

2. Demonstrate correct sequence of pump operation, control settings, alarm settings, freedom from pump vibration, noise, and overheating.
 3. Provide water for testing purposes.
 4. Request observation of Engineer during testing.
- C. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than two days on Site for installation, inspection, startup, field testing, and instructing Owner's personnel in maintenance of equipment.
- D. Equipment Acceptance:
1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.
 2. Make final adjustments to equipment under direction of manufacturer's representative.
- E. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.
- 3.5 ADJUSTING
- A. Check and adjust liquid level control and alarm settings.
- 3.6 DEMONSTRATION
- A. Demonstrate equipment startup, shutdown, pump removal and replacement, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION 33 32 19

SECTION 33 34 13.13 - CONCRETE SEPTIC TANKS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Concrete septic tanks.
- B. Related Requirements:
 - 1. Section 31 05 16 - Aggregates for Earthwork: Bedding materials.
 - 2. Section 33 32 19 - Septic Tank Effluent Pumps: Effluent pumps for use in STEP systems.
 - 3. Section 33 34 51 - Drainage Field System: Materials and installation requirements for drainage fields (also called leach fields) used to further treat effluent from septic tanks.

1.2 DEFINITIONS

- A. Bedding; Specialized material placed under septic prior to installation and subsequent backfill operations.

1.3 REFERENCE STANDARDS

- A. ASTM International:
 - 1. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - 2. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - 3. ASTM C33/C33M - Standard Specification for Concrete Aggregates.
 - 4. ASTM C150/C150M - Standard Specification for Portland Cement.
 - 5. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.
 - 6. ASTM C890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
 - 7. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
 - 8. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
 - 9. ASTM C990M - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
 - 10. ASTM C1227 - Standard Specification for Precast Concrete Septic Tanks.
 - 11. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).

12. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
13. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with Jackson County Department of Public Works standards and with utilities within construction area.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information on tank.
- C. Shop Drawings: Indicate plan, location, and inverts of connecting piping.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer Instructions: Submit special procedures for septic tank and effluent wet well installation.
- F. Source Quality-Control Submittals: Indicate results of factory tests and inspections.
- G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- H. Qualifications Statements:
 1. Submit qualifications for manufacturer and installer.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations and inverts of buried pipe, components, and connections.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALITY ASSURANCE

- A. Perform Work according to Jackson County Department of Public Works standards.
- B. Maintain one copy of each standard affecting Work of this Section on Site.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Transport and handle precast concrete units with equipment designed to protect units from damage.
- D. Store materials according to manufacturer instructions.
- E. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Do not place concrete units in any position that causes them to overstress, warp, or twist.
 - 3. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 CONCRETE SEPTIC TANKS

- A. Manufacturers:
 - 1. Oldcastle Infrastructure
 - 2. Substitutions: As specified in Section 01 60 00 - Product Requirements.
- B. Description (Each Tank):
 - 1. Capacity: 2,400 gal.
 - 2. Design: Comply with ASTM C890 for live loading and installation conditions.
 - 3. Fabrication:
 - a. Comply with ASTM C913.
 - b. Reinforced and air-entrained concrete.
 - c. Watertight.

4. Minimum 28-Day Compressive Strength: 5,000 psi.
5. Honeycombed or retempered concrete will not be accepted.
6. Manways:
 - a. Precast concrete grade rings as specific in Section 33 05 61 - Concrete Manholes. Install as necessary to reach elevation as shown on Drawings.
 - b. Frame and cover as specified in Section 33 05 61 - Concrete Manholes.

2.2 MATERIALS

A. Septic Tanks :

1. Portland Cement: Comply with ASTM C150/C150M, Type II.
 2. Coarse Aggregates:
 - a. Comply with ASTM C33/C33M.
 - b. Grading: 1 inch to No. 4 sieve.
 3. Sand:
 - a. Comply with ASTM C33/C33M.
 - b. Fineness Modulus: 2.35.
 4. Water:
 - a. Potable.
 - b. Clean and free of injurious amounts of acids, alkalis, salts, organic materials, and substances incompatible with concrete or steel.
 5. Air-Entraining Admixtures: Comply with ASTM C260/C260M.
 6. Reinforcing Steel:
 - a. Deformed Bars: Comply with ASTM A615/A615M, Grade 60.
 - b. Welded Wire Fabric: Comply with ASTM A1064/A1064M.
 7. Joint Sealant: Comply with ASTM C990.
- ### B. Bedding:
1. Aggregate Material: Fill Type A1 as specified in Section 310516 - Aggregates for Earthwork.

2.3 FABRICATION

- A. Comply with ASTM C913.
- B. Fabricate precast concrete structures to dimensions as indicated on Manufacturer's standard and as specified.

2.4 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Provide shop inspection and testing of completed assembly.
- C. Certificate of Compliance:
 - 1. If manufacturer is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at manufacturer's facility conforms to Contract Documents.
 - 2. Specified shop tests are not required for Work performed by approved manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that building sanitary sewer connection, size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

- A. Conduct operations as not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures, utilities, and landscape in immediate or adjacent areas.
- B. Ream pipe ends and remove burrs.
- C. Remove scale and dirt from components before assembly.
- D. Establish invert elevations for each component in system.
- E. Remove stones, roots, and other obstructions.

3.3 INSTALLATION

- A. Tank and Bedding:
 - 1. Excavate as specified in Section 312316 - Excavation.
 - 2. Hand trim excavation for accurate placement of tank to indicated elevations.

3. Place bedding material level and in continuous layers not exceeding 6 inches of compacted depth.
4. Compact to 95 percent maximum density.
5. Backfill around sides of tank, tamp in place, and compact to 95 percent maximum density.
6. Maintain optimum moisture content of bedding material to attain required compaction density.
7. Install septic tank, distribution chamber, and related components on bedding.

B. Interconnecting Piping: Connect inlet and outlet sanitary piping.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Hydrostatic Testing: Test tanks for watertightness using hydrostatic method according to ASTM C1227.

END OF SECTION 33 34 13.13

SECTION 33 34 51 - DRAINAGE FIELD SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Drainage fields connected to septic tanks.
- B. Related Requirements:
 - 1. Section 31 05 16 - Aggregates for Earthwork: Bedding materials.
 - 2. Section 31 23 16.13 - Trenching: Excavation and cover for filter piping.
 - 3. Section 33 34 13.13 - Concrete Septic Tanks: Materials and installation requirements for septic tanks constructed of concrete.

1.2 REFERENCE STANDARDS

- A. ASTM International:
 - 1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
 - 2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
 - 3. ASTM D2729- Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - 4. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with Jackson County Department of Public Works standards and with utilities within construction area.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information on piping and fittings.
- C. Shop Drawings: Indicate plan, location, and inverts of filter field, and inverts of connecting piping.

- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer Instructions: Submit special procedures for drainage field installation.
- F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations and inverts of buried pipe, components, and connections.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

- A. Perform Work according to Jackson County Department of Public Works standards.
- B. Maintain one copy of each standard affecting Work of this Section on Site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.

2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 DRAINAGE FIELD PIPING

- A. Provide perforated pipe at filter field system and unperforated pipe through sleeves and at junction with distribution chamber.
- B. PVC Pipe :
 1. Comply with ASTM D2241.
 2. SDR: 26.
 3. Nominal Inside Diameter: 1 inches.
 4. End Connections: Plain, Solvent Weld.
 5. Holes per Drawings.

2.2 MATERIALS

- A. Bedding:
 1. Aggregate Material: Fill Type A1, as specified in Section 310516 - Aggregates for Earthwork.
- B. Filter Aggregate:
 1. Aggregate Materials: Fill Type A1, as specified in Section 310516 - Aggregates for Earthwork.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that septic tank connection, size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

- A. Ream pipe ends and remove burrs.
- B. Remove scale and dirt from components before assembly.
- C. Establish centerline elevations for each component in system.
- D. Remove stones, roots, and other obstructions.

3.3 INSTALLATION

A. Drainage Field Piping:

1. Excavate as specified in Section 31 23 16.13 - Trenching.
2. Place field pipe header at constant elevation.
3. Place pipe from header at constant elevation, with perforations facing down.
4. Wrap pipe joints with geotextile fabric and cover sides and top with aggregate.
5. Cover entire field with sand to depth of 12 inches, lightly compact, and level.
6. Place subsoil cover as specified in Section 31 23 16.13 - Trenching.
- 7.

B. Drainage Field Pressure Adjustment:

1. For each manifold:
 - a. Install a four foot length of clear pipe with a threaded adapter onto turn-up adapter.
 - b. Turn on pump and allow liquid to rise in the pipe.
 - c. Adjust globe valve until the effluent reaches 1 foot above the lateral line.
 - d. Replace clear pipe and adapter with turn-up cap.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.

3.5 PROTECTION

- A. Do not permit vehicular traffic over drainage field.

END OF SECTION 33 34 51

SECTION 40 05 78.23 - AIR/VACUUM VALVES FOR WASTEWATER SERVICE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Air release/vacuum breaker valves for wastewater treatment facilities.

1.2 REFERENCE STANDARDS

- A. American Water Works Association:

- 1. AWWA C512 - Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.

- B. ASME International:

- 1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

- C. ASTM International:

- 1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- 2. ASTM A351/A351M - Standard Specification for Castings, Austenitic, for Pressure-Containing Parts.
- 3. ASTM A536 - Standard Specification for Ductile Iron Castings.
- 4. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

- D. International Organization for Standardization:

- 1. ISO 9001 - Quality Management Systems.

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with installation of process piping.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data: Submit manufacturer catalog information.
- C. Shop Drawings: Indicate materials, dimensions, weights, and end connections on assembly drawings.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer Instructions: Submit special procedures and setting dimensions.
- F. Manufacturer Reports: Certify that equipment has been installed according to manufacturer instructions.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of air release/vacuum breaker valves.

1.6 QUALITY ASSURANCE

- A. Manufacturer Quality Management System: Certified to ISO 9001.
- B. Perform Work according to Jackson County Department of Public Works standards.
- C. Maintain one copy of each standard affecting Work of this Section on Site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Furnish temporary end caps and closures on piping and fittings and maintain in place until installation.
 - 3. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

1.9 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish five -year manufacturer's warranty for air release/vacuum breaker valves.

PART 2 - PRODUCTS

2.1 AIR/VACUUM VALVES FOR WASTEWATER SERVICE

A. Manufacturers:

1. DeZURIK.
2. Flomatic Corporation.
3. Val-Matic Valve & Manufacturing Corp.

B. Substitutions: As specified in Section 01 60 00 - Product Requirements.

C. Description:

1. Type: Fully automatic, float operated.
2. Comply with AWWA C512.
3. Size: As indicated on Drawings.
4. Suitable for sewage service.
5. Valve Body Connections: Furnish 2-inch NPT cleanout and 1-inch NPT drain.
6. Pressure Rating: 150 psig.

D. Materials:

1. Body and Cover: Cast iron, ASTM A126 .
2. Float, Seat, and Trim: Type 316 stainless steel.
3. Seats: Buna-N.
4. Seals: Buna-N.

E. End Connections:

1. Size 3 Inches and Smaller:

- a. Threaded, NPT.
- b. 1-Inch Valves: Furnish 2-inch inlet.

F. Valve Body Connections:

1. Threaded, NPT.
2. Cleanout: 2 inches.
3. Drain: 1 inch.

G. Accessories:

1. Backwash accessories, including inlet shutoff valve, blowoff valve, rubber supply hose, and quick-disconnect couplings.
2. Epoxy lining.

2.2 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Provide shop inspection and testing of completed assembly.
- C. Certificate of Compliance:
 1. If fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.
 2. Specified shop tests are not required for Work performed by approved fabricator.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that field dimensions are as indicated on Shop Drawings.
- C. Inspect existing flanges for nonstandard bolt hole configurations or design and verify that new pipe and flanges mate properly.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.

- B. Thoroughly clean end connections before installation.
- C. Close pipe and equipment openings with caps or plugs during installation.
- D. Cleaning: Clean surfaces to remove foreign substances.

3.3 INSTALLATION

- A. According to manufacturer instructions.
- B. Provide access for operation, removal, and maintenance, and to avoid discharge to occupied areas or other equipment.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Inspect for interferences and proper supports.
- C. Testing:
 - 1. Demonstrate operation without undue noise or vibration.
- D. Equipment Acceptance:
 - 1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.
 - 2. Make final adjustments to equipment under direction of manufacturer's representative.
 - 3. Repair damaged coatings with material equal to original coating.
- E. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.

3.5 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. Keep interior of air release valves clean as installation progresses.

3.6 DEMONSTRATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for demonstration and training.

- B. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION 40 05 78.23

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Specification and Drawing conventions.

B. Related Requirements:

1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

- A. Project Identification: Wastewater Treatment Facility Improvements, Jackson County Public Works Vehicle Service Center.

1. Project Location: 34900 E Old US Highway 40, Oak Grove, MO.

- B. Owner: Jackson County Public Works Department.

1. Owner's Representative: Earl Newill, PE (enewill@jacksongov.org).

- C. Engineer: Olsson.

1. Engineer's Representative: Mike Millius, PE.

APPENDIX A
SOIL EROSION CONTROL PLAN

(TO BE ADDED)

**JACKSON COUNTY PUBLIC WORKS VEHICLE SERVICE CENTER
WASTEWATER TREATMENT PLANT IMPROVEMENTS
OAK GROVE, MO 2021**

May 2021

Olsson Project No. 019-2424



September 28, 2021

Addendum No. 1

For project specifications and related documents for:

Wastewater Treatment Facility Improvements
Jackson County Public Works
Vehicle Service Center
Oak Grove, Missouri
2021
Olsson Project Number: 019-24240

This addendum is issued to revise the project specifications for the Jackson County Vehicle Service Center project as follows:

SECTION 33 05 61 - CONCRETE MANHOLES, Article 2.1, Item F.

Shall be revised to read:

F. Clear Cover Opening:

1. Manhole Clear Diameter: **22 inches.**
2. **Concrete Septic Tank Manway Diameter: 22 or 34 inches.**

SECTION 33 05 61 - CONCRETE MANHOLES, Article 2.2, Item A.

Shall be revised to read:

4. Nominal Lid Size: **24 or 36 inches.**
5. **Live-Load Rating: H-20 traffic loading.**



CONSTRUCTION SPECIFICATIONS

- POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANCHORED SOURCE AND SPACED AT A MAX. 8' APART OR TO SILT FENCE MANUFACTURER SPECIFICATIONS, WHICHEVER IS STRICER.
- SILT FENCE SHALL BE TRENCHED IN WITH A SPACE OR MECHANICAL TRENCHER SO THAT THE DOWNWIND FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
- THE TRENCH SHOULD BE APPROXIMATELY 5" DEEP 3-4" WIDE TO ALLOW FOR THE SILT FENCE TO BE Laid IN THE GROUND AND BACKFILLED.
- SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WOODEN WIRE WHICH IS TIGHTLY ATTACHED TO THE FENCE POSTS. THE WIRE SHOULD NOT EXCEED 1/4" ABOVE THE SLOPING SURFACE.
- WOODEN WIRE SUPPORT SHALL BE 1" DIAMETER OR LARGER WITH A MAXIMUM OF 6" GAP OPENING. WOODEN WIRE SUPPORT SHALL BE INSTALLED FOR 10' LONG OR GREATER THAN 20' FEET.
- INSPECTION SHALL BE FREQUENT, AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- SILT FENCE SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFULNESS SO AS NOT TO BLOCK OR IMPED THE STORM FLOW OR DRAINAGE.
- SEDIMENT TRAPPED BY THIS PRACTICE SHALL BE UNIFORMALLY DISTRIBUTED ON THE SOURCE AREA PRIOR TO TOPDRESSING.
- SILT FENCE SHALL BE 18" HIGH, COX FILTER FABRIC OR APPROVED EQUAL.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

STATION: JACKSON COUNTY, MO. PUBLIC WORKS, ROAD MAINTENANCE DIVISION (VEHICLE SERVICE CENTER) AT 3480 E. OLD U.S. 40 HIGHWAY, GREEN VALLEY, MO. 64028.

SITE DESCRIPTION: REDEMPTION OF EXISTING WASTEWATER TREATMENT FACILITY, AND CONSTRUCTING A NEW ABSORPTION FIELD.

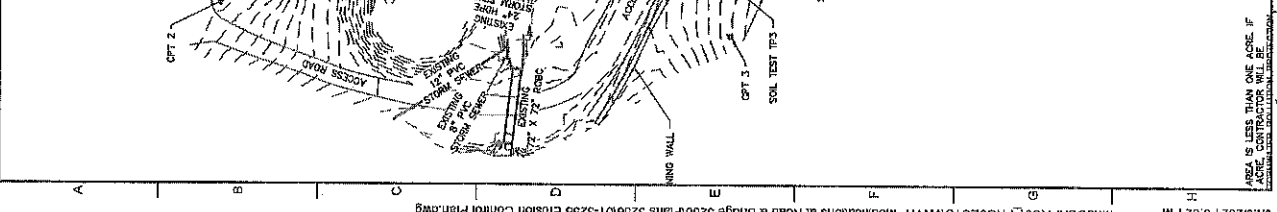
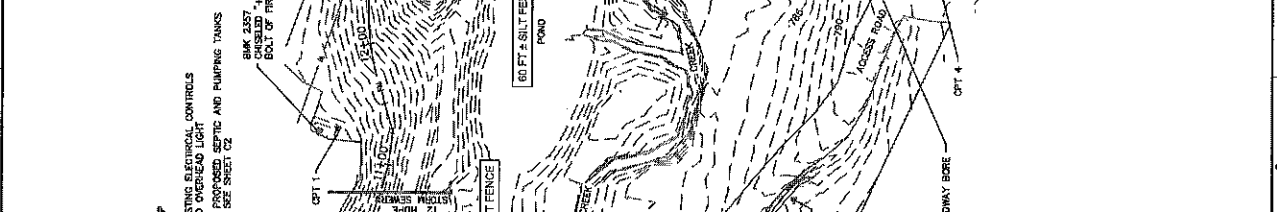
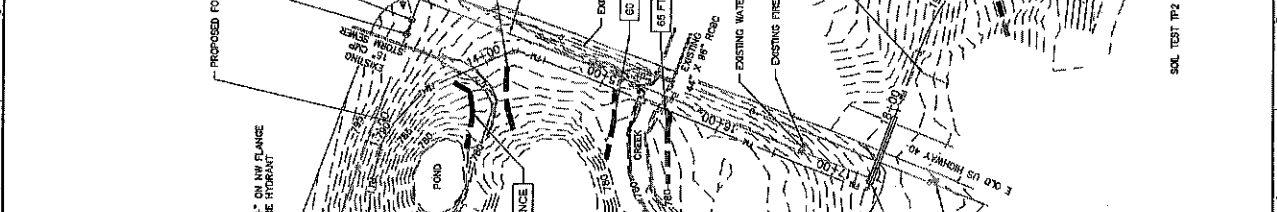
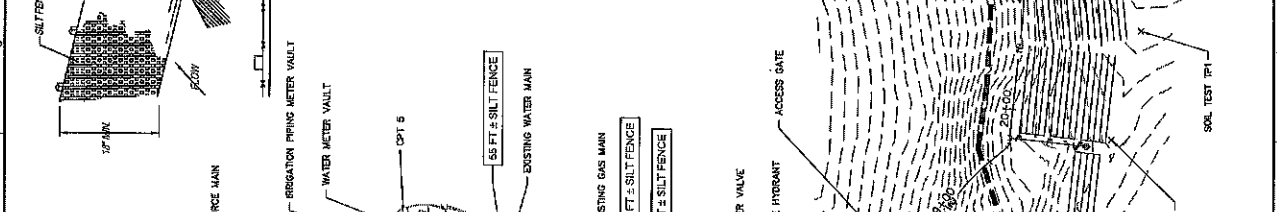
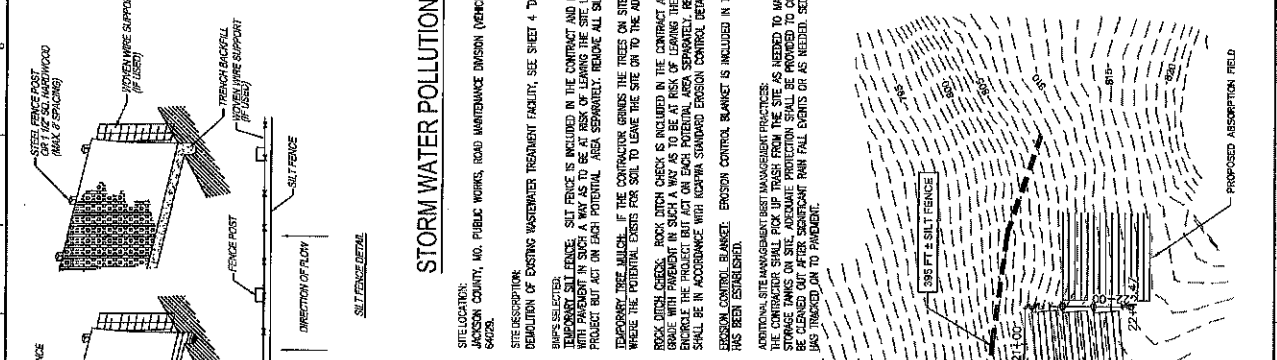
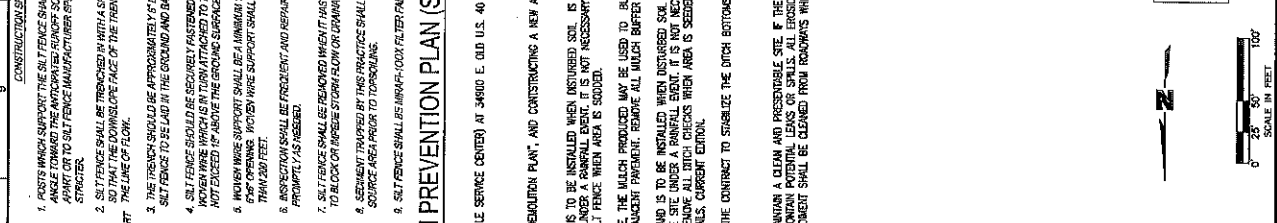
SWPPP SELECTOR: TEMPORARY SILT FENCE. SILT FENCE IS INCLUDED IN THE CONTRACT AND IS TO BE INSTALLED WHEN DISTURBED SOIL IS ADJACENT TO AND AT GRADE WITH PAVEMENT IN SUCH A WAY AS TO BE AT RISK OF LEAVING THE SITE UNDER A RAINFALL EVENT. IT IS NOT NECESSARY TO COMPLETELY ENCLOSE THE PROJECT BUT ACT ON HIGH POTENTIAL AREA SEPARATELY. REMOVE ALL SILT FENCE WHEN AREA IS SODDED.

TEMPORARY TREE MULCH: IF THE CONTRACTOR GRUBS THE TREES ON SITE, THE MULCH PRODUCED MAY BE USED TO BUFFER THE EDGES OF THE SITE WHERE THE POTENTIAL EXISTS FOR SOIL TO LEAVE THE SITE ON TO THE ADJACENT PAVEMENT. REMOVE ALL MULCH BUFFER UPON SODDING.

ROCK DITCH CHECK: ROCK DITCH CHECK IS INCLUDED IN THE CONTRACT AND IS TO BE INSTALLED WHEN DISTURBED SOIL IS ADJACENT TO AND AT GRADE WITH PAVEMENT IN SUCH A WAY AS TO BE AT RISK OF LEAVING THE SITE UNDER A RAINFALL EVENT. IT IS NOT NECESSARY TO COMPLETELY ENCLOSE THE PROJECT BUT ACT ON HIGH POTENTIAL AREA SEPARATELY. REMOVE ALL ROCK DITCH CHECKS WHEN AREA IS SODDED. ROCK DITCH CHECKS SHALL BE IN ACCORDANCE WITH IOWA STANDARD EROSION CONTROL DETAILS, CURRENT EDITION.

EROSION CONTROL BLANKET: EROSION CONTROL BLANKET IS INCLUDED IN THE CONTRACT TO STABILIZE THE DITCH BOTTOMS UNTIL A STAND OF GRASS HAS BEEN ESTABLISHED.

ADDITIONAL SITE MANAGEMENT BEST MANAGEMENT PRACTICES: THE CONTRACTOR SHALL PICK UP TRASH FROM THE SITE AS NEEDED TO MAINTAIN A CLEAN AND PRESENTABLE SITE. IF THE CONTRACTOR LEAVES FUEL STORAGE TANKS ON SITE, ADEQUATE PROTECTION SHALL BE PROVIDED TO CONTAIN POTENTIAL LEAKS OR SPILLS. ALL EROSION PROTECTION DEVICES SHALL ENCLOSE THE PROJECT BUT ACT ON HIGH POTENTIAL AREA SEPARATELY. RAIN FALL EVENTS OR AS NEEDED, SEDIMENT SHALL BE CLEANED FROM ROADWAYS WHERE CONSTRUCTION TRAFFIC HAS TENDED TO ACCUMULATE.





PROPOSED 2" HDPE W/ FIBER CABLE 72" MIN DP UNDER PAVEMENT, 30" MIN DP ELSEWHERE. HANDHOLES WILL BE PLACED ALONG ROW BORDER. PARCELS TO BE OBTAINED FROM PUBLIC RECORDS. ROW MUST BE VERIFIED BY CONTRACTOR. NOTE: ALL EXISTING DRAINAGE STRUCTURES AND UTILITIES TO BE POTHOLED AND VISUALLY VERIFIED. IT IS REQUIRED TO MAINTAIN A 24" DP OF SEPARATION OF THE 2" HDPE UNDER THE EXISTING DRAINAGE STRUCTURE OR UTILITY.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, and the GIS User Community

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LEGEND

- [H] PROPOSED HANDHOLE
 - ← → DIMENSIONS
 - ⊗ Pole
 - PARCELS
 - ROW
 - PROPOSED UNDERGROUND
 - GRIDS
 - STREETS
- 0 55 110 220 Feet
1IN = 100FT

BY	DATE	DESCRIPTION
JR	1/3/2020	PERMIT DRAWING

CREATED BY: Steven Hendrix
PHONE: (404) 805-4692
EMAIL: ecc.kc.permit@erwinccable.com



ALL CONSTRUCTION IS PROPOSED AND SUBJECT TO RELOCATION WHEN OBJECTS ARE ENCOUNTERED THAT WILL INTERFERE WITH THE EXISTING INFRASTRUCTURE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL UNDERGROUND OBSTRUCTIONS AND UTILITIES PRIOR TO CONSTRUCTION. COMPLETE REPAIR OF ANY AND ALL DAMAGES INCURRED SHALL BE AT THE EXPENSE OF THE CONTRACTOR

PROPOSED 2" HDPE W/ FIBER CABLE 72" MIN DP UNDER PAVEMENT, 30" MIN DP ELSEWHERE. HANDHOLES WILL BE PLACED ALONG ROW BORDER. PARCELS TO BE OBTAINED FROM PUBLIC RECORDS. ROW MUST BE VERIFIED BY CONTRACTOR. NOTE: ALL EXISTING DRAINAGE STRUCTURES AND UTILITIES TO BE POTHOLED AND VISUALLY VERIFIED. IT IS REQUIRED TO MAINTAIN A 24" DP OF SEPARATION OF THE 2" HDPE UNDER THE EXISTING DRAINAGE STRUCTURE OR UTILITY.



Old US Hwy 240
 Install : 864 ct Fiber Cable
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- [H] PROPOSED HANDHOLE
 - ↔ DIMENSIONS
 - ⊗ Pole
 - ▭ PROPOSED AERIAL
 - ▭ PROPOSED UNDERGROUND
 - STREETS
 - PARCELS
 - ROW
 - GRIDS
- 0 55 110 220 Feet
 1"IN = 100'FT



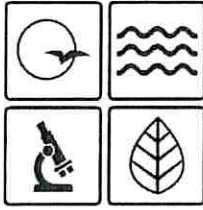
BY	DATE	DESCRIPTION
JR	1/3/2020	PERMIT DRAWING

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 CREATED BY: Steven Hendrix
 PHONE: (404) 805-4692
 EMAIL: ecc.kc.permit@ervincable.com



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Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Dru Buntin, Director

September 16, 2021

Casey Elledge
Jackson County Department of Public Works
34900 E Old Highway 40
Grain Valley, MO 64029

RE: Jackson County Vehicle Service Center WWTF Upgrades (LPP system) - Jackson Co.
Vehicle Service Center Wastewater Treatment Facility, MO-0126454, Construction
Permit No. CP0002236, Jackson County

Dear Casey Elledge:

The Missouri Department of Natural Resources' Water Protection Program has reviewed the plans and specifications submitted by Olsson Inc. on behalf of the Jackson County Department of Public Works. Please find enclosed Construction Permit No. CP0002236.

This permit will terminate 24 months from the date of issuance. In accordance with 10 CSR 20-6.010(5) (J), the Department may grant an extension. If you believe that an extension is necessary, you must submit a request and a justification in writing for the extension at least 30 days prior to the permit expiration date. Expired construction permits require submittal of a new application and fee.

This construction permit does not supersede any requirements of the operating permit or enforcement actions. Nothing in this permit removes any obligations to comply with county or other local ordinances or restrictions.

If you have any questions concerning this matter, please contact Mohammed Mohammed, of the Water Protection Program by phone at 573-751-6568 or by email at Mohammed.Mohammed@dnr.mo.gov. You may also submit questions or comments in writing to the Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102.

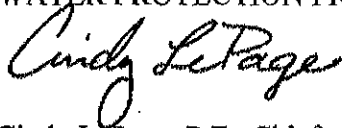


Casey Elledge
Page 2

Thank you for your efforts to help ensure clean water in Missouri.

Sincerely,

WATER PROTECTION PROGRAM

A handwritten signature in cursive script that reads "Cindy LePage".

Cindy LePage, P.E., Chief
Engineering Section

CL: mmt

Enclosures

c: Mike Milius, P.E., Olsson Inc.
Kansas City Regional Office

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

The Missouri Department of Natural Resources hereby issues a permit to:

Jackson County Vehicle Service Center, WWTF
34900 E. Old Highway 40
Grain Valley, MO 64029

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo. and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

As the Department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

A representative of the Department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the Department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

September 13, 2021
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

September 12, 2023
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The proposed project includes converting the existing facility's package treatment system Jackson County Vehicle Service Center WWTF, MO-0126454, to a no-discharge system. The new facility includes 2 septic tanks, 1 pumping chamber, and a low pressure pipe subsurface system. Sludge will be pumped out of the septic tanks and hauled off site by a certified hauler and disposed of at a certified facility.

A closure plan must be submitted to the Kansas City Regional Office for review and approval prior to any closure activities.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The Department is not required to complete a cost analysis for compliance because the facility is not a combined or a separate sanitary sewer system for publically-owned treatment works.

III. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct subject to the following conditions:

1. This construction permit does not authorize discharge.
2. All construction shall be consistent with plans and specifications signed and sealed by Michelle King, P.E. with Olsson Inc. on May 7, 2021 and as described in this permit.
3. The Department must be contacted in writing prior to making any changes to the plans and specifications that would directly or indirectly have an impact on the capacity, flow,

- system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).
4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the Department's Kansas Regional Office per 10 CSR 20-7.015(9) (G).
 5. The wastewater treatment facility shall be located at least fifty feet (50') from any dwelling or establishment.
 6. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
 7. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation per 10 CSR 20-8.140(2)(B). The minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300') per 10 CSR 20-8.140(2) (C) 1.
 8. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of 1 acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the Department's ePermitting system available online at dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.
 9. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the Department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the Department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See dnr.mo.gov/env/wpp/401/ for more information.
 10. In accordance with 10 CSR 20-6.010(12), a full closure plan shall be submitted to the Department's Kansas Regional Office for review and approval of any permitted wastewater treatment system being replaced. The closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0126454. Closure shall not commence until the submitted closure plan is approved by the Department. Form J – *Request for Termination of a State Operating Permit*, shall be submitted to the Water Protection Program for termination of any

existing Missouri state operating permit, once closure is completed in accordance with the approved closure plan.

11. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D). 10 CSR 20-8.130 (2) (B)
- Subsurface systems shall—
 - Exclude unstabilized fill and soils that have been highly compacted and/or disturbed, such as old road beds, foundations, or similar things; 10 CSR 20-8.200 (7) (A) 1. A.
 - Provide adequate surface drainage where slopes are less than two percent (2%); 10 CSR 20-8.200 (7) (A) 1. B.
 - Provide surface and subsurface water diversion where necessary, such as a curtain or perimeter drain; 10 CSR 20-8.200 (7) (A) 1. C. and
 - Have a ten foot (10') buffer from the property line. 10 CSR 20-8.200 (7) (A) 1. D.
- The vertical separation between the bottom of the drip lines and/or the trench and a limiting layer, including but not limited to, bedrock; restrictive horizon; or seasonal high water table, shall be no less than:
 - Twenty-four inches (24"); 10 CSR 20-8.200 (7) (A) 2. A. or
 - Twelve inches (12") for systems dispersing secondary or higher quality effluent; 10 CSR 20-8.200 (7) (A) 2. B. or
 - Forty-eight inches (48") where karst features are present unless the site can be reclassified. 10 CSR 20-8.200 (7) (A) 2. C.
- Subsurface systems shall be, at a minimum, preceded by preliminary treatment. 10 CSR 20-8.200 (7) (B)
- Loading rates shall not exceed the values assigned by the site and soil evaluation. 10 CSR 20-8.200 (7) (C)
- All network piping and low pressure distribution piping and fittings with polyvinyl chloride (PVC) shall meet ASTM Standard D 1785 *Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, or 120* as approved and published August 1, 2015, or equivalent rated to meet or exceed ASTM D2466 *Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings* as approved and published August 1, 2017. These standards shall hereby be incorporated by reference into this rule, as published by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. This rule does not incorporate any subsequent amendments or additions. 10 CSR 20-8.200 (8) (A) 2.

- Manifold design for LPP systems shall address freeze protection while assuring uniform distribution and to minimize drain down of laterals into other laterals at a lower elevation between dosing events. 10 CSR 20-8.200 (8) (A) 3.
- The orifice number and spacing shall be designed to provide a distribution of no more than six square feet per orifice with an orifice size of not less than one-eighth inch. 10 CSR 20-8.200 (8) (C) 1.
- At a minimum, treatment prior to irrigation shall provide performance equivalent to that obtained from a primary wastewater lagoon cell and include 120 days wastewater storage in addition to the primary volume. 10 CSR 20-8.200 (6) (C)
- There shall be no physical connections between a public or private potable water supply system and a sewer or appurtenance that would permit the passage of any wastewater or polluted water into the potable supply. 10 CSR 20-8.120 (5) (A)
- Sewers shall be laid at least fifty feet (50') in a horizontal direction from any existing or proposed public water supply well or other water supply sources or structures. Sewers must also comply with 10 CSR 23-3.010. 10 CSR 20-8.120 (5) (B)
- Electrical Equipment shall provide a watertight seal and separate strain relief for all flexible cable. 10 CSR 20-8.130 (3) (B) 2. C.
- Install a fused disconnect switch located above ground for the main power feed for all pumping stations. 10 CSR 20-8.130 (3) (B) 2. D.
- When electrical equipment is exposed to weather, it shall comply with the requirements of weather proof equipment; enclosure NEMA 4; NEMA 4X where necessary; and *NEMA Standard 250-2014*, published December 15, 2014. 10 CSR 20-8.130 (3) (B) 2. E.
- The septic tank shall be baffled. 10 CSR 20-8.180 (2) (B)
- Septic tank design shall provide at least one (1) septic tank to serve each EDU. 10 CSR 20-8.125 (6) (D) 1.
- Septic tank design shall provide at least one thousand (1,000) gallons capacity. 10 CSR 20-8.125 (6) (D) 2.
- When existing on-site septic tanks are proposed for reuse in an alternative sewer system, they must be inspected and verified watertight prior to acceptance. 10 CSR 20-8.125 (6) (E)
- The minimum diameter service line pipe shall be one and one quarter inches (1.25") for pressure sewers. 10 CSR 20-8.125 (7) (C) and 10 CSR 20-8.125 (5) (C)

12. Upon completion of construction:

- A. Jackson County Department of Public Works will become the continuing authority for operation and maintenance of these facilities;
- B. Submit an electronic copy of the as built's if the project was not constructed in accordance with previously submitted plans and specifications; and
- C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the previously public noticed operating permit be issued.
- D. A closure plan must be submitted to the Kansas City Regional Office to reflect the converting of the existing package system to LPP system.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Replacing an existing extended aeration package plant with a subsurface Low Pressure Pipe system (LPP) preceded by septic tanks to serve Jackson County Department of Public Works, permit MO-0126454. The existing facility is at end of its useful life and is not expected to meet upcoming ammonia effluent permit limits.

2. FACILITY DESCRIPTION

The Jackson County Vehicle Service Center WWTF- MO-0126454 is an existing mechanical facility that includes a bar screen, extended aeration, aerobic sludge digester, and sludge disposal by contract hauler. The current design average flow is 11,000 gpd. The existing facility is currently not able to meet the permit limits and for this reason will be replaced by a low pressure pipe system with septic tanks. The new approved design average flow for the LPP system will be 2,170 gpd.

The new low pressure septic tanks system will include septic tanks (2); pumping chamber (1); and soil absorption field (1). Each septic tank has a capacity of 2,400 gallons. A third septic tank will be a pumping chamber with a capacity of 2,400 gallons. Sludge will be pumped out of the septic tanks and hauled off site by a certified hauler and disposed of at a certified facility. The design sludge production is 1.0 dry tons/year. The total available area for the soil leaching field is about 17,500 ft². The maximum loading rate for the leaching field will be 0.125 gpd/ft². The design percolation rate for the proposed system is 10 min/in.

The Jackson County Vehicle Service Center WWTF is located in the vicinity of intersection of East Old Hwy 40 and I-70 in Grain Valley, Grain Valley City, in Jackson County, Missouri.

3. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- Components are designed for a Population Equivalent of 22 based on hydraulic loading to the system.
- Septic Tank – A septic tank provides passive primary treatment as the settleable solids in raw wastewater settle onto the bottom of the tank. Raw wastewater will flow by gravity to the two-compartment septic tank. The third septic tank will be used as a pump tank with one 7.5-hp submersible pump. When the water level reaches a certain height, the wastewater flows into the second compartment by two tee-drop pipes. The septic tanks provide approximately 2 days of detention at design average flow. One screened simplex 7.5 HP pump capable of 200.4 gpm at 71.6 ft of TDH is located in the second compartment of the septic tank. The pumped wastewater shall discharge to approximately 1,200 lf of PVC SDR-21 force mains leading into the leaching field. Two screened transfers from the second compartment of the septic tank allow wastewater to flow by gravity into the pump tank. Settled solids in the septic tank shall be removed by a contract hauler.
- Subsurface Soil Dispersal System – The soils at this site are rated for 0.10 - 0.125 gpd/sf. the facility used a design loading rate of 0.125 gpd/sf for the entire system. Soil morphology review was conducted during the facility plan application review and on site soils were determined to be acceptable for this system. A soil report was received on August 31, 2021 for the pits' soil morphological report and the percolation test conducted by Richard L. Henderson, Soil Scientist, on October 29, 2020. The report concluded that the current suggested and future replacement leach fields need to increase the imported soil layer to meet the 24 in.-minimum separation distance between the bottom of the drip lines and the limiting layer of the water table level.
 - The facility confirmed that they will import some soil to increase the imported soil layer to meet the 24 in.-minimum separation distance between the bottom of the trench and the limiting layer for the absorption field.
 - Low-Pressure Piping (LPP) – The low-pressure piping is divided into ten zones with five lines per zone and a total of 3,500 linear feet of lateral piping.
 - The end of each line contains a 2-inch clean out with valve box.
 - The lateral spacing is 4-foot on center with the orifices spaced 5-feet apart, from 14 to 23 orifices per lateral line.
 - The manifold length is 25-feet and the orifice openings are 5/32 inch.
 - The total area needed for loading is 17,360 square feet.

- Emergency Power – The facility will not have a portable generator, however, the septic tanks and the pumping chamber will provide enough storage for the average daily design flow to operate the treatment facility in the event of power failure.

4. OPERATING PERMIT

Operating permit MO-0126454 will require a modification to reflect the construction activities. The modified Jackson County Vehicle Service Center WWTF, MO-0126454, was successfully public noticed from July 30, 2021 to September 2, 2021 with no comments. Submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5) (N) and request the operating permit modification be issued.-

This facility does not meet the requirements of the MOG823 issued on August 25, 2017 for the following reason: The facility is publicly owned.

V. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

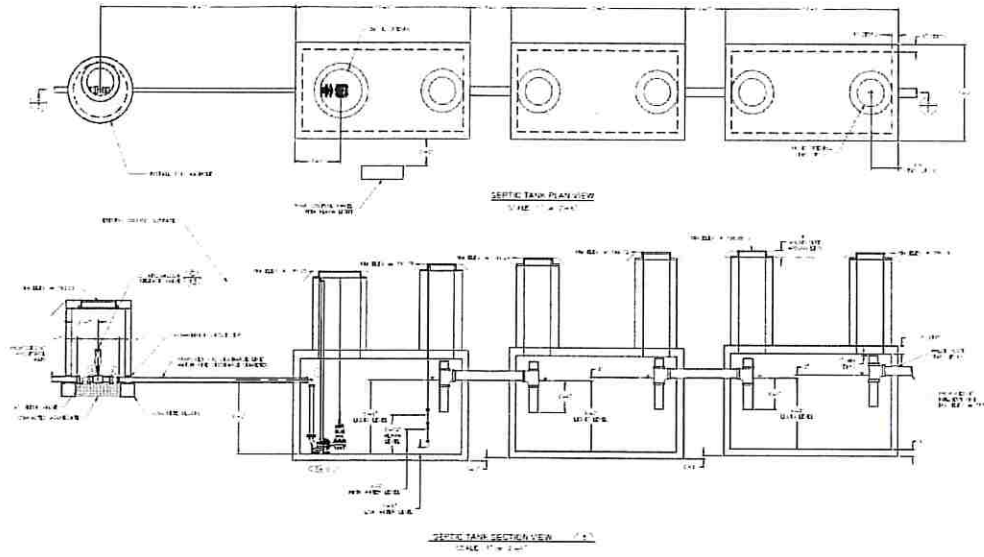
Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>

Mohammed Mohammed, Review Engineer
Engineering Section
Mohammed.Mohammed@dnr.mo.gov

Cailie Carlile, P.E., Construction Permits Unit Chief
Engineering Section
Cailie.Carlile@dnr.mo.gov

APPENDIX

- Septic Tanks and Chamber Tank



Pit Locations

10/30/2020

Jackson Co PW pit locations.jpg





MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT –
WASTEWATER TREATMENT FACILITY

FOR DEPARTMENT USE ONLY

APP NO	CP NO
FEE RECEIVED	CHECK NO
DATE RECEIVED	

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Treatment Facility form has been developed in a modular format and consists of Part A and B. All applicants must complete Part A. Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.

PART A – BASIC INFORMATION

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 1.1 Is this a Federal/State funded project? YES N/A Funding Agency: _____ Project #: _____
- 1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
 YES Date of Approval: _____ N/A
- 1.3 Has the department approved the proposed project's facility plan*?
 YES Date of Approval: 7/20/20 NO (If No, complete No. 1.4.)
- 1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan* for wastewater treatment facilities included with this application?
 YES NO Exempt because _____
- 1.5 Is a copy of the appropriate plans* and specifications* included with this application?
 YES Denote which form is submitted: Hard copy Electronic copy (See instructions.) NO
- 1.6 Is a summary of design* included with this application? YES NO
- 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?
 YES Date of submittal: _____
 Enclosed is the appropriate operating permit application and fee submittal. Denote which form: A B B2
 N/A: However, in the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits to secondary limits or adding total residual chlorine limits, please share a draft copy prior to public notice? YES NO
- 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? YES NO
- 1.9 Is the appropriate fee or JetPay confirmation included with this application? YES NO
See Section 7.0

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT Jackson County Vehicle Service Center	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 271,900
--	---

2.3 PROJECT DESCRIPTION
The facility's existing treatment system will not be able to meet upcoming ammonia limits and has reached the end of its useful life. It will be replaced by the proposed low pressure pipe septic system.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Sludge will be pumped out of the septic tanks and hauled off site by a certified hauler and disposed of at a certified facility.

2.5 DESIGN INFORMATION

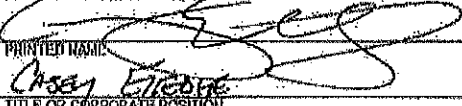
A. Current population: _____; Design population: _____

B. Actual Flow: _____ gpd; Design Average Flow: 400 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: 2,170 gpd; Design Wet Weather Event: _____

2.6 ADDITIONAL INFORMATION

A. Is a topographic map attached? YES NO

B. Is a process flow diagram attached? YES NO

3.0 WASTEWATER TREATMENT FACILITY				
NAME Jackson County Vehicle Service Center		TELEPHONE NUMBER WITH AREA CODE 818-223-8769		E-MAIL ADDRESS
ADDRESS (PHYSICAL) 34900 E Old Highway 40	CITY Grain Valley	STATE MO	ZIP CODE 64029	COUNTY Jackson
Wastewater Treatment Facility: Mo- 0126454 (Outfall Of)				
3.1 Legal Description: <u>1/4</u> , <u>NE 1/4</u> , <u>NW 1/4</u> , Sec. <u>36</u> , T <u>49</u> , R <u>30</u> (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): <u>3901073</u> Northing (Y): <u>9410202</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving stream: <u>Unnamed Tributary to Sni Bar Creek</u>				
4.0 PROJECT OWNER				
NAME Jackson County Public Works		TELEPHONE NUMBER WITH AREA CODE 818-223-8769		E-MAIL ADDRESS celdege@jacksongov.org
ADDRESS 34900 E Old Highway 40	CITY Grain Valley	STATE MO	ZIP CODE 64029	
5.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements.				
NAME		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS	CITY	STATE	ZIP CODE	
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A				
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.				
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Mike Millus / Olsson		TELEPHONE NUMBER WITH AREA CODE 818.442.6013		E-MAIL ADDRESS mmillus@olsson.com
ADDRESS 1301 Burlington Street, Suite 100	CITY North Kansas City	STATE MO	ZIP CODE 64118	
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER		<input checked="" type="checkbox"/> NETPAY CONFIRMATION NUMBER		
8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.				
PROJECT OWNER SIGNATURE 				
PRINTED NAME Casey Ericson			DATE 4-24-21	
TITLE OR CORPORATE POSITION Jackson County		TELEPHONE NUMBER WITH AREA CODE 818-223-9769		E-MAIL ADDRESS Celdege@jacksongov.org
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 178 JEFFERSON CITY, MO 65102-0176				
END OF PART A.				
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.				

GEOTECHNICAL ENGINEERING REPORT

JACKSON COUNTY VEHICLE SERVICE CENTER

34900 E OLD 40 HIGHWAY
GRAIN VALLEY, MISSOURI

PREPARED FOR
JACKSON COUNTY PUBLIC WORKS
MISSOURI

PREPARED BY
OLSSON, INC.
OLATHE, KANSAS

JANUARY 14, 2020

OLSSON PROJECT No. 019-2424

1700 East 123rd Street • Olathe, KS 66061 • (913) 829-0078 • FAX (913) 829-0258



AP-E1



January 14, 2020

Jackson County Public Works
Attn: Earl Newill
303 W Walnut Street
Independence, Missouri 64050

Re: Geotechnical Engineering Report
Vehicle Service Center WWTP Addition
Grain Valley, Missouri 64075
Olsson Project No. 019-2424

Dear Mr. Newill,

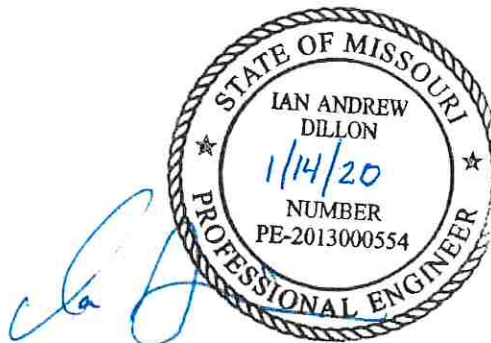
Olsson, Inc. has completed the authorized Geotechnical Engineering Report for the above referenced project. This report describes our understanding of the project, presents the results of the borings and laboratory tests, discusses the observed subsurface conditions, and, based on these conditions, provides our opinions and geotechnical engineering recommendations for the additions to the Jackson County Vehicle Service Center.

We appreciate the opportunity to provide our geotechnical engineering services for this project. If you have any questions or need further assistance, please contact us.

Respectfully submitted,
Olsson, Inc.

A handwritten signature in blue ink, appearing to read "JD Putnam".

JD Putnam
Assistant Engineer



Ian A. Dillon, PE
Senior Geotechnical Engineer

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APPENDICES

- Appendix A: Boring Location Plan
- Appendix B: Symbols and Nomenclature, Boring Logs
- Appendix C: Permeability Test Results

A. PROJECT UNDERSTANDING

A.1. GEOTECHNICAL SCOPE

This Geotechnical Engineering Report presents the results of the subsurface exploration completed for the proposed pump station, wastewater storage lagoon and irrigation area for the Jackson County Vehicle Service Center in Grain Valley, Missouri. Two borings were drilled at the site. The purpose of this exploration was to evaluate the existing subsurface conditions on-site, and based on those conditions, provide geotechnical design recommendations for the additions to the site.

A.2. SITE DESCRIPTION

The project site is located at the Jackson County Public Works Vehicle Service Center at 34900 East Old 40 Highway in Grain Valley, Missouri. The site is shown in Figure 1, with the new lagoon area hatched.

Figure 1: Site Location



Several existing buildings are located on the eastern portion of the site. In addition, Asphaltic parking surrounds the buildings with an asphaltic surface drive entrance located to the northwest

of the buildings and east of the drive entrance. The site currently slopes downward both from the east and the west to the existing ponds. Elevations on the east side of the ponds range from about 800 feet to around 776 feet (pond embankment). Elevations on the west side of the ponds range from a high of 794 feet to the pond's western embankment of approximately 776 feet. We do not have information regarding the existing pond's depth or the current siltation of the pond.

A.3. PROJECT DESCRIPTION

The northern most existing pond will be eliminated and replaced with a 0.27-acre wastewater storage lagoon. The lagoon is planned to be 7 feet deep. An at-grade pump station is planned northwest of the lagoon. In addition, a 0.35-acre irrigation area is planned to the west of the lagoon. Figure 2 shows the conceptual layout of the project.

Figure 2: Conceptual Site Layout



B. EXPLORATORY AND TEST PROCEDURES

B.1. FIELD EXPLORATION

The drill crew used a truck-mounted CME-45 drill rig to advance the two borings at the site. The drill crew located the borings by using GPS coordinates. The approximate locations of the borings are shown on the Boring Location Plan in Appendix A.

Borings B-1 and B-2 were advanced to a depth of 20 feet below the existing surface. Soil samples were obtained by using thin-walled sampling tubes and split-barreled procedures. The drill crew prepared field logs for each boring. These field logs include visual classifications of the materials encountered during the drilling process as well as the drillers' interpretation of the subsurface conditions between samples. Water level observations were made in the borings at the times and under the conditions noted on the boring logs. The finalized boring logs are presented in Appendix B.

B.2. LABORATORY TESTING

At our laboratory, we visually classified the soil samples in accordance with the Unified Soil Classification System (USCS). Selected soil samples were tested to determine the moisture content, dry density and unconfined compressive strength of the soil. A Flex Wall Permeability test was performed on a selected sample to determine the permeability of the on-site soil. Permeability refers to the ability of water to pass through a saturated soil sample and is measured by the soils' coefficient of permeability (hydraulic conductivity), denoted as K . Results from the various tests are presented in Appendices B and C.

C. SUBSURFACE CONDITIONS

C.1. SOIL STRATIGRAPHY

The subsurface conditions shown on the boring logs represent conditions at the specific boring locations at the times they were drilled. Variations may occur between or beyond the borings. The stratifications lines shown on the boring logs represent the approximate locations of changes in soil and bedrock types. The actual transitions between materials is usually gradual. Based on the borings, the subsurface conditions at this project site can be generalized as follows.

At the boring locations, we encountered native fat clay soils extending to depths ranging from 17 feet to 20 feet at borings B-1 and B-2, respectively. Generally, the clay soils were firm to very stiff and was generally reddish brown to dark brown. Boring B-2 terminated in the clay soils at 20 feet. Boring B-1 encountered weathered limestone that contained clay seams at 17 feet and continued until termination of the boring at 20 feet.

C.2. GROUNDWATER SUMMARY

The borings were monitored while drilling and immediately after completion for the presence and level of water. Water was observed in both borings while drilling and after the completion drilling. During drilling, water was encountered at 11 feet and 10 feet in borings B-1 and B-2, respectively. After drilling, water was encountered at 6 feet in boring B-1 and 10 feet in boring B-2. The presence of groundwater in each boring should not be construed to represent a permanent or stable condition. Variations and uncertainties exist with relatively short-term water level observations in boreholes. Water levels can and should be anticipated to vary between boring locations, as well as with time within specific borings. Water typically collects near the interface between different materials, such as bedrock and soil. Groundwater levels fluctuate with variations in precipitation, site grading, drainage and adjacent land use. Long term monitoring with piezometers generally provides a more representative reflection of the potential range of groundwater conditions.

D. GEOTECHNICAL CONSIDERATIONS

As previously discussed, an existing pond is located within the boundaries of the new lagoon. Lower consistency and/or organic soils are anticipated within this area. After the pond has been drained, undercutting the existing softer soils within the existing pond area prior to placement of new structural fill should be anticipated. During undercutting and removal of soft soils, additional drainage measures may be required to control water seepage within the undercut areas. Pumping of water from the excavation or installation of a drainage system may be required. The base of the undercut should be observed to determine if all the unsuitable material has been removed. Structural fill should then be placed in accordance with the recommendations provided in the *Structural Fill* section of this report.

If extensive soft or unsuitable conditions are encountered within and around the pond during proofrolling operations, stabilization of the soils with may be required. Appropriate stabilization procedures should be developed based on conditions encountered. Consideration should be given by the contractor as to the type of equipment used during construction. While is it not our intent to dictate means and methods, consideration should be given to using track mounted equipment to minimize disturbance and avoid excessive degradation to the subgrade soils.

E. EARTHWORK

E.1. SITE PREPARATION

Site preparation should begin with the drainage of the existing pond and removal of the unsuitable organic or soft soils from the base of the pond as recommend in the *Geotechnical Consideration* section. In addition, removal of any existing organic topsoil, vegetation and related root systems, and/or any other deleterious or unsuitable materials outside of the existing pond shall be performed. Site clearing, grubbing and stripping should be performed during dry weather conditions. Operation of heavy equipment on the site during wet conditions could result in excessive rutting and mixing of organic debris with the underlying soils.

E.2. LINER RECOMMENDATIONS

Based on our boring logs, we anticipate the bottom of the basin excavation will terminate in native clay soils. The native clay soils are desired for use as a low permeability liner for the proposed equalization basin. Per the Clean Water Commission of the Missouri Department of Natural Resources (MODNR), percolation losses for the proposed basin should not exceed 1/16th inch per day.

We performed permeability tests on an undisturbed sample of the native fat clay soils at this site. The following table presents the hydraulic conductivity as measured by the laboratory permeability test and the calculated seepage rate. We estimate seepage rates assuming a 7-foot max pool depth and a 12-inch-thick compacted high plasticity (fat) clay liner.

Table 1: Hydraulic Conductivity & Seepage Rate

Sample	Depth	Sample Type	Hydraulic Conductivity (k), cm/s	Seepage Rate in/day
B-1	7'-9'	Undisturbed (in-situ)	6.60×10^{-9} cm/s	1.8×10^{-3} in/day

Our calculated seepage rates are within the acceptable limits required by MODNR. We recommend the liner be comprised of 12 inches of on-site clay soils (Min LL>50) compacted to 95 percent of the maximum dry density as determined by the standard Proctor (ASTM D698). The on-site soils should be placed in two 6-inch lifts. The moisture content of the soils at the time of compaction should be between optimum and +4 percent of optimum. The liner material should be tested at the time of compaction to ensure the Atterberg liquid limit is greater than 50.

E.3. STRUCTURAL FILL (EMBANKMENTS)

Embankment fill soils should be relatively free of organic materials (less than about 5 percent by weight) or other unsuitable materials and should not contain particle sizes larger than 3 inches.

Samples of all potential fill materials should be submitted to Olsson (**Olsson**) for review prior to use on the site.

Embankment fill materials should be placed in loose lifts of 9 inches or less. The soil should be compacted using equipment that is the appropriate type and properly sized for the job. An **Olsson** field representative should regularly observe and monitor grading operations and perform field density tests to document that moisture and compaction requirements are being achieved. Table 2 provides our recommendations for fill placement on this site.

Table 2: Fill Placement Guidelines

Area of Fill Placement	Material	Compaction Recommendation*	Moisture Content (Percent of Optimum)
Structural Fill – On-site Cohesive Soil	On-site Soil (LL > 50)	95%	0 to +4 percent

*According to ASTM D-698 – Standard Proctor

The moisture content for suitable borrow soils at the time of compaction should generally be maintained between the ranges specified above. More stringent moisture limits may be necessary with certain soils and some adjustments to moisture contents may be necessary to achieve compaction in accordance with project specifications.

Final slopes should be no steeper than 3(H):1(V). Slopes should be vegetated as soon as possible to prevent wash out. Vegetation on the slopes should be limited to shallow rooted grasses. Deeper rooted trees or brush should be removed yearly.

E.4. IRRIGATION AREA

We understand the irrigation area is required to have a minimum static groundwater level of 2 feet below the ground surface. Our borings encountered groundwater in the area at a minimum depth of 6 feet. In addition, the area planned to be irrigated must have a percolation rate greater than 27 inches per year. We measured the percolation rate in the area to be around 0.01 in/sec, significantly greater than required. Based on our borings and the percolation test, the area meets the minimum requirements for irrigation.

F. CONCLUSIONS AND LIMITATIONS

F.1. CONSTRUCTION OBSERVATION AND TESTING

We recommend that all earthwork during construction be monitored by a representative of **Olsson**, including site preparation, placement of all structural fill and trench backfill, and pavement subgrades. The purpose of these services would be to provide **Olsson** the opportunity to observe the soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

F.2. LIMITATIONS

The conclusions and recommendations presented in this report are based on the information available regarding the proposed construction, the results obtained from our borings, laboratory testing program, and our experience with similar projects. The borings represent a very small statistical sampling of subsurface soils and it is possible that conditions may be encountered during construction that are substantially different from those indicated by the borings. In these instances, adjustments to design and construction may be necessary.

This geotechnical report is based on the site plan and information provided to **Olsson** and our understanding of the project as noted in this report. Changes in the location or design of new structures and could significantly affect the conclusions and recommendations presented in this geotechnical report. **Olsson** should be contacted in the event of such changes to determine if the recommendations of this report remain appropriate for the revised site design.

This report was prepared under the direction and supervision of a Professional Engineer registered in the State of Missouri with the firm of **Olsson, Inc.** The conclusions and recommendations contained herein are based on generally accepted, professional, geotechnical engineering practices at the time of this report, within this geographic area. No warranty, express or implied, is intended or made. This report has been prepared for the exclusive use of **Jackson County, Missouri Public Works** and their authorized representatives for specific application to the proposed project described herein.

APPENDIX A
Boring Location Plan



Boring Location Plan	
Jackson County Vehicle Service Center Grain Valley, Missouri	

Scale: n.t.s.
Project No. 019-2424
Approved by: JDP
Date: 1/13/2020



APPENDIX B

**Symbols and Nomenclature
Boring Logs**

WWTF Improvements JCPW Vehicle Service Center County Project # 3256, Bid # PW08-2021
SYMBOLS AND NOMENCLATURE

DRILLING NOTES

DRILLING AND SAMPLING SYMBOLS

SS: Split-Spoon Sample (1.375" ID, 2.0" OD)	HSA: Hollow Stem Auger	NE: Not Encountered
U: Thin-Walled Tube Sample (3.0" OD)	CFA: Continuous Flight Auger	NP: Not Performed
CS: Continuous Sample	HA: Hand Auger	NA: Not Applicable
BS: Bulk Sample	CPT: Cone Penetration Test	% Rec: Percent of Recovery
MC: Modified California Sampler	WB: Wash Bore	WD: While Drilling
GB: Grab Sample	FT: Fish Tail Bit	IAD: Immediately After Drilling
SPT: Standard Penetration Test Blows per 6.0"	RB: Rock Bit	AD: After Drilling
		CI: Cave-In

DRILLING PROCEDURES

Soil samples designated as "U" samples on the boring logs were obtained in using Thin-Walled Tube Sampling techniques. Soil samples designated as "SS" samples were obtained during Penetration Test using a Split-Spoon Barrel sampler. The standard penetration resistance 'N' value is the number of blows of a 140 pound hammer falling 30 inches to drive the Split-Spoon sampler one foot. Soil samples designated as "MC" were obtained in using Thick-Walled, Ring-Lined, Split-Barrel Drive sampling techniques. Recovered samples were sealed in containers, labeled, and protected for transportation to the laboratory for testing.

WATER LEVEL MEASUREMENTS

Water levels indicated on the boring logs are levels measured in the borings at the times indicated. In relatively high permeable materials, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels is not possible with only short-term observations.

SOIL PROPERTIES & DESCRIPTIONS

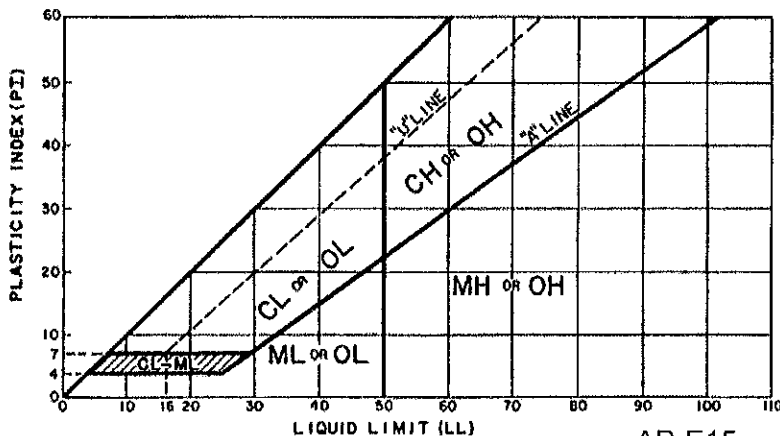
Descriptions of the soils encountered in the soil test borings were prepared using Visual-Manual Procedures for Descriptions and Identification of Soils.

PARTICLE SIZE

Boulders	12 in. +	Coarse Sand	4.75mm-2.0mm	Silt	0.075mm-0.005mm
Cobbles	12 in.-3 in.	Medium Sand	2.0mm-0.425mm	Clay	<0.005mm
Gravel	3 in.-4.75mm	Fine Sand	0.425mm-0.075mm		

COHESIVE SOILS		COHESIONLESS SOILS		COMPONENT %	
Consistency	Unconfined Compressive Strength (Qu) (tsf)	Relative Density	'N' Value	Description	Percent (%)
Very Soft	<0.25	Very Loose	0 - 3	Trace	<5
Soft	0.25 - 0.5	Loose	4 - 9	Few	5 - 10
Firm	0.5 - 1.0	Medium Dense	10 - 29	Little	15 - 25
Stiff	1.0 - 2.0	Dense	30 - 49	Some	30 - 45
Very Stiff	2.0 - 4.0	Very Dense	≥ 50	Mostly	50 - 100
Hard	> 4.0				

PLASTICITY CHART



ROCK QUALITY DESIGNATION (RQD)

Description	RQD (%)
Very Poor	0 - 25
Poor	25 - 50
Fair	50 - 75
Good	75 - 90
Excellent	90 - 100





BOREHOLE REPORT NO. B-1

Sheet 1 of 1

PROJECT NAME: **Jackson County Vehicle Service Center** CLIENT: **Jackson County Public Works**

PROJECT NUMBER: **019-2424** LOCATION: **Jackson County, Missouri**

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/REMARKS
	ROOT ZONE FAT CLAY <i>Very stiff, dark brown</i>		0								
			0.3'								
				SS 1		6-7-9 N=16		22.3			
				U 2			1.9	27.6	95.8		
			5								
				U 3				25.3	98.1	58/38	
			7.0'								
	<i>Stiff, dark brown</i>			U 4				26.0	99.2		
			9.0'								
	<i>Firm, dark brown</i>			U 5				29.7	96.8	51/34	
			10								
				U 6				27.0	99.2		
			15								
				U 7			0.4	26.1	97.7		
			17.0'								
	WEATHERED LIMESTONE <i>Clay filled seams</i>										
			20.0'								
				SS 8		43-27-9 N=36		27.4			
			20								
BASE OF BORING AT 20.0 FEET											

WATER LEVEL OBSERVATIONS		OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061	STARTED: 11/29/19	FINISHED: 11/29/19
WD	▽ 11.0 ft		DRILL CO.: OLSSON	DRILL RIG: CME 45B
IAD	▽ 6.0 ft after 0 Hrs		DRILLER: K. PATTERSON	LOGGED BY: D. Martin
AD	▽ Not Encountered		METHOD: CONTINUOUS FLIGHT AUGER	



BOREHOLE REPORT NO. B-2

Sheet 1 of 1

PROJECT NAME: **Jackson County Vehicle Service Center** CLIENT: **Jackson County Public Works**

PROJECT NUMBER: **019-2424** LOCATION: **Jackson County, Missouri**

ELEVATION (ft)	MATERIAL DESCRIPTION	GRAPHIC LOG	DEPTH (ft)	SAMPLE TYPE NUMBER	CLASSIFICATION (USCS)	BLOWS/6" N-VALUE	UNC. STR. (tsf)	MOISTURE (%)	DRY DENSITY (pcf)	LL/PI (%)	ADDITIONAL DATA/REMARKS	
	<p>ROOT ZONE FAT CLAY Stiff, red brown</p> <p>0.3'</p>		0									
					U 1			1.9	22.1	102.7		
					U 2			1.2	24.4	99.0		
				5								
					U 3			0.7	29.1	96.8		
			10									
				U 4			0.4	29.8	94.3			
			15									
				U 5			0.5	25.3	101.7			
			20									
BASE OF BORING AT 20.0 FEET												

WATER LEVEL OBSERVATIONS	OLSSON, INC. 1700 E. 123RD STREET OLATHE, KANSAS 66061	STARTED: 11/29/19	FINISHED: 11/29/19
WD ∇ 10.0 ft		DRILL CO.: OLSSON	DRILL RIG: CME 45B
IAD ∇ 10.0 ft after 0 Hrs		DRILLER: K. PATTERSON	LOGGED BY: D. Martin
AD ∇ Not Encountered		METHOD: CONTINUOUS FLIGHT AUGER	

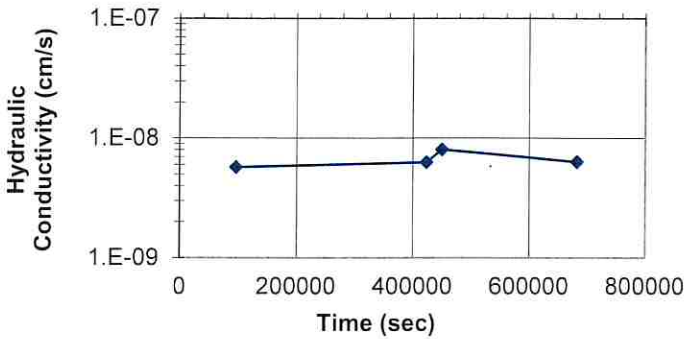
APPENDIX C

Flexible Wall Permeability (ASTM D 5084 - Method C)

Project Name _____
 Project No. _____
 Scale No. KC-DS-01 / KC-DS-02

Boring No. _____

Date _____
 Sample No. _____
 Depth _____



	Sample Parameters	
	Initial	Final
Height of Sample (cm)	14.011	14.058
Diameter of Sample (cm)	7.244	7.285
Wet density, lb/cu ft	125.0	124.4
Dry density, lb/cu ft	99.3	97.7
Water content	26.0%	27.3%
SG of solids	2.70	2.70
Saturation	100.0%	100.0%

	Test 1	Test 2	Test 3	Test 4
Cell Pressure (psi)	110.00	110.00	110.00	110.00
Lower Cap Pressure (psi)	107.00	107.00	107.00	107.00
Upper Cap Pressure (psi)	103.00	103.00	103.00	103.00
Differential Pressure (psi)	4.00	4.00	4.00	4.00
Hydraulic Gradient	20	20	20	20
Test time (sec)	96540	327000	27120	231780
Elapsed Time (sec)	96540	423540	450660	682440
Lower Cap Burette Initial Reading (mL)	5	5	5	5
Lower Cap Burette Final Reading (mL)	5.5	6.9	5.2	6.4
Upper Cap Burette Initial Reading (mL)	20	20	20	20
Upper Cap Burette Final Reading (mL)	19.5	18.2	19.8	18.7
Inflow/Outflow Ratio (0.75-1.25)	1.00	1.06	1.00	1.08
Permeability (cm/sec)	6.01E-09	6.60E-09	8.55E-09	6.78E-09
Temperature ©	22.0	22.0	22.5	23.0
Temperature Correction	0.95	0.95	0.94	0.93
Permeability, K @ 20 C (cm/sec)	5.73E-09	6.29E-09	8.05E-09	6.31E-09
Average +/- 25%	Pass	Pass	Pass	Pass

AVERAGE PERMEABILITY (cm/s) 6.60E-09

Remarks: _____



Technician: DMS
 Computed By: DMS
 Checked By: IAD

*Richard L. Henderson
Soil Scientist
3426 S. 240th Road
Louisburg, MO 65685
417-830-0296*

Oct.29, 2020

To: Jackson Co Public Works, Old Hgwy 40, Oak Grove, Mo. C/O Nolan Groff

To Nolan,

Recently I performed a soil assessment for the planning of the Wastewater treatment area for Jackson Co Public Works. This tract has several acres with the intent of putting the Wastewater treatment area west of the office building or south of Old 40 Hgwy. The following are submitted in support of this report to you: A proposed layout of the property and area to be used for the OWTS; 4 Tables of soil descriptions from pits; a table summarizing the loading rates and depth to soil limitations; a map indicating the pit locations, location map, topographic map, showing the slopes as all 3 to 14 percent; and a soil survey map from the web soil survey and a soils map showing the best soil area for an OWTS.

Based on your preliminary plans and my observation of the soil survey, 4 test pits at various reflective locations on the area of the proposed lateral field location were dug to assess the soil variability and suitability for the development of an onsite wastewater system. These locations were selected based on my preliminary walking and probing the area in addition to the preliminary planning for the tract. The soil morphological descriptions from each pit are presented in the Missouri Department of Health and Senior Services code 19 CSR 20-3.060. In this report my reference to loading rates for pressure dosed systems which could refer to a drip dispersal system. All areas were unsuitable for conventional systems.

These individual soil descriptions are summarized in Table 15. The topographic slope group is 3-14% for the area. A small portion of the area was 1-2 percent slopes but was included in the 3-14 % slopes unit.

The area near pits 1 and 2 to the south of Old Hgwy. 40 had water tables from 22 to 24 inches. The soils on the ridgetops and shoulder slopes in this area were developed from deep loess. The side slopes in this area are steeper and are underlain by shale residuum and have high shrink swell clayey layers and water tables less than 20 inches in depth as observed by borings. Water on the ridge tops and shoulder slopes moves downward through the soil profile as well as laterally above the less permeable layers. On the side slopes water moves in these soils down to the restrictive layers or more clayey, less permeable layers and then laterally off the landscape. This area has been terraced for farming purposes in the past. The best area for the OWTS is on the ridge tops and shoulder slopes.

The area near pits 3 and 4 to the north of old 40 Hgwy. Has been smoothed and leveled. Clayey fill has been added to the area to make the area less sloping. This clayey fill is compacted and the previous surface layer before fill addition has been compacted. If this area were to be used for the OWTS the

clayey fill would need to be removed and the old surface layer would need to be tilled to negate the compaction. There would still be a limited amount of permeable soil to use for the system due to the underlying high shrink swell clayey layers at 40 to 42 inches in depth

The soil descriptions for the pits were reflective of the soil resource reflected in the soil survey for Jackson County via the Web Soil Survey (Figure 3). In that Figure the following soils are depicted for the proposed OWTS area: 10129, Sharpsburg-Urban land Complex 5-9 percent slopes. The Sharpsburg component of the mapping unit is represented by pits 1 and 2 on the ridgetop and shoulder slopes on the south side of old 40 Hgwy. The urban land component of the mapping unit is represented by pits 3 and 4 on the north side of Old 40 Hgwy.

It should be noted that soils are variable. Because of this variability, selection of the specific site for the soil absorption field is critical for proper siting, sizing, and designing. Please note that I do not warrant nor represent the proper functioning of an installed system for any length of time. Please call on me if I can be of further assistance.

Sincerely,

Richard L. Henderson

Soil Scientist (# 10023)



10 - 29 - 20

WWTf Improvements JCPV Vehicle Service Center
Restaurants

Gas

Groceries

c

E Duncan Rd



70



Jackson
Public V

Grain Valley

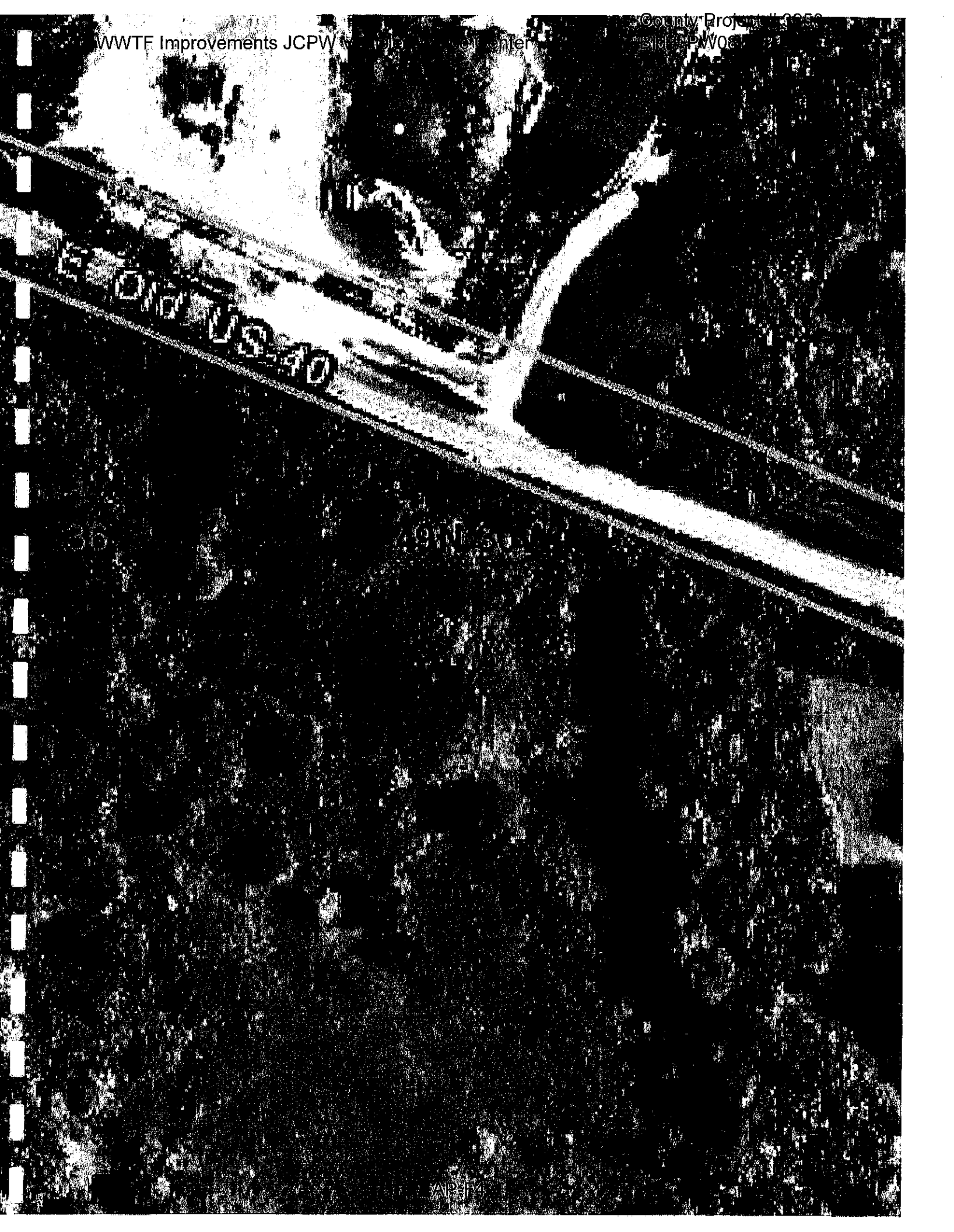
Valley MX

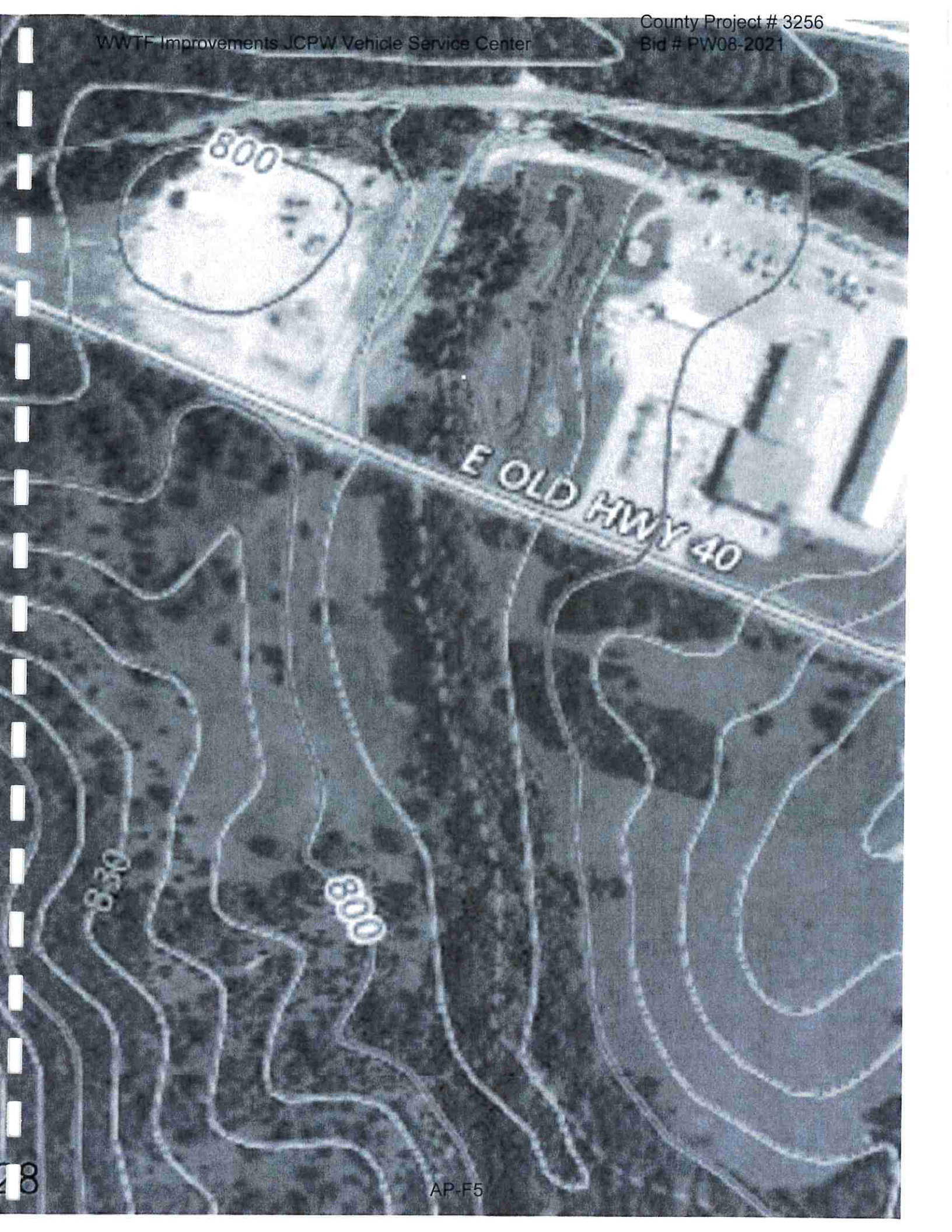
SW Eagles Pkwy

S Buckner-Tarsney Rd

E R D Mize Rd







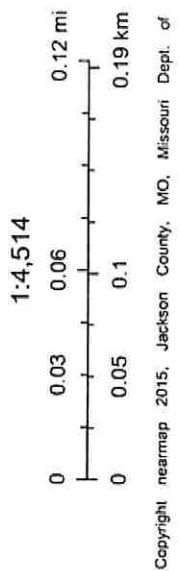
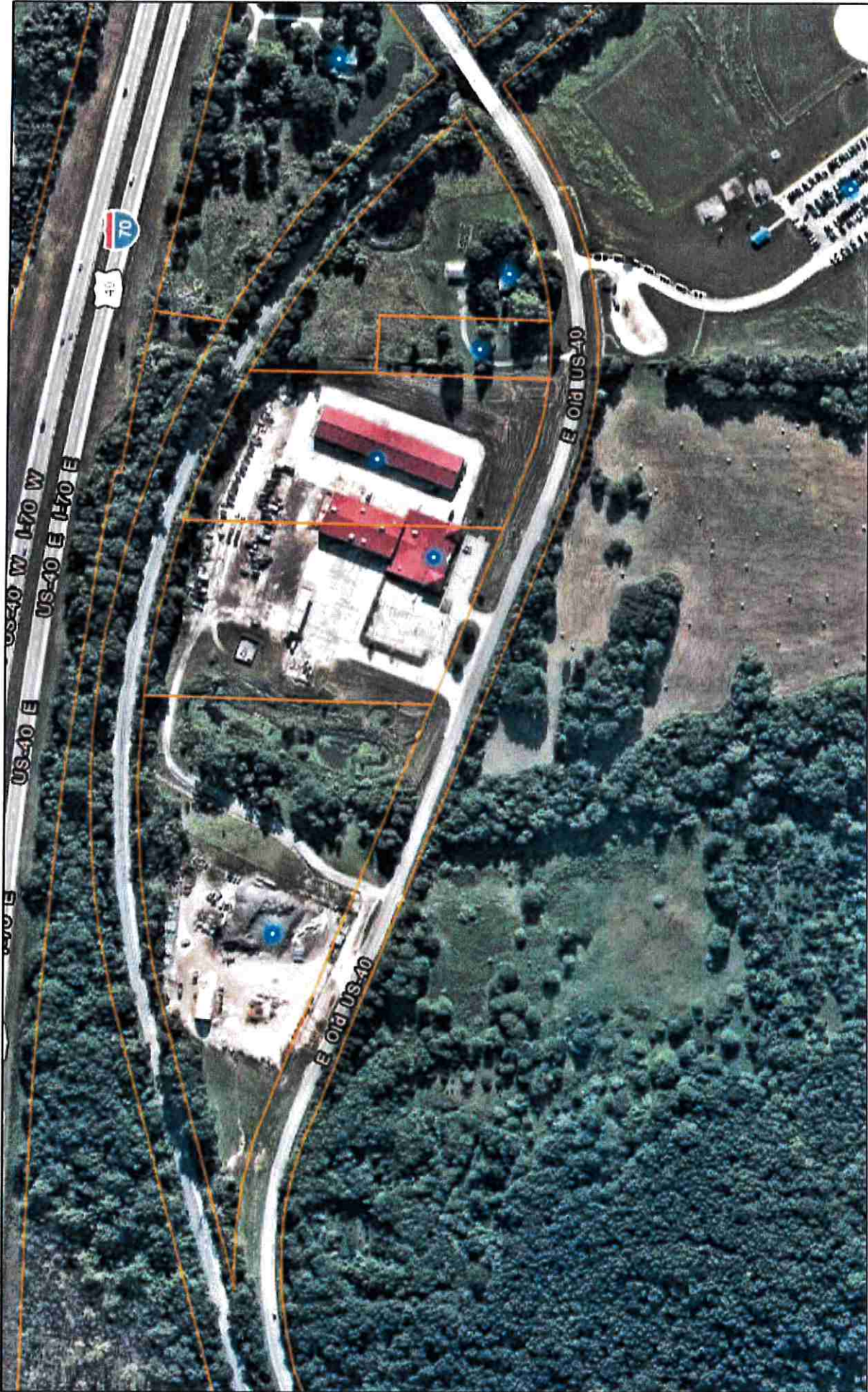


AP-F6

Jackson Co Public Works

WWTF Improvements JCPW Vehicle Service Center

County Project # 3256
 Bid # PW08-2021



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October 28, 2020

- Green: Band_2
- Blue: Band_3
- Red: Band_1
- Tax Parcels
- Lot Tic
- Addresses
- Addresses
- Addresses
- Nearmap

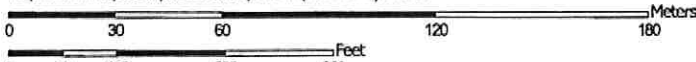
AP-F7

Soil Map—Jackson County, Missouri
(Jackson Co USDA soils Map Old 40 Hgwy)



Soil Map may not be valid at this scale.

Map Scale: 1:2,050 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

- Area of Interest (AOI)
 - Area of Interest (AOI)
- Soils
 - Soil Map Unit Polygons
 - Soil Map Unit Lines
 - Soil Map Unit Points
- Special Point Features
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features
 - Streams and Canals
- Transportation
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background
 - Aerial Photography
- Other
 - Spoil Area
 - Stony Spot
 - Very Stony Spot
 - Wet Spot
 - Other
 - Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jackson County, Missouri
Survey Area Data: Version 22, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 6, 2019—Nov 16, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10088	Mandeville silt loam, 5 to 14 percent slopes	2.7	24.6%
10122	Sharpsburg silt loam, 5 to 9 percent slopes, eroded	0.0	0.1%
10129	Sharpsburg-Urban land complex, 5 to 9 percent slopes	7.3	67.2%
10141	Snead-Rock outcrop complex, 14 to 30 percent slopes	0.2	1.8%
30080	Greenton silty clay loam, 5 to 9 percent slopes	0.7	6.2%
Totals for Area of Interest		10.9	100.0%

SOIL MORPHOLOGICAL REPORT

Table ID: 1
 Jackson Co Public Works

DESCRIBED BY: Richard Henderson

DATE: 10/24/20

SITE INFORMATION

SLOPE (%) 4
 ASPECT (o) 355
 FLOODING
 DRAINAGE somewhat poorly
 PERMEABILITY slow
 ENV. HAZARD None
 Restrictive Layer (in) >54
 w/in 50 feet of permanent waterbody no
 SINKHOLE No
 SURFACE DEPRESSION No
 DEPTH TO BEDROCK > 54 INCHES
 GROUNDWATER CONTAM. POTENTIAL No
 Location/UTM
 Depth to water table(s) (in) 22
 Type of water table perched

Suitability (S,PS U)	Horizon		Bound ary	Munsell Color (Moist)		Redox	USDA Texture	Est % Clay	Shrink Swell	% Coarse Frags		Consistency	Structure	Roots	Pores	DHSS OWTS L.R.	DHS OWTS LPP L.A.
	Num ber	Design ation		Depth (in)	%					COLOR	<3"						
PS	1	Ap	CS	100	10YR3/2	NONE	sil	20	low	0	0	firm	Moderate, Medium Granular	Many Fine & Medium	Many Fine Interstitial	0.4	0.2
ps	2	Bt1	CS	100	10yr 5/4	md 5/3	sicl	27	mod	0	0	very firm	weak fine subangular Blocky	Few Fine	few Fine	0.4	0.15
ps	3	Bt2	gs	100	10yr 5/6	md 5/4 cts	sicl	34	mod	0	0	firm	weak fine subangular Blocky	few Fine	few fine interstitial	0.25	0.12
ps	4	Bt3	gs	100	10YR 5/6	F1P 5/2s	sicl	36	mod	0	0	firm	weak fine subangular Blocky	few fine	few fine interstitial	0.2	0.1
ps	5	Bt4		50-50	10YR 5/6 10YR 6/2	f1p 10YR5/6	sicl	33	mod	0	0	firm	moderate coarse prismatic	few very fine	few very fine interstitial	0.1	0.05

NOTES: ridgetop and shoulder slopes are similar to this soil, steeper back slopes are loess over shale residuum

SOIL MORPHOLOGICAL REPORT

Table ID: 2
 Jackson Co Public Works

DESCRIBED BY: Richard Henderson

DATE: 10/24/20

SITE INFORMATION

SLOPE (%) 4
 ASPECT (o) 10
 FLOODING
 DRAINAGE somewhat poorly
 PERMEABILITY slow
 ENV. HAZARD None
 Restrictive Layer (in) >54
 w/in 50 feet of permanent waterbody NO
 SINKHOLE NO
 SURFACE DEPRESSION NO
 DEPTH TO BEDROCK > 54 INCHES
 GROUNDWATER CONTAM. POTENTIAL No
 Location/UTM
 Depth to water table(s) (in) 24
 Type of water table perched

WWTF Improvements JC PW Vehicle Service Center

County Project # 3256
 Bid # PW08-2021

Soilability (S,PS U)	Horizon		Bound ary	Munsell Color (Moist)		Redox	USDA Texture	Est % Clay	Shrink Swell	% Coarse Frags		Consistency	Structure	Roots	Pores	DHSS OWTS L.R.	DHSS OWTS LPP L.R.
	Number	Design ation		Depth (in)	%					COLOR	<3"						
PS	1	Ap	CS	100	10YR 4/3	NONE	sil	20	low	0	0	firm	Moderate, Medium Granular	Many Fine & Medium	Many Fine Interstitial	0.4	0.2
ps	2	Bt1	cs	100	10yr 5/4	cd 5/3 cts.	sic	28	mod	0	0	very firm	weak fine subangular Blocky	Few Fine	few Fine	0.4	0.15
ps	3	Bt2	gs	100	10yr 5/6	cd 5/4 cts	sic	34	mod	0	0	firm	weak fine subangular Blocky	few Fine	few fine interstitial	0.25	0.126
ps	4	Bt3	gs	100	10YR 5/6	F1P 5/2s	sic	36	mod	0	0	firm	weak fine subangular Blocky	few fine	few fine interstitial	0.2	0.1
ps	5	Bt4		50-50	10YR 5/6 10YR 6/2	F1p 10YR5/6	sic	33	mod	0	0	firm	moderate coarse prismatic	few very fine	few very fine interstitial	0.1	0.05

NOTES: ridgetop and shoulder slopes are similar to this soil, steeper backslopes are loess over shale residuum

SOIL MORPHOLOGICAL REPORT

Table ID: 3
 Jackson Co. Public Works
 DATE: 10/24/20

DESCRIBED BY: Richard Henderson

SITE INFORMATION

SLOPE (%) 3
 ASPECT (o) 100
 FLOODING
 DRAINAGE Poorly
 PERMEABILITY very slow
 ENV. HAZARD None

Restrictive Layer (in)
 w/in .50 feet of permanent waterbody
 SINKHOLE No
 SURFACE DEPRESSION No
 DEPTH TO BEDROCK > 54 INCHES
 GROUNDWATER CONTAM. POTENTIAL No

Location/UTM
 Depth to water table(s) (in) 40
 Type of water table perched

Suitability (S, PS U)	Number	Horizon		Bound	Munsell Color (Moist)		Redox	USDA Texture	Est. % Clay	Shrink Swell	% Coarse Frag.		Consistency	Structure	Roots	Pores	DHSS OWTS L.R.	DHSS OWTS LPP L.R.
		Designation	Depth (in)		%	COLOR					<3"	>3"						
us	1	Ap1	0-4	gs	50-50	10YR3/2 10YR 5/4	fp 5YR 4/6	sic	42	high	5	5	very firm	massive	Few Fine & Medium	Few Fine Interstitial	us	us
us	2	Ap2	4-23	as	50-50	10YR3/2 10YR 5/4	fp 5YR 4/6	sic	42	high	5	5	very firm	massive	Many Fine & Medium	Many Fine Interstitial	us	us
us	3	Apb	23-30	cs	100	10yr 3/1	cd 3/2s	sil	26	low	0	0	very firm	moderate very coarse subangular blocky	Few Fine	few Fine	compacted	us
ps	4	Bt1	30-42	gs	50-50	7.5YR 5/6	td fe and Mg accs	sicl	35	mod	0	0	firm	weak very fine subangular blocky	few Fine	few fine interstitial	0.15	0.1
us	5	2Bt2	42-54		100	10yr 5/6	cip 5/3	sic	44	high	tr	0	very firm	weak very fine subangular blocky	Few Fine	few very fine	US	US

NOTES: Parachanners fragments derived from shale and coal in the surface layers. (Apb1 and Apb2) The site has been leveled and smoothed in the past. Ap1, Ap2 and Apb are compacted.

SOIL MORPHOLOGICAL REPORT

Table ID: 4
DATE: 10/24/20

Jackson Co. Public Works

DESCRIBED BY: Richard Henderson

SITE INFORMATION

SLOPE (%) 3
ASPECT (o) 100
FLOODING Poorly
DRAINAGE very slow
PERMEABILITY None
ENV. HAZARD None

Restrictive Layer (in) w/in 50 feet of permanent waterbody
SINKHOLE No
SURFACE DEPRESSION No
DEPTH TO BEDROCK > 54 INCHES
GROUNDWATER CONTAM. POTENTIAL No

Location/UTM

Depth to water table(s) (in) 40
Type of water table perched

Suitability (S,PS U)	Horizon		Bound ary	Munsell Color (Moist)		Redox	USDA Texture	Est % Clay	Shrink Swell	% Coarse Frags		Consistency	Structure	Roots	Pores	DHSS OWTS L.R.	DHSS OWTS LPP L.A.
	Num ber	Design ation		Depth (in)	%					COLOR	<3"						
us	1	Ap1	gs	50-50	10YR3/2 10YR 5/4	fp 5YR 4/6	sic	42	high	5	5	very firm	massive	Few Fine & Medium	Few Fine Interstitial	us	us
us	2	Ap2	as	50-50	10YR3/2 10YR 5/4	fp 5YR 4/6	sic	42	high	5	5	very firm	massive	Many Fine & Medium	Many Fine Interstitial	us	us
us	3	Apb	cs	100	10yr 3/1	cd 3/2s	sil	26	low	0	0	very firm	moderate very coarse subangular blocky	Few Fine	few Fine	compacted	us
ps	4	Bt1	gs	50-50	7.5YR 5/6	fd fe and Mg accs	sicl	35	mod	0	0	firm	weak very fine subangular blocky	few Fine	few fine interstitial	0.15	0.1
us	5	2Bt2		100	10yr 5/6	cip 5/3	sic	44	high	tr	0	very firm	weak very fine subangular blocky	Few Fine	few very fine	US	US

NOTES: Parachanners in the upper layers are soft fragments of coat and shale. This area has been leveled and smoothed. Ap1, Ap2, and Apb are compacted. A concrete stone and some trash was noted in the Ap horizons.

Table _15_. Summary of limiting loading rate, total depth of loading rate within the soil profile, and depth to a restrictive layer and/or a seasonally perched high water table, Jackson Co Public Works, Jackson County

Soil Profile	Limiting loading LPP/drip Dispersal (gal/ft ² /day)	Depth (Inches) of the limiting loading rate	Depth (Inches) to a restrictive layer, and/or a seasonally perched high water table
TP 1	.125	22	22
TP 2	.125	24	24
TP 3	us	0 inches and 42 inches	0 inches and 42 inches
TP 4	us	0 inches and 40 inches	0 inches and 40 inches
See narrative below for	explanation for TP 3	And TP 4	

Test Profile 1, Has a limiting load rate of .125 gal/Sq. Ft/day for a low pressure technology to a depth of 22 inches. A seasonally perched water table is present at 22 inches.

Test Profile 2, Has a limiting load rate of .125 gal/Sq. Ft/day for a low pressure technology to a depth of 24 inches. A seasonally perched water table is present at 24 inches.

Test Profile 3, Is unsuitable from 0 to 24 inches, and 40 to 54 inches. Compacted clayey fill is from 0-24 inches, and high shrink swell clay layers are from 40 to > 54 inches. The layers from 24 to 40 inches have a limiting load rate of .1 gal/Sq. Ft/day for a low pressure technology. A seasonally perched water table and a restrictive layer are present at 40 inches.

Test Profile 4, Is unsuitable from 0 to 30 inches, and 42 to 54 inches. Compacted clayey fill is from 0-30 inches, and high shrink swell clay layers are from 42 to > 54 inches. The layers from 30 to 42 inches have a limiting load rate of .1 gal/Sq. Ft/day for a low pressure technology. A seasonally perched water table and a restrictive layer are present at 42 inches.