



COLE COUNTY
★ Missouri ★

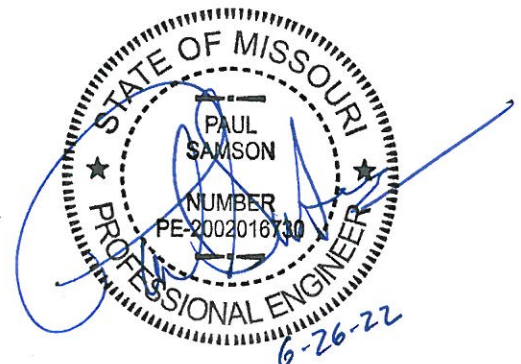
CARNEGIE BUILDING SITE IMPROVEMENTS
Project No. 2022-23
CMPS Job. No. 11-059

BIDS DUE:

JULY 22, 2022; 9:00 AM
Cole County Commission Chamber
Cole County Courthouse Annex
Room 200, 311 East High St.
Jefferson City, MO 65101



2500 E. McCarty St.
Jefferson City, MO 65101
Phone: (573) 634-3455
Fax: (573) 634-8898
www.cmps-inc.com
Mo. Certificate of Authority #001558



Paul Samson, PE
MO #PE-200216730

BIDDING DOCUMENTS

COUNTY OF COLE, MISSOURI
CARNEGIE BUILDING SITE IMPROVEMENTS
PROJECT NO. 22-023
CMPS JOB NO. 11-059

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ADVERTISEMENT FOR BIDS

NOTICE TO BIDDERS

SEALED PROPOSALS for the construction of:

CARNEGIE BUILDING SITE IMPROVEMENTS PROJECT NO. 2022-23

Located at 210 Adams Street, Jefferson City, in Cole County, Missouri will be received and opened publicly at the Cole County Commission Chamber; Room 200, Cole County Courthouse Annex, 311 East High Street, Jefferson City, Missouri 65101 at:

9:00 A.M. on Friday, July 22, 2022

Any and all bids received after the time specified above will be returned unopened.

The proposed work consists of site demolition; grading; excavating; reinforced concrete retaining walls; concrete steps, sidewalks, and paving; asphalt paving; storm water drainage; seeding and mulching; and other miscellaneous work for the construction of site improvements adjacent to the Carnegie Building located at 210 Adams Street.

Plans and specifications may be viewed and downloaded online in the bids section at www.colecounty.org. A hard copy of the specifications will not be provided but an 11"x17" hard copy of the plans will be provided upon request in advance.

All contractors wishing to bid on this project shall submit the plan holder contact information form found in the specifications to ccpwprojects@colecounty.org prior to the bid opening.

A Pre-Bid Conference will be held on Wednesday, July 13, 2022, at 9:00 A.M. at the Cole County Commission Chamber; Room 200, Cole County Courthouse Annex, 311 East High Street, Jefferson City, MO 65101. All bidders are urged to attend.

All questions regarding the bid documents shall be directed via email to Central Missouri Professional Services attention: Paul Samson, PE (psamson@cmps-inc.com).

The Owner reserves the right to reject any and all bids and to waive informalities therein, to determine the lowest and best bid and to approve the bond. E.O.E.

NOTICE TO BIDDERS

Sealed proposals will be received at the office of the Cole County Commission Chamber; Room 200, Cole County Courthouse Annex, 311 East High Street, Jefferson City, Missouri, 65101, until 9:00 A.M., **Friday, July 22, 2022**. The bids will be opened and read aloud at that time.

The proposed work consists of site demolition; grading; excavating; reinforced concrete retaining walls; concrete steps, sidewalks, and paving; asphalt paving; storm water drainage; seeding and mulching; and other miscellaneous work for the project referred to as:

CARNEGIE BUILDING SITE IMPROVEMENTS PROJECT NO. 2022-23

All equipment, material, and workmanship must be in accordance with the plans, specifications, and contract documents on file with the Director of Cole County Public Works, 5055 Monticello Road, Jefferson City, Missouri 65109.

Plans and specifications may be viewed and downloaded online in the bids section at www.colecounty.org. A hard copy of the specifications will not be provided but a hard copy of the plans will be provided upon request in advance.

All contractors wishing to bid on this project shall submit the plan holder contact information form found in the specifications to ccpwprojects@colecounty.org prior to the bid opening.

All wages paid for work under this contract shall comply with requirements of the prevailing wage law of the State of Missouri, Section 290.210 through 290.340, RSMo. 1986.

A certified check on a solvent bank or a bid bond by a satisfactory surety in an amount to five percent (5%) of the total amount of the bid must accompany each proposal.

A one-year Performance and Guarantee Bond is required.

The County reserves the right to reject any or all bids and to waive informalities therein to determine which is the lowest and best bid and to approve the bond.

INSTRUCTIONS TO BIDDERS

2-1 Scope of Work

The proposed work consists of site demolition; grading; excavating; reinforced concrete retaining walls; concrete steps, sidewalks, and paving; asphalt paving; storm water drainage; seeding and mulching; and other miscellaneous work for the construction of site improvements adjacent to the Carnegie Building located at 210 Adams Street.

2-2 Inspection of Plans, Specifications, and Site of Work

The bidder is required to examine carefully the site of the proposed work, the proposal, plans, specifications, supplemental specifications, special provisions, and contract forms before submitting a proposal.

2-3 Interpretation of Contract Documents

If the bidder has any questions which arise concerning the true meaning or intent of the Plans, Specifications, or any part thereof, which affect the cost, quality, quantity, or character of the project, he shall request **in writing** that an interpretation be made by the Engineer. Questions shall be submitted to: Central Missouri Professional Services, Attention: Paul Samson, PE (psamson@cmps-inc.com).

All submitted questions will be answered via addendum issued by the Engineer which shall then be delivered to all bidders to whom Plans and Specifications have been issued. Failure to have requested an addendum covering any questions affecting the interpretations of the Plans and Specifications shall not relieve the Contractor from delivering the completed project in accordance with the intent of the Plans and Specifications to provide a workable project.

2-4 Qualifications of Bidders

The County of COLE may make such investigations as deemed necessary to determine the ability of the bidder to perform the work and the bidder shall furnish to the County of COLE all such information and data for this purpose as the County of COLE may request. The County of COLE reserves the right to reject any bid if the evidence submitted by the bidder or investigation of such bidder fails to satisfy the County of COLE that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

2-5 Equivalent Material

Wherever definite reference is made in these Specifications to the use of any particular material or equipment, it is to be understood that any equivalent material or equipment may be used which will perform adequately the duties imposed by the general design, subject to the approval of the Engineer.

2-6 Bid Security

Each bid must be accompanied by a certified check or bid bond made payable to the County of COLE for five percent (5%) of the amount of the base bid. Bid securities will be returned after award of contract except to the successful bidder.

Should the successful bidder or bidders fail or refuse to execute the bond and the contract required within ten (10) days after he has received Notice of Acceptance of his bid, he shall forfeit to the County of COLE as liquidated damages for such failure or refusal, the security deposited with his bid.

2-7 Preparation of Bids

Bid must be made upon prescribed forms attached at the back of these Specifications. Only sealed bids will be considered, all bids otherwise submitted will be rejected as irregular.

Do NOT include federal excise tax or sales and use taxes in the bid prices. This project will be a **SALES TAX EXEMPT** project. A copy of the federal tax exemption certificate will be furnished if required.

All blank spaces in the bid must be filled in and no change shall be made in the phraseology of the bid or addition to the items mentioned therein. Any conditions, limitation, or provisions attached to bids will render them informal and may be considered cause for their rejection.

2-8 Prices

The price submitted for each item of the work shall include all cost of whatever nature involved in its construction, complete in place, as described in the Specifications.

2-9 Addenda

Addenda may be issued on this project at any time up to 24 hours prior to the bid date and time. Occasionally an addendum may contain information that could affect a contractor's bid. It shall be the responsibility of the contractor to verify if any addenda have been issued prior to submitting their bid. The County assumes no liability if a contractor fails to incorporate addenda into their bid.

2-10 Approximate Quantities

In cases where any part or all of the bidding is to be received on a unit price basis, the quantities stated in the bid will not be used in establishing final payment due the successful Contractor. The quantities stated on which unit prices are so invited are approximate only and each bidder shall make his own estimate from the plans of the quantities required on each item and calculate his unit price bid for each item accordingly. Bids will be compared on the basis of number of units stated in the bid. Such estimated quantities, while made from the best information available, are approximate only. Payment on the Contract will be

based on actual number of units installed on the completed work.

2-11 Lump Sum Items

Payment for each lump sum item shall be at the lump sum bid for the item, complete in place, and shall include the costs of all labor, materials, tools, and equipment to construct the item as described herein and to the limits shown on the Plans.

2-12 Submission of Bids

The Bid and the Bid Security guaranteeing the same shall be placed in a sealed opaque envelope and marked **CARNEGIE BUILDING SITE IMPROVEMENTS, PROJECT NO. 2022-23**. The envelope shall be clearly marked with the project name, project number, and the bidder's name and address.

2-13 Alternate Bids

In making the award if alternate bids have been requested, that alternate bid will be used which will be to the best interest of the County of COLE.

2-14 Withdrawal of Bids

If a bidder wishes to withdraw his bid, he may do so before the time fixed for the opening, without prejudice to himself. No bidder may withdraw his bid for a period of ninety (90) days after the scheduled closing time for the receipt of bids.

2-15 Right to Reject Bids

The County of COLE reserves the right to reject any or all bids, to waive any informality in the bids received, or to accept the bid or bids that in its judgment will be for the best interest of the County of COLE.

2-16 Award of Contract

If within ten (10) days after he has received Notice of Acceptance of his bid, the successful bidder or bidders shall refuse or neglect to come to the office of the Director of Public Works and to execute the Contract and to furnish the required Contractor's Bond, properly signed by the Contractor and the Surety or Sureties satisfactory to the County of COLE as hereinafter provided, the bidder or bidders shall be deemed to be in default and shall forfeit the deposit.

2-17 Performance, Payment and One Year Guarantee Bond

A Performance, Payment and One Year Guarantee Bond in an amount equivalent to one hundred percent (100%) of the Contract price, must be furnished and executed by the successful bidder or bidders, this bond to be in the form contained in this Contract.

The Surety shall be a corporate Surety Company or companies of recognized standing

licensed to do business in the State of Missouri and acceptable to the County of COLE.

2-18 Indemnification and Insurance

The Contractor agrees to indemnify and hold harmless the County and the Engineer from all claims and suits for loss of or damage to property, including loss of all judgments recovered therefore, and from all expense in defending said claims, or suits, including court costs, attorney fees, and other expense caused by any act or omission of the Contractor and/or his subcontractors, their respective agents, servants, or employees.

Certificate of Insurance

The Contractor shall be required to provide the County of COLE with a "Certificate of Insurance."

2-19 Bid Security Returned to Successful Bidder

Upon the execution of the Contract and approval of Bond, the Bid Security will be returned to the bidder unless the same shall have been presented for collection prior to such time, in which case the amount of the deposit will be refunded by the County of COLE.

2-20 Nondiscrimination in Employment

Contracts for work under this bid will obligate the Contractor and subcontractors not to discriminate in employment practices.

2-21 Prevailing Wage Law

The principal contractor and all subcontractors shall pay not less than the prevailing wage hourly rate for each craft or type of workman required to execute this contract as determined by the Department of Labor and Industrial Relations of Missouri, pursuant to Sections 290.210 through 290.340, RSMo. 1986. (See Determination herewith included in Section 5.)

2-22 Guarantee

The Contractor guarantees that the equipment, materials, and workmanship furnished under this contract will be as specified and will be free from defects for a period of one (1) year from the date of final acceptance. In addition, the equipment furnished by the Contractor shall be guaranteed to be free from defects in design.

Within the guarantee period and upon notification of the Contractor by the County, the Contractor shall promptly make all needed adjustments, repairs, or replacements arising out of defects which, in the judgment of the Engineer, or the County, become necessary during such period.

The cost of all materials, parts, labor, transportation, supervision, special tools, and supplies required for replacement of parts, repair of parts, or correction of

abnormalities shall be paid by the Contractor, or by his surety under the terms of the Bond.

The Contractor also extends the terms of this guarantee to cover repaired parts and all replacement parts furnished under the guarantee provisions for a period of one (1) year from the date of installation thereof.

If within ten (10) days after the County gives the Contractor notice of a defect, failure, or abnormality of the work, the Contractor neglects to make, or undertake with due diligence to make, the necessary repairs or adjustments themselves or order the work to be done by a third party, the costs of the work shall be paid by the Contractor.

In the event of an emergency where, in the judgment of the County, delays would cause serious loss or damage, repairs or adjustments may be made by the County, or a third party chosen by the County, without giving notice to the Contractor, and the cost of the work shall be paid by the Contractor, or by his surety under the terms of the Bond.

2-23 Notice to Proceed

A written notice to begin construction work will be given to the Contractor by the County of COLE after the contractor has executed the Contract Documents.

2-24 Work Schedule

To ensure that the work will proceed continuously through the succeeding operations to its completion with the least possible interference to traffic and inconvenience to the public, the Contractor shall submit for approval a complete schedule of his proposed construction procedure, stating the sequence in which various operations of work are to be performed. The Contractor may not change the work sequence without the prior approval of the Engineer. Additional detailed information can be found in the job special provisions.

2-25 Section 292.675 RSMo. Safety Training Requirements

In 2008 the Missouri General Assembly adopted HB 1549, creating additional requirements affecting public works contracts by requiring all contractors and subcontractors doing work on a project to provide and require their on-site employees to complete a ten (10) hour course in construction safety and health that is approved by the federal Occupational Safety and Health Administration ("OSHA") or a similar program approved by the Missouri Department of Labor and Industrial Relations, which is at least as stringent as an approved OSHA program; and

The following items will be required in this contract:

Section One: Any contractor for Cole County for purposes of construction of public works and any subcontractor to such contractor shall comply with the provisions of section 292.675, RSMo. and provide a ten-hour OSHA construction safety program for the on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations that is at least as stringent as an approved OSHA program, unless such employees have

previously completed the required program.

Section Two: All employees who have not previously completed this course must do so within sixty (60) days of beginning work on a Cole County construction project.

Section Three: Any employee found on a work site subject to this ordinance without documentation of successfully completing this course shall have twenty (20) days to produce such documentation before being subject to removal from the project.

2-26 Contract Time

This contract shall be a completion date contract. The contract shall be completed by no later than **May 31, 2023**. Additional information pertaining to the completion date can be found in the Job Special Provisions.

2-27 Liquidated Damages

Liquidated damages shall be assessed if the project is not completed by the completion date in accordance with the provisions of the contract.

All information pertaining to the liquidated damages can be found in the Job Special Provisions.

2-28 Pre-Construction Meeting

A pre-construction meeting will be scheduled before construction begins. The contractor's project manager and foreman shall be required to attend.

PLAN HOLDER CONTACT INFORMATION

COUNTY OF COLE, MISSOURI

**CARNEGIE BUILDING SITE IMPROVEMENTS
PROJECT NO. 2022-23**

All potential bidders **SHALL** complete this form and submit it to the Cole County Public Works email address listed below in order to provide contact information required. All other plan holders may submit this form at their own option. Addenda will be posted on the county website. In the event of disruption of website services, all such information will be communicated to all registered plan holders.

Any bids received from individuals/companies that do not submit this form in advance will not be opened.

Project Name: Carnegie Building Site Improvements
Project No. 2021-19
Bid Opening Date/Time: July 22, 2022, 9:00 A.M.
Plans and Specifications: Free Download Below

<https://colecouny.org/Bids.aspx?CatID=29&txtSort=Category&showAllBids=on&Status>

Contact Information: (All Information is Required)

Company Name (If Applicable): _____

Plan Holder Name / Contact: _____

Address: _____

City, State, Zip Code: _____

Phone: _____

Email: _____

Email this completed form to: ccpwprojects@colecouny.org

PROPOSAL FORM

COUNTY OF COLE, MISSOURI

**CARNEGIE BUILDING SITE IMPROVEMENTS
PROJECT NO. 2022-23**

Name of Bidder: _____

Address of Bidder: _____

To: Cole County Department of Public Works
5055 Monticello Road
Jefferson City, MO 65109

THE UNDERSIGNED BIDDER, having examined the Plans, Specifications, Regulations of the Contract, Special Conditions and other proposed Contract Documents, and all addenda thereto; and being acquainted with and fully understanding (a) the extent and character of the work covered by this Proposal; (b) the location, arrangement, and specified requirements for the proposed work; (c) the location, character, and condition of existing streets, roads, highways, railroads, pavement, surfacing, walks, driveways, curbs, gutters, trees, sewers, utilities, drainage courses and structures, and other installation, both surface and underground which may affect or be affected by the proposed work; (d) the nature and extent of the excavations to be made, and the type, character, and general condition of materials to be excavated; (e) the necessary handling and re-handling of excavated materials; (f) the location and extent of necessary or probable dewatering requirements; (g) 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 to furnish all required materials, supplies, equipment, tools, and plant; to perform all necessary labor and supervision; and to construct, install, erect, and complete all work stipulated in, required by, and in accordance with the proposed Contract Documents and the drawings, Specifications, and other documents referred to therein (as altered, amended, or modified by addenda), in the manner and time prescribed and that he will accept in full payment sums determined by applying to the quantities of the following items, the following unit prices and/or any lump sum payments provided, plus or minus any special payments and adjustments provided in the Specifications and he understands that the estimated quantities herein given are not guaranteed to be the exact or total quantities required for the completion of the work shown on the drawings and described in the Specifications, and that increases or decreases may be made over or under the Contract estimated quantities to provide for needs that are determined during progress of the work and that prices bid shall apply to such increased or decreased quantities as follows:

**CARNEGIE BUILDING SITE IMPROVEMENTS
PROJECT NO. 2021-19**

BID FORM

ITEM NO.	DESCRIPTION	UNITS	BID QUANTITY	UNIT PRICE	AMOUNT
1	MOBILIZATION	LS	1.0	\$	
2	REMOVAL OF IMPROVEMENTS	LS	1.0	\$	
3	EARTHWORK	LS	1.0	\$	
4	CLASS 3 EXCAVATION IN ROCK	CY	15.0	\$	
5	4" TYPE 5 AGGREGATE BASE	SY	1,111.0	\$	
6	TYPE A CURB AND GUTTER	LF	238.0	\$	
7	4" THICK CONCRETE SIDEWALK	SY	167.8	\$	
8	4" THICK CONCRETE SIDEWALK W/ THICKENED EDGE	SY	4.8	\$	
9	6" NON-REINFORCED CONCRETE PAVEMENT	SY	854.2	\$	
10	FRONT ENTRANCE: STEPS, RAMPS, RETAINAING WALLS, GUARDRAIL/HANDRAIL	LS	1.0	\$	
11	SIDE ENTRANCE: STEPS, RETAINAING WALL, GUARDRAIL, HANDRAILS	LS	1.0	\$	
12	RETAINING WALL - REAR PARKING LOT	LS	1.0	\$	
13	2" THICK ASPHALT OVERLAY (BP-1 MIX)	SY	210.4	\$	
14	6" NYLOPLAST DROP IN GRATE	EA	1.0	\$	
15	10" NYLOPLAST INLINE DRAIN W/ STD. GRATE	EA	1.0	\$	
16	36" NYLOPLAST DRAIN BASIN (DI-3)	EA	1.0	\$	
17	36" NYLOPLAST DRAIN BASIN (DI-4)	EA	1.0	\$	
18	4"-6" SDR 35 PVC PIPE AND FITTINGS	LF	155.0	\$	
19	12" HDPE STORM PIPE	LF	10.0	\$	
20	36" HDPE STORM PIPE	LF	57.0	\$	
21	DOWNSPOUT DRAIN CURB OUTLET	EA	2.0	\$	
22	6" PIPE BOLLARDS	EA	10.0	\$	
23	6' TALL CHAIN--LINK FENCE (INCL. 3' GATE)	LF	6.0	\$	
24	PAVEMENT MARKING	LS	1.0	\$	
25	EROSION CONTROL	LS	1.0	\$	
26	LAWN RESTORATION/SEEDING, FERTILIZING, MULCH	LS	1.0	\$	
27	4" IRRIGATION CONDUIT	LF	50.0	\$	
28	TREES (GINKO)	EA	2.0	\$	
29	RELOCATION OF SIGNAGE	LS	1.0	\$	
TOTAL BASE BID					\$

The undersigned, as Bidder, hereby declares that the only persons or firms interested in the Proposal as principal or principals is or are named herein and that no other persons or firms than herein mentioned have any interest in this Proposal or in the Contract to be entered into; and this Proposal is made without connection with any other person, company, or parties making a bid or proposal; and that it is in all respects fair and in good faith, without collusion or fraud.

The undersigned agrees that the accompanying bid deposit shall become the property of the County should he fail or refuse to execute the Contract or furnish Bond as called for in the specifications within the time provided.

If written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the undersigned within ninety (90) days after the date of opening of bids, or any time thereafter before this bid is withdrawn, the undersigned will, within ten (10) days after the date of such mailing, telegraphing, or delivering of such notice, execute and deliver a Contract in the form of Contract attached.

The undersigned hereby designates as his office to which such notice of acceptance may be mailed, telegraphed, or delivered:

Contact Person	Company Name	Mailing Address	City, State & Zip Code
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It is understood and agreed that this bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

Attached hereto is a Bid Bond for the sum of _____

_____ (\$_____)

Dollars (cashier's check), made payable to the County of COLE.

SIGNATURE AND IDENTITY OF BIDDER

The undersigned states that the correct LEGAL NAME and ADDRESS of (1) the individual bidder, (2) each partner or joint venturer (whether individuals or corporation, and whether doing business under a fictitious name), or (3) the corporation (with the state in which it is incorporated) are shown below; and that (if not signing with the intention of binding himself to become the responsible and sole contractor) he is the agent of, and duly authorized in writing to sign for the Bidder or Bidders; and that he is signing and executing this (as indicated in the proper spaces below) as the proposal of

AN INDIVIDUAL:

Name of Individual

Residence Street Address

Social Security Number

City, State & Zip Code

Firm Name, If Any

Business Address

Business Telephone Number

City, State & Zip Code

Signature

Date

A PARTNERSHIP:

Name of Partnership

(State Names & Addresses of All Partners)

Partner

Residence Address

Partner

Residence Address

Business Address

City, State & Zip Code

Business Telephone Number

Signature of At Least One Partner

Date

A CORPORATION:

Name of Corporation

Incorporated under the laws of the State
of _____

Name and Title of Officer

Corporate License No. _____
(If a corporation organized in state other
than Missouri, attach Certificate of _____
Authority to do business in the State of
Missouri.)

Business Telephone Number

Business Address

City, State & Zip Code

Signature of Officer

Date

ATTEST:

Signature of Secretary (SEAL)

Date

CONSTRUCTION CONTRACT

THIS CONTRACT, made and entered into this ____ day of _____, 2022, by and between _____, hereinafter called "Contractor," and the **County of Cole, Missouri**, hereinafter called "County."

WITNESSETH: That Whereas, the Contractor has become the lowest responsible bidder for furnishing the supervision, labor, tools, equipment, materials, and supplies and for constructing the following County improvements:

**CARNEGIE BUILDING SITE IMPROVEMENTS
PROJECT NO. 2022-23**

NOW, THEREFORE, the parties to this contract agree to the following:

1. **Manner and Time for Completion** The Contractor agrees with the County to furnish all supervision, labor, tools, equipment, materials, and supplies; to perform all necessary labor and supervision; and to construct, install, erect and complete all work stipulated in, required by and in accordance with the contract documents and drawings, specifications and other documents referred therein (as altered, amended or modified by addenda) and with any applicable County regulations and state and federal laws, within ten (10) working days from the date Contractor is ordered to proceed, which order shall be issued by the Director of Public Works in accordance with the contract documents.

2. **Prevailing Wages** All labor utilized in the construction of the aforementioned improvements shall be paid a wage of no less than the "prevailing hourly rate of wages" for work of a similar character in this locality, as established by the Department of Labor and Industrial Relations of the State of Missouri. Contractor acknowledges that Contractor knows the prevailing hourly rate of wages for this project because Contractor has obtained the prevailing hourly rate of wages from the contents of **ANNUAL WAGE ORDER NUMBER 28 - COLE COUNTY** in which the rate of wages is set forth. The Contractor further agrees that Contractor will keep an accurate record showing the names and occupations of all workmen employed by Contractor in connection with the work to be performed under the terms of this contract. The record shall show the actual wages paid to the workmen in connection with the work to be performed under the terms of this contract. A copy of the record shall be delivered to the Director of Public Works each week. In accordance with Section 290.250 RSMo., Contractor shall forfeit to the County One Hundred Dollars (\$100.00) for each workman employed, for each calendar day or portion thereof that the workman is paid less than the stipulated rates for any work done under this contract, by the Contractor or any subcontractor under the Contractor.

3. **Contract Sum** The County shall pay the Contractor for the prompt, faithful, and efficient performance of the conditions and undertakings of this contract, subject to additions, and deductions as provided, herein, in current funds the sum of _____ Dollars.

TOTAL CONTRACT AMOUNT.....\$_____

UNIT PRICES:

The County hereby accepts and reserves and the Contractor is hereby bound thereby, Unit Prices of the Proposal submitted as follows:

For changing specified quantities of work from those indicated by the plans and specifications, upon written instructions of the County, the unit prices indicated on the bid form shall prevail. The unit prices include all labor, overhead and profit, materials, equipment, appliances, bailing, shoring, shoring removal, etc., to cover the finished work of the several kinds called for. Only a single unit price shall be given and it shall apply for either MORE or LESS work than shown on the plans and called for in the specifications. In the event of more or less units than so indicated or included, change orders shall be issued for the increased or decreased amount.

4. Insurance Contractor shall procure and maintain at its own expense during the life of this contract:

(a) **Workers Compensation Insurance** for all of its employees to be engaged in work under this contract.

(b) **Contractor's Public Liability Insurance** in an amount not less than \$1,000,000 for all claims arising out of a single occurrence and \$100,000 for any one person in a single accident or occurrence, except for those claims governed by the provisions of the Missouri workers compensation law, Chapter 287, RSMo., and Contractor's Property Damage Insurance in an amount not less than \$800,000 for all claims arising out of a single accident or occurrence and \$100,000 for any one person in a single accident or occurrence.

(c) **Automobile Liability Insurance** in an amount not less than \$1,000,000 for all claims arising out of a single accident or occurrence and \$100,000 for any one person in a single accident or occurrence.

(d) **Owner's Protective Liability Insurance** The Contractor shall also obtain at its own expense and deliver to the County a Owner's Protective Liability Insurance Policy naming the County of Cole as the insured, in an amount not less than \$1,000,000 for all claims arising out of a single accident or occurrence and \$100,000 for any one person in a single accident or occurrence, except for those claims governed by the provisions of the Missouri workmen's compensation law, Chapter 387, RSMo. No policy will be accepted which excludes liability for damage to underground structures or by reason of blasting, explosion, or collapse.

(e) **Subcontracts** In case any or all of this work is sublet, the Contractor shall require the Subcontractor to procure and maintain all insurance required in Subparagraphs (a), (b), and (c) hereof and in like amounts.

(f) **Scope of Insurance and Special Hazard** The insurance required under Subparagraphs (b) and (c) hereof shall provide adequate protection for the Contractor and its subcontractors, respectively, against damage claims which may arise from operations

under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by it, and also against any special hazards which may be encountered in the performance of this contract.

NOTE: Paragraph (f) is construed to require the procurement of Contractor's protective insurance (or contingent public liability and contingent property damage policies) by a general contractor whose subcontractor has employees working on the project, unless the general public liability and property damage policy (or rider attached thereto) of the general contractor provides adequate protection against claims arising from operations by anyone directly or indirectly employed by the Contractor.

5. Contractor's Responsibility for Subcontractors It is further agreed that Contractor shall be as fully responsible to the County for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for the acts and omissions of persons it directly employs. Contractor shall cause appropriate provisions to be inserted in all subcontracts relating to this work, to bind all subcontractors to Contractor by all the terms herein set forth, insofar as applicable to the work of subcontractors and to give Contractor the same power regarding termination of any subcontract as the County may exercise over Contractor under any provisions of this contract. Nothing contained in this contract shall create any contractual relations between any subcontractor and the County or between any subcontractors.

6. Liquidated Damages The Director of Public Works may, at his discretion, deduct **One Thousand Dollars (\$1,00.00)** per calendar day from any amount otherwise due under this contract for every calendar day Contractor fails or refuses to prosecute the work, or any separable part thereof, with such diligence as will insure the completion of the project within the timeframe specified by the contract documents, or any extension thereof, or fails to complete the work by such time, as long as the County does not terminate the right of Contractor to proceed. It is further provided that Contractor shall not be charged with liquidated damages because of delays in the completion of the work due to unforeseeable causes beyond Contractor's control and without fault or negligence on Contractor's part or the part of its agents.

7. Termination The County reserves the right to terminate this contract by giving at least five (5) days' prior written notice to the Contractor, without prejudice to any other rights or remedies of the County should the Contractor be adjudged as bankrupt, or if Contractor should make a general assignment for the benefit of its creditors, or if a receiver should be appointed for Contractor or for any of its property, or if Contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or proper material, or if Contractor should refuse or fail to make prompt payment to any person supplying labor or materials for the work under the contract, or persistently disregard instructions of the County or fail to observe or perform any provisions of the contract.

8. County's Right to Proceed In the event this contract is terminated pursuant to Paragraph 6, then the County may take over the work and prosecute the same to completion, by contract or otherwise, and Contractor and its sureties shall be liable to the County for any costs over the amount of this contract thereby occasioned by the County. In

any such case the County may take possession of, and utilize in completing the work, such materials, appliance, and structures as may be on the work site and are necessary for completion of the work. The foregoing provisions are in addition to, and not in limitation of, the rights of the County under any other provisions of the contract, County regulations, and state and federal laws.

9. Indemnity The Contractor agrees to defend, indemnify, and save the County harmless from and against all claims, suits, and actions of every description, brought against the County and from all damage and costs by reason or on account of any injuries or damages received or sustained by any person or persons, or their property, by Contractor, its servants, agents, or subcontractors in the construction of said work, or by any negligence or carelessness in the performance of the same, or on account of any act or omission of Contractor, its servants, agents, or subcontractors, or arising out of the award of this contract to Contractor.

10. Payment for Labor and Materials The Contractor agrees and binds itself to pay for all labor done, and for all the materials used in the construction of the work to be completed pursuant to this contract. Contractor shall furnish to the County a bond to insure the payment of all materials and labor used in the performance of this contract. The Contractor is aware of, understands and agrees to abide by RSMo. 34.057.

11. Payment The County hereby agrees to pay the Contractor for the work done on a monthly basis pursuant to this contract according as set forth in the Contract Documents upon acceptance of said work by the Director of Public Works and in accordance with the rates and/or amounts stated in the proposal of Contractor dated **July 22, 2022** which are by reference made a part hereof. No partial payment to the Contractor shall operate as approval or acceptance of work done or materials furnished hereunder.

12. Contract Time The project covered under this contract shall be completed within **120 calendar days**, but in no case later than **May 31, 2022** as specified in the Job Special Provisions.

13. Contract Documents The contract documents shall consist of the following:

- | | |
|----------------------------|-----------------------------|
| a. This Contract | f. General Conditions |
| b. Addenda | g. Special Provisions |
| c. Notice to Contractors | h. Technical Specifications |
| d. Instructions to Bidders | i. Drawings and/or Sketches |
| e. Signed Copy of Bid | |

This contract and the other documents enumerated in this paragraph, form the Contract between the parties. These documents are as fully a part of the contract as if attached hereto or repeated herein.

14. Nondiscrimination The Contractor agrees in the performance of this contract not to discriminate on the ground or because of race, creed, color, national origin, or ancestry, sex, religion, handicap, age, or political opinion, or affiliation, against any employee of

Contractor or applicant for employment and shall include a similar provision in all subcontracts let or awarded hereunder.

15. Anti-Discrimination Against Israel Act The Contractor certifies that it is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel.

16. Notices All notices required to be in writing may be given by first class mail addressed to Cole County Commission, Courthouse Annex, Room 200, 301 East High Street, Jefferson City, Missouri 65101, and to the Contractor: _____

The date of delivery of any notice shall be the second full day after the day of its mailing.

17. Jurisdiction This agreement and every question arising hereunder shall be interpreted according to the laws and statutes of the State of Missouri.

IN TESTIMONY WHEREOF, the parties have hereunto set their hands and seals as of the day and year below written.

Executed by the **COUNTY** this _____ day of _____, 2022.

Cole County Commission, Party of the First Part

Cole County Commission

ATTEST:

County Clerk

(SEAL)

County Auditor

"I certify there is a balance otherwise unencumbered to the credit of the appropriation to which it is to be charged and a cash balance otherwise unencumbered in the treasury to the credit of the fund from which payment is to be incurred."

Executed by the **CONTRACTOR** this _____ day of _____, 2022.

CONTRACTOR, Party of the Second Part

By _____

Title

ATTEST:

Secretary (SEAL)

CERTIFICATE OF INSURANCE

Issued at the request of The County of COLE, Missouri

Address: Cole County Commission
Courthouse Annex, Room 200
311 East High Street
Jefferson City, Missouri 65101

THIS IS TO CERTIFY that the insured named below is at this date insured with as described in the following schedule, and in full compliance with the Contract Documents, including all contractual liability coverage.

DESCRIPTIVE SCHEDULE

Name of Insured: _____

Address of Insured: _____

Locations Covered: _____

Description of Work: _____

PERFORMANCE, PAYMENT AND ONE YEAR GUARANTEE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____
_____,
hereinafter referred to as "Contractor" and _____
a Corporation organized under the laws of the State of _____, and authorized to
transact business in the State of _____, as Surety, are held and firmly
bound unto the County of COLE, Missouri hereinafter referred to as "County" in the penal
sum of _____
_____ DOLLARS (\$ _____),
lawful money of the United States of America for the payment of which sum, well and truly
to be made, we bind ourselves and our heirs, executors, administrators, successors, and
assigns jointly and severally by these presents.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT: WHEREAS, the
above bounden Contractor has on the _____ day of _____, 2021,
entered into a written contract with the aforesaid County for furnishing all materials,
equipment, tools, superintendence, labor, and other facilities and accessories, for the
construction of certain improvements as designated, defined, and described in the said
Contract and the Conditions thereof, and in accordance with the specifications and plans
therefore; a copy of said Contract being attached hereto and made a part hereof:

NOW THEREFORE, if the said Contractor shall and will, in all particulars, well, duly, and
faithfully observe, perform, and abide by each and every covenant, condition, and part of
the said Contract, and the Conditions, Specifications, Plans, Prevailing Wage Law, and
other Contract Documents thereto attached or, by reference, made a part thereof,
according to the true intent and meaning in each case, and if said contractor shall replace
all defective parts, material and workmanship for a period of one year after acceptance by
the County, then this Obligation shall be and become null and void; otherwise it shall
remain in full force and effect.

PROVIDED FURTHER, that if the said Contractor fails to duly pay for any labor, materials,
sustenances, provisions, provender, gasoline, lubricating oils, fuel oils, greases, coal
repairs, equipment, and tools consumed or used in said work, groceries and foodstuffs, and
all insurance premiums, compensation liability, and otherwise, or any other supplies or
materials used or consumed by such Contractor or his, their, or its subcontractors in
performance of the work contracted to be done, the Surety will pay the same in any amount
not exceeding the amount of this Obligation, together with interest as provided by law:

PROVIDED FURTHER, that the said Surety, for value received, to be performed
thereunder, or the specifications accompanying the same, shall in any way affect its
obligation on this bond and it does hereby waive notice of any change, extension of time,
alteration, or addition to the terms of the Contract, or to the work, or to the specifications:

PROVIDED FURTHER, that if said Contractor fails to pay the prevailing hourly rate of wages, as shown in the attached schedule, to any workman engaged in the construction of the improvements as designated, defined and described in the said Contract, specifications and conditions thereof, the Surety will pay the deficiency and any penalty provided for by law which the Contractor incurs by reason of (his/its) act or omission, in any amount not exceeding the amount of this obligation together with interest as provided by law:

IN TESTIMONY WHEREOF, the said Contractor has hereunto set his hand, and the said Surety has caused these presents to be executed in its name, and its corporate seal to be hereunto affixed, by it attorney-in-fact duly authorized thereunto so to do, at _____ this the _____ day of _____, 20____.

SURETY COMPANY

CONTRACTOR

By _____ (SEAL)

By _____ (SEAL)

By _____ (SEAL)
Attorney-in-Fact

By _____ (SEAL)
(State Representative)

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

JOB SPECIAL PROVISIONS

JOB SPECIAL PROVISIONS - TABLE OF CONTENTS

(Job Special Provisions shall prevail over General Special Provisions whenever in conflict therewith.)

- A. General
- B. Project Management
- C. Project Contact for Contractor/Bidder Questions
- D. Utilities
- E. Emergency Provisions and Incident Management
- F. Mobilization
- G. Removal of Improvements
- H. Earthwork
- I. Rock Excavation
- J. Storm Drainage
- K. Contractor Furnished Construction Staking
- I. Curb and Gutter and Sidewalks
- J. Liquidated Damages for Completion Date
- K. Removal of Improvements
- L. Concrete Steps, Ramps, Retaining Walls, Guardrail / Handrail
- M. Topsoil in Areas to be Seeded or Sodded
- N. Lawn Restoration
- O. Contract Time / Liquidated Damages
- P. Quality Control



Paul Samson, PE
PE-2002016730

Central Missouri Professional Services, Inc.
2500 E. McCarty St.
Jefferson City, MO 65101
573-634-3455
Certificate of Authority: 0001558

JOB SPECIAL PROVISIONS

A. GENERAL

1.0 The Technical Specifications for this project shall consist of the latest effective version of the Missouri Standard Specifications for Highway Construction except as modified or contradicted by the County's Contract, Special Provisions, General Provisions, and Plans.

2.0 The standard drawings for this project shall consist of the latest effective edition of the City of Jefferson Standard Drawings for curb and gutter, storm inlets, manholes, entrances, sidewalks, and ADA ramps, except as modified or contradicted by the County's Contract, Special Provisions, General Provisions, and Plans.

2.1 Copies of the City of Jefferson Standard Drawings may be found on the City's website at <http://www.jeffcitymo.org/publicworks/engineering.html> and are available upon request from the County.

2.2 The standard drawings for all other items in this project shall consist of the latest effective edition of the Missouri Standard Plans for Highway Construction.

2.3 Copies of the Missouri Standard Plans for Highway Construction can be found at http://www.modot.org/business/standards_and_specs/currentstandardplans.htm and are available upon request from the County.

3.0 The Contractor shall familiarize himself with these drawings and specifications prior to bidding. Failure to do so shall not relieve the Contractor from delivering the completed project in accordance with the Plans and Specifications to provide a workable project.

3.1 All Construction Details included with the plans and attached hereto shall be used in constructing this project.

B. PROJECT MANAGEMENT

1.0 Description. The contractor shall provide effective project management as specified herein to ensure the project work, materials and coordination with the public meets or exceeds all contract requirements.

C. PROJECT CONTACT FOR CONTRACTOR/BIDDER QUESTIONS

1.0 All bidding related questions concerning this project shall be submitted **in writing** to the project contact listed below:

Paul Samson, P.E.
Project Engineer
Central Missouri Professional Services, Inc.
2500 East McCarty Street
Jefferson City, MO 65101
e-mail psamson@cmps-inc.com

JOB SPECIAL PROVISIONS

D. UTILITIES

1.0 Utilities Shown on Plans. The location and extent of the existing underground utilities and other utilities shown on the plans have been determined by field surveyed visible above ground evidence and Missouri One-Call Markings, and available plans. The County and their consultant make no guarantee that the utilities shown on the plans area totally accurate or all inclusive. It shall be the sole responsibility of the Contractor to locate, protect, and restore all existing utilities encountered on the project. Notify Missouri One Call (1-800-DIG-RITE) for location of the utilities at least five days prior to the construction.

1.2 The Contractor shall be aware of the presence of utilities above and/or below the ground or in the vicinity of this project that may interfere with their operations. The Contractor expressly acknowledges and assumes this risk even though the nature and extent is unknown to both the Contractor and the County at the time of bidding and award of the contract. The effect in cost or time of the presence of utilities above, below or in the vicinity of the Contractor's work under this contract shall not be compensable.

1.3 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 the 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 as provided in Section 105.7.3. 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.

1.4 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 subcontractor's operation.

1.5 The Contractor shall coordinate with utility companies to allow the utilities to inspect any exposed lines that are to remain in place before being backfilled. Any damage to the utilities that occurred during construction shall be repaired or replaced at the expense of the Contractor.

2.0 Utility Company Contacts.

2.1 Ameren Missouri – Electric
Derek Wekenborg
Office: 573-681-7526
Cell: 573-680-2188
dwekenborg@ameren.com

2.2 Ameren Missouri – Natural Gas
Brian Robinson
Office: 573-681-7550
Cell: 573-280-6841
brobinson@ameren.com

2.3 CenturyLink – Telephone, Fiber Optic, Television
Allen Groner

JOB SPECIAL PROVISIONS

Office: 573-634-1692
Cell: 573-681-2503
allen.t.groner@centurylink.com

2.4 City of Jefferson – Sanitary Sewer

Eric Seaman
Office: 573-634-6443
eseaman@jeffcitymo.org

2.5 Missouri American Water Company - Water

Brent Haas
573-634-3801
Brent.Haas@amwater.com

2.6 Bluebird Network - Telephone

1-573-777-4200

2.7 Sprint Nextel

1-800-521-0579

2.8 Mediacom – Telephone, TV

Bob Boner
573-489-1937
bboner@mediacomcc.com

2.9 Sho-me Technologies – Telephone, Fiber Optic

Vernon Leighty
Office: 417-859-2615
Cell: 417-840-7205
vleighty@shomepower.com

2.10 Socket Telecom - Fiber

Todd Pulis
573-818-4778
tpulis@socket.net

3.0 Basis of Payment: 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.

E. EMERGENCY PROVISIONS AND INCIDENT MANAGEMENT

1.0 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 through the job site, the Contractor shall notify police or other emergency agencies immediately as needed. The project contact's office shall also be notified when the Contractor requests emergency assistance.

JOB SPECIAL PROVISIONS

2.0 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 within the project limits.

City of Jefferson Police Department 911 (Emergency)
(573) 634-6400 (Non-Emergency)

City of Jefferson Fire Department 911 (Emergency)
(573) 634-6401 (Non-Emergency)

Cole County Sheriff (573) 634-9160

Cole County EMS (573)-634-2616

Cole County Fire 911 (Emergency)
Protection District (573) 634-9011 (Non-Emergency)

Missouri State (573) 751-1000
Highway Patrol

2.1 This list is not all inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate police agency.

2.2 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 engineer on the status of incident management.

3.0 Basis of Payment: 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.

F. MOBILIZATION

1.0 Description: This item shall consist of the preparatory work including but not limited to those necessary for the movement of personnel, material, supplies to the project site, for the establishment of facilities necessary for work on the project, except as provided as separate pay items, payment for the contract bond, and for all other work that must be performed prior to beginning work on the various items on the project.

2.0 Basis of Payment: All costs incurred for equipment, labor, materials or time required to fulfill this provision shall be considered completely covered by the contract unit price for Item No. 1 "Mobilization", per lump sum.

G. REMOVAL OF IMPROVEMENTS

1.0 Description: This work shall consist of the removal and disposal of all the existing improvements within the limits of construction, except improvements designated to remain in place. This work may include, but is not limited to:

- Saw Cuts
- Concrete Steps

JOB SPECIAL PROVISIONS

- Sidewalk
- Asphalt Cold Milling
- Asphalt Street Pavement
- Handrail
- Removal and storage of Signage

2.0 Construction Requirements: All work shall conform to Section 202 and other applicable sections of the Standard Specifications.

3.0 Basis of Payment: All costs incurred for equipment, labor, materials or time required to fulfill this provision shall be considered completely covered by the contract unit price for Item No. 2 "Removal of Improvements," per lump sum.

H. EARTHWORK

1.0 Description: This work shall consist of all grading and excavation work required or necessary for the total completion of the project, except as noted elsewhere. Excavation will not be classified, except as provided for in Special Provision I, Rock Excavation.

1.1 Typical earthwork items on this project shall consist of but not limited to:

- Excavation required for pavement replacement.
- Excavation required for ADA ramp and step replacement.
- Furnishing and placing top soil in yard areas.
- Excavation and backfilling curb and gutter.
- Excavation and/or filing to the limits shown on the plans.
- Importing material from off-site as necessary.
- Hauling excess material to off-site locations as necessary.

2.0 Construction Requirements.

2.1 General grading, filling, and excavation shall conform to Sec. 203 and other applicable areas of the Standard Specifications.

2.2 Excavation for structures shall conform to Sec. 206 and other applicable area of the Standard Specifications.

2.3 All earth excavation that is required for storm sewer installation shall be included in the unit bid price of pipe per linear foot and also shall be included in the unit bid price of inlet per each.

2.4 Backfill material for the curb and gutter and yard areas shall be good clean top soil.

3.0 Basis of Payment. All costs incurred for equipment, labor, materials or time required to fulfill this provision, except as noted above, shall be considered completely covered by the contract unit price for Item No. 3 "Earthwork," per lump sum.

JOB SPECIAL PROVISIONS

I. ROCK EXCAVATION

- 1.0 Description:** This work shall consist of excavating material classified by the Engineer as Class C per Section 203. Rock shall be removed only to the extent necessary to permit the installation of improvements as shown on the plans. No rock shall be removed until classification is complete by the Engineer. Blasting will not be permitted.
- 2.0 Method of Measurement:** Rock Excavation will be made to the nearest ½ cubic yard of material actually removed from within the limits of the excavation, as authorized by the Engineer.
- 3.0 Basis of Payment:** For bidding purposes, an estimated quantity of 15.0 cy is provided on the Bid Form. This quantity will be adjusted by change order to reflect the actual quantity of rock removed.

All costs incurred for equipment, labor, materials or time required to fulfill this provision shall be considered completely covered by the contract unit price for Item No. 4 "Excavation in Rock," per cubic yard.

J. STORM DRAINAGE

- 1.0 Description:** This work consists of installing enclosed storm drainage systems consisting of pipes, fittings, and inlets of the types shown on the plans.
- 2.0 Construction Requirements:** Pipes and inlets shall be installed per the Standard Plans, or manufacturer's specifications to the lines, grades, and elevations shown on the plans. Dimensions and details of the inlets shall be according to the manufacturer's plans and specifications.
- 3.0 Basis of Payment:** Excavation, bedding, and backfill shall be included with the price for the pipes and inlets. There will be no direct payment for excavation and backfill for the drainage structures, unless rock is encountered. Rock Excavation shall be completed per Special Provision I "Rock Excavation".
- 3.1** Inlet structures shall be paid for per each regardless of depth, and shall include grates, fittings, and any necessary appurtenances.
- 3.2** The length of pipe and inclusion of required fittings will not be measured and the plan quantity will be paid, unless changes are authorized during construction.

K. CONTRACTOR FURNISHED CONSTRUCTION STAKING

- 1.0** Construction staking for this project shall be the responsibility of the Contractor. The Contractor shall provide the necessary surveying and staking for the successful prosecution of the work, if the contractor finds it necessary.
- 2.0** Contractor Furnished Construction Staking shall be performed in accordance with Section 627.
- 3.0 Basis of Payment:** No direct payment will be made to the contractor for construction staking.

JOB SPECIAL PROVISIONS

L. CONCRETE STEPS, RAMPS, RETAINING WALLS, GUARDRAIL/HANDRAIL

- 1.0 Description:** This work shall consist of constructing reinforced concrete steps, ramps, retaining walls and pedestrian guardrail/handrail in compliance with ADA requirements at the following locations:
- Carnegie Building Front Entrance (West Side of Building)
 - Carnegie Building Side Entrance (South Side of Building)
- 2.0 Construction Requirements:** Construct reinforced concrete steps, ramps, retaining walls, and pedestrian guardrail/handrail to the dimensions and details in the plans.
- 2.1** The Font Entrance ramp and steps shall be integrally colored concrete. The color shall be as specified by Cole County.
- 3.0 Basis of Payment.** All expenses incurred by the contractor, for construction of the concrete steps, ramps, retaining walls, and guardrail/handrail shall be considered as completely covered by the unit price bid for:
- Item No. 10 "Front Entrance: Steps, Ramps, Retaining Walls, Guardrail/Handrail" per lump sum.
 - Item No. 11 "Side Entrance: Steps, Retaining Walls, Guardrail/Handrail" per lump sum.

M. TOPSOIL IN AREAS TO BE SEEDED OR SODDED

- 1.0 Description:** Provide a minimum of 6" of Top Soil in all areas of the project to be vegetated as shown on the plans.
- 2.0 Construction Requirements:** Top Soil shall be free of rocks, stones and clods prior to seeding or sodding. Suitable on-site soil may be used; however, this may require the contractor to utilize a mechanical rock rake, hand picking of stones, and/or placement of the six (6) inches of clean topsoil in those areas to be vegetated. All areas to be vegetated shall be inspected prior to seeding and any deficiency shall be corrected prior to application.
- 3.0 Basis of Payment:** All costs associated with the work specified under this provision shall be considered completely covered by the various items of work in the contract.

N. LAWN RESTORATION

- 1.0 Description:** Final grade shall be established and seeded, fertilized and mulched within 10 working days of proposed improvements being completed unless approved otherwise by the Engineer. All disturbed areas of the project not paved or concrete shall be seeded as noted on the plans.
- 2.0 Construction Requirements:**
- 2.1 Seeding.** The seed mixture shall be Turf Type Tall Fescue, sourced locally and commonly referred to as Triple T. The seeding rate shall be 350 lbs/acre (0.72 lb/sy).
- 2.2 Fertilizing:** Fertilizer shall be a standard commercial product which, when applied at the proper rates shall supply the quantity of total nitrogen (N), available phosphoric acid (P2O5) and soluble potash (K2O) to provide a final mixture of 13-13-13.

JOB SPECIAL PROVISIONS

The rate of application shall be 500 pounds per acre of 13-13-13 fertilizer. Material will be accepted on the basis of bag label analysis or supplier's certification.

2.3 Mulch: Type 1 Mulch (Vegetative) shall be applied at the rate of 1 ½ tons per acres.

3.0 Method of Measurement. The contractor shall restore all disturbed areas as noted on the plans. A measurement will not be made. The contractor can control the extents of their restoration efforts based on their ability to minimize lawn disturbance.

4.0 Basis of Payment. All cost incurred by the contractor for labor, equipment and materials in compliance with the above requirements including seedbed preparation, liming, furnishing and placing fertilizer and mulch, shall be considered completely covered by Item No. 26 "Lawn Restoration/Seeding, Fertilizing, Mulch", per lump sum.

O. CONTRACT TIME / LIQUIDATED DAMAGES

1.0 Contract Time by Calendar Days and Completion Date: For this project the Contractor shall be allotted a total of **120 calendar days** to complete the project. To permit the Contractor flexibility in scheduling and completing the project, the Contractor may elect to complete the project in multiple separate phases, and the allotted calendar days are not required to be consecutive. The project shall be complete in its entirety no later than **May 31, 2023**.

A calendar day will be charged against the total allotted calendar days for any day that any part of the project site is in an incomplete state, this determination shall be at the sole discretion of the Engineer. A calendar day will also be charged for every calendar day following, the project completion date, that the project is not complete in its entirety. On each pay estimate the Engineer will give the Contractor written notice of the number of calendar days charged since the preceding pay estimate and the balance of calendar days remaining. Any objection by the contractor to the number of calendar days so charged shall be made in writing within five days, setting forth the Contractor's objections and specifying the reasons therefore, or those objections shall be waived and will not constitute the basis for an excusable or compensable delay.

2.0 Liquidated Damages: If the project construction period extends beyond the allotted number of calendar days, and/or is not substantially complete by the contract completion date, the County, the public, and local police and governmental authorities will be damaged in various ways including but not limited to additional administrative costs, potential liability, traffic and traffic flow regulation cost, public delay, with its resulting cost.

2.1 These costs to the County and the public are not reasonably capable of being computed or quantified, therefore, a deduction of the amount otherwise due to the Contractor will be made, not as a penalty, but as liquidated damages for the loss to the County and the public. Liquidated Damages will be assessed in the amount of **\$1000 per calendar day for each calendar day** that the project remains incomplete after the allotted number of calendar days has been charged against the project and/or after the contract completion date. This deduction will continue for each calendar day until such time as the project is substantially complete.

2.2 Revise Section 108.8.1.2 (a) and (b) and substitute the following for this project:

JOB SPECIAL PROVISIONS

- (a) Liquidated damages will be assessed from December 15 to March 15.
- (b) Liquidated damages will be assessed for Saturdays, Sundays, and Holidays.

P. QUALITY CONTROL (QC)

- 1.0** The County will provide all Quality Control (QC) of the work and material to ensure that it is in compliance with the contract requirements. The Contractor shall provide to the County all the necessary access to the site and materials needed to accomplish this task.

END OF JOB SPECIAL PROVISIONS

GENERAL SPECIAL PROVISIONS

The General Special Provisions for this particular Cole County project shall consist of the current version of the *Missouri Standard Specifications for Highway Construction*, Sections 101 through 110, except as modified or contradicted herein.

SECTION 101.2 - DEFINITION OF TERMS

Delete definition for “Commission” and substitute the following:

If the words "Commission" or "The Missouri Highway and Transportation Commission" are used in the *Missouri Standard Specifications for Highway Construction*, the word "Owner" shall be substituted, and shall mean the County of COLE acting by and through any of its authorized representatives.

Delete definition for “Contract” and substitute the following:

Contract. The written agreement between the Owner and the Contractor covering the performance of the work for the proposed construction. The contract shall include Notice to Contractors, Instruction to Bidders, Plans, Proposal, Addenda, Contract Bond, Contract Agreement, Acknowledgment, Special Provisions, Standard Specifications, Notice to Proceed, and all Supplemental Contracts and Change Orders. It may cover a single project, or a combination of projects awarded as a single unit.

Delete definition for “Engineer” and substitute the following:

If the words "Engineer" or "Chief Engineer" are used in the *Missouri Standard Specifications for Highway Construction*, the word "Engineer" shall be substituted, and shall mean the County Engineer acting by and through any of his authorized representatives.

Delete definition for “Laboratory” and substitute the following:

Laboratory. Any testing laboratory which may be designated by the Engineer, for inspecting and determining the suitability of materials.

Delete definition for “Plans” and substitute the following:

Plans. Drawings or reproductions thereof approved by the Owner, which show the location, character, and details of the work. Plans shall prevail over standard specifications, general special provisions, and job special provisions when in conflict therewith.

Insert the following definition for “Job Special Provision” where none currently exists:

Job Special Provisions. Directions or requirements, peculiar to the work and not otherwise thoroughly or satisfactorily detailed or set forth in the standard specifications. Job special provisions shall prevail over general special provisions, and general special provisions shall prevail over standard specifications whenever in conflict therewith.

Delete definition for “State” and substitute the following:

If the words "State" or "State of Missouri" are used in such a manner which implies ownership of the project, the word "Owner" shall be substituted and shall mean the County of COLE acting by and through any of its authorized representatives.

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS

Delete Sec. 102.1 and substitute the following:

102.1 Notice of Bid Opening. After the date is fixed for the receipt of bids, the Owner may, in addition to the notice required by law, give notice of such date by mail directly to interested Contractors. The Notice of Letting will contain a description of the proposed work, together with instructions and information to the potential bidder regarding proposal forms, plans, specifications, and the reservation of the right of the Owner to reject any and all bids.

Delete Sec. 102.2 thru Sec. 102.2.1 and substitute the following:

102.2 Bidder’s Qualifications. To demonstrate his qualifications for the project, each bidder must be prepared to submit within seven (7) calendar days of the Owner’s request, written evidence as to the Contractor’s financial status, equipment, previous experience and personnel.

Delete Sec. 102.2.2 and substitute the following:

102.2.2 Each prospective bidder shall execute the affidavit of labor standards compliance, stating that such bidder will fully comply with all written requests by the Missouri Department of Labor and Industrial Relations, Division of Labor Standards, to provide information for the purpose of establishing a prevailing wage.

Delete Sec. 102.2.3 and substitute the following:

102.2.3 The prospective bidder, if a corporation, shall submit a copy of its current annual registration report, or initial registration report if a new corporation, on file with the Corporation Division of the Missouri Secretary of State’s Office. Each corporation which is a party to a joint venture shall submit the same required report with its joint venture contractor.

Delete 102.6 and substitute the following:

102.6 Sales and Use Taxes. The sales tax exemption for public works contractors of certain entities, enacted in 1994 in Section 144.062 RSMo, may apply to contractors for the Owner or their subcontractors or suppliers. This exemption is for materials consumed in the construction of, or incorporated into this project. The Owner will judge each project and determine if the sales tax exemption of the Owner will apply. If sales tax exemption is allowed on a project, it will be duly noted on the proposal form. The Owner will make the tax exemption certificate available, if applicable, to the successful bidder upon award of this contract. If the Owner does not allow the use of sales tax exemption, the contractor, subcontractor or suppliers shall pay all applicable state and local sales taxes or state use taxes on all material and supplies used on a project and should include those taxes in their bid.

Delete 102.7.2 in its entirety.

Delete Sec. 102.7.3 and substitute the following:

102.7.3 A bid of an individual, including those doing business under a fictitious name, shall include the signature and address of the individual.

Delete Sec. 102.7.4 and substitute the following:

102.7.4 A bid by a partnership or joint venture, including individuals doing business under fictitious names, or corporations, shall be executed by at least one of the partners followed by the title "Partner", or one of the joint venturers followed by the title "Joint Venturer" and the business address of the partnership or joint venturer shown. The true legal name and address of each partner and joint venturer shall also be shown.

Delete Sec. 102.7.5 and substitute the following:

102.7.5 A bid by a corporation whether acting alone or as a joint venturer, shall show the address and name of the corporation and shall include the signature and title of a person authorized by its board of directors to bind the corporation.

Add Section 102.7.9

102.7.9 All names must be typed or printed in ink below all signatures.

Add Section 102.7.10

102.7.10 The bid shall contain an acknowledgement of receipt of all addenda (the number and dates of which shall be filled in on the Proposal Form).

Add Section 102.7.11

102.7.11 All bidders shall complete and submit with their proposal the following forms included in the bid documents.

- (a) Proposal
- (b) Signature and Identity of Bidder
- (c) Bid Guaranty
- (d) Contractor's Affidavit
- (e) Anti-Collusion Statement

Delete Sec. 102.9 and substitute the following:

102.9 Bid Guaranty. No proposal will be considered unless accompanied by a certified check or cashier's check, on any bank or trust company, insured by the Federal Deposit Insurance Corporation, payable to the Owner, for not less than 5 percent of the amount of the bid, or by a bond secured by a qualified surety, or sureties, for not less than 5 percent of the amount of the bid. Surety companies shall furnish a Certificate of Authority in accordance with Section 103.4.2. Bid bonds may be submitted on forms furnished in these Contract documents. The proposal Guaranty shall be attached to the back of the bid proposal form.

Delete Sec. 102.10 and substitute the following:

102.10 Delivery of Proposals. Each proposal shall be submitted in a sealed, opaque envelope marked clearly "Construction Bid" and shall also be clearly marked with project title, project number, bid date, bid time and bidder's name and address. If sent by mail, the sealed bid shall be addressed to the Cole County Commission, Courthouse Annex, Room 200, 311 East High Street, Jefferson City, Missouri, 65101. All proposals shall be filed prior to the time and at the place specified in the Notice To Bidders. Proposals received after the time for opening of bids will be returned to the bidder unopened. No bids which are submitted by fax will be accepted.

SECTION 103 - AWARD AND EXECUTION OF CONTRACT

Delete Sec. 103.2.1 and substitute the following:

103.2.1 The contract will be awarded by the Owner to the lowest responsible bidder as soon as practicable after the opening of the bids. The responsibility of the Contractor will be determined by the Owner based upon, but not limited to the Contractor's previous work, financial standing, and record for the payment of local bills incurred by the Contractor, his employees, and subcontractors. The successful bidder will be notified by letter mailed to the address shown on the proposal that his bid has been accepted and that he has been awarded the contract.

Delete Sec. 103.4.1 and substitute the following:

103.4.1 The successful bidder shall, at the time of the execution of the contract, furnish a contract bond in a sum equal to the contract price. The bond shall be to the Owner, in a form and with surety, or sureties, acceptable to the Owner, to insure the proper and prompt completion of the work in accordance with the provisions of the contract, and to

insure payment for all labor performed and materials consumed or used in the work. The bond, if executed by a surety which is a corporation organized in a state other than Missouri, shall be signed by an agent or broker licensed by the Missouri Division of Insurance. All proposals shall be submitted on the basis of furnishing a contract bond executed by an approved surety, or sureties, as herein set out.

SECTION 104 - SCOPE OF WORK

Add Sec. 104.6.3.5

104.6.3.5 All proposals shall be submitted to the Engineer. If so desired, the Contractor may submit a conceptual proposal for approval stating the basic proposal and approximate cost savings. The conceptual proposal will give the Contractor the opportunity to submit his idea without large initial development costs should the proposal be rejected.

Delete Sec. 104.11.2 and substitute the following:

104.11.2 The Contractor shall open and clean all existing channels and culverts leaving them free from all excess mud or silt, drift, brush, and debris of any kind. This work shall be considered incidental to the work, and no direct payment shall be made for work covered by this section.

Delete Sec. 104.13 in its entirety and substitute the following:

104.13 Warranty.

104.13.1 The Contractor shall warranty that the equipment, materials, and workmanship furnished under this contract will be as specified and will be free from defects for a period of one (1) year from the date of final acceptance. In addition, the equipment furnished by the Contractor shall be warranted to be free from defects in design.

104.13.2 Within the warranty period and upon notification of the Contractor by the Owner, the Contractor shall promptly make all needed adjustments, repairs, or replacements arising out of defects which, in the judgment of the Engineer, or the County, become necessary during such period.

104.13.3 The cost of all materials, parts, labor, transportation, supervision, special tools, and supplies required for replacement of parts, repair of parts, or correction of abnormalities shall be paid by the Contractor, or by his surety under the terms of the bond.

104.13.4 The Contractor shall extend the terms of this warranty to cover repaired parts and all replacement parts furnished under the guarantee provisions for a period of one (1) year from the date of installation thereof.

104.13.5 If within ten (10) days after the Owner gives the Contractor notice of a defect, failure, or abnormality of the work, the Contractor neglects to make, or undertake with due

diligence to make, the necessary repairs or adjustments themselves or order the work to be done by a third party, the Owner may complete the work and the costs of the work shall be paid by the Contractor.

104.13.6 In the event of an emergency where, in the judgment of the Owner, delays would cause serious loss or damage, repairs or adjustments may be made by the Owner, or a third party chosen by the Owner, without giving notice to the Contractor, and the cost of the work shall be paid by the Contractor, or by his surety under the terms of the bond.

104.13.7 No direct payment will be made for complying with the requirements of this section.

SECTION 105 - CONTROL OF WORK

Delete Sec. 105.5 and substitute the following:

105.5 Cooperation by Contractor. The Contractor will be supplied with four (4) sets of approved plans and contract assemblies including special provisions. Additional sets of approved plans and contract assemblies including special provisions may be purchased as provided in the notice to bidders. One (1) set of approved plans and contract documents including special provisions shall be kept available on the job at all times.

Add Sec. 105.5.3:

105.5.3 The Contractor shall notify the Engineer not less than four (4) working days prior to closing the road.

Delete Sec. 105.7.1 and substitute the following:

105.7.1 The Contractor shall cooperate with utility owners and the Engineer in the location and relocation of utility facilities to minimize effects upon Contractor's work, interruption to utility service and duplication of work by utility owners. The Contractor shall perform the necessary clearing and grubbing as soon as practicable after the notice to proceed is issued to allow the utilities to locate or relocate their facilities. Facilities or appurtenances that are to remain in place during construction shall be accounted for and protected by the Contractor's work procedures. Utility location and relocation shall be made in accordance with 7 CSR Division 10, Chapter 3, Utility Location and Relocation.

Add Section 105.7.7

105.7.7 The Contractor shall make suitable and timely verbal and written requests to all utility locating agencies, all railroad and utility owners, all pipe owners, and other parties affected, and endeavor to have all necessary locates and adjustments of public or private utility fixtures, pipe lines, and other appurtenances within or adjacent to the limits of construction, made as soon as practicable. One (1) copy of all requests shall be submitted to the Engineer.

Delete Sec. 105.8 thru Sec. 105.8.2 and substitute the following:

105.8 Construction Stakes, Lines and Grades. The Engineer will set initial field control consisting of bench marks and control monuments.

105.8.1 The Contractor shall be responsible for the preservation of all bench marks and control monuments, and if any of these bench marks or control monuments are carelessly or willfully destroyed or disturbed, the cost of replacing them may be charged to the Contractor.

105.8.2 These bench marks and control monuments will constitute the initial field control by and in accordance with which the Contractor shall establish all other necessary controls and perform the work in the correct position to correspond to the information shown on the plans and given by the Engineer during the progress of the work. Elevations shown on the drawings and referred to in the specifications are based on the bench marks shown.

105.8.3 The Contractor shall employ competent personnel for making position, gradient and alignment determinations and measurements.

Delete Sec. 105.10.2 and substitute the following:

105.10.2 Inspections and job control tests will generally be made by the Engineer on the following items of work. It shall be the responsibility of the Contractor to notify the Engineer by 1:00 P.M. of the day preceding any operation which affects these items.

- Initial Layout
- Removal of Existing Structure
- Pile Driving
- Footing Excavation
- Reinforcing Steel Placement
- All Concrete Operations
- All Asphalt Operations
- Girder Erection
- Requests for Compaction Testing
- All Base Rock Operations
- All Earthwork Operations
- All Roadway Surfacing Operations
- Post-Tensioning Material Placement
- Post-Tensioning Stressing
 - Cutting of Tendon Ends
 - Grouting of Stressing Pockets

If any operation which affects the above mentioned items is to be performed on a Monday, notification must be made to the Engineer by 1:00 P.M. of the preceding Friday. The lack of supervision or inspection by the Engineer shall not relieve the Contractor of the

responsibility to construct the project according to the plans and specifications. Any work performed or materials used without authorization by the Engineer may be ordered removed and replaced at the Contractor's expense.

Delete Sec. 105.11.2 and substitute the following:

105.11.2 All changes in the work or departures from the plans, will be considered unauthorized, and the Engineer may order such work removed and replaced at the expense of the Contractor unless, before proceeding with the work, the Contractor has a copy of an Order Record signed by the Engineer, or a Change Order signed by all parties whose signatures are provided for, except the Federal Engineer. These forms will contain complete detailed instructions regarding the proposed changes. Any departure from the instructions contained in such written order shall be considered unauthorized.

Delete Sec. 105.11.3 and substitute the following:

105.11.3 All construction and materials which have been rejected or declared unsatisfactory shall be remedied or removed and replaced in an acceptable manner by the Contractor at his expense. All expense incurred by the Engineer due to corrections or removal and replacement of construction and materials shall be born by the Contractor, and will be deducted from any payment which is or may become due the Contractor. Upon failure of the Contractor to remedy or remove and properly dispose of rejected materials or work, or to replace them immediately after receiving written notice from the Engineer, the Engineer may employ labor to rectify the work, and the cost of rectification will be deducted from any payment due or which may become due the Contractor.

Delete Sec. 105.16.5 and Sec. 105.16.6 and substitute the following:

105.16.6 If the claim is against the Owner, the notice of claim shall be personally delivered or sent by certified mail to the Owner. If the claim is against the Contractor, the notice of the claim will be personally delivered or sent by certified mail to the Contractor at the address shown under the signature on the proposal. If the claim is against an assignee, notice of the claim will be personally delivered or sent by certified mail to the assignee at the address shown on the accepted notice of assignment. The party against whom a claim is filed shall file any counter claims within sixty (60) days after receipt of such notice. All notices of claims shall contain an itemized statement showing completely and fully the items and amounts forming the basis of the claim.

SECTION 106 - CONTROL OF MATERIAL

Add Sec. 106.1.4.1:

106.1.4.1 Unless otherwise specified, all materials shall be subject to visual inspection and job control tests, as determined by the Engineer, and shall be certified by the material supplier that the material supplied conforms to the requirements of these specifications. All

certifications shall make reference to the specific project, and shall contain the supplier's name and address.

Delete Sec. 106.2.2 and substitute the following:

106.2.2 Contractor Furnished Sources. If sources of material are not designated in the plans or described in the contrast, or if the Contractor desires to use material from sources other than those designated, the Contractor shall acquire the necessary rights to take materials from the sources and shall pay all costs related thereto, including any which may result from testing of samples by an approved laboratory as required by the Engineer and for an increase in length of haul. All costs of exploring, meeting environmental requirements and developing such other sources shall be borne by the Contractor. The use of material from other than designated sources which have not had prior approval of the Engineer shall be used at the Contractor's risk and may be considered as unacceptable and unauthorized and, if so considered, will not be paid for. Where practicable, borrow areas, gravel pits, and quarry sites shall be located so that they will not be plainly visible from the state highway or county road.

Delete Sec. 106.3 and substitute the following:

106.3 Samples, Tests, and Cited Specifications. The Contractor shall submit certifications and substantiating test reports, furnished by the supplier or fabricator, certifying that material and manufacturing procedures conform to the specifications. There shall be no direct charge to the Owner for materials taken as samples, either for field tests or for laboratory tests. If a specification of a recognized national standard agency (ASTM, AASHTO, AWWA, AWS, etc.) is designated, the material may, unless otherwise specified, meet either the designated specification or the latest revision thereof in effect at the time of letting of the contract. Unless otherwise specified, all sampling and testing required by the specifications shall be performed by the supplier or fabricator at no cost to the Owner in accordance with the methods specified in the contract or in accordance with the latest methods in effect at the time of letting of the contract, as prescribed by the national standard agency, and the results shall be signed, sealed and stamped according to laws related to professional Engineers. If appropriate methods have not been so prescribed, tests shall be performed in a manner determined by the Engineer.

Delete Sec. 106.8 and substitute the following:

106.8 Material Furnished by the Owner. If any material is to be furnished by the Owner, special provisions designating such materials and their locations will be included in the proposal. The cost of handling and placing all materials shall be considered as included in the contract price for the item in connection with which they are used. The Contractor will be responsible for all material provided to him, and deductions will be made from any monies due him to make good any shortages and deficiencies, from any cause whatsoever, and for any damage which may occur, and for any demurrage charges.

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Delete Sec. 107.13 and substitute the following:

107.13 Insurance Requirements. The Contractor shall procure and maintain at its own expense, until acceptance by the Engineer, liability insurance for all damages and losses imposed by law and assumed under the contract, of the kinds and in the amounts specified in Secs 107.13.1 through 107.13.3. Before the Contractor commences the work, the Contractor shall require the insurance company or companies to furnish to the Engineer evidence of such insurance showing compliance with these specifications. All insurance required in Sec 107.13 shall be occurrence policies in a form acceptable to the Engineer, and shall remain in form until all work required to be performed under the terms of the contract is satisfactorily completed as evidenced by its formal acceptance by the Engineer. Each policy or its declaration pages shall provide that the policy shall not materially be changed or canceled until the Engineer has been given at least 30 days advance notice in writing. If any policy is canceled before the contract work is complete, a satisfactory replacement policy must be in force, with notice and evidence of insurance submitted to the Engineer, prior to the effective date of cancellation of the former policy. All evidence of insurance and notices shall be submitted to the Engineer. Upon request, the Contractor shall promptly furnish the Engineer with a complete copy of the policy. Failure to furnish evidence of proper insurance, or complete insurance policies when requested, will result in the temporary suspension of work as provided in Sec 108.6, and may result in order claims or actions for breach of contract or otherwise, as may be recognized at law or in equity.

Delete Sec. 107.13.2.3 and substitute the following:

107.13.2.3 Additional Insureds. Each policy of commercial general liability insurance shall name the Owner, Engineer and its members, agents and employees as additional insureds. Each commercial general liability insurance policy shall also contain a separation of insured conditions. The insurance afforded by the Contractor shall be primary insurance.

Delete Sec. 107.15 and substitute the following:

107.15 Personal Liability of Public Officials. There shall be no personal liability upon the public officials, or any member, employee or agent of the Owner in carrying out any of the provisions of the contract or in exercising any power or authority granted to them, it being understood that in such matters they acted as agents and representatives of the Owner with official and public duty doctrine immunity. If any provision of the contract appears to impose a duty on such an individual, the duty remains exclusively that of the Owner and is not a personal duty or obligation of the individual.

SECTION 108 - PROSECUTION AND PROGRESS

Delete Sec. 108.1.1 and substitute the following:

108.1.1 The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the contract or contracts or any portion thereof, or of his right, title, or interest therein, without

written consent of the Engineer. Requests for permission to sublet, assign, or otherwise dispose of any portion of the contract shall be in writing and shall be accompanied by evidence that the organization which will perform the work is particularly experienced and equipped for such work. In case such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his own organization work amounting to not less than forty percent (40%) of the total contract cost, except that any items designated by the Engineer as specialty items may be performed by subcontract and the contract value of any such specialty items so performed by subcontract may be deducted from the total contract cost before computing the amount of work required to be performed by the Contractor with his own organization. The subcontractor shall not sublet, sell, transfer, assign, or otherwise dispose of the subcontract. Consent to a subcontract shall constitute the Owner's endorsement of the qualifications of the subcontractor.

Delete Sec. 108.4 and substitute the following:

108.4 Progress Schedules. The Contractor shall, if requested by the Engineer, submit a progress schedule for review and approval. The progress schedule shall be submitted to the Engineer within three (3) days of the receipt of the request. The progress schedule shall be used to establish the construction operations and to monitor the progress of the work although the Engineer's determination of the then major operation or controlling item of work shall always prevail. The progress schedule shall be in the form specified in Sec 108.4.1, unless the contract contains a different requirement. The progress schedule shall be based on the number of working days, calendar days or other increments as set forth in the contract that the Contractor expects to require in completing the project recognizing the capabilities of labor, equipment, arrangements for materials, mobilization, shop drawing preparation and approvals, and other relevant items.

Delete Sec. 108.4.2 and substitute the following:

108.4.2 Preparation of Initial Schedule. The Contractor shall, if requested by the Engineer, complete development of the initial activities schedule chart and written narrative and present a copy to the Engineer at least seven (7) days prior to the pre-construction conference.

Delete Sec. 108.7.2.2 and substitute the following:

108.7.2.2 The count of working days will start on the date the Contractor starts construction operations, or the authorization date in the Notice to Proceed, whichever is earlier. The Engineer will be the judge of the number of working days to be charged under the contract. In computing the working days charged against the Contractor in the execution of the work, allowance will be made for days that are not working days and for days during which work is suspended with the written approval of the Engineer. The Engineer may make allowance for working days lost due to causes he deems justified for the elimination of the count of working days. No allowance will be made for delay or suspension of the prosecution of the work due to fault of the Contractor. On or about the first of each month, the Engineer will give the Contractor written notice of the number of

working days charged to the contract for the preceding time period. Any objection by the Contractor to the number of working days so charged shall be made in writing within five (5) days, setting forth his objections and specifying the reasons therefore, or those objections shall be forever waived and may not constitute the basis for an excusable or compensable delay.

SECTION 109 - MEASUREMENT AND PAYMENT

Delete Sec. 109.1 and substitute the following:

109.1 Measurement of Quantities. Unless otherwise specified hereinafter, all work performed under the contract will be paid for on contract quantity basis as set forth in these specifications. When the quantity of any item that is to be paid for on a contract quantity basis is found to include errors, or when an authorized revision of the plan is made, the quantity will be corrected before making final payment. 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 practice.

Add Sec. 109.5.9:

109.5.9 The Contractor shall not begin any work for which price payments are not provided in the contract without first bringing the matter to the attention of the Engineer, and no bills or charges for extra or force account work will be allowed except for that ordered in writing and approved by the Engineer.

Delete Sec 109.6 and substitute the following:

109.6 Method of Payment. Payment to the Contractor for furnishing all material and performing all work under the contract shall be made by check.

Delete Sec. 109.7 in its entirety and substitute the following:

109.7 Partial Payments

109.7.1 The engineer will make semi-monthly payment estimates in writing for the material in place and the work performed during the semi-monthly interval and the value thereof at the contract bid prices. For partially complete items, the proper percentage with relation to completion will be allowed.

109.7.2 The contractor may request in any payment estimate that the engineer include the value of any non-perishable material that will be finally incorporated in the completed work. The engineer shall make the final decision whether to allow a partial payment. Provisions shall be in accordance with Sec. 109.7.2 of the *Missouri Standard Specifications for Highway Construction*.

109.7.3 From the total amount of work items of each estimate, there will be deducted one (1) percent. The retained percentage will be released as provided in Sec. 109.9. The net amount due on the estimate will be certified to the Owner for payment.

109.7.4 Payment may be withheld or nullified in whole or part to such extent as may be necessary to protect the Owner from loss on account of:

- a. Failure to properly submit material certifications and substantiating test reports required under Sec. 106.1.4.1 and Sec. 106.3.
- b. Failure to properly submit certified copies of labor payrolls required under Sec. 110.
- c. Defective work not remedied.
- d. Failure of the Contractor to properly make payment to suppliers or subcontractors for material and/or labor (RSMo 34.057)
- e. A reasonable doubt that the contract can be completed for the balance then unpaid.
- f. Damage to another Contractor.

Delete Sec. 109.9.1 and substitute the following:

109.9.1 Withholding of Retained Percentage Prior to any release of retained percentage, the Contractor shall file with the Owner the following:

- a. An affidavit, to the effect that all payments have been made and all claims have been released for all materials, labor, and other items covered by the contract bond;
- b. Written consent of the surety to such payment;
- c. Certification regarding work performed by and payments made to Disadvantaged Business Enterprises (DBE's);
- d. Lien Waivers signed by each supplier furnishing materials to the project and/or each subcontractor providing services/materials for the project releasing all claims to said materials and services;
- e. The Contractor and all subcontractors shall file an affidavit stating that each has fully complied with the provisions and requirements of the Prevailing Wage Law;
- f. Any other documents which may be required by the contract, or the Engineer.

Add Sec. 109.9.1.3:

109.9.1.3 When the work has been completed and certified by the Owner, a final estimate will be executed and submitted, which will provide payment to the Contractor for the entire sum due him as set forth in these specifications, including the amount previously retained by the Owner. All prior partial estimates and payments shall be subject to correction by the Owner in this final estimate and payment.

SECTION 110 - STATE AND FEDERAL WAGE RATES AND OTHER REQUIREMENTS

Add Sec. 110.5:

110.5 The Contractor and all subcontractors shall maintain books, accounts, ledgers, invoices, drafts, documents, pages and other business records pertaining to the performance of the contract with such materials available at the Contractor's field or permanent business offices at all reasonable times during the performance of the contract and for four (4) years from the date of final payment under the contract, for inspection by authorized representatives.

Add Sec. 110.6:

110.6 The Contractor and each subcontractor shall be required to submit to the Engineer one certified copy of labor payrolls and a weekly statement of compliance (Form WH-347) for each week that work is in progress, within seven (7) days of the payment date of the payroll. If work is temporarily suspended, the last payroll shall be marked appropriately to note that it will be the last payroll until work is resumed.

Add Sec. 110.7:

110.7 Payrolls to be submitted shall be checked for compliance with the contract requirements and will be retained by the Owner for a period of three (3) years following final audit, during which time they will be open to inspection.

Add Sec. 110.8:

110.8 The Contractor shall be responsible for the submittal of payrolls and certifications for all subcontractors.

Add Sec. 110.9:

110.9 The Owner may check payrolls with the following checks, however, it will still be the Contractor's responsibility to ensure proper labor compliance:

- a. The employee's full name as shown on his social security card, his address and social security number shall be entered on each payroll.

- b. Check the payroll for correct employee classification.
- c. Check the payroll for correct hourly wage and, if applicable, the correct overtime hourly rate.
- d. Check the daily and weekly hours worked in each classification including actual overtime hours worked. (Not adjusted hours)
- e. All deductions are listed in the net wage shown. The Form WH-347 is to be used if fringe benefits are paid into established programs. However, if fringe benefits are paid in cash to the employee, the amount shall be indicated on the payroll.
- f. To assure that the payrolls are arithmetically correct, approximately ten percent (10%) of the extensions on the first three (3) payrolls shall be checked. The Contractor will be advised of any violations noted on the labor payroll. All the errors will be corrected by means of a supplementary payroll.
- g. All checking by the Owner will be made in red pencil and initialed by the checker.
- h. Final payroll will be marked "Final" or "Last Payroll".
- i. A record of all payrolls will be maintained by the Owner.

Add Sec. 110.10:

110.10 The contracts for construction projects require that certain applicable information be displayed in a conspicuous place within the project limits for the duration of the contract. The following is a list of required information to be posted both on the project and in the Owner's office:

- a. In the Owner's office:
 - 1. Missouri Equal Employment Opportunity Notice
 - 2. PR-1022, Title 18, Section 1020, Notice on False Statements
- b. On the Projects:
 - 1. State and Federal Wage Rates Notice
 - 2. Federal Equal Employment Opportunity Notice (English and Spanish version)
 - 3. PR-1022, Title 18, Section 1020, Notice on False Statements
 - 4. Form FHWA-1495, and FHWA-1495A, Wage Rate Information (Post with Federal Wage Rates, if applicable)
 - 5. Contractor's and Subcontractor's EEO Policy Statements and name, address, and telephone number of designated EEO Officers
 - 6. Notice to Labor Unions of Contractor's commitment to EEO (if applicable)

7. Notice requesting referral of minorities by present employees

Add Sec. 110.11:

110.11 The Owner's personnel will generally conduct one wage rate interview on each project every month. Labor interviews are not required on railroad and other utility adjustments. The interviewer will determine the employee's name, the employer's name, the classification of the employee, the actual wage paid, and the posted wage.

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 28

Section 026
COLE 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

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$55.53
Boilermaker	*\$26.79
Bricklayer	\$50.57
Carpenter	\$45.76
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	*\$26.79
Plasterer	
Communications Technician	\$52.66
Electrician (Inside Wireman)	\$53.03
Electrician Outside Lineman	*\$26.79
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	*\$26.79
Glazier	\$54.87
Ironworker	\$60.21
Laborer	\$41.45
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$53.22
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$59.73
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	*\$26.79
Plumber	\$63.54
Pipe Fitter	
Roofer	\$51.08
Sheet Metal Worker	\$55.49
Sprinkler Fitter	\$53.71
Truck Driver	\$41.13
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
COLE County

Section 026

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$53.60
Millwright	
Pile Driver	
Electrician (Outside Lineman)	*\$26.79
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$46.32
General Laborer	
Skilled Laborer	
Operating Engineer	\$58.42
Group I	
Group II	
Group III	
Group IV	
Truck Driver	*\$26.79
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.



**GEOTECHNICAL ENGINEERING AND
GLOBAL STABILITY ANALYSIS REPORT
FOR
CENTRAL MISSOURI PROFESSIONAL
SERVICES, INC.**

**CARNEGIE BUILDING WALL
JEFFERSON CITY, MISSOURI**

MAY 25, 2022

Crockett GTL Project Number: G22779

1000 W Nifong Blvd, Bldg 1 • Columbia, MO 65203

Phone: 573-447-0292

www.CrockettEngineering.com



1000 W Nifong Blvd. – Building 1
Columbia, Missouri 65203
(573) 447-0292

May 25, 2022

Central Missouri Professional Services, Inc.
2500 E McCarty St.
Jefferson City, MO 65101

Attn: Mr. Paul Samson, P.E.

Re: Geotechnical Engineering & Global Stability Analyses Report
Carnegie Building Wall
Jefferson City, Missouri
Crockett GTL Project Number: G22779

Dear Mr. Samson:

Crockett Geotechnical – Testing Lab (Crockett GTL) has completed the geotechnical engineering services for the referenced project. This report should be read in its entirety. This report presents the results of our field explorations, laboratory testing, and recommendations for design and construction of the referenced project.

We appreciate the opportunity to be of service and are available to assist with special inspection services during the construction phase of this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

A handwritten signature in blue ink that reads "Shane Steinman".

Shane Steinman, P.E.
Project Engineer

A handwritten signature in blue ink that reads "Eric H. Lidholm".

Eric H. Lidholm, P.E.
Principal
Missouri: E-23265



Enclosures

cc: 1 – Client (.PDF)
1 – File

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APPENDIX

- Site Location Map
- Boring Location Plan
- Boring Logs
- Boring Log Legend and Nomenclature
- Global Stability Analyses Critical Sections

Geotechnical Engineering Report
Carnegie Building Wall
Jefferson City, Missouri
Crockett Project Number: G22779
May 25, 2022

1 INTRODUCTION

Crockett Geotechnical - Testing Lab (CGTL) has conducted a geotechnical exploration for the proposed development. The purpose of our exploration was to:

- Characterize and evaluate the subsurface conditions,
- Provide design and construction recommendations for:
 - global stability analyses of proposed retaining wall
 - soft soil subgrade
 - earthwork
 - foundations
 - seismic considerations
 - lateral earth pressures
 - special inspection requirements

2 SITE AND PROJECT INFORMATION

2.1 SITE LOCATION AND DESCRIPTION

Item	Description
Location	This project is located at 210 Adams Street in Jefferson City, Missouri Specifically, the area of proposed construction is immediately northwest of the existing building located on this property A Site Location Map showing the approximate location of this project is included in the Appendix of this report
Approximate GPS Coordinates	38.575226, -92.168222
Existing improvements	Parking lot and retaining wall in the area of proposed retaining wall
Current ground cover	Asphalt parking lot

Item	Description
Existing topography	Approximately 10 feet of relief in the area of proposed retaining wall

2.2 PROJECT DESCRIPTION

Item	Description
Proposed wall	New concrete retaining wall located about 51 feet northeast of the existing retaining wall in order to extend the upper parking lot to the northeast
Free-standing retaining wall	Wall length: 130 feet Maximum wall height: 10.5 feet ¹
1. As measured from finished grade of the retained soil side of the wall to anticipated top of footing.	

3 SUBSURFACE CONDITIONS

3.1 FIELD EXPLORATION AND LABORATORY TESTING

Two (2) borings were drilled for this project at the approximate locations indicated on the Boring Location Plan included in the Appendix of this report. Additional information follows:

Field Exploration	
Boring Locations ¹	Designated by the geotechnical engineer and staked by the drill crew.
Boring Elevations ¹	The boring elevations were obtained from a grading prepared by Central Missouri Professional Services and rounded to the nearest ½ foot Boring elevations are included on the attached boring logs
Drill Rig	CME-45 track-mounted drill rig equipped with 4-inch solid stem augers
Sampling Methods ²	Representative samples were obtained using thin-walled tube sampling and split-barrel tube sampling procedures
1. The location and elevation of the borings should be considered accurate only to the degree implied by the means and methods used to define them	
2. A CME automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site	

The samples were tagged for identification, sealed to reduce moisture loss and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes material descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled prior to the drill crew leaving the site.

The field logs were prepared by the drill crew. Final logs included with this report represent the engineer's interpretation of the field logs and include modifications based upon laboratory tests and observation made of the samples. Detailed information regarding the material encountered and the results of field sampling and laboratory testing are shown on the Boring Logs included in the Appendix of this report. The descriptions of the soil on the final boring logs are in general accordance with the Unified Soil Classification System which is included in the Appendix of this report.

3.2 ENCOUNTERED SUBSURFACE CONDITIONS

Detailed descriptions of the encountered materials are listed on the individual boring logs included in the Appendix of this report. Strata lines indicate the approximate location of changes in material types. The transition between material types may be gradual. A generalized summary of what was encountered in the borings follows:

From the ground surface both borings encountered 5 to 6 inches of asphalt underlain by 5 to 10 inches of base rock. The thickness of the surficial material should be expected to vary elsewhere on the site.

Underlying the surficial material in both borings was lean clay, lean to fat clay, and fat clay. These soils extended to an approximate depth of 23.5 feet in the borings.

Underlying the lean clay, lean to fat clay, and fat clay was gravelly lean to fat clay and shaley fat clay. The gravelly lean to fat clay and shaley fat clay extended to the planned boring termination depths of 25 feet. Bedrock was not encountered.

3.3 GROUNDWATER

Groundwater was not encountered in the borings while drilling, at the completion of drilling or for the short duration the borings remained open after the completion of drilling. However, this does not necessarily mean the borings terminated above groundwater or the water levels summarized above are stable groundwater levels. Due to the low permeability of the soil encountered in the borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole in these materials. Long term observations in

piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Perched groundwater can develop over low permeability soil or rock strata. This possibility should be considered when developing design and construction plans and specifications for the project. Groundwater levels depend on seasonal and climatic variations and may be present at different levels in the future. In addition, without extended periods of observation, accurate groundwater level measurements may not be possible, particularly in low permeability soils.

The boreholes were backfilled prior to departing the project site. Groundwater records are indicated on the boring logs included in the Appendix of this report.

4 GLOBAL STABILITY ANALYSIS

Crockett Geotechnical Testing Lab (Crockett GTL) has performed a global stability analysis for the proposed new concrete cantilever retaining wall. To develop soil parameters, we relied on field data and lab testing performed by Crockett GTL from two (2) borings that were drilled at the project site.

A site location map, boring location diagram, and boring logs with laboratory data are attached to this report. Wall design information and site information, provided by Crockett Engineering Consultants, LLC and Central Missouri Professional Services, Inc was also used to create the models.

Soil parameters used for the global stability analysis are as follows:

Global Stability Analysis Soil Parameters ^{1,2}		
Material Type	Friction Angle	Cohesion
New Fill	20 degrees	100 psf
CH (fat clay)	26 degrees	50 psf
CL-CH (lean to fat clay)	28 degrees	25 psf
Concrete	45 degrees	5000 psf
Gravel Backfill	34 degrees	0 psf

1. Not all materials listed were utilized in final GSA iterations
2. A surcharge load of 250 psf was utilized to simulate loads imposed by the vehicles on the new parking lot

Global Stability Analysis Soil Parameters ^{1,2}	
3.	A surcharge load of 2,000 psf was utilized to simulate loads imposed by the existing building northeast of the new retaining wall

Global stability analyses were performed using the GEOSTASE slope stability analysis program. This program utilizes several methods of analysis. For this project we utilized the Bishop, Spencer and Morgenstern-Price methods of analysis. Each analysis utilizes a search routine to evaluate a number of trial failure surfaces so the location of the critical failure surface can be estimated.

Cross sections of the critical-sections/global stability analyses are included in the Appendix of this report.

4.1 GLOBAL STABILITY ANALYSIS RESULTS

For this wall, a factor of safety (FOS) of 1.5 or greater is required. Because of this, the critical section of the concrete cantilever retaining wall was evaluated.

Based upon the results of the global stability analysis, minimum dimensions for the concrete cantilever retaining wall are required in order to meet the minimum FOS requirements. The required wall dimensions are summarized below.

Concrete Cantilever Wall Dimensions ^{1,2,3}	
Wall Components	Required Dimension (ft)
Heel Width	4.0
Toe Width	2.0
Key Depth Below Base of Footing	1.5
1. The dimensions described in this table are minimum dimensions required for global stability and do not take into account design for sliding or overturning 2. Bottom of the footing must bear a minimum of 30-inches below the nearest ground surface 3. Gravel backfill, 4-feet in width, is required behind the back of the retaining wall	

5 GEOTECHNICAL RECOMMENDATIONS

5.1 POSSIBLE SOFT SOIL SUBGRADE

Although not encountered in the borings, soft soils can sometimes develop under existing pavement. These soils can have high moisture levels and the associated low density. Low density soil with moisture levels significantly above their measured plastic limit are usually unstable and will pump under construction traffic. These soils may be suitable for use as structural fill if moisture conditioned and satisfactorily compacted; however, they will need to be further evaluated. The contractor should be prepared for these conditions should they be encountered.

5.2 EARTHWORK

We recommend the exposed subgrade be thoroughly evaluated before the start of any fill operations. We recommend the geotechnical engineer be retained to evaluate the bearing material for the foundations and subgrade soils. Subsurface conditions, as identified by the field and laboratory testing programs have been reviewed and evaluated with respect to the proposed project plans known to us at this time.

5.2.1 Site Preparation

All unsuitable material should be removed from the construction areas prior to placing structural fill. After stripping and grubbing, the site should be proof-rolled to aid in locating loose or soft areas. Proof-rolling can be performed with a loaded tandem axle dump truck. Soft, wet, dry and low-density soil should be removed or be moisture conditioned and recompacted in place as structural fill prior to placing new structural fill.

Where fill is placed on existing slopes steeper than 5H:1V, benches should be cut into the existing slopes prior to fill placement. The benches should have a vertical face height of 1 to 3 feet and should be cut wide enough to accommodate the compaction equipment. We recommend structural fill slopes be overfilled and then cut back to develop an adequately compacted slope face.

5.2.2 Structural Fill Material Requirements

Compacted structural fill should consist of approved materials free of organic matter and debris. Frozen material should not be used and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted for evaluation prior to use.

Structural Fill Material Requirements		
Material Type	USCS Classification	Acceptable Uses
Granular ^{1,2}	GM, SM, SW	All locations
Lean Clay and Clayey Sand	CL & SC (LL<40)	All locations
Lean to Fat Clay	CL-CH (40<LL<50)	All locations
Fat Clay	CH (LL \geq 50+)	Not recommended for use within 10 feet of the back side of the wall face
<ol style="list-style-type: none"> 1. If limestone screenings are used as new structural fill, the contractor should be aware this material is extremely susceptible to degradation upon wetting which can result in deep-seated pumping and rutting 2. Limestone screenings that pump and rut are not acceptable for use as new structural fill or for low volume change material and will need to be removed and replaced with suitable material. 		

5.2.3 Structural Fill Compaction Requirements

Structural Fill Compaction Requirements	
Soil Fill Lift Thickness	<ul style="list-style-type: none"> • 9 inches or less when using heavy self-propelled compaction equipment • 6-inches or less when using hand guided or light self-propelled equipment
Compaction Requirements	<p>95% of standard Proctor dry density (ASTM D-698)</p> <ul style="list-style-type: none"> • We recommend engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved. <ol style="list-style-type: none"> 1. As stated within ASTM D698, this procedure is intended for soils with 30% or less material larger than ¾". Accordingly, we recommend full time proof-roll observation be performed instead of moisture density testing for materials containing more than 30% aggregate retained on the ¾" sieve.
Compaction Moisture Content Requirements	<ul style="list-style-type: none"> • Lean to Fat Clay and Fat Clay Optimum moisture content (OMC) to 4% above the standard Proctor optimum moisture content • Lean Clay and Silt 2% below to 2% above standard Proctor OMC • Granular Workable moisture content. Shall not pump when proof-rolled

5.2.4 Grading and Drainage

The area in the vicinity of the retaining wall must be well drained. Final surrounding grades should be sloped away from the wall on all sides to prevent ponding of water.

5.2.5 Earthwork Construction

In periods of dry weather, the surficial soils may be of sufficient strength to allow fill construction on the stripped and grubbed ground surface. However, unstable subgrade conditions could develop if the soils are wet or subjected to repetitive construction traffic. Should unstable subgrade conditions be encountered, stabilization measures will need to be employed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to construction.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork/fill placement and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of structural fills; backfilling of excavations into the completed subgrade, and just prior to construction.

5.2.6 Temporary Excavations

The Occupational Safety and Health Administration (OSHA) has developed regulations to provide for the safety of workers entering excavations. Temporary excavations will probably be required during grading operations. All operations should be performed under the supervision of qualified site personnel in accordance with OSHA Excavation and Trench Safety Standards.

5.3 WALL FOUNDATIONS

The proposed retaining wall can be supported on spread footings bearing on suitable native soil, or newly placed compacted structural fill. Design recommendations and construction considerations for shallow foundations follow:

5.3.1 Shallow Foundation Design Recommendations

Design recommendations for shallow foundations are as follows:

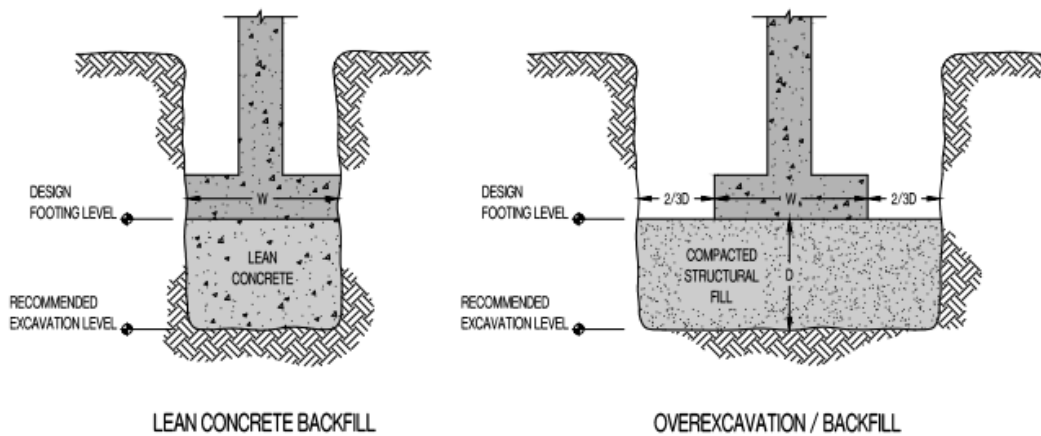
Shallow Foundation Design Recommendations	
Allowable bearing pressure <ul style="list-style-type: none"> • Continuous foundations • Allowable overstress for transient loads (i.e., snow, wind, seismic) 1. Assumes all foundations will bear directly upon suitable native soil or newly placed structural fill.	1,700 psf 33%
Minimum foundation dimensions <ul style="list-style-type: none"> • Continuous foundations 	12 inches
Ultimate passive pressure (equivalent fluid pressure) <ol style="list-style-type: none"> 1. The sides of the spread footing foundation excavations must be nearly vertical and the concrete should be placed neat against the vertical faces for the passive earth pressure values to be valid 2. Passive resistance in the frost zone should be neglected 3. Some movement of the footing will be required to mobilize resistance from passive pressure and sliding friction 	270 pcf
Ultimate coefficient of sliding friction	0.32
Minimum embedment below finished grade for frost protection	30 inches
Uplift Resistance <ul style="list-style-type: none"> • Soil Total Unit Weight • Concrete Total Unit Weight 1. Only the soil directly overlying the foundation should be used for uplift resistance 2. Unit weight values do not include factors of safety 3. Assumes foundations are drained and are constructed above the highest groundwater level	120 pcf 150 pcf
Approximate Foundation Settlement <ul style="list-style-type: none"> • Total • Differential 	< 1 inch < ¾ inch

5.3.2 Shallow Foundation Construction Considerations

The base of all foundation excavations should be free of water and loose soil and rock prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soil at the foundation bearing level become excessively dry, disturbed, saturated, or frozen the affected soil should be removed prior to placing concrete. Place a lean concrete mud-mat over the bearing soils if the excavations must remain open over night or for an extended period of time. It is recommended the geotechnical engineer be retained to observe and test the soil foundation bearing materials.

Groundwater was not encountered in the borings, however, conditions may develop such that it may be encountered during foundation excavation. In addition, some surface and/or perched groundwater may enter foundation excavations during construction. It is anticipated any water entering foundation excavations from these sources can be removed using sump pumps or gravity drainage.

If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils and the footings should bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The footings could also bear on properly compacted backfill extending down to the suitable soils. Overexcavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with well graded granular material placed in lifts of 9 inches or less in loose thickness and compacted to at least 98 percent of the material's maximum standard effort maximum dry density (ASTM D 698). The lean concrete backfill and overexcavation-and-backfill procedures are described in the diagram below.



NOTE:
EXCAVATIONS IN SKETCHES SHOWN VERTICAL FOR CONVENIENCE. EXCAVATIONS SHOULD BE SLOPED AS NECESSARY FOR SAFETY.

5.3.3 Interaction between New and Existing Structures

We recommend the proposed retaining wall spread footings be stepped or lowered as necessary to match the bearing elevation of spread footings beneath the existing buildings. Stepped footings should be designed as follows:

Stepped Footing Recommendations	
Maximum Height of Footing Step	2 feet
Minimum Length of each Footing Step	4 feet
Maximum Slope Angle of Stepped Footing	2H:1V (Horizontal to Vertical)

Care should be taken not to disturb the bearing soils beneath the existing building foundations. It is recommended, where possible, excavations below existing footings should not extend below a plane extending out and down from the outside edge of existing footings at a slope of approximately 1H:1V. Even with these criteria, excavations that extend below the level of existing foundations should be backfilled the same day they are excavated. Where this is impractical, shoring or underpinning of existing foundations may be required to prevent undermining or movement of the existing structures.

Existing fill in footing excavations near the existing building should also be anticipated. It is likely the backfill for the existing foundations was probably not placed in accordance with the recommendations provided in this report and should not be used for foundation support.

Some overlap in stress distribution from new and existing footings may occur, which may cause some movement of the existing footings and the supported structures. Maintaining a clear distance at least equal to the width of the new spread footings between the edges of the new and existing footings could reduce this risk. Connections between the new and existing structures should be designed to allow for the anticipated differential movement.

5.4 SEISMIC CONSIDERATIONS

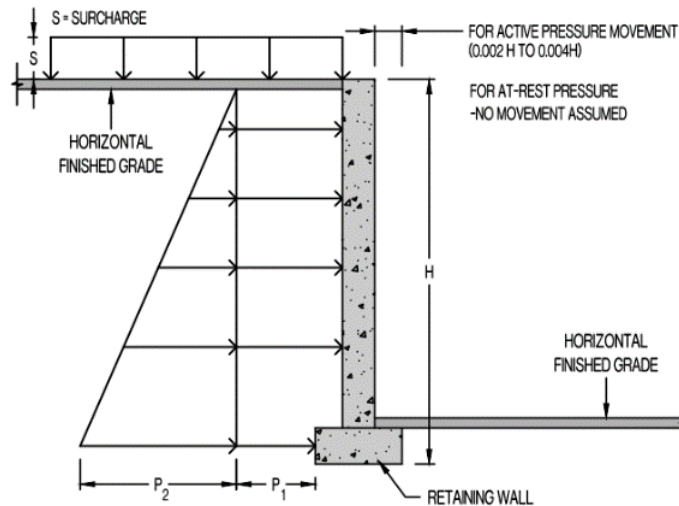
The International Building Code and ASCE 7 requires the average properties in the upper 100 feet of the subsurface profile be determined for seismic site classification. The drilling scope performed for this project had borings that extended to a maximum depth of approximately 25.0 feet. As such, we provide the following seismic site classification:

Seismic Site Classification	
Code Used	International Building Code & ASCE 7
Site Classification	D

Additional exploration to greater depths could be considered to confirm the conditions below the current depth of exploration. Alternatively, a geophysical exploration could be utilized in order to attempt to justify a more favorable seismic site class.

5.5 LATERAL EARTH PRESSURES

Reinforced concrete walls with unbalanced backfill levels may be utilized on this site. Walls should be designed using the earth pressures indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.



Earth Pressure Coefficients			
Backfill Type	Active (K_a)	At Rest (K_o)	Passive (K_p)
Equivalent Fluid Unit Weights			
Cohesive	50 pcf	70 pcf	280 pcf
Granular	40 psf	60 psf	360 pcf
Surcharge Pressure, P_1 (psf)			
Cohesive	$(0.42)S$	$(0.58)S$	---
Granular	$(0.33)S$	$(0.46)S$	---
Earth Pressure, P_2 (psf)			
Cohesive	$(50)H$	$(70)H$	---
Granular	$(40)H$	$(55)H$	---
Sliding Resistance	0.32 (coefficient of friction)		

Earth Pressure Coefficients

- The values are applicable when the surface of the backfill behind the wall is horizontal. Increased values will result with steeper than horizontal slopes
- No safety factor included in soil parameters
- Does not include loading from heavy compaction equipment
- No hydrostatic pressures acting on wall
- Backfill compacted to at least 95% standard Proctor dry density, or at least 80% relative density, as appropriate for material type
- Soil backfill unit weight a maximum of 120 pcf
- No dynamic loading
- For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 H to 0.004 H, where H is wall height
- For passive earth pressures to develop, the wall must move horizontally
- Ignore passive pressure in the frost zone
- For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively
- Exterior granular backfill should be capped with approximately 2 feet of cohesive soil to reduce the potential for surface water infiltration into the granular backfill
- Uniform surcharge, where S is surcharge pressure

We recommend all below-grade walls be provided with a drainage system. A minimum 4-inch diameter, perforated drain pipe should be placed at the foundation level. Granular drainage material, consisting of 1-inch clean crushed rock, classified as GP by ASTM D 2487, with less than 5 percent passing the No. 200 sieve, should be placed a minimum of 6 inches in all directions around the drainage pipe. Synthetic filter fabric, such as Mirafi 140N or equivalent, should encapsulate the drainpipe and granular drainage material.

The pipe should be sloped to drain by gravity or through weep holes located on approximately 10-foot centers for above-grade retaining walls, or to a sump with a pump for below-grade walls where positive drainage by gravity cannot be achieved. Any interior sumps must be isolated “watertight” from the interior subgrade to prevent the movement of moisture from the sump into the underlying soils.

5.6 SPECIAL INSPECTION REQUIREMENTS

The following items require special inspections in accordance with Chapter 17 of the International Building Code:

Schedule of Special Inspection Services ^{1,2}			
Material/Activity	Service	Applicable to this Project	
		Y/N	Extent
1705.6 Soil		Y	
<ul style="list-style-type: none"> Verify materials below shallow foundations are adequate to achieve the design bearing capacity 	Field Inspection	Y	Periodic
<ul style="list-style-type: none"> Verify excavations are extended to proper depth and have reached proper material 	Field Inspection	Y	Periodic
<ul style="list-style-type: none"> Perform classification and testing of controlled fill materials. 	Field Inspection	Y	Periodic
<ul style="list-style-type: none"> Verify use of proper material, densities, and lift thicknesses during placement and compaction of controlled fill 	Field Inspection	Y	Continuous
<ul style="list-style-type: none"> Prior to placement of controlled fill, observe subgrade and verify site has been prepared properly 	Field Inspection	Y	Periodic
1705.7 Driven Deep Foundations		N	
1705.8 Cast-In-Place Deep Foundations		N	
1705.9 Helical Pile Foundations		N	
1. Testing and inspections services shall be performed by an approved agency in general accordance with section 1703 of the International Building Code 2. This section references 2015 IBC. Other code years may have a differing section number for concrete elements			

The contractor shall request special inspection of the items listed above prior to those items becoming inaccessible and unobservable due to the progression of work.

6 GENERAL COMMENTS

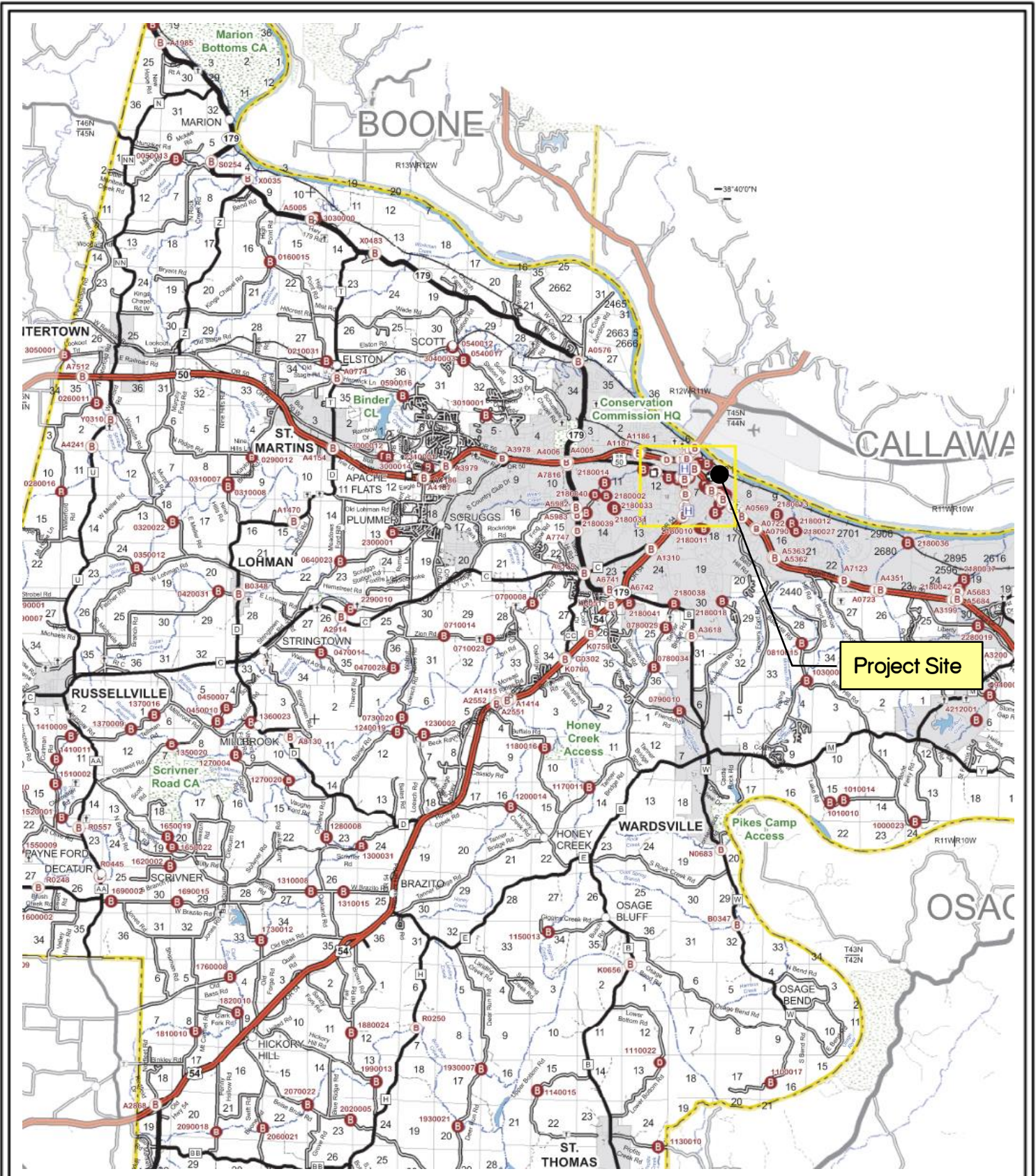
The recommendations provided herein are for the exclusive use of our client. Our recommendations are specific only to the project described herein and are not meant to supersede more stringent requirements of local ordinances or codes. The recommendations are based on subsurface information obtained at our boring locations, sample locations, our understanding of the project as described in this report, and geotechnical engineering practice consistent with the current standard of care. No warranty is expressed or implied. CGTL should be contacted if conditions encountered are not consistent with those described.

CGTL should be provided with a set of final plans and specifications, once they are available, to review whether our recommendations have been understood and applied correctly and to assess the need for additional exploration or analysis. Failure to provide these documents to

CGTL may nullify some or all of the recommendations provide herein. In addition, any changes in the planned project or changes in site conditions may require revised or additional recommendations on our part.

The final part of our geotechnical service should consist of direct observation during construction to observe that conditions actually encountered are consistent with those described in this report and to assess the appropriateness of the analyses and recommendations contained herein. CGTL cannot assume liability or responsibility for the adequacy of recommendations without being retained to observe construction.

APPENDIX

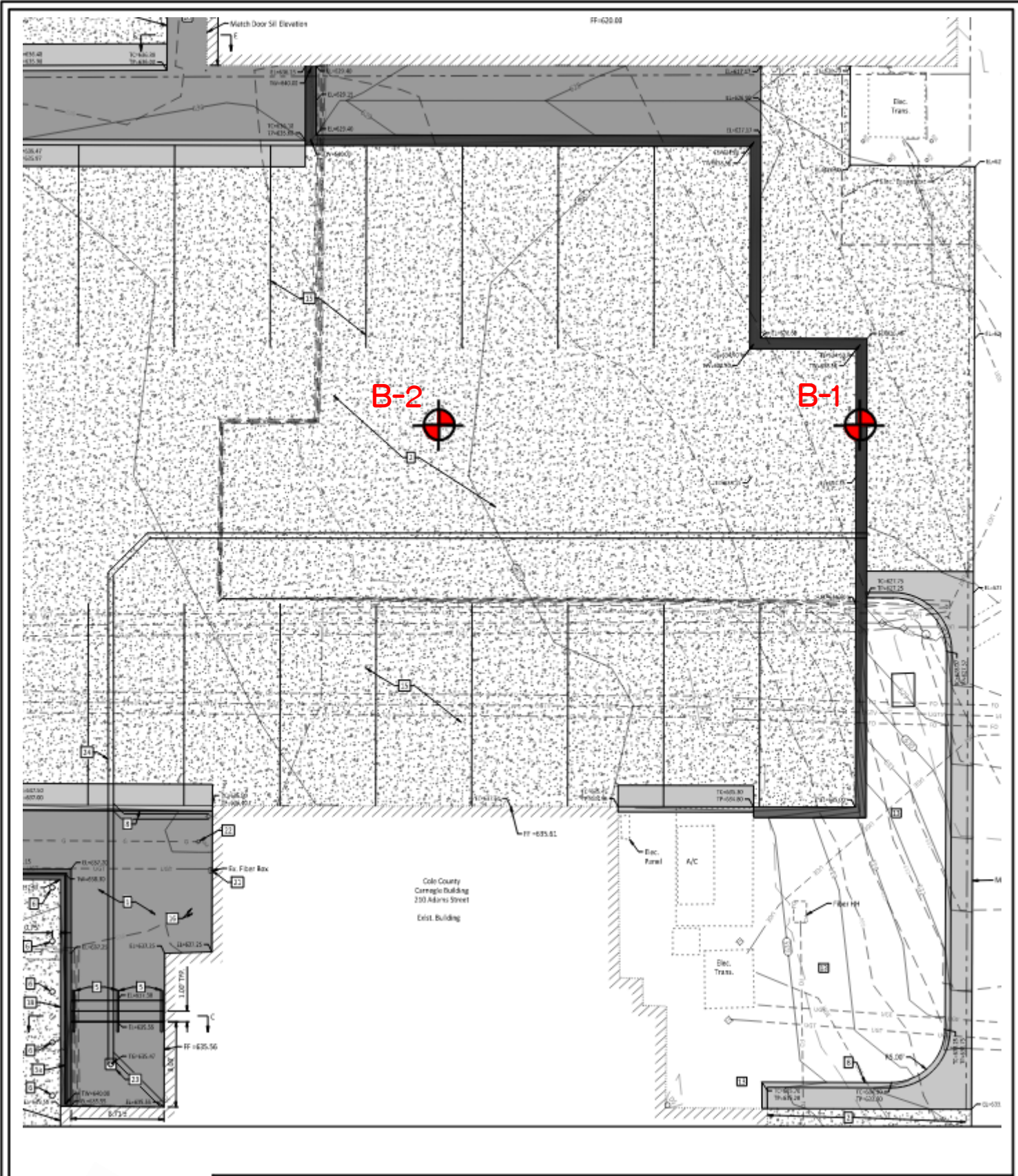


PROJECT NO.: G22779

SITE LOCATION MAP

CARNEGIE BUILDING WALL
JEFFERSON CITY, MISSOURI

Prepared By:
CROCKETT
 GEOTECHNICAL - TESTING LAB
 1000 W. Nifong Blvd, Building 1
 Columbia, MO 65203
 573-447-0292
www.CrockettEngineering.com



PROJECT NO.: G22779

BORING LOCATION PLAN

CARNEGIE BUILDING WALL
JEFFERSON CITY, MISSOURI

Prepared By:
CROCKETT
 GEOTECHNICAL - TESTING LAB
 1000 W. Nifong Blvd, Building 1
 Columbia, MO 65203
 573-447-0292
www.CrockettEngineering.com

CLIENT Central Missouri Professional Services, Inc. **PROJECT NAME** Carnegie Building Wall
PROJECT NUMBER G22779 **PROJECT LOCATION** Jefferson City, Missouri
DATE STARTED 5/4/22 **COMPLETED** 5/4/22 **GROUND ELEVATION** 627.5 ft MSL **HOLE SIZE** 4"
DRILLING CONTRACTOR IPES **GROUND WATER LEVELS:**
DRILLING METHOD 4" SSA **AT TIME OF DRILLING** --- Not encountered
LOGGED BY Korn **CHECKED BY** Lidholm **AT END OF DRILLING** --- Not encountered
NOTES Borehole backfilled upon completion **0.25hrs AFTER DRILLING** --- Not encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.4		ASPHALT (5-inches)										
0.8		BASE ROCK (5-inches)										
		FAT CLAY: Dark brown, mottled, trace rust and lignite stains, trace fine gravel	ST 1	16		3500	2861	104	21			
		--: brown, with gravel, cobbles and possible boulders	ST 2	15		3500	2325	91	30	53	21	32
5												
		--: trace gray, no more gravel, cobbles and possible boulders	ST 3	24		4500	3457	100	25			
10												
		LEAN TO FAT CLAY: Brown, mottled, trace rust and lignite stains, silty texture	ST 4	24		3500	3228	97	27	41	22	19
15												
			ST 5	23		2500	1923	102	23			
20												
		GRAVELLY LEAN TO FAT CLAY: Brown	SPT 6	8	8-8-7 (15)	2400			22			
25												

No refusal
 Bottom of borehole at 25.0 feet.

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE GDT - 5/24/22 16:43 - V1 - PROJECTS\2022\G22779 - CARNEGIE BUILDING WALL\G22779.GPJ

CLIENT Central Missouri Professional Services, Inc. **PROJECT NAME** Carnegie Building Wall
PROJECT NUMBER G22779 **PROJECT LOCATION** Jefferson City, Missouri
DATE STARTED 5/4/22 **COMPLETED** 5/4/22 **GROUND ELEVATION** 629.5 ft MSL **HOLE SIZE** 4"
DRILLING CONTRACTOR IPES **GROUND WATER LEVELS:**
DRILLING METHOD 4" SSA **AT TIME OF DRILLING** --- Not encountered
LOGGED BY Korn **CHECKED BY** Lidholm **AT END OF DRILLING** --- Not encountered
NOTES Borehole backfilled upon completion **0.25hrs AFTER DRILLING** --- Not encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (psf)	UNC. COMP. (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0												
0.5		ASPHALT (6-inches)										
0.8		BASE ROCK (10-inches)										
		FAT CLAY: Brown, mottled, trace rust and lignite stains, with gravel, cobbles and possible boulders	ST 1	8		2800		92	26			
		--: trace gray, no more gravel, cobbles and possible boulders	ST 2	23		3000	1417	97	25			
5												
			ST 3	23		7000	5088	102	24	51	22	29
10												
		LEAN CLAY: Brown, trace rust and lignite stains, silty texture	ST 4	24		7000	2381	56	24			
15												
			ST 5	23		3500	3170	103	23	38	21	17
20												
		SHALEY FAT CLAY: Light brown, trace rust and lignite stains, trace gravel	SPT 6	8	2-4-7 (11)	3400			40			
25												
No refusal Bottom of borehole at 25.0 feet.												

SAMPLE LENGTH REPORT - LAT-LONG TEMPLATE GDT - 5/24/22 16:43 - V1 - PROJECTS - GEOT PROJECTS\2022\G22779 - CARNEGIE BUILDING WALL\G22779.GPJ

BORING LOG LEGEND AND NOMENCLATURE

Sample Type	Description
AU	Auger sample, disturbed, obtained from auger cuttings
NR	No recovery or lost sample
RC	Rock core, diamond core bit, nominal 2-inch diameter rock sample (ASTM D 2113)
ST	Thin walled (Shelby) tube sample, relatively undisturbed (ASTM D 1587)
SPT	Split spoon sample, disturbed (ASTM D 1586)
VA	Shear vane (ASTM D 2753)

Grain Size Terminology	
Boulders	Larger than 12-inches
Cobbles	3-inches to 12-inches
Gravel	Retained on #4 sieve to 3-inches
Sand	Retained on #200 sieve but passes #4 sieve
Silt or Clay	Passes #200 sieve

Descriptor	Relative Proportion of Sand and Gravel	Relative Proportion of Fines
Trace	Less than 15% by dry weight	Less than 5% by dry weight
With	15% to 30% by dry weight	5% to 12% by dry weight
Modifier	More than 30% by dry weight	More than 12% by dry weight

Relative Density of Coarse grained Soils	
Descriptive Term	SPT N-Value, Blows/Foot
Very Loose	0 - 3
Loose	4 - 9
Medium Dense	10 - 29
Dense	30 - 49
Very Dense	50+

Consistency of Fine Grained Soils		
Descriptive Term	SPT N-Value, Blows/Foot	Unconfined Compressive Strength, psf
Very Soft	0 - 1	0 - 500
Soft	2 - 3	501 - 1,000
Medium	4 - 9	1,001 - 2,000
Stiff	10 - 29	2,001 - 4,000
Very Stiff	30 - 49	4,001 - 8,000
Hard	50+	> 8,000

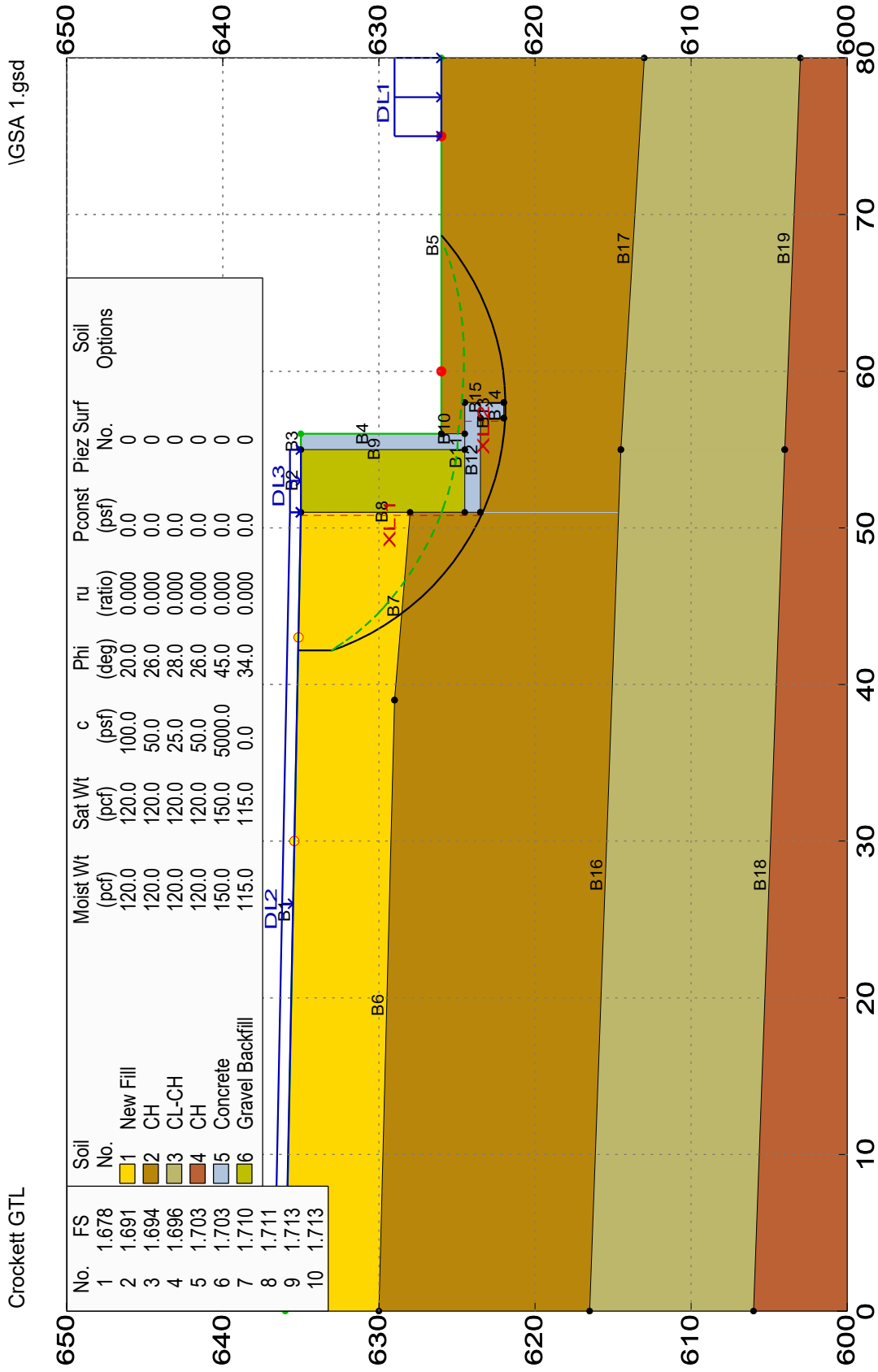
USCS Soil Classification System				
Major Divisions			Group Symbol	Group Name
coarse grained soils more than 50% retained on #200 sieve	gravel >50% of coarse fraction retained on #4 (4.75 mm) sieve	clean gravel <5% small than #200 sieve	GW	well-graded gravel, fine to coarse gravel
		gravel with >12% fines	GP	poorly graded gravel
	sand >50% of coarse fraction passes #4 (4.75 mm) sieve	clean sand	GM	silty gravel
			GC	clayey gravel
		sand with >12% fines	SW	well-graded sand, fine to coarse sand
			SP	poorly graded sand
fine grained soils more than 50% passes #200 sieve	silt and clay liquid limit < 50	inorganic	SM	silty sand
			SC	clayey sand
	silt and clay liquid limit ≥ 50	inorganic	ML	silt
			CL	clay
		organic	OL	organic silt, organic clay
			MH	silt of high plasticity, elastic silt
organic	CH	clay of high plasticity, fat clay		
	OH	organic clay, organic silt		
highly organic soils			PT	peat

Weathering	Description of Rock Properties
Fresh	No discoloration. Not oxidized.
Slightly weathered	Discoloration or oxidation of most surfaces but or short distance from fractures
Moderately weathered	Discoloration or oxidation extends from fractures, usually throughout. All fractured surfaces are oxidized or discolored.
Severely weathered	Discoloration or oxidation throughout. All fractured surfaces are oxidized or discolored. Surfaces are friable.
Decomposed	Resembles a soil. Partial or complete remnant rock structure may be present.

Rock Quality Designator (RQD)	
RQD, %	Rock Quality
90 - 100	Excellent
75 - 90	Good
50 - 75	Fair
25 - 50	Poor
0 - 25	Very poor

Joint, Bedding, and Foliation Spacing in Rock		
Spacing	Joints	Bedding/Foliation
< 2-inches	Very close	Very thin
2-inches - 1-foot	Close	Thin
1-foot - 3-feet	Moderately Close	Medium
3-feet - 10-feet	Wide	Thick
>10-feet	Very Wide	Very thick

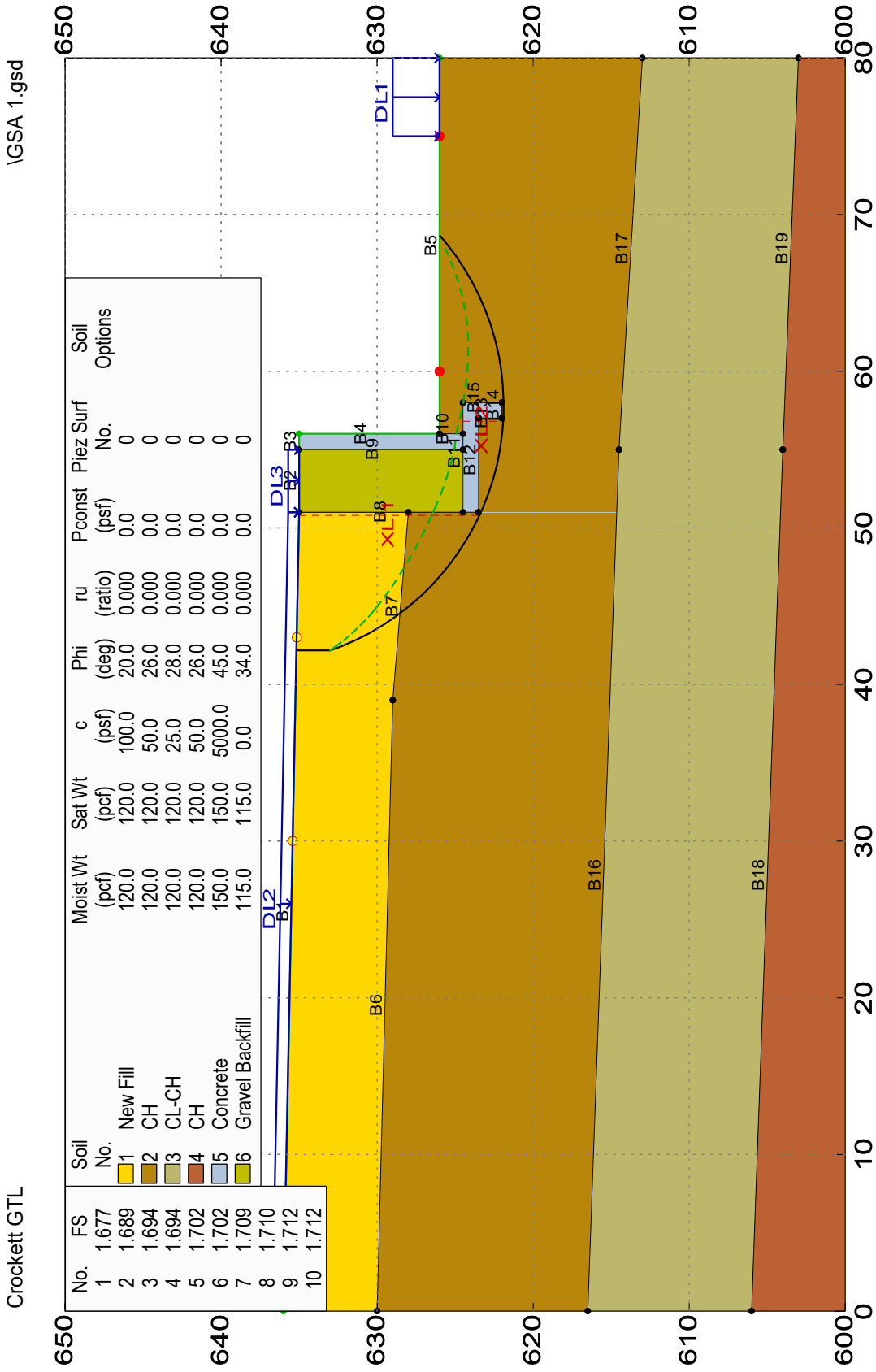
Carnegie Building Wall Retaining Wall



GEOSTASE FS = 1.678

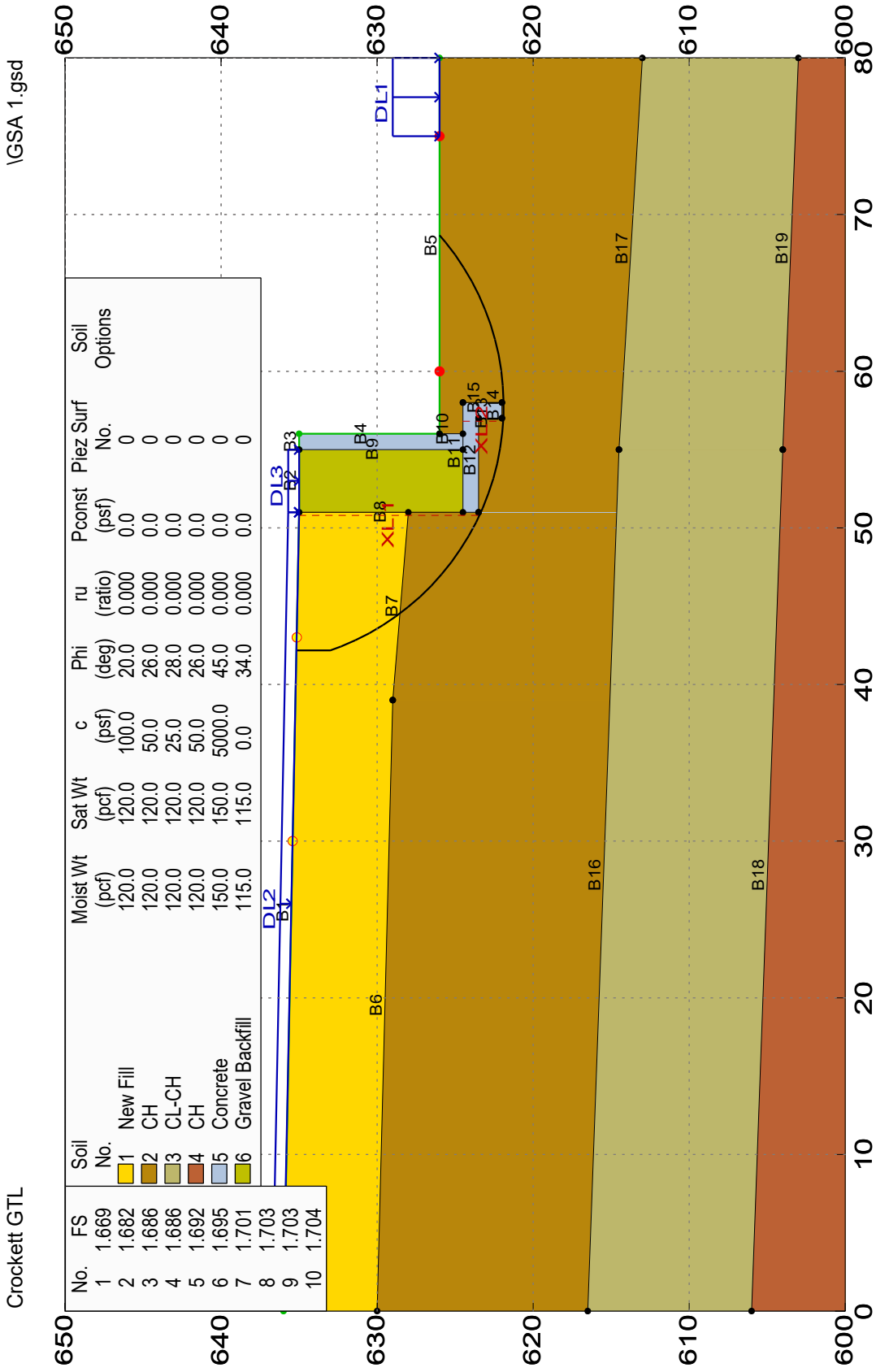
Spencer Method

Carnegie Building Wall Retaining Wall



GEOSTASE FS = 1.677
Morgenstern-Price Method

Carnegie Building Wall Retaining Wall



GEOSTASE FS = 1.669
Simplified Bishop Method