



Specifications

For

Caraway Road Bridge
Replacement over Higginbottom
Creek

(Bid #2015:12)
Jonesboro, Arkansas

City of Jonesboro ■ Engineering Department

P.O. Box 1845 ■ 300 South Church Street ■ Jonesboro, AR 72403 ■ 870.932.2438

TABLE OF CONTENTS

I. ADVERTISEMENT FOR BIDS

II. INSTRUCTIONS TO BIDDERS

III. PROPOSAL

IV. UNIT PRICE SCHEDULE

V. BID BOND

VI. STATEMENT OF BIDDER'S QUALIFICATIONS

VII. CONTRACT

VIII. PERFORMANCE AND PAYMENT BOND

IX. GENERAL CONDITIONS

X. SUPPLEMENTAL GENERAL CONDITIONS

XI. SPECIAL CONDITIONS

XII. TECHNICAL SPECIFICATIONS

I. ADVERTISEMENT FOR BIDS

Sealed bids for the Caraway Road Bridge Replacement over Higginbottom Creek will be received at the Purchasing Department, Room 421, of the City of Jonesboro City Hall, 300 South Church, Jonesboro, Arkansas until 2:00 P.M. (Local Time) on March 18, 2015 and then publicly opened and read in Third Floor Conference Room for furnishing all labor, material, and equipment, and performing all work required to replace Caraway Road Bridge over Higginbottom Creek. All Submissions shall be annotated on the outside of the envelope with the bid number 2015:12.

The project consists of the replacement of the existing bridge over Higginbottom Creek and widening Caraway Road to three lanes between Parker Road and Latourette Drive.

Proposals shall be accompanied by a cashier's or certified check upon a national or state bank in an amount not less than five percent (5%) of the total maximum bid price payable without recourse to the City of Jonesboro or a bid bond in the same amount from a reliable surety company, as a guarantee that the Bidder will enter into a contract and execute performance and payment bonds within ten (10) days after notice of award of Contract to him. The notice of award of Contract shall be given by the Owner within sixty (60) days following the opening of bids.

The successful Bidder must furnish a performance and payment bond upon the form provided in the amount of one hundred percent (100%) of the contract price from an approved surety company holding a permit from the State of Arkansas to act as surety, or other surety or sureties acceptable to the Owner.

The attention of bidders is called to the fact that no contractor's license is required to submit a bid, but successful bidder must be licensed prior to entering into a contract with the City for the project.

Plans, specifications, proposal forms and other contract documents may be examined at City of Jonesboro Engineering Department, 300 South Church Street, Jonesboro, Arkansas 72401 and may be secured at the cost of \$25.00 Dollars per set from the City of Jonesboro, 300 South Church Street, Jonesboro, Arkansas 72401. No refunds will be made. Any addendum to this bid will be posted no later than 5 days before bid opening by clicking on "Purchasing" at www.jonesboro.org.

Proposals will be considered on the basis of cost, the bidder's financial responsibility, his equipment, and his past performance in completing similar work. The City of Jonesboro reserves the right to reject any or all bids, to waive any informalities, and to accept the proposal deemed to be for their best interest.

The City of Jonesboro encourages participation of small, minority, and woman owned business enterprises in the procurement of goods, services, and construction, either as a general contractor or subcontractor. It is further requested that whenever possible, majority contractors who require sub-contractors seek qualified small, minority, and women owned businesses to partner with them.

II. INSTRUCTION TO BIDDERS

1. PREPARATION OF BID

Each bid must be submitted on the prescribed form (Proposal) and Unit Price Schedule. All blank spaces must be filled in legibly with ink or typed. All blank spaces for bid prices on the Unit Price Schedule must be filled in with figures; the extended total for each item shall be entered. If the unit price and the extended total of any item are not in agreement, the unit price shall govern and the extended total be corrected to conform thereto. Erasures or other corrections on the Proposal form or Unit Price Schedule shall be initialed by the signer of the bid. All bids must be signed in ink by an individual authorized to bind the Bidder. All bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Proposal by the Bidder. Total Base Bid will equal Invoice Price.

There must be a bid on all items which may appear on the Unit Price Schedule. No bid will be considered which covers only a part of the work. A conditional bid will not be considered.

The bid form and Unit Price Schedule shall not be detached, but shall be **submitted in the original binding** as furnished by the Engineer. Submission must be at the place, and at or prior to the time specified in the Advertisement for Bids.

Each bid must be submitted in a sealed envelope clearly marked on the outside that it contains a bid for the Caraway Road Bridge Replacement Bid Number 2015:12 and with the hour and date of bid opening shown thereon. The name and address of the Bidder shall appear in the upper left hand corner of the envelope. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope properly addressed as noted in the NOTICE TO CONTRACTORS.

A bid which obviously is unbalanced may be rejected.

2. INTERPRETATIONS AND ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the City of Jonesboro Engineering Department. Any inquiry received up to seven (7) days prior to the opening of bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the contract Documents. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

3. INSPECTION OF SITE

Each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and shall fully inform himself as to the facilities involved, and the difficulties and restrictions attending the performance of the Contract. The Bidder shall thoroughly examine and familiarize himself with the Plans, Technical Specifications, and other Contract Documents. The Contractor by the execution of the Contract shall not be relieved of any

obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing. The Owner will be justified in rejecting any claim based on facts regarding which the contractor should have been on notice as a result thereof.

4. BID GUARANTY

The bids must be accompanied by a Bid Guaranty which shall not be less than five percent (5%) of the amount of the bid. At the option of the Bidder, the guaranty may be a certified check, or may be a bid bond (substantially in the form attached). No bid will be considered unless it is accompanied by the required guaranty. Certified check must be payable to the City of Jonesboro, Arkansas. Cash deposits will not be accepted. The Bid Guaranty shall insure the execution of the Contract and the furnishing of the surety bond or bonds by the successful Bidder, all as required by the Contract Documents.

Certified checks, or bid bonds, of unsuccessful Bidders, will be returned upon request as soon as feasible after the opening of the bids.

5. COLLUSION; SUBCONTRACTS

A Bidder submitting a Proposal to the Owner for the work contemplated by the Documents on which bidding is based shall not collude with any other person, firm, or corporation in regard to any bid submitted.

Before executing any subcontract, the successful Bidder shall submit the name of any proposed Subcontractor for prior approval of the Owner.

6. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder shall submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in construction of work similar to that which here is involved, and his organization and equipment available for the work contemplated; and when specifically requested by the Owner, the Bidder shall provide a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract, and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.

7. BALANCED BIDS; VARIATIONS IN QUANTITIES

The lump sum price and unit price for each of the several items in the Proposal of each Bidder shall be balanced and shall include its pro rata share of overhead.

The Owner shall have the right to increase or decrease the extent of the work or to change the location, gradient, or the dimensions of any part of the work, provided that the length of the

improvement is not increased or decreased in excess of 25% of the contract length, or that the quantities of work to be done or the materials to be furnished are not increased or decreased in money value in excess of 25% of the total Contract. Such changes shall not be considered as a waiver of any conditions of the Contract nor invalidate any of the provisions thereof. The Contractor shall perform the work as increased or decreased within the qualifying limits named and no allowance will be made for anticipated profits on increases or decreases so incurred.

Increases or decreases in items of work, and the cost thereof, shall be done in accordance with the Section entitled, CHANGES IN THE WORK under GENERAL CONDITIONS.

8. TIME FOR RECEIVING BIDS

A bid received prior to the advertised time of opening will be kept securely, and will remain sealed until the time of opening. The officer whose duty it is to open them will decide when the specified time has arrived, and any bid received subsequent to that time will be returned unopened.

9. OPENING OF BIDS

At the time and place fixed for the opening of bids, the Owner first will cause the bid guarantees to be checked as stipulated above. The Owner then will cause the qualified bids to be opened and publicly read aloud, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

10. WITHDRAWAL OF BIDS

Bids may be withdrawn on written request if the request is received prior to the time fixed for the opening of bids.

11. AWARD OF CONTRACT; REJECTION OF BIDS

The Contract will be awarded to the responsible Bidder submitting the lowest total bid complying with the conditions of the Notice to Contractors and other parts of these Contract Documents. The Bidder to whom the award is made will be notified at the earliest possible date. The Owner, however, reserves the right to reject any or all bids and to waive any informality in bids received whenever such rejection or waiver is in its interests.

The Owner reserves the right to consider as unqualified to do the work any Bidder who does not habitually perform with his own forces the major portions of such work as is involved in construction of these improvements.

12. EXECUTION OF AGREEMENT; PERFORMANCE AND PAYMENT BOND

Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Owner a Contract in the form included in the Contract Documents in such number of copies as the Owner may require.

Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful Bidder shall, within the period specified above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature, including utility and transportation services employed or used by him in performing the work. Such bond shall be as included in the Contract Documents and shall bear the same date as, or a date subsequent to, that of the Contract. The current power of attorney for the person who signs for any surety company shall be attached to such bond.

The failure of the successful Bidder to execute such Contract and to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined insufficient by the Owner, shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or readvertise for bids.

13. BONDS AND INSURANCE

Attention of Bidders is called to Act 82 of the 1935 Acts of the Arkansas General Assembly, which has certain requirements pertaining to performance bonds, labor bonds, employer's liability insurance, public liability insurance, workmen's collective insurance, and property damage insurance.

All companies furnishing bid bonds and performance bonds shall furnish evidence of being on the U.S. Treasury Department's most current list (Circular 570, as amended) and be authorized to transact business in the State of Arkansas.

14. LEGAL QUALIFICATIONS

The successful Bidder, if a corporation created under the laws of a state other than the State of Arkansas, will be required to qualify, or to have qualified, with the Secretary of State of Arkansas to do business in the State of Arkansas.

15. MODIFICATION OF BID

No modification of any bid already submitted will be considered unless such modification is received prior to the time set for opening of bids.

III. PROPOSAL

Place JONESBORO, AR
Date 03/18/2015

Proposal of LAKESIDE CONTRACTORS, LLC

a corporation organized and existing under the laws of the State of ARKANSAS.

or

Proposal of _____

a partnership consisting of _____

or

Proposal of _____

an individual doing business as _____

TO: City of Jonesboro

This bid results from your advertisement for bids for the Caraway Road Bridge Replacement over Higginbottom Creek

The undersigned Bidder, having visited the site of the work, having examined the Plans, Specifications, and other Contract Documents including all Addenda, and being familiar with all of the conditions relating to the construction of the proposed project, hereby agrees to comply with all other conditions or requirements set forth in the Plans, Specifications, and other Contract Documents, and further proposes to furnish all material, supplies, equipment, and appliances specified for incorporation into the project and to furnish all labor, tools, equipment, and incidentals to complete the work in accordance with the Plans, Specifications, and other Contract Documents at and for the lump sum and unit prices proposed in the attached Unit Price Schedule.

The undersigned Bidder agrees to begin work within ten (10) calendar days after the issuance by the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within one hundred fifty (150) calendar days thereafter (except as modified in the GENERAL CONDITIONS of these Contract Documents). Should the work fail to be completed within the time herein stated, the Contractor shall pay to the Owner, as fixed and agreed liquidated damages, and not as a penalty, the sum, for each day of delay until the work is completed and accepted, as stipulated in the SPECIAL CONDITIONS of these Contract Documents. It is understood that additional time for the completion of the project is to be allowed only for delays as stipulated in the GENERAL CONDITIONS of these Contract Documents.

Bidder acknowledges receipt of the following addendum (addenda):

_____ Dated _____

_____ Dated _____

The undersigned Bidder agrees that this bid shall be good and shall not be withdrawn for a period of sixty (60) calendar days after the opening thereof. If written notice of the acceptance of this Proposal is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Proposal is withdrawn, the undersigned agrees to execute and deliver a Contract in the prescribed form, and furnish the required Performance and Payment Bond, within ten (10) days after the Contract is presented to him for signature.

It is understood by the undersigned Bidder that the Owner reserves the right to reject any or all bids.

Accompanying this Proposal as bid security is ~~certified check~~/bid bond (Strike One) in the amount of FIVE PERCENT OF BID AMOUNT Dollars (\$ 5%), being not less than five percent (5%) of the total of the bid. If the undersigned Bidder is the successful Bidder, but fails or refuses to execute the contract and furnish the required bond within the prescribed ten (10) days of the notification of award, then this bid security is to become the property of the Owner as liquidated damages for the delay and additional expense to the Owner caused by such failure or refusal.

Darlene Wood
(Witness)

LAKESIDE CONTRACTORS, LLC
(Name of Bidder)

P.O. BOX 16540

By Dale Wood

JONESBORO, AR 72403
(Address)

DALE WOOD, SEC.
(Print Name and Title)

P.O. BOX 16540

JONESBORO, AR 72403
(Office Address of Bidder)

NOTES: Sign in ink. Do not detach.
Items must be bid upon as specified in the Unit Price Schedule.

IV. UNIT PRICE SCHEDULE

<u>Item No</u>	<u>Description</u>	<u>AHTD Ref</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total Cost</u>
1	R & D of Pipe Culverts	202	LF	135	<u>\$ 15.00</u>	<u>\$ 2,025.00</u>
2	R&D Asphalt Pavement	202	SY	150	<u>\$ 29.00</u>	<u>\$ 4,350.00</u>
3	R&D of Precast Concrete Barrier	202	LF	238	<u>\$ 5.00</u>	<u>\$ 1,190.00</u>
4	R & D Concrete Driveway	202	SY	212	<u>\$ 15.00</u>	<u>\$ 3,180.00</u>
5	R&D Concrete Curb & Gutter	202	LF	135	<u>\$ 5.00</u>	<u>\$ 675.00</u>
6	R & D of Guard Rail	202	LF	20	<u>\$ 10.00</u>	<u>\$ 200.00</u>
7	Flowable Select Material	206	CY	250	<u>\$ 79.00</u>	<u>\$ 19,750.00</u>
8	Compacted Embankment	210	CY	3,500	<u>\$ 10.00</u>	<u>\$ 35,000.00</u>
9	Aggregate Base Course (Class 7)	303	Ton	1,000	<u>\$ 21.00</u>	<u>\$ 21,000.00</u>
10	ACHM Patch Existing Roadway	415	Ton	510	<u>\$ 110.00</u>	<u>\$ 56,100.00</u>
11	PC Concrete Driveway	505	SY	99	<u>\$ 54.00</u>	<u>\$ 5,346.00</u>
12	Mobilization (5%)	601	LS	1	<u>\$ 35,000.00</u>	<u>\$ 35,000.00</u>
13	Maintenance of Traffic	603	LS	1	<u>\$ 10,000.00</u>	<u>\$ 10,000.00</u>
14	Signs	604	SF	48	<u>\$ 10.00</u>	<u>\$ 480.00</u>
15	Traffic Drums	604	Each	45	<u>\$ 50.00</u>	<u>\$ 2,250.00</u>
16	Furnish & Install Precast Concrete Barrier	604	LF	238	<u>\$ 35.00</u>	<u>\$ 8,330.00</u>
17	18" R.C. Pipe Culverts (CL 3)	606	LF	17	<u>\$ 36.00</u>	<u>\$ 612.00</u>
18	24" R.C. Pipe Culverts (CL 3)	606	LF	173	<u>\$ 45.00</u>	<u>\$ 7,785.00</u>
19	36" R.C. Pipe Culverts (CL 3)	606	LF	39	<u>\$ 89.00</u>	<u>\$ 3,471.00</u>
20	42" R.C. Pipe Culverts (CL 3)	606	LF	55	<u>\$ 120.00</u>	<u>\$ 6,600.00</u>
21	48" R.C. Pipe Culverts (CL 3)	606	LF	210	<u>\$ 120.00</u>	<u>\$ 25,200.00</u>
22	Junction Box (Type ST)	609	Each	4	<u>\$ 4,270.00</u>	<u>\$ 17,080.00</u>
23	Guardrail (Type A)	617	LF	530	<u>\$ 20.00</u>	<u>\$ 10,600.00</u>
24	Term. Anchor Post (Type 1)	617	Each	4	<u>\$ 781.00</u>	<u>\$ 3,124.00</u>

25	Rock Ditch Checks (Rip-Rap)	621	CY	150	\$ <u>50.00</u>	\$ <u>7,500.00</u>
26	Solid Sod	624	SY	500	\$ <u>5.00</u>	\$ <u>2,500.00</u>
27	CC Curb & Gutter -A (1'6")	634	LF	70	\$ <u>15.00</u>	\$ <u>1,050.00</u>
28	Reflective Paint Pavement Marking - Yellow (4")	718	LF	2,760	\$ <u>0.50</u>	\$ <u>1,380.00</u>
29	Reflective Paint Pavement Marking - White (4")	718	LF	3,380	\$ <u>0.50</u>	\$ <u>1,690.00</u>
30	Thermoplastic Pavement Marking (Arrows)	719	Each	4	\$ <u>275.00</u>	\$ <u>1,100.00</u>
31	Thermoplastic Pavement Marking (Words)	719	Each	1	\$ <u>303.00</u>	\$ <u>303.00</u>
32	Dumped Riprap	816	CY	1,500	\$ <u>46.00</u>	\$ <u>69,000.00</u>
33	Remove Existing Bridge Structure	SP	Each	1	\$ <u>20,000.00</u>	\$ <u>20,000.00</u>
34	Bridge Structure with End Walls	SP	LF	80	\$ <u>6,150.00</u>	\$ <u>492,000.00</u>

TOTAL BASE BID

\$ 875,871.00

WRITTEN IN WORDS:

EIGHT HUNDRED SEVENTY FIVE THOUSAND EIGHT HUNDRED SEVENTY ONE DOLLARS

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we **Lakeside Contractors, LLC., P.O. Box 16540, Jonesboro AR 72403**

as Principal, hereinafter called the Principal, and **Fidelity and Deposit Company of Maryland**

a corporation duly organized under the laws of the State of **Maryland**

as Surety, hereinafter called the Surety, are held and firmly bound unto **City of Jonesboro, PO Box 1845, Jonesboro, AR 72403**

as Obligee, hereinafter called the Obligee, in the sum of **Five percent of amount bid**

Dollars (\$5%)

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for **Caraway Road Bridge Replacement over Higginbottom Creek; Bid #2015:12, Jonesboro, AR.**

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this **18th** day of **March,** **2015.**

Darlene Wood
(Witness)

Lakeside Contractors, LLC.

{ _____
(Principal) (Seal)
Dale Wood, SEC
(Title)

Fidelity and Deposit Company of Maryland

{ _____
(Surety) (Seal)
Michael A. McDaniel
(Title)

Jan Melton
(Witness)
Jan Melton

Michael A. McDaniel, Attorney-in-fact

**ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Maryland, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Maryland (herein collectively called the "Companies"), by **THOMAS O. MCCLELLAN, Vice President**, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Michael A. MCDANIEL, Richard H. WHITLEY, James S. BROWN and Melissa ROSENBAUM, all of MEMPHIS, Tennessee**, EACH its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings**, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 6th day of May, A.D. 2013.

ATTEST:

**ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND**



Eric D. Barnes

By:

*Assistant Secretary
Eric D. Barnes*

Thomas O. McClellan

*Vice President
Thomas O. McClellan*

State of Maryland
City of Baltimore

On this 6th day of May, A.D. 2013, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **THOMAS O. MCCLELLAN, Vice President, and ERIC D. BARNES, Assistant Secretary**, of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Maria D. Adamski

*Maria D. Adamski, Notary Public
My Commission Expires: July 8, 2015*



VI. STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion).
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you?
9. Have you ever defaulted on a Contract?
If so, where and why?
10. Have you ever been fined or had your license suspended by a Contractor's Licensing Board?
If so, where and why?
11. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
12. List your major equipment available for this Contract.
13. Experience in construction work similar in importance to this project.
14. Background and experience of the principal members of your organization, including the officers.
15. Credit available: \$ _____.
16. Give Bank reference: _____.

Statement of Bidder's Qualifications Answers

1. Lakeside Contractors, LLC.
2. P. O. Box 16540 – Jonesboro, AR 72403
3. 2005
4. Arkansas
5. 9 years
6. Project

	Contract amt	Date of Completion
AHTD 012196	179,275.00	04-2015
Jonesboro Airport	621,870.00	05-2015
Trumann Baseball Complex	1,269,000.00	04-2015
Crowley's Ridge Trail	1,382,735.00	03-2015

7. Earthwork, Street & Road, & Commercial Concrete
8. No
9. No
10. No

11. Project	Contract amt.	Date of Completion
Hwy Job #100308	4,200,027.00	05-2014
Hwy Job #100567	4,008,133.00	08-2014
Riggs Cat Center	397,190.00	06-2014
Central Baptist Church	393,000.00	05-2014
Hwy Job #100711	2,323,905.00	10-2014

12. Dozers, Excavators, Tri-axle trucks, Off road trucks, Compaction Equipment and Skid steer loaders.
13. 23 years
14. Garry Meadows – President has 44 years experience
Dale Wood – Sec/Tres. has 28 years experience
15. 500,000.00
16. First National Bank – Brian Clem
17. Yes.

17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?
18. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner, in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated at JONESBORO, ARKANSAS this 18TH
 day of MARCH, 20 15.

LAKESIDE CONTRACTORS, LLC
 (Name of Bidder)

By Dale Wood

Title SEC/TREAS.

STATE OF Arkansas)
) SS.
 COUNTY OF Craighead)

Dale Wood being duly sworn deposes and says that
 he is Sec/Treas. of Lakeside Contractors
 (Name of Organization)

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

SUBSCRIBED AND SWORN TO BEFORE ME this 18 day of March, 2015.

Nelma Darlene Wood
 (Notary Public)

My Commission Expires:



VII. CONTRACT

THIS AGREEMENT made this _____ day of _____, 20____, by and

between Lakeside Contractors, LLC

(a Corporation organized and existing under the laws of the State of Arkansas)

Hereinafter called the "Contractor" and the City of Jonesboro, Arkansas, hereinafter called the "Owner".

WITNESSETH:

That the Contractor and the Owner for the consideration stated herein mutually agree as follows:

ARTICLE 1. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, incidentals and services, including utility and transportation services and perform and complete all work required for the Caraway Road Bridge Replacement over Higginbottom Creek, in strict accordance with the Contract Documents, including all Addenda thereto

_____ dated _____

_____ dated _____

_____ dated _____

as prepared by the Engineer.

ARTICLE 2. The Contract Price. The Owner will pay the Contractor, because of his performance of the Contract, for the total quantities of work performed at the lump sum and unit prices stipulated in the Proposal, subject to additions and deductions as provided in the Section entitled "CHANGES IN THE WORK" under the GENERAL CONDITIONS.

ARTICLE 3. Contract Time. The Contractor agrees to begin work within ten (10) calendar days after issuance by the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within one hundred fifty (150) calendar days thereafter (except as modified in the GENERAL CONDITIONS of these Contract Documents). If the Contractor shall fail to complete the work within the time specified, he and his Surety shall be liable for payment to the Owner, as liquidated damages ascertained and agreed, and not in the nature of a penalty, the amount specified in the SPECIAL CONDITIONS of these Contract Documents for each day of delay. To the extent sufficient in amount,

liquidated damages shall be deducted from the payments to be made under this Contract.

ARTICLE 4. Contract. The executed Contract Documents shall consist of the following:

- a. This Agreement (Contract)
- b. Addenda
- c. Advertisement for Bids
- d. Instructions to Bidders
- e. Proposal
- f. General Conditions
- g. Supplemental General Conditions
- h. Special Conditions
- i. Technical Specifications including Special Provisions
- j. Drawings (Plans)
- k. Performance-Payment Bond

This Contract, together with other Documents enumerated in this Article 4, which said other Documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract between the parties hereto. In the event that any provisions in any component part of this Contract conflicts with any provision of any other component part, the conflict shall be resolved by the Engineer whose decision shall be final.

ARTICLE 5. Surety. The Surety on the Performance-Payment Bond shall be a surety company of financial resources satisfactory to the Owner, authorized to do business in the State of Arkansas, and shall comply with applicable Arkansas laws.

IN WITNESS WHEREOF, the parties hereto have caused this CONTRACT to be executed in four (4) counterparts, each of which shall be considered an original on the day and year first above written.

ATTEST:

(Contractor)

By _____

Title _____

(Street)

(City)

City of Jonesboro
(Owner)

By _____

VIII. ARKANSAS PERFORMANCE-PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, _____

as Principal, hereinafter called Principal, and _____

of _____ State of _____,
as Surety, hereinafter called the Surety, are held and firmly bound unto the City of Jonesboro as Obligee, hereinafter called Owner, in the amount _____ Dollars (\$ _____) in lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly, severally, and firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, The Principal entered into a Contract with the Owner by written Agreement dated the _____ day of _____, 20____, a copy of which is attached hereto and made a part hereof, hereinafter referred to as the Contract, for the Caraway Road Bridge Replacement over Higginbottom Creek.

NOW THEREFORE, if the Principal shall well and truly perform and complete in good, sufficient, and workmanlike manner all of the work required by said Contract and within the time called for thereby to the satisfaction of the Owner, and shall pay all persons for labor, materials, equipment, and supplies furnished by said Principal in accordance with said Contract (failing which such persons shall have a direct right to action against the Principal and Surety under this obligation, but subject to the Owner's priority) and shall hold and save harmless the Owner from any and all claims, loss, and expense of every kind and nature arising because of or resulting from the Principal's operation under said Contract, except payments to the Principal rightly due the Principal for work under said Contract, then this obligation shall be null and void; otherwise to remain in full force and effect.

Any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the Owner of an extension of time for the performance of the Contract, or any other forbearance on the part either of the Owner or Principal to the other shall not release in any way the Principal and Surety, or either of them, their heirs, personal representatives, successors, or assigns from their liability hereunder, notice to the Surety of any alteration, extension, or forbearance hereby being waived.

In no event shall the aggregate liability of the Surety exceed the sum set herein.

No suit, action, or proceeding shall be brought on this bond outside the State of Arkansas. No suit, action, or proceeding shall be brought on this bond, except by the Owner, after six (6) months from the date on which final payment to the Contractor falls due. No suit, action, or proceeding shall be brought by the Owner after two (2) years from the date on which final payment to the Contractor falls due.

This bond is executed pursuant to the terms of Arkansas Code Ann. §§ 18-44-501 et. seq.

Executed on this _____ day of _____, 20____.

(Principal)

By _____

Title _____

SEAL

(Surety)

By _____
(Attorney-in-Fact)

NOTES:

1. This bond form is mandatory. No other forms will be acceptable.
2. The date of the Bond must not be prior to the date of the Contract.
3. Any surety executing this Bond must appear on the U.S. Treasury Department's most current list (Circular 570, as amended) and be authorized to transact business in the State of Arkansas.
4. Attach Power of Attorney.

IX. GENERAL CONDITIONS
TABLE OF CONTENTS

GC.1	DEFINITIONS
GC.2	SUPERINTENDENCE BY CONTRACTORS
GC.3	CONTRACTOR'S EMPLOYEES
GC.4	SAFETY OF CONTRACTOR'S EMPLOYEES
GC.5	SUBCONTRACTS
GC.6	OTHER CONTRACTS
GC.7	CONTRACTORS INSURANCE
GC.8	OWNER'S AND ENGINEER'S PROTECTIVE LIABILITY INSURANCE
GC.9	FITTING AND COORDINATION OF THE WORK
GC.10	MUTUAL RESPONSIBILITY OF CONTRACTORS
GC.11	PAYMENT TO CONTRACTOR
GC.12	USE OF COMPLETED PORTIONS
GC.13	CHANGES IN THE WORK
GC.14	CLAIMS FOR EXTRA COST
GC.15	OWNER'S RIGHT TO TERMINATE CONTRACT
GC.16	SUSPENSION OF WORK
GC.17	DELAYS; EXTENSION OF TIME; LIQUIDATED DAMAGES
GC.18	DISPUTES
GC.19	ASSIGNMENT OR NOVATION
GC.20	TECHNICAL SPECIFICATIONS AND DRAWINGS
GC.21	SHOP DRAWINGS
GC.22	REQUESTS FOR SUPPLEMENTARY INFORMATION
GC.23	REFERENCE TO MANUFACTURER OR TRADE NAME-"OR EQUAL CLAUSE"
GC.24	SAMPLES, CERTIFICATES AND TESTS
GC.25	PERMITS AND CODES
GC.26	CARE OF THE WORK
GC.27	QUALITY OF WORK AND PROPERTY
GC.28	ACCIDENT PREVENTION
GC.29	SANITARY FACILITIES
GC.30	USE OF PREMISES
GC.31	REMOVAL OF DEBRIS, CLEANING, ETC.
GC.32	RETURN OF OWNER'S MATERIALS, EQUIPMENT OR PROPERTY
GC.33	OBSERVATION OF THE WORK
GC.34	REVIEW BY LOCAL PUBLIC AGENCY OR OWNER
GC.35	PROHIBITED INTERESTS
GC.36	FINAL INSPECTION
GC.37	PATENTS
GC.38	WARRANTY OF TITLE
GC.39	GENERAL GUARANTY

GC.1 DEFINITIONS

Wherever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

(1) The term "Addendum" means any change, revision, or clarification of the Contract Documents which has been duly issued by the Local Public Agency, or the Engineer, to prospective Bidders prior to the time of receiving bids.

(2) The term "Award" means the acceptance by the owner of the successful bidder's proposal.

(3) The term "Bidder" means any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

(4) The term "Calendar Day" means every day shown on the calendar.

(5) The term "Change Order" means a written order to the contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the scope of work affected by the change. The work covered by the change order shall be within the scope of the contract.

(6) The term "Contract" means the Contract executed by the Local Public Agency and the Contractor of which these GENERAL CONDITIONS form a part.

(7) The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Advertisement For Bids, Instructions to Bidders, Proposal, Performance-Payment Bond, General Conditions, Supplemental General Conditions, Special Conditions, Supplemental Special Conditions, Technical Specifications, and Drawings.

(8) The term "Contractor" means the person, firm, or corporation entering into the Contract with the Local Public Agency to construct and install the improvements embraced in this project.

(9) The term "Engineer" means the City of Jonesboro Engineering Department, serving the Local Public Agency with engineering services, its successor, or any other person or persons employed by said Local Public Agency to furnish engineering services in connection with the construction embraced in the Contract.

(10) The term "Local Government" means the City of Jonesboro, Arkansas, within which the Project is situated.

(11) The term "Local Public Agency" or "Owner" means the City of Jonesboro, which is authorized to undertake this Contract.

(12) The term "Plans" or "Drawings" means the official drawings or exact reproductions which show the location, character, and details of the work contemplated, and which are to be considered part of the contract, supplementary to the specifications.

(13) The term "Proposal" means the written offer of the Bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the Plans and Specifications.

(14) The term "Specifications" means a part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials, or testing, which are cited in the specifications by reference shall have the same force and effect as if included in the contract physically.

(15) The term "Subcontractors" shall mean the individual, partnership or corporation entering into an agreement with the Contractor to perform any portion of the work covered by the Plans and Specifications.

(16) The term "Surety" shall mean any person, firm, or corporation that has executed, as Surety, the Contractor's Performance Bond securing the performance of the Contract.

(17) The term "Technical Specifications" means that part of the Contract documents which describes, outlines and stipulates the quality of the materials to be furnished; the quality of workmanship required; and the controlling requirements to be met in carrying out the construction work to be performed under this Contract. This also includes Special Provisions.

(18) The term "Work" shall mean the furnishing of all necessary labor, tools, equipment, appliances, supplies, and material other than materials furnished by the Owner as specified to complete the construction covered by the Plans and Specifications.

GC.2 SUPERINTENDENCE BY CONTRACTORS

Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the Local Public Agency and the Engineer, on the work at all times during working hours with full authority to supervise and direct the work and who shall be the Contractor's agent responsible for the faithful discharge of the Contractor's obligations under the Contract.

The Owner shall have the authority to require the Contractor to remove from the work any

incompetent or insubordinate superintendent.

GC.3 CONTRACTOR'S EMPLOYEES

The Contractor shall employ only competent skillful workers and shall at all times enforce strict discipline and good order among the employees.

The Contractor shall neither permit nor suffer the introduction or use of alcoholic beverages or controlled substances upon or about the work embraced in this Contract.

The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, or careless, or insubordinate.

GC.4 SAFETY OF CONTRACTOR'S EMPLOYEES

The Contractor shall be responsible for the safety of his employees during the progress of the work as well as the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.

GC.5 SUBCONTRACTS

The Contractor is responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by the subcontractors and is aware that nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

GC.6 OTHER CONTRACTS

The Local Public Agency may award, or may have awarded other Contracts for additional work, and the Contractor shall cooperate fully with such other Contractors, by scheduling his own work with that to be performed under other Contracts as may be directed by the Local Public Agency. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

GC.7 CONTRACTOR'S INSURANCE

Before any work is commenced, the Contractor shall furnish an approved certificate of insurance addressed to the Owner, showing that he carries the following insurance which shall be maintained throughout the term of the Contract.

(1) Workmen's Compensation

- Statutory Limit

(2) Employer's Liability for Hazardous Work	- If Needed
(3) Public Liability (Bodily Injury) and Property Damage	- \$1,000,000/occurrence - \$2,000,000/aggregate
(4) Builder's Risk	- Insurable Portion

The Contractor shall carry or require that there be carried the insurance listed in (1) through (3) above for the protection of all his employees and those of his Subcontractors engaged in work under this Contract, and for the protection of the public.

If the work includes pipelines or other underground structures, the Property Damage Liability shall include explosion, collapse, and underground coverage.

The premiums for all insurance and the bond required herein shall be paid by the Contractor.

It shall be the obligation of the Contractor to complete and deliver to the Owner the structure required by these Contract Documents regardless of any loss, damage to, or destruction of the structure prior to delivery.

GC.8 OWNER'S AND ENGINEER'S PROTECTIVE LIABILITY INSURANCE

The Owner requires the Contractor to name the City of Jonesboro and the Engineer as an additional insured on their Protective Liability insurance, which shall be in force for the entire project period. Limits of liability shall be the following:

Bodily Injury Liability (Including Death) and Physical Damage Liability	- \$1,000,000/occurrence
(Damage to or Destruction of Property)	- \$2,000,000/aggregate

GC.9 FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, Subcontractors, or material men engaged upon this Contract. He shall be prepared to guarantee to each of his Subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

GC.10 MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect or through failure to comply with any applicable Government regulations by the Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration, if

such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Local Public Agency on account of any damage alleged to have been so sustained, the Local Public Agency will notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgments or claims against the Local Public Agency shall be allowed, the Contractor shall pay or satisfy such judgments or claim and pay all costs and expenses in connection therewith.

GC.11 PAYMENT TO CONTRACTOR

Payment will be made to the Contractor once a month. The Engineer will prepare (with the required assistance from the Contractor) the application for partial payment. If the bid contains lump sum prices, the Contractor shall furnish to the Engineer, upon request, a detailed cost breakdown of the several items of work involved in the lump sum prices. The Engineer will use this cost breakdown to determine the amount due the Contractor as progress payment.

The amount of the payment due to the Contractor shall be determined by the total value of work completed to date, deducting five percent (5%) for retainage, adding the value of submitted paid invoices covering construction materials, properly stored on the site, and deducting the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit and lump sum prices contained in the Proposal. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of paid invoices, covering construction materials for which material payments are made, shall be furnished to the Engineer before such material payments are made.

NOTE: It has been the policy of the Owner to make payments for properly stored materials/equipment based upon invoice price and allow the Contractor to submit paid invoices within 30 days (or the next partial payment period). If paid invoices are not provided within the time allowed, then the materials/equipment so paid for will be removed from the next partial payment.

Monthly or partial payments made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. All material and complete work covered by such monthly or partial payments shall remain the property of the Contractor, and he shall be responsible for the care and protection of all materials and work upon which payments have been made. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

GC.11.1 Withholding Payments: The Local Public Agency may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Local Public Agency and if it so elects may also withhold any amounts due from the Contractor to any Subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be

construed solely for the benefit of the Local Public Agency and will not require the Local Public Agency to determine or adjust any claims or disputes between the Contractor and his Subcontractors or material dealers, or to withhold any monies for their protection unless the Local Public Agency elects to do so. The failure or refusal of the Local Public Agency to withhold any monies from the Contractor shall not impair the obligations of any Surety or Sureties under any bond or bonds furnished under this Contract. Such withholding may also occur as a result of the Contractor's failure or refusal to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, or if the Contractor fails to comply with any applicable regulations promulgated by the U.S. Government or any other Government agencies.

GC.11.2 Final Payment: After final inspection and acceptance by the Local Public Agency of all work under the Contract, the application for final payment shall be prepared which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit and lump sum prices stipulated in the Unit Price Schedule. The total number of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. All prior payments shall be subject to correction in the final payment. Final payment to the Contractor shall be made subject to his furnishing the Local Public Agency with a release in satisfactory form of all claims against the Local Public Agency arising under and by virtue of his Contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation and the release as provided under the section entitled DISPUTES under GENERAL CONDITIONS.

The Local Public Agency, before paying the final estimate, may require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project), and services to the Contractor, if the Local Public Agency deems the same necessary in order to protect its interest. The Local Public Agency, however, may, if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall not impair the obligations of any Surety or Sureties furnished under this Contract.

Withholding of any amount due the Local Public Agency under the section entitled LIQUIDATED DAMAGES FOR DELAY under SPECIAL CONDITIONS, shall be deducted from the payments due the Contractor.

All equipment warranties and general guarantee and maintenance bond provisions shall become effective for one year upon date of final acceptance of the completed, project by the Local Public Agency.

GC.11.3 Payments Subject to Submission of Certificates: Each payment to the Contractor by the Local Public Agency shall be made subject to submission by the Contractor of all written certifications required of him.

GC.12 USE OF COMPLETED PORTIONS

The Owner shall have the right to use any completed or partially completed portion of the work and such use shall not be considered as an acceptance of any work.

GC.13 CHANGES IN THE WORK

The Local Public Agency may make changes in the scope of the work required to be performed by the Contractor under the Contract or make additions thereto, or omit work therefrom without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the Guaranty Bonds, and without relieving or releasing the Surety or Sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements, or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Local Public Agency authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract price will be valid unless so ordered.

After the work is complete, a final change order may be prepared to be accepted by the Owner and Contractor to adjust final payment as required to cover the actual units of work acceptably completed.

If the applicable unit prices are contained in the Proposal (established as a result of either a unit price or a Supplemental Schedule of Unit Prices) the Local Public Agency may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit and lump sum prices specified in the Contract; provided that in case of a unit price Contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five (25) percent in accordance with the section entitled BALANCED BID; VARIATION IN QUANTITIES under INSTRUCTIONS TO BIDDERS.

If applicable unit prices are not contained in the Unit Price Schedule as described above or if the total net change increases or decreases the total Contract price more than twenty-five (25) percent, the Local Public Agency shall, before ordering the Contractor to proceed with a desired change, request an itemized Proposal from him covering the work involved in the change after which the procedure shall be as follows:

- (1) If the Proposal is acceptable the Local Public Agency will prepare the Change Order in accordance therewith for acceptance by the Contractor and

- (2) If the Proposal is not acceptable and prompt agreement between the two (2) parties cannot be reached, the Local Public Agency may order the Contractor to proceed with the work on a Force Account basis, under which the net cost shall be the sum of the actual costs that follow:
- (A) Labor, including foremen;
 - (B) Materials entering permanently into the work;
 - (C) The ownership or rental cost of construction plant and equipment during the time of use on the extra work;
 - (D) Power and consumable supplies for the operation of power equipment;
 - (E) Insurance;
 - (F) Social Security and old age and unemployment contributions.

To the net cost shall be added a fixed fee agreed upon, but not to exceed fifteen (15) percent of the net cost, to cover supervision, overhead, bond, and any other general expense, and profit.

Each Change Order shall include in its final form:

- (1) A detailed description of the change in the work.
- (2) The Contractor's Proposal (if any) or a conformed copy thereof.
- (3) A definite statement as to the resulting change in the Contract price and/or time.
- (4) The statement that all work involved in the change shall be performed in accordance with Contract requirements except as modified by the Change Order.

GC.14 CLAIMS FOR EXTRA COST

If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Local Public Agency, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour

lines, or bench marks, will not be recognized unless accompanied by certified survey data made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted or would result in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Local Public Agency, and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Local Public Agency.

If, on the basis of the available evidence, the Local Public Agency determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall then be as provided in the Section entitled CHANGES IN THE WORK under GENERAL CONDITIONS.

GC.15 OWNER'S RIGHT TO TERMINATE CONTRACT

Termination for Cause

If the Contractor shall be adjudged as bankrupt or shall file a petition for an arrangement or reorganization under the Bankruptcy Act, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except under conditions where extension of time is approved, to supply adequate workmen, equipment and material, or disregard laws, ordinances, or the instructions of the Engineer, or otherwise be guilty of a violation of any provisions of the Contract; provided further that if the Contractor at any time fails to comply with any applicable Federal or State regulation which prevents either the Local Public Agency or the Contractor from fulfilling its obligations under these Contract Documents, then the Owner upon certification of the Engineer that sufficient cause exists to justify such action may, without prejudice to any other right or remedy, and after giving the Contractor ten (10) days' written notice, terminate the employment of the Contractor.

At the expiration of the said ten (10) days, the Owner may immediately serve notice upon the Surety to complete the work.

In the case the Surety fails to comply with the notice within thirty (30) days after service of such notice, the Owner may complete the work and charge the expense of the completion, including labor, materials, tools, implements, machinery, or apparatus, to said Contractor; and the expense so charged shall be deducted and paid by the Owner out of such monies as may be due, or that may thereafter at any time become due to the Contractor under and by virtue of this Contract. And in case such expense is less than the sum which would have been payable under this Contract if the same had been completed by the Contractor, then said Contractor shall be entitled to receive the difference. And in case such expense is greater than the sum which would have been payable under this Contract if the same had been completed by said Contractor, then the Contractor and his Surety shall pay the amount

of such excess to the Owner, on demand from said Owner or Engineer of the amount so due.

Termination for Convenience

The City of Jonesboro may, by written notice to the Contractor, terminate this contract without cause. The City must give notice of termination to the Contractor at least ten (10) days prior to the effective date of termination.

Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

- (1) cease operations as directed by the Owner in the notice;
- (2) take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- (3) except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing Subcontracts and purchase orders and enter into no further Subcontracts and purchase orders.

In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and actual costs incurred directly as a result of such termination, and there will be no compensation for overhead and profit on work not executed.

GC.16 SUSPENSION OF WORK

Should contingencies arise to make such action necessary, the Owner shall have the right to suspend the whole or any part of the work for a period not to exceed sixty (60) days by giving the Contractor notice in writing three (3) days prior to the suspension.

The Contractor after written notice to resume work shall begin within ten (10) days from the date of such notice.

If the work or any part thereof shall be stopped by the Owner's notice and the Owner fails to notify the Contractor to resume work within sixty (60) days, the Contractor may abandon that portion of the work so suspended and the Contractor shall be paid for all work performed on the portion so suspended at unit prices quoted in the Unit Price Schedule for completed work involved, at agreed prices on any extra work involved, and at a fair and equitable price for partially completed work involved.

The Engineer may suspend work pending the settlement of any controversy. The Contractor shall not be entitled to any claim for loss or damage by reason of such delay, nor shall he be entitled to any extension of time; but an extension may be granted by the Owner at his discretion.

GC.17 DELAYS - EXTENSION OF TIME - LIQUIDATED DAMAGES

If the Contractor is delayed at any time in the progress of the work by any act or neglect of the Owner, the Owner's Engineer or employees, or by any separate contractor employed by the Owner, or by changes ordered in the work, or by strikes, lock-outs, fire, unusual delay in transportation, unavoidable casualty, or any other cause beyond the Contractor's control, then the time of completion shall be extended for such reasonable time as the Owner may decide; provided, however, said time of completion shall be extended upon the following conditions and no other.

- 1) Requests for extension of time shall be in writing. No extension of time shall be granted automatically.
- 2) The Contractor claiming an extension of time because of any of the contingencies hereinabove mentioned, shall, within ten (10) days of the occurrence of the contingency which justifies the delay, notify the Owner in writing of his claim and the reasons therefore.
- 3) In event of a continuing cause of delay, only one claim is necessary.

GC.17.1 Excusable Delays: The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

- (1) To any acts of the Government, including controls or restrictions upon requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;
- (2) To any acts of the Owner;
- (3) To causes not reasonable foreseeable by the parties of this Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other Contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions.
- (4) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (1), (2), and (3) of this paragraph.

It is acknowledged between the parties to this Contract that the work to be performed by the Contractor will result in a benefit to the Owner and that a delay in completion of the work will be detrimental to the Owner. It is further acknowledged that, while work is in progress, the Owner shall incur an indeterminable amount of expense as a result of necessary supervision of the work and other

overhead and administrative expenses.

It is, therefore, agreed that if there is a delay in the completion of the work beyond the period elsewhere herein specified which has not been authorized by the Owner as set forth above, then the Owner may deduct from the Contract price the amount stated in the Special Conditions, bound herewith, as liquidated damages.

GC.18 DISPUTES

All disputes arising under this Contract or its interpretation, whether involving law or fact or both, or extra work, and all claims for alleged breach of Contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to the Local Public Agency for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim, but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified within this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Local Public Agency of notice thereof.

The Contractor shall submit in detail his claim and his proof thereof. Each decision by the governing body of the Local Public Agency will be in writing and will be mailed to the Contractor by registered mail, with return of receipt requested.

If the Contractor does not agree with any decision of the Local Public Agency, he shall in no case allow the dispute to delay the work, but shall notify the Local Public Agency promptly that he is proceeding with the work under protest, and he may then except the matter in question from the final release.

GC.19 ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the local Public Agency; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Local Public Agency. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment, supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

GC.20 TECHNICAL SPECIFICATIONS AND DRAWINGS

The Drawings and this Specification are to be considered cooperative. All work necessary for the completion of the facility shown on the Drawings, but not described in this Specification, or described in this Specification but not shown on the Drawings, OR REASONABLY IMPLIED BY EITHER OR BOTH, shall be executed in the best manner, the same as if fully shown and specified. When no figures or memoranda are given, the Drawings shall be accurately followed, according to their scale, but in all cases of discrepancy in figures or details, the decision of the Engineer shall be obtained before proceeding with the Work. If the Contractor adjusts any such discrepancy without first having obtained the approval of the Engineer, it shall be at his own risk, and he shall bear any extra expense resulting therefrom.

GC.21 SHOP DRAWINGS

Shop Drawings shall be required for all equipment, materials, and as required by the Engineer. All Shop Drawings, Machinery Details, Layout Drawings, etc., shall be submitted to the Engineer in four (4) copies for review (unless otherwise specified) sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting, and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said Shop Drawings, etc. until they are reviewed, and approved; and no claim, by the Contractor, for extension of the Contract time will be granted by reason of his failure in this respect.

Any Drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any Drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of Contract price and/or time; otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the Drawings have been reviewed.

The review of Shop Drawings by the Engineer shall be considered an accommodation to the Contractor to assist him in the execution of the Contract. The Engineer's review of such Drawings shall not relieve the Contractor of his responsibility to perform the work in strict accordance with the Plans and Specifications, and approved changes.

If the Shop Drawing is in accordance with the Contract or involves only a minor adjustment in the interest of the Local Public Agency not involving a change in Contract price or time, the Engineer shall so stamp the Drawing and shall contain in substance the following:

"Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general

compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner".

GC.22 REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Local Public Agency for any additional information not already in his possession which should be furnished by the Local Public Agency under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and shall list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two (2) weeks after the Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

GC.23 REFERENCE TO MANUFACTURER OR TRADE NAME - "OR EQUAL CLAUSE"

If the Plans, Specifications, or Contract Documents, laws, ordinances or applicable rules and regulations permit the Contractor to furnish or use a substitute that is equal to any material or equipment specified, and if the Contractor wishes to furnish or use a proposed substitute, he shall make written application to the Engineer for approval of such a substitute certifying in writing that the proposed substitute will perform adequately the functions called for in the general design, be similar and of equal substance to that specified, and be suited to the same use and capable of performing the same functions as that specified; the use of such substitute will not require revisions of related work. No substitute shall be ordered or installed without the written approval of the Engineer who will be the judge of equality and may require the Contractor to furnish such other data regarding the proposed substitute as he considers pertinent. No substitute shall be ordered or installed without such performance guarantee and bonds as the Owner may require which shall be furnished at Contractor's expense.

Where such substitutions alter the design or space requirements indicated on the Contract Drawings, detailed drawings shall be prepared and submitted by the Contractor delineating any changes in, or additions to, the work shown on the Contract Drawings, and such drawings and changes or additions to the work shall be made by the Contractor at no additional expense to the City. In all cases, the burden of proof that the material or equipment offered for substitution is equal in construction, efficiency, and service to that named on the Contract Drawings and in these Contract Documents shall rest on the Contractor, and unless the proof is satisfactory to the Engineer, the substitution will not be approved.

GC.24 SAMPLES, CERTIFICATES, AND TESTS

The Contractor shall submit all material, product, or equipment samples, descriptions, certificates, affidavits, etc., as called for in the Contract Documents or required by the Engineer, promptly after award of the Contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the Contract time. Submit four (4) copies of data for Engineer's review.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer, and all specifications or other detailed information which will assist the Engineer in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

Approval of any materials shall be general only and shall not constitute a waiver of the Local Public Agency's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable, at the Contractor's expense.

Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

- (1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
- (2) The Contractor shall assume all costs of re-testing materials which fail to meet Contract requirements;
- (3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient; and
- (4) All Construction materials shall be tested in accordance with AHTD Specifications and at the contractor's expense.

GC.25 PERMITS AND CODES

The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers, the Contractor shall remove such work without cost to the Local Public Agency.

The Contractor shall at his own expense, secure and pay to the appropriate department of the Local Government the fees or charges for all permits for street pavements, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavement cuts, building, electrical, plumbing, water, gas, and sewer permits required by the local regulatory body or any of its agencies.

The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris, and rubbish on or off the site of the work, and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

GC.26 CARE OF WORK

The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any injury, including death, to any person, and for any damage to property which may result from their failure, or from their improper construction, maintenance, or operation. He shall indemnify and save harmless the Local Public Agency and the Engineer and their employees and agents, against any judgement with costs, which may be obtained as a result of such injury or property damage, because of the alleged liability of the Local Public Agency or of the Engineer.

The Contractor shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Local Public Agency.

The Contractor shall provide sufficient competent watchmen, as required to protect the work both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Local Public Agency, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Local Public Agency. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Local Public Agency as provided in the

Section entitled CHANGES IN THE WORK under GENERAL CONDITIONS.

The Contractor shall avoid damage, as a result of his operations, to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations, to the satisfaction of the Owner.

The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Local Public Agency, and the Engineer, from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which it may be claimed that the Local Public Agency, or the Engineer, is liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

GC.27 QUALITY OF WORK AND PROPERTY

All property, materials, and equipment shall be new and free of defects upon completion of the Contractor's performance and, unless different standards are specified elsewhere in the Contract Documents, shall be of the best type and quality available for the purpose. All of the Contractor's work shall be performed with the highest degree of skill and completed free of defects and in accordance with the Contract Documents. Any work, property, materials, or equipment not in conformance with these standards shall be considered defective. If any work, property, materials or equipment is discovered to have been defective or not in conformance with the Contract Documents, whether said discovery is made before or after completion of performance, the Contractor, at his expense, after written notice from the Owner or Engineer, shall promptly replace or correct the deficiency and pay any engineering costs and consequential expense or damage incurred by the Owner in connection therewith. If the Contractor fails to promptly correct all deficiencies, the Owner shall have the option of remedying the defects at the Contractor's cost. If the Contractor is required to furnish shop drawings or designs, the above provisions shall apply to such drawings or designs.

Neither the Owner's payment, acceptance, inspection or use of the work, property, materials, or equipment, nor any other provision of the Contract Documents shall constitute acceptance of work, property, materials, or equipment which are defective or not in accordance with the Contract Documents. If the Contractor breaches any provision of the Contract Documents with respect to the quality of the work, property, materials, equipment or performance, whether initial or corrective, his liability to the Owner shall continue until the statute of limitations with respect to such breach of contract has expired following discovery of the defect. All parts of this section are cumulative to any other provisions of the Contract Documents and not in derogation thereof. If it is customary for a

warranty to be issued for any of the property to be furnished hereunder, such warranty shall be furnished, but no limitations in any such warranty shall reduce the obligations imposed under the Contractor in the Contract Documents or by Arkansas Law; but if any greater obligations than imposed in this Contract are specified in any such warranty or by Arkansas Law, those greater obligations shall be deemed a part of this Contract and enforceable by the Owner.

GC.28 ACCIDENT PREVENTION

The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes, including applicable parts of the Arkansas Department of Labor Safety Code, shall be observed. The Contractor shall take or cause to be taken such safety and health measures, additional to those herein required, as he may deem necessary or desirable. Machinery, equipment, and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Local Public Agency with reports concerning these matters.

The Contractor shall indemnify and save harmless the Local Public Agency, and the Engineer, from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

GC.29 SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

GC.30 USE OF PREMISES

The Contractor shall confine his equipment, storage of materials, and construction operations to the Rights-of-Way to accommodate the permanent construction furnished by the Local Public Agency, or as may be directed otherwise by the Local Public Agency, and shall not unreasonably encumber the site of other public Rights-of-Way with his materials and construction equipment. In case such Rights-

of-Way furnished by the Local Public Agency are not sufficient to accommodate the Contractor's operations, he shall arrange with the Local Government, or with the owner or owners of private property for additional area or areas, and without involving the Local Public Agency in any manner whatsoever.

The Contractor shall comply with all reasonable instructions of the Local Public Agency and the ordinances and codes of the Local Government (including but not limited to those) regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

GC.31 REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the project site and public Rights-of-Way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris, and unused materials provided for the work, thoroughly clean all drainage pipes, structures, ditches, and other features, and put the whole site of the work and public Rights-of-Way in a neat and "broom" clean condition. Trash burning on the site of the work will be subject to prior approval of the Jonesboro Fire Department.

GC.32 RETURN OF OWNER'S MATERIALS, EQUIPMENT OR PROPERTY

Any materials, equipment or other property which belongs to the Owner, removed by the Contractor, shall be delivered to the Owner's designated warehouse unless its re-use is specified in the Plans and Specifications. If the Contractor fails to deliver the materials, equipment, or other property, the value, as determined by the Engineer, shall be deducted from amounts due the Contractor.

GC.33 OBSERVATION OF WORK

The Engineer, his authorized representative, and any Federal, State, County, or local authority representative having jurisdiction over any part of the work, or area through which the work is located, shall at all times have access to the work in progress.

The detailed manner and method of performing the work shall be under the direction and control of the Contractor, but all work performed shall at all times be subject to the observation of the Engineer or his authorized representative to ascertain its conformance with the Contract Documents. The Contractor shall furnish all reasonable aid and assistance required by the Engineer for the proper observation and examination of the work and all parts thereof.

The Engineer is not responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or safety precautions and programs incident thereto.

Observers may be appointed by the Engineer or Owner. Observers shall have no authority to permit any deviation from the Plans and Specifications except on written order from the Engineer and the

Contractor will be liable for any deviation except on such written order. Observers shall have authority, subject to the final decision of the Engineer, to condemn and reject any defective work and to suspend the work when it is not being performed properly.

The observer shall in no case act as superintendent or foreman or perform other duties for the Contractor, nor interfere with the management of the work by the latter. Any advice which the observer may give the Contractor shall in no way be construed as binding to the Engineer in any way or releasing the Contractor from fulfilling all of the terms of the Contract.

Any defective work may be rejected by the Engineer at any time before final acceptance of the work, even though the same may have been previously overlooked and estimated for payment and payment therefore made by the Owner.

The Contractor shall notify the Engineer sufficiently in advance of backfilling or concealing any facilities to permit proper observation. If the facilities are concealed without approval or consent of the Engineer, the Contractor shall uncover for observation and recover such facilities all at his own expense, when so requested by the Engineer.

Should it be considered necessary or advisable by the Engineer at any time before final acceptance of the entire work to make an examination of work already completed, by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his Subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus fifteen (15) percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

Observation of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such observation and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the observation of materials as a whole or in part will be made at the project site.

All condemned or rejected work shall be promptly taken out and replaced by satisfactory work. Should the Contractor fail or refuse to comply with the instructions in this respect, the Owner may, upon certification by the Engineer, withhold payment, proceed to terminate the Contract, or perform work as provided herein.

GC.34 REVIEW BY LOCAL PUBLIC AGENCY OR OWNER

The Local Public Agency, its authorized representatives and agents, shall at all times during work hours have access to and be permitted to observe and review all work, materials, equipment, payrolls, and personnel records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Local Public Agency through its authorized representatives or agents. Representatives of Federal, State, and local government agencies also have the right of physical inspection of the work during work hours.

GC.35 PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any executive, supervisory, or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof.

GC.36 FINAL INSPECTION

When the Improvements embraced in this Contract are substantially completed, the Contractor shall notify the Local Public Agency in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Local Public Agency having charge of observation. If the Local Public Agency determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as practicable. The inspection party will also include the representatives of each Department of the Local Government and any other involved government agencies when such improvements are later to be accepted by the Local Government and/or other government agencies.

GC.37 PATENTS

The Contractor shall hold and save harmless the Local Public Agency, its officers, employees, and the Engineer, from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Local Public Agency, unless otherwise specifically stipulated in the Technical Specifications.

GC.38 WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Local Public Agency free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract, shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Local Public Agency. The provisions of this paragraph shall be inserted in all subcontracts and material Contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal Contract is entered into for such materials.

GC.39 GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Local Public Agency or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the agreed upon day of final acceptance of the work. The Local Public Agency will give notice of defective materials and work with reasonable promptness.

X. SUPPLEMENTAL GENERAL CONDITIONS

TABLE OF CONTENTS

SGC.1	PROGRESS SCHEDULE
SGC.2	DRAWINGS
SGC.3	ADDITIONAL INSURANCE
SGC.4	RECORD DRAWINGS
SGC.5	TRENCH AND EXCAVATION SAFETY SYSTEMS
SGC.6	MINIMUM WAGES
SGC.7	ARKANSAS PREVAILING WAGE RATES

SGC.1 PROGRESS SCHEDULE

The Contractor shall submit a construction contract schedule of the bar graph (or other approved) type seven (7) calendar days prior to the preconstruction conference showing the following information as a minimum:

- (1) Actual date construction is scheduled to start if different from the date of notice to proceed.
- (2) Planned contract completion date.
- (3) Beginning and completion dates for each phase of work.
- (4) Respective dates for submission of shop drawings and the beginning of manufacture, the testing of, and the installation of materials, supplies, and equipment.
- (5) All construction milestone dates.
- (6) A separate graph showing work placement in dollars versus contract time. The schedule shall incorporate contract changes as they occur. The schedule shall be maintained in an up-to-date condition and shall be available for inspection at the construction site at all times.

The construction contract schedule shall be submitted in conjunction with and/or in addition to any other specification requirements concerning schedules.

SGC.2 DRAWINGS

One (1) set of Plans and Specifications shall be furnished to the Contractor, at no charge, for construction purposes. Additional copies may be obtained at cost of reproduction upon request.

The Contractor shall keep one (1) copy of all drawings and Contract Documents in good condition readily accessible at the site of the work available to the Engineer and his authorized representatives.

SGC.3 ADDITIONAL INSURANCE (i.e. Railroad Insurance)

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SGC.4 RECORD DRAWINGS

Before any work is started, the Contractor shall obtain at his own expense one set of Plans to be used for Record Drawings. The Engineer will supply the Plans at printing cost to the Contractor. Record Drawings will be kept on full-size plan sheets; no half-size sheets will be permitted. The Record Drawings shall be stored and maintained in good condition at all times by the Contractor and shall be

made available to the Engineer at the work site immediately at the Engineer's request. All writing, notes, comments, dimensions, etc. shall be legible. The Record Drawings shall be stored flat and shall not be rolled. The Record Drawings shall be submitted to the Engineer before the project can be accepted.

The Contractor shall accurately identify and document the locations of all underground and/or concealed work that he has performed and/or has been affected by his work. This shall include all equipment, conduits, pipe lines, valves, fittings and other appurtenances and underground structures that are part of the Contractor's work and their proximity to existing underground structures and utilities to the extent known. The Contractor will certify accuracy of the Record Drawings by endorsement.

The Contractor's work shall be documented on the Record Drawings in an on-going manner. Distances, offsets, depths, etc. shall be accurately measured from permanent fixed objects so that the Owner can expose any item of the work in the future with a minimum of effort. All such measurements shall be made before the items of work are covered or backfilled. The Contractor shall be required to expose and recover/backfill the work at his own expense if, in the Engineer's opinion, the measurements need to be verified.

SGC.5 TRENCH AND EXCAVATION SAFETY SYSTEM

This section covers trench and excavation safety system required for constructing improvements that necessitate open excavations on the project. All work under this item shall be in accordance with the current edition of the "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart P.

The Contractor, prior to beginning any excavation, shall notify the State Department of Labor (Safety Division) that work is commencing on a project with excavations greater than five feet.

The Contractor shall notify all Utility Companies and Owners in accordance with OSHA Administration 29 CFR 1926.651(b) (2) for the purpose of locating utilities and underground installations.

Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities, or other installation, the Contractor shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structure or utility.

The Contractor may elect to remove and replace or relocate such structures or utilities with the written approval of the Owner of the structure or utility and the Project Owner.

The work required by this item will not be measured for separate payment, but will be considered subsidiary to other items of the contract. If a Trench and Excavation Safety System is needed, the Contractor shall submit to the Engineer a certification by the Contractor's "competent person" as defined in Subpart "P" 1926.650(b) that the Contractor has complied with the provisions of "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System", 29 CFR 1926 Subpart P for work for which payment is requested.

SGC.6 MINIMUM WAGES

The Prevailing Wage Law excludes this project from coverage and there is no obligation to obtain a wage determination from the Arkansas Department of Labor.



STATE OF ARKANSAS
ARKANSAS DEPARTMENT OF LABOR
PREVAILING WAGE DIVISION

10421 WEST MARKHAM • LITTLE ROCK, AR 72205-2190
Phone: 501-682-4536 Fax: 501-682-4508 TRS: 800-285-1131

February 19, 2015

Tracey Cooper
City of Jonesboro
P. O. Box 1845
Jonesboro, AR 72403

RE: Caraway Road Bridge Replacement
over Higginbottom Creek
Jonesboro, Arkansas
Craighead County

Dear Tracey Cooper:

Please be advised that the Arkansas Prevailing Wage Law shall not be construed to apply to or affect highway, road, street, or bridge construction and maintenance or related work contracted for or performed by incorporated towns, cities, counties, or the Arkansas State Highway and Transportation Department. Ark. Code Ann. § 22-9-303 (b) (1987).

Since your request is for bridge replacement and road widening, the Prevailing Wage Law would exclude the above-referenced project from coverage and you are under no obligation to obtain a wage determination from this department.

Please note that you may access a copy of the Prevailing Wage Law and Regulations at <http://www.labor.ar.gov>.

If you have any questions, or if I can be of further assistance, please contact me at the above address or call (501) 682-4536.

Sincerely,

A handwritten signature in cursive script that reads "Lorna Kay Smith".

Lorna Kay Smith
Prevailing Wage Division

XI. SPECIAL CONDITIONS

TABLE OF CONTENTS

SC.1	GENERAL
SC.2	LOCATION OF PROJECT
SC.3	SCOPE OF WORK
SC.4	TIME ALLOTTED FOR COMPLETION
SC.5	FORMS, PLANS, AND SPECIFICATIONS
SC.6	LIQUIDATED DAMAGES FOR DELAY
SC.7	KNOWLEDGE OF CONDITIONS
SC.8	PERMITS AND RIGHTS-OF-WAY
SC.9	REFERENCE SPECIFICATIONS
SC.10	PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED
SC.11	USED MATERIALS
SC.12	EXISTING STRUCTURES
SC.13	USE OF EXPLOSIVES
SC.14	BARRICADES, LIGHTS, AND WATCHMEN
SC.15	FENCES AND DRAINAGE CHANNELS
SC.16	WATER FOR CONSTRUCTION
SC.17	MATERIAL STORAGE
SC.18	EXISTING UTILITIES AND SERVICE LINES
SC.19	TESTING, INSPECTION AND CONTROL
SC.20	BOND
SC.21	LIGHT AND POWER
SC.22	LINES AND GRADES
SC.23	LEGAL HOLIDAYS
SC.24	SEQUENCE OF CONSTRUCTION
SC.25	TEST BORINGS
SC.26	TEMPORARY FIELD OFFICE
SC.27	RELEASE AND CONTRACTOR'S AFFIDAVIT
SC.28	MAINTENANCE BOND

SC.1 GENERAL

The provisions of this section of the Specifications shall govern in the event of any conflict between them and the "General Conditions".

SC.2 LOCATION OF PROJECT

The project is located on Caraway Road at Higginbottom Creek, Jonesboro, Arkansas. A map showing the general location is included in the plan sets.

SC.3 SCOPE OF WORK

The work to be performed under this Contract consists of furnishing all materials, labor, supervision, tools and equipment necessary to replace Caraway Road Bridge over Higginbottom Creek.

SC.4 TIME ALLOTTED FOR COMPLETION

The time allotted for completion of the work shall be one hundred fifty (150) consecutive calendar days, which time shall begin within ten (10) days of the work order or notice to proceed. After award of the Contract is made and the Contract Documents are completed, the Engineer shall issue a Notice to Proceed, notifying the Contractor to proceed with the construction of the project, subject to the provisions of this paragraph.

SC.5 FORMS, PLANS AND SPECIFICATIONS

Forms of Proposal, Contract and Bonds, and Plans and Specifications may be examined at the City of Jonesboro Engineering Department, 300 South Church Street, Jonesboro, Arkansas 72403, and obtained upon payment of \$25.00 each. No refunds will be made.

SC.6 LIQUIDATED DAMAGES FOR DELAY

The number of calendar days allowed for completion of the project is stipulated in the Proposal and in the Contract and shall be known as the Contract Time.

1. It is understood and agreed by and between the Owner and the Contractor that the time of completion herein set out is a reasonable time. The Contractor shall perform fully, entirely, and in an acceptable manner, the work contracted for within the contract time stated in the Contract. The contract time shall be counted from ten days after the effective date of the "Notice to Proceed"; and shall include all Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of any orders of the Engineer for suspension of the prosecution of the work, due to the fault of the Contractor, shall be counted as elapsed contract time, and shall not be considered for an extension of time.
2. Extensions of time for completion, under the condition of 2(a) next below, will be granted; extensions may be granted under other stated conditions:

- a. If the satisfactory execution and completion of the Contract shall require work or material in greater amounts or quantities than those set forth in the Contract, then the Contract time shall be increased in the same proportion as the additional work bears to the original work contracted for.
 - b. An average or usual number of inclement weather days, when work cannot proceed, is to be anticipated during the construction period and is not to be considered as warranting extension of time. If, however, it appears that the Contractor is delayed by conditions of weather, so unusual as not to be reasonably anticipated, extensions of time may be granted.
 - c. Should the work under the Contract be delayed by other causes which could not have been prevented or contemplated by the Contractor, and which are beyond the Contractor's power to prevent or remedy, an extension of time may be granted. Such causes of delay shall include but not necessarily be limited to the following:
 - (1) Acts of God, acts of the public enemy, acts of the Owner except as provided in these Specifications, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather.
 - (2) Any delays of Subcontractors or suppliers occasioned by any of the causes specified above.
3. The Resident Project Representative or other authorized representative of the City shall keep a written record sufficient for determination as to the inclusion of that day in the computation of Contract time. This record shall be available for examination by the Contractor during normal hours of work as soon as feasible after the first of each construction month. In case of disagreement between the representative of the City and the Contractor, as to the classification of any day, the matter shall be referred to the City whose decision shall be final.
4. The amount of all extensions of time for whatever reason granted shall be determined by the Owner. In general, only actual and not hypothetical days of delay will be considered. The Owner shall have authority to grant additional extensions of time as the Owner may deem justifiable.

The amount of Liquidated Damages to be assessed shall be in accordance with the schedule that follows:

<u>Amount of Contract</u>	<u>Liquidated Damages Per Day</u>
Less than \$25,000.00	\$100.00
Not less than \$ 25,000.00 but less than \$ 50,000.00	\$150.00
Not less than \$ 50,000.00 but less than \$ 100,000.00	\$200.00
Not less than \$100,000.00 but less than \$ 500,000.00	\$250.00
Not less than \$500,000.00 but less than \$1,000,000.00	\$350.00

Over \$1,000,000.00

\$500.00

1. Time is an essential element of the Contract and it is important that the work be pressed vigorously to completion. Loss will accrue to the public due to delayed completion of the facility; and the cost to the Owner of the administration of the Contract, including engineering, inspection and supervision, will be increased as the time occupied in the work is lengthened.
2. Should the Contractor fail to complete the work as set forth in the Specifications and within the time stipulated in the Contract, there shall be deducted the amount shown in the schedule above, for each day of delay, from any monies due or which may thereafter become due him, not as a penalty, but as ascertained and liquidated damages.
3. Should the amount otherwise due the Contractor be less than the amount of such ascertained and liquidated damages, the Contractor and his Surety shall be liable to the Owner for such deficiency.

If the Contractor finds it impossible for reasons beyond his control to complete the work within the Contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the Contract time as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may recommend to the Owner that the contract time be extended as conditions justify. If the Owner extends the contract, the extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

SC.7 KNOWLEDGE OF CONDITIONS

The Contractor states that he has examined all the available records and has made a field examination of the site and right-of-way and that he has informed himself about the character, quality, and quantity of surface and subsurface materials and other conditions to be encountered; the quantities in various sections of the work; the character of equipment and facilities needed for the prosecution of the work; the location and suitability of all construction materials; the local labor conditions; and all other matters in connection with the work and services to be performed under this contract.

SC.8 PERMITS AND RIGHTS-OF-WAY

The Owner will secure easements across public or private property permanently required for the pipelines at no cost to the Contractor.

The Contractor shall lease, buy, or otherwise make satisfactory provision, without obligating the Owner in any manner, for any land required outside the land provided by the Owner.

State Highway and Railroad Crossing Permits will be secured by the Owner. All other permits and

licenses necessary for the prosecution of the work shall be secured and paid for by the Contractor.

SC.9 REFERENCE SPECIFICATIONS

Where reference is made in these Specifications to the Standard Specifications of the Arkansas State Highway and Transportation Department, such reference is made for expediency and standardization, and such specifications (latest edition thereof) referred to are hereby made a part of these Specifications.

More specifically, if any items or materials required for completion of the work required for this project are not specified in these Contract Documents, such items or materials and requirements for installation shall conform to the latest edition of the Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction.

SC.10 PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED

In case it is necessary to change or move the property of any owner or of a public utility, such property shall not be moved or interfered with until ordered to do so by the Engineer. The right is reserved to the owner of public utilities to enter upon the limits of the project for the purpose of making such changes or repairs of their property that may be made necessary by performance of this Contract.

SC.11 USED MATERIALS

No material which has been used by the Contractor for any temporary purpose whatever is to be incorporated in the permanent structure without written consent of the Engineer.

SC.12 EXISTING STRUCTURES

The Plans show the locations of all known surface and subsurface structures. However, the Owner assumes no responsibility for failure to show any or all of these structures on the Plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the Plans and Proposal, in which case the provisions in these Specifications for Extra Work shall apply.

The Contractor shall be responsible for protection of all existing structures, and any damage caused by his operations shall be repaired immediately without cost to the Owner. It shall be the responsibility of the prospective Contractor to examine the site completely before submitting his bid.

SC.13 USE OF EXPLOSIVES

Any use of explosives or blasting shall be as outlined in these Specifications.

SC.14 BARRICADES, LIGHTS, AND WATCHMEN

Where the work is performed on or adjacent to any street, alley, or public place, the Contractor shall, at his own expense, furnish and erect such barricades, fences, lights, and danger signals, shall provide such watchmen, and shall provide such other precautionary measures for the protection of persons or property and of the work as are necessary.

Barricades shall be painted in a color that will be visible at night. From sunset to sunrise the Contractor shall furnish and maintain at least one light at each barricade and a sufficient number of barricades shall be erected to keep vehicles from being driven on or into any work under construction. The Contractor shall furnish watchmen in sufficient numbers to protect the work.

The Contractor will be held responsible for all damage to the work due to failure to provide barricades, signs, lights, and watchmen to protect it. Whenever evidence is found of such damage, the Engineer may order the damaged portion immediately removed and replaced by the Contractor at his expense. The Contractor's responsibility for the maintenance of barricades, signs, and lights, and for providing watchmen, shall not cease until the project shall has been accepted by the Owner.

SC.15 FENCES AND DRAINAGE CHANNELS

Boundary fences or other improvements removed to permit the installation of the work shall be replaced in the same location and left in a condition as good or better than that in which they were found except as indicated on the Drawings.

Where surface drainage channels are disturbed or blocked during construction, they shall be restored to their original condition of grade and cross section after the work of construction is completed.

SC.16 WATER FOR CONSTRUCTION

Water used for the mixing of concrete, testing, or any other purpose incidental to this project, shall be furnished by the Contractor. The Contractor shall make the necessary arrangements for securing and transporting such water and shall take such water in a manner and at such times that will not produce a harmful drain or decrease of pressure in the Owners' water system. No separate payment will be made for water used but the cost thereof shall be included in the Unit Price Schedule.

SC.17 MATERIAL STORAGE

Materials delivered to the site of the work in advance of their use shall be stored so as to cause the least inconvenience and in a manner satisfactory to the Engineer.

SC.18 EXISTING UTILITIES AND SERVICE LINES

The Contractor shall be responsible for the protection of all existing utilities or improvements crossed by or adjacent to his construction operations. Where existing utilities or service lines are cut, broken, or damaged, the Contractor shall replace or repair immediately the utilities or service lines with the

same type of original material and construction or better, at his own expense.

SC.19 TESTING, INSPECTION AND CONTROL

Testing and control of all materials used in the work shall be done by an approved commercial laboratory employed and paid directly by the Contractor. The Contractor shall furnish, at his own expense, all necessary specimens for testing of the materials, as required by the Engineer.

Testing and control of all materials used for this project shall be done in accordance with the Standard Specifications and The Arkansas State Highway and Transportation Department Field Sampling manual.

Only Technicians certified by the Center for Training Transportation Professionals, University of Arkansas Department of Civil Engineering, Fayetteville, Arkansas (CTTP) shall perform quality control and acceptance testing on this project. Testing Laboratories shall be CTTP certified also. The Contractor shall furnish, at his own expense, all necessary specimens for testing of the materials, as required by the Engineer.

Materials testing for this project will be at the Contractor's expense with the exception of verification testing by an independent, approved Testing Laboratory, furnished by the City of Jonesboro. The City of Jonesboro reserves the right to employ a certified lab to perform verification and acceptance testing normally performed by the Arkansas State Highway and Transportation Department. The Contractor shall cooperate fully with the testing firm so employed by the City of Jonesboro

SC.20 BOND

Coincident with the execution of the Contract, the Contractor shall furnish a good and sufficient surety bond, in the full amount of the Contract sum, guaranteeing the faithful performance of all covenants, stipulations, and agreements of the Contract, the payment of all bills and obligations arising from the execution of the Contract, (which bills or obligations might or will in any manner become a claim against the Owner), and guaranteeing the work included in this Contract against faulty materials and/or poor workmanship for one (1) year after the date of completion of Contract.

All provisions of the bond shall be complete and in full accordance with Statutory requirements. The bond shall be executed with the proper sureties through a company licensed and qualified to operate in the state and approved by the Owner. The issuing agent's power of attorney shall be attached to the bond and the bond shall be signed by an agent resident in the state and date of bond shall be the date of execution of the Contract. If at any time during the continuance of the Contract the surety on the Contractor's bond becomes irresponsible, the Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) days after notice to do so. In default thereof, the Contract may be suspended and all payments or money due the Contractor withheld.

SC.21 LIGHT AND POWER

The Contractor shall provide, at his own expense, temporary lighting and facilities required for the proper prosecution and inspection of the work. At the time the Owner obtains beneficial occupancy of any of the facilities placed in satisfactory service, charges for power and light for regular operation of those involved facilities will become the responsibility of the Owner.

SC.22 LINES AND GRADES

The Contractor will be furnished baselines and benchmarks to control the work. The Contractor shall be responsible for the additional instrument control necessary to layout and construct the improvements. The Contractor's instrument control of the work shall not be measured for separate payment.

As a minimum, the Contractor shall provide the following instrument control for the work:

- a. For the full length and width of all areas within the limits of paving, the finished grade of the concrete surface course shall be controlled by grade wires or forms set by the Contractor to control the final surface, in accordance with the plans.
- b. For the full length and width of all areas within the limits of paving, the initial courses of bituminous pavement will be controlled by uniform thickness. The course under the final surface course shall be controlled by grade wire, and the final surface course shall be controlled by uniform thickness. The bituminous pavement shall be constructed with a lay down machine with automatic controls and a forty (40) foot ski.
- c. For the full length and width of all areas within the limits of paving, the crushed aggregate base course and the sub base course will be controlled with intermediate and final surface stakes, "blue tops". Stakes shall be set as required or as directed by the Engineer to control the construction.
- d. The Contractor shall set intermediate line and grade stakes and final grade stakes, "blue tops," as required to control the construction of shoulders.

SC.23 LEGAL HOLIDAYS

January 1, Martin Luther King, Jr. Day, President's Day, Memorial Day, July 4, Labor Day, Veteran's Day, Thanksgiving, Day after Thanksgiving, December 24, and December 25 will be considered as being legal holidays; no other days will be so considered. Should any holiday fall on Sunday, the holiday shall be observed on the following Monday. No engineering observation will be furnished on legal holidays or Sundays, except in an emergency. The Contractor shall observe the legal holidays and Sundays, and no work shall be performed on these days except in an emergency. However, these days shall not be excluded from Contract time.

SC.24 SEQUENCE OF CONSTRUCTION

Sequence of all phases of work shall be such as to provide for the least possible inconvenience to the Owner. Scheduling of work which would interfere with normal traffic operation shall be coordinated with the Owner. Material and equipment received on the project prior to time of installation shall be stored at such locations designated by the Owner.

The Contractor shall furnish a proposed work schedule to the Engineer for review and approval as soon as possible after award of the Contract. This schedule shall show anticipated equipment delivery schedules and times of beginning and completing of the several work tasks.

SC.25 TEST BORINGS

The Contractor may rely upon the general accuracy of the test pit or soil boring data contained in reports or drawings, but such reports and drawings are not Contract Documents. The Contractor may not rely upon or make any claim against Owner, Engineer, or Engineer's Consultants with respect to (1) the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor and safety precautions and programs incident thereto, (2) other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings, (3) any Contractor interpretation of or conclusion drawn from any data, interpretations, opinions, or information.

SC.26 TEMPORARY FIELD OFFICE

Not required for this project.

SC.27 RELEASE AND CONTRACTOR'S AFFIDAVIT

At the project's completion, the Contractor shall execute the attached Release and Lien Waiver to release all claims against the Owner arising under and by virtue of his Contract. The date of the Release shall be that agreed to for the final acceptance of the project with the Owner.

SC.28 MAINTENANCE BOND

The Contractor shall execute the attached Maintenance Bond guaranteeing the work included in the Contract against faulty materials and/or prior workmanship for one year after completion of the Contract. The date of the Maintenance Bond shall be that agreed to for the final acceptance of the project with the Owner. The Maintenance Bond shall be for 100% of the final contract amount.

At the end of the applicable maintenance period, the Owner and/or the Engineer, with the Contractor, shall make an inspection of the work. The Contractor immediately shall repair and correct any and all defects which have resulted from faulty workmanship, equipment, or materials, following which repair and correction the Local Public Agency will accept full maintenance of the work.

RELEASE

FROM: Contractor's Name _____

Address _____

TO: City of Jonesboro

DATE OF CONTRACT: _____

Upon receipt of the final payment and in consideration of that amount, the undersigned does hereby release the Owner and its agents from any and all claims arising under or by virtue of this Contract or modification thereof occurring from the undersigned's performance in connection with the construction of the

Caraway Road Bridge Replacement over Higginbottom Creek

project.

Contractor's Signature

Title

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission Expires:

CONTRACTOR'S AFFIDAVIT

FROM: Contractor's Name _____

Address _____

TO: City of Jonesboro

DATE OF CONTRACT: _____

I hereby certify that all claims for material, labor, and supplies entered into contingent and incident to the construction or used in the course of the performance of the work on the construction of the

Caraway Road Bridge Replacement over Higginbottom Creek

have been fully satisfied.

Contractor's Signature

Title

Subscribed and sworn to before me this ____ day of _____, 20__.

Notary Public

My Commission Expires:

The Surety Company consents to the release of the retained percentage on this project with the understanding that should any unforeseen contingencies arise having a right of action on the bond that the Surety Company will not waive liability through the consent to the release of the retained percentage.

Dated _____

Surety Company

By _____
Resident Agent, State of Arkansas

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____,
as Principal, and _____,

as Surety, are held and firmly bound unto the City of Jonesboro, as Obligee, in the full and

just sum of _____
(\$ _____) DOLLARS, lawful money of the United States of America, to be paid to the said Obligee, its successors or assigns, for the payment of which, well and truly to be made, we and each of us, bind ourselves, our heirs, executors and assigns, themselves, and their successors and assigns, jointly and severally, firmly by these presents.

Dated this _____ day of _____, 20_____.

The conditions of this obligation are such, that whereas, said Principal, has by a certain contract with the City of Jonesboro dated the ____ day of _____, 20 ____, agreed to construct the Caraway Road Bridge Replacement over Higginbottom Creek and to maintain the said Improvement in good condition for a period of one (1) year from the date of acceptance of the improvements.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall indemnify and hold harmless the said Obligee from and against all loss, costs, damages, and expenses whatsoever which it may suffer or be compelled to pay by reason of failure of the said Principal to keep said work in repair for a one year period beginning _____ against any and all defects of faulty workmanship or inferior material, then this obligation shall be void; otherwise to remain in full force and effect.

It is further agreed that if the said Principal or Surety herein shall fail to maintain said improvements in good condition for the said period of 1 year, and at any time repairs shall be necessary, that the cost of making said repairs shall be determined by the Owner, or some person or persons designated by the Owner to ascertain the same, and if, upon thirty (30) days notice, the said amount ascertained shall not be paid by the Principal or Surety herein, or if the necessary repairs are not made, that said amount shall become due upon the expiration of thirty (30) days, and suit may be maintained to recover the amount so determined in any Court of competent jurisdiction; and that the amount so determined shall be conclusive upon the parties as to the amount due on this bond for the repair or repairs included therein; and that the cost of all repairs shall be so determined from time to time during the life of this bond, as the condition of the improvements may require.

Signed, sealed and delivered the day and year first above written.

Principal

ATTEST:

BY: _____

SEAL

Surety

ATTEST:

BY: _____

Attorney in Fact

XII. TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

TITLE

SP-1	Standard Specifications for Highway Construction Arkansas State Highway and Transportation Department, Latest Edition (including all Errata for the Book of Standard Specifications)
SP-2	Geotechnical Report – Caraway Road Bridge

SP-1 - SPECIFICATIONS, ARKANSAS STATE HIGHWAY COMMISSION

General

The standard specifications of the Arkansas State Highway and Transportation are bound in a book titled Standard Specifications for Highway Construction. These specifications are referred to herein as "Standard Specifications." The latest edition shall apply.

A copy of these "Standard Specifications" may be obtained from the Arkansas State Highway and Transportation Department, Little Rock, Arkansas, at their customary charge.



**GEOTECHNICAL INVESTIGATION
FOR
PROPOSED CARAWAY ROAD BRIDGE
JONESBORO, ARKANSAS**

* * * * *

CITY OF JONESBORO

OWNERS

300 SOUTH CHURCH STREET

JONESBORO, ARKANSAS 72401

* * * * *

AUGUST 28, 2014

JOB NO. 424214



ANDERSON ENGINEERING CONSULTANTS, INC.

3217 Neil Circle – Jonesboro, Arkansas 72401
PHONE (870) 932-3700 • FAX (870) 932-3769



ANDERSON ENGINEERING CONSULTANTS, INC.

3217 NEIL CIRCLE – JONESBORO, ARKANSAS 72401

PHONE (870) 932-3700 FAX (870) 932-3769

August 28, 2014

Mr. Craig Light, P.E.
City of Jonesboro
300 South Church Street
Jonesboro, Arkansas 72401

Job No. 424214

Re: Geotechnical Investigation
Proposed Caraway Road Bridge
Paragould, Arkansas

Dear Mr. Light:

It is our pleasure to submit this report on the geotechnical investigation for the proposed Caraway Road Bridge located in the City of Jonesboro, Arkansas. The investigation consisted of field test borings, soils laboratory testing, and foundation design analyses.

The results of the investigation indicated the presence of stiff soils throughout the depths investigated, which may require preboring to obtain typical AHTD install lengths ± 40.0 feet. A representative of this firm should be present during foundation construction phase of the project for this is the most feasible means of assuring the owners, designers, and builders that the geotechnical design intent is being achieved. In the event other adverse geotechnical conditions are encountered during construction, they can be identified and evaluated so that safe and economical remedial measures can be implemented during construction.

We wish to express our appreciation for the opportunity of serving you and members of the design team. We are available for further assistance at any time during final design and construction, should you desire additional consultation.

Very truly yours,

ANDERSON ENGINEERING CONSULTANTS, INC.

Derek L. Blackwell, E.I.
Geotechnical Engineer

Scott W. Anderson, P.E.
Principal Engineer



DLB/SWA/plf
424214.GEO

GEOTECHNICAL INVESTIGATION
FOR
PROPOSED CARAWAY ROAD BRIDGE
JONESBORO, ARKANSAS

* * * * *

CITY OF JONESBORO
OWNERS
300 SOUTH CHURCH STREET
JONESBORO, ARKANSAS 72401

* * * * *

BY
ANDERSON ENGINEERING CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
3217 NEIL CIRCLE
JONESBORO, ARKANSAS 72401

AUGUST 28, 2014

JOB NO. 424214

TABLE OF CONTENTS

<u>TEXT</u>	<u>PAGE</u>
Important Information About Your Geotechnical Engineering Report	i
Purpose	1
Scope	1
Authority	2
General Site Conditions	3
Regional Geology	3
Groundwater Conditions	4
Seismicity	4
Field Investigation	5
Laboratory Testing	6
Atterberg Limits	6
Mechanical Grain Size Analyses	6
Shrinkage/Swell Tests	7
Earthwork	7
Erosion/Scour Protection	8
Foundations	8
Construction Quality Control	9
Conclusions and Recommendations	10
Limitations	11
 <u>APPENDIX A</u>	 <u>PLATE</u>
Vicinity Map	1
Plan of Borings	2
Logs of Borings	3 - 4
Field Classification System for Soil Exploration	5
Key to Soil Classifications and Symbols	6
Unified Soil Classification System (ASTM D 2487)	7
Pile Design Calculations and Pile Capacity Curves	8 - 11
Explanation of Bearing Capacity Calculations	12
 <u>APPENDIX B</u>	 <u>PLATE</u>
Atterberg Limit Determination (ASTM D 4318)	B1
Mechanical Grain Size Analyses (ASTM D 422)	B2 - B7
Shrinkage/Swell Index Test (FHA Publication No. 701)	B8

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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PURPOSE

The primary purposes of this geotechnical investigation were:

- a. To determine the physical and engineering properties of the soils within the area of the proposed construction with respect to their suitability to support the proposed structure.
- b. To make recommendations for the earthwork, and the type of foundation suited for the prevailing soil conditions within the proposed construction area.
- c. To evaluate and recommend the design procedures for the various soil and foundation items in accordance with current engineering practices.

SCOPE

The scope of this geotechnical investigation includes the following:

- a. The geological features of the job site area consist essentially of alluvial silty clay (CL) to sandy clay (CL) transitioning to silty sand (SM). The site is located in Jonesboro, Arkansas, as shown on the Vicinity Map, Plate 1.
- b. It was concluded that two auger/wash rotary borings terminating a depth of 61.5 feet for the proposed structural areas would be required to obtain the necessary data for the design of the proposed structure. The borings were placed at opposing ends of the planned location of the project, as shown on the Plan of Borings, Plate 2.
- c. Field tests consisted of Standard Penetration test samples (ASTM D 1586) taken in both of the borings. Logs of the borings illustrating stratigraphic and field test information are provided on Plates 3 and 4. The Field Classification System for Soil Exploration and Key to Soil Classification and Symbols are provided on Plates 5 and 6, respectively.

- d. The soils analyses were based on N-values obtained from the drilling program, visual observations, and other routine inspection and classification methods. The soils were classified basically in accordance with the Unified Soil Classification System (ASTM D 2487) shown on Plate 7; however, visual classifications may be given in some instances on the logs.
- e. A laboratory testing program was developed by the geotechnical engineer after visual observation of the samples obtained and the review of the field boring logs. Laboratory tests included Atterberg limits, mechanical grain size analyses, and swell/linear shrinkage tests. The individual test results are provided in Appendix B.
- f. The foundation analyses were based on AECI's current foundation design procedures. The input values are provided using the N-values obtained during drilling and the results of the laboratory tests. Plates 8 and 9 are for 16.0-inch octagonal piles and Plates 11 and 12 are for an alternative, using 16.0-inch square concrete piles. Plots illustrating Compressive/Tension capacities with depth are provided on Plates 10 and 13 respectively, with an explanation of the bearing capacity calculations provided on Plate 14.

AUTHORITY

This geotechnical investigation was authorized by signed acceptance of AECI Proposal No. 70514 by Mr. Craig Light, P.,E. with The City of Jonesboro, Arkansas, the owner of the proposed project, which was received on July 7, 2014.

GENERAL SITE CONDITIONS

The site of the proposed project is located approximately 1400 feet south of Arkansas Highway 63 on Caraway Road in the City of Jonesboro, Arkansas. The area surrounding the project is generally flat, with Higginbottom Creek passing west to east across the site. The existing bridge consists of a two-lane reinforced structure, spanning 35.0 feet across the main channel of Higginbottom Creek with bents providing support at the beginning and end, 36.0 feet to the south and north, respectively, of the center bents. Plans provided by the client indicate plans to increase the overall width of the bridge to accommodate a total of four lanes of traffic, a 4.0-foot wide median, 6.0-foot wide sidewalk on each side, and 1.5-foot wide barrier walls on each site. Thus, planning for the addition of two piles at the east end and four piles at the west end of each bent. At the time of this investigation the site was dry and firm; however, required the use of an ATV-mounted drill due to uneven and rough terrain.

REGIONAL GEOLOGY

The 1993 Geologic Map of Arkansas, as prepared by the Arkansas Geologic Commission and the United States Geological Survey, indicates that the project is located within the Mississippi Embayment Physiographic region of northeastern Arkansas. This region consists of terraced sediments and recent alluvium deposited by the ancient Mississippi River and its tributaries during the Quaternary period. These deposits generally consist of a complicated sequence of unconsolidated layers of gravels, sands, silts, and clays. The site soils were found to be consistent with the area geology.

GROUNDWATER CONDITIONS

Groundwater was encountered at a depth of 14.0 feet during this investigation, but will mimic the level found in the creek. This water level is considered seasonal in nature and will rise and fall with fluctuations in rain fall and subsequent run-off. Some groundwater should be considered in design and construction of deep foundations. Temporary dewatering of these types of excavations by sump/pump may be required. Flowing water should be expected in the creek bed and perched groundwater may be encountered in other portions of the site in the near surface soils and should be considered in design and construction of foundations, and abutments.

The contractor should expect to reroute the ditch and excavate gravity drainage ditches to divert water away from the construction area. Additionally, soft, wet and pumpable soils can be expected. In structural areas these soils should be removed and replaced with a select fill soil compacted to project specifications. Since the quantity of undercut is unknown it would be prudent to establish a unit rate for this item of work to minimize construction delays.

SEISMICITY

The seismic analysis requires the selection of appropriate site coefficients and other seismic values that can be established from the subsurface conditions, guidelines set forth by local, state, and federal codes, and historical seismic information. The structure's foundations should be designed using guidelines as set forth in the 2012 International Building Code as required by **Arkansas Act 1100-1991** (and subsequent amendments) as determined appropriate.

The site soils consist of Quaternary aged terrace deposits of primarily stiff, silty to sandy clays (CL) underlain by silty sands (SM). Based upon the subsurface soil conditions and the seismic values for Arkansas published by the 2012 International Building Code the following data are considered applicable to this project site:

SEISMIC DESIGN CRITERIA

Site Class (IBC)	D*
Short Spectral Response Parameter, S _s	1.577g
1.0 Second Spectral Response Parameter, S ₁	0.551g
Short Period Site Coefficient, F _a	1.000
Long Period Site Coefficient, F _v	1.500

Though a specific liquefaction analyses was not required for this investigation, previous experience would indicate a safety factor above 1.0 due to the very stiff clays and dense underlying sands.

FIELD INVESTIGATION

On July 17, 2014, a geotechnical drilling crew performed the drilling and sampling of two borings within the construction area. The borings were placed as shown on the Plan of Borings, Plate 2. Standard Penetration Tests (SPT) were performed at selected intervals to determine the consistency of the subgrade soils. This testing consists of driving a split spoon sampler a total of 18.0-inches and recording the number of blows for each 6.0-inch increment. The number of blows required for the last two increments are summed to arrive at an SPT (“N”) value. A value greater than 50 blows per foot is considered refusal. The log of each boring is provided on Plates 3 and 4.

LABORATORY TESTING

Tests were performed on select samples to determine their physical properties, classification, and strength characteristics. Laboratory tests included Atterberg limits, mechanical grain size analyses, and shrinkage/swell index tests. The following sections describe the results of these tests. Individual test results are shown in Appendix B.

Atterberg Limits:

Atterberg limit tests were performed on selected samples to aid in classification for foundation analyses. Samples were tested from various depths and were found to have liquid limits (LL) ranging between 24 and 25 with and plasticity indexes (PI) between 7 and 8. These values appeared to decrease in the deeper more coarse grained samples that were encountered, primarily beyond 45.0 feet below the surface. The silty sands (SM) are considered non-plastic.

Mechanical Grain Size Analysis:

Mechanical grain size analyses were performed on variable soil types found within the depths investigated. The results indicate that the samples tested, less than 41.5 feet below the surface, were found to contain a minimum of 78.9% fines (passing the No. 200 sieve). Based on these results in addition to the Atterberg limit values, the materials would classify as silty clay (CL), sandy clay (CL), and silty sand (SM) with some pea gravel.

Swell/Linear Shrinkage Test:

In order to verify that the in-situ clays will not create negative skin friction on pile foundations, a sample was tested at its natural moisture content to determine the potential swell if the material became saturated. A sample of shallow clay, expected to present to most significant potential swell, resulted in a very low swell pressure of 139 psf. Thus, negative friction will be minimal. Provided all criteria in the **EARTHWORK** section is met or exceeded, a maximum PVR of less than 0.25 inch should be considered in design of bents and approaches. In addition, a linear shrinkage test indicated a value of 5.0% should also be considered by the designer.

EARTHWORK

The following section is intended to provide the designer and contractor with guidelines for construction of the project. It is not intended to be used as a specification for construction procedures or methods. It is strongly recommended that any desired modification be reviewed by the soils engineer prior to implementation into the project specifications. Site conditions different from those indicated herein may result in alteration of these recommendations, but should be verified by the soils engineer, or his representative.

Any fill materials required for the project should consist of granular, non-expansive type soils with a plasticity index (PI) between 5 and 20 that are stable after placement. A minimum approximate dry density of 115.0 pcf is typical for soils meeting these criteria. On-site soils are suitable for use as compacted fill. Other locally available soils, such as clayey sand (SC) or clayey gravel (GC), may also be suitable, but must be approved by the soils engineer prior to their use. Fill soils should be placed in maximum 8.0-inch loose lifts, the moisture conditioned to within two percentage points of optimum

moisture content, and compacted to a minimum of 95% Modified compaction. At no time should the particle size of the material exceed one half the lift thickness. The compaction and moisture content of fill materials should be verified through field density tests. As a minimum one test per lift should be performed for every 2,500 square feet of structural area. It would be prudent to require the performance of Atterberg limits and mechanical grain of fill materials during placement to ensure compliance with the criteria outlined herein; as borrow pit soils may vary significantly across a pit. AHTD flowable fill may also be used in irregular shaped areas at approaches to decrease settlement where traffic transitions from pavement to bridge.

EROSION/SCOUR PROTECTION

Based on estimated stream velocities and drainage some erosion or scour protection may be required. The on site soils are susceptible to erosion and to a greater extent scour. Should erosion or scour protection be required based on the hydraulics analyses, either a densely graded filter blanket or riprap may be used. Riprap should be free of fines. Additionally, the addition of geotextile fabric prior to placement of riprap would increase the protection against erosion and reduce the long term maintenance required over the life of the structure. If deemed necessary by the designer, pilings may be encased in steel pipes per AHTD guidelines to prevent excessive wear from silt-sand flows during flooding periods.

FOUNDATIONS

It is understood that 16.0-inch square or octagonal concrete pile foundations are desired for the foundation system of the bridge. Due to availability of such piles in the area of the site, it is recommended that the overall budget for each pile type be considered as an alternative for the project. The 16.0-inch pile is standard for Arkansas Highway and Transportation Department (AHTD) Section

805, and is typically available. The plans require a minimum pile length of approximately 40.0 feet below existing grade to provide a pile capacity over 44 tons (88 kips). Although the safety factor used is unclear, an approximate value of 2.0 is recommended.

The analyses indicates that pile capacity will be reached before the 40.0-foot depth. This is for axial loads only and does not consider any lateral loading conditions. Additionally, the clay soils are very stiff to hard and may require preboring to obtain the anticipated 40.0-foot depth. Shorter piles may be utilized based on axial capacity but must meet all other requirements outlined in Section 805 of the AHTD Manual.

CONSTRUCTION QUALITY CONTROL

Quality control testing should be utilized in all phases of the construction. To assure the proper performance of the proposed structure, all fill required should be placed in accordance with the recommendations provided in the section entitled **EARTHWORK**. A geotechnical engineering representative should be present to during foundation installation to observe, evaluate, and verify that the required bearing capacity has been met or exceeded at each pile. Our recommendations are based upon adequate quality control testing being utilized and further evaluations and reviews during the construction phase of the project.

CONCLUSIONS AND RECOMMENDATIONS

As a result of this geotechnical investigation, the following recommendations are offered for consideration:

1. As previously discussed, a 16.0-inch square or octagonal concrete pile foundation system will serve satisfactorily for the proposed structure. It is concluded that this will be an economical type of foundation and should be designed in accordance with the necessary structural and/or architectural requirements determined by the designers with the owner's ultimate approval.
2. All fill required should consist of low PI, non-expansive granular fill shall be placed in 8.0-inch thick lifts and be compacted as within two percentage points of optimum moisture content to 95% of Modified Proctor density as per ASTM D 1557. The select fill shall have a PI between 5 and 20. Clayey sand (SC) or clayey gravel (GC) are ideal fill types and should be utilized for this project, but must meet the criteria given in the **EARTHWORK** section of this report.
3. Based on the planned foundation for the structure, minimal amounts of undercutting of soft, wet, or unstable soils are expected, however varying amounts will likely be required in the existing ditch locations. The contractor may replace the undercut areas with suitable backfill (PI = 5 to 20) if it is compacted to 95% of Modified Proctor.
4. Quality control testing should be utilized in the installation and construction of the foundation, undercutting, fill placement, support structure, and deck construction with adequate testing to verify that the design requirements have been achieved.
5. Geotechnical engineering services should be utilized in the foundation construction phase, and our recommendations are based upon this so that adequate compensation can be made for conditions that may occur which differ significantly from those assumed as a result of this investigation.
6. Other recommendations are given throughout the text of this report.

LIMITATIONS

The boring logs shown in this report contain information related to the types of soil encountered at specific locations and times and show lines delineating the interface between these materials, as well as results of tests performed in the laboratory on representative samples. The logs also contain our field geologist's interpretation of conditions that are believed to exist in those depth intervals between the actual samples taken. Therefore, these boring logs contain both factual and interpretative information. It is not warranted that these logs are representative of subsurface conditions at other locations and times.

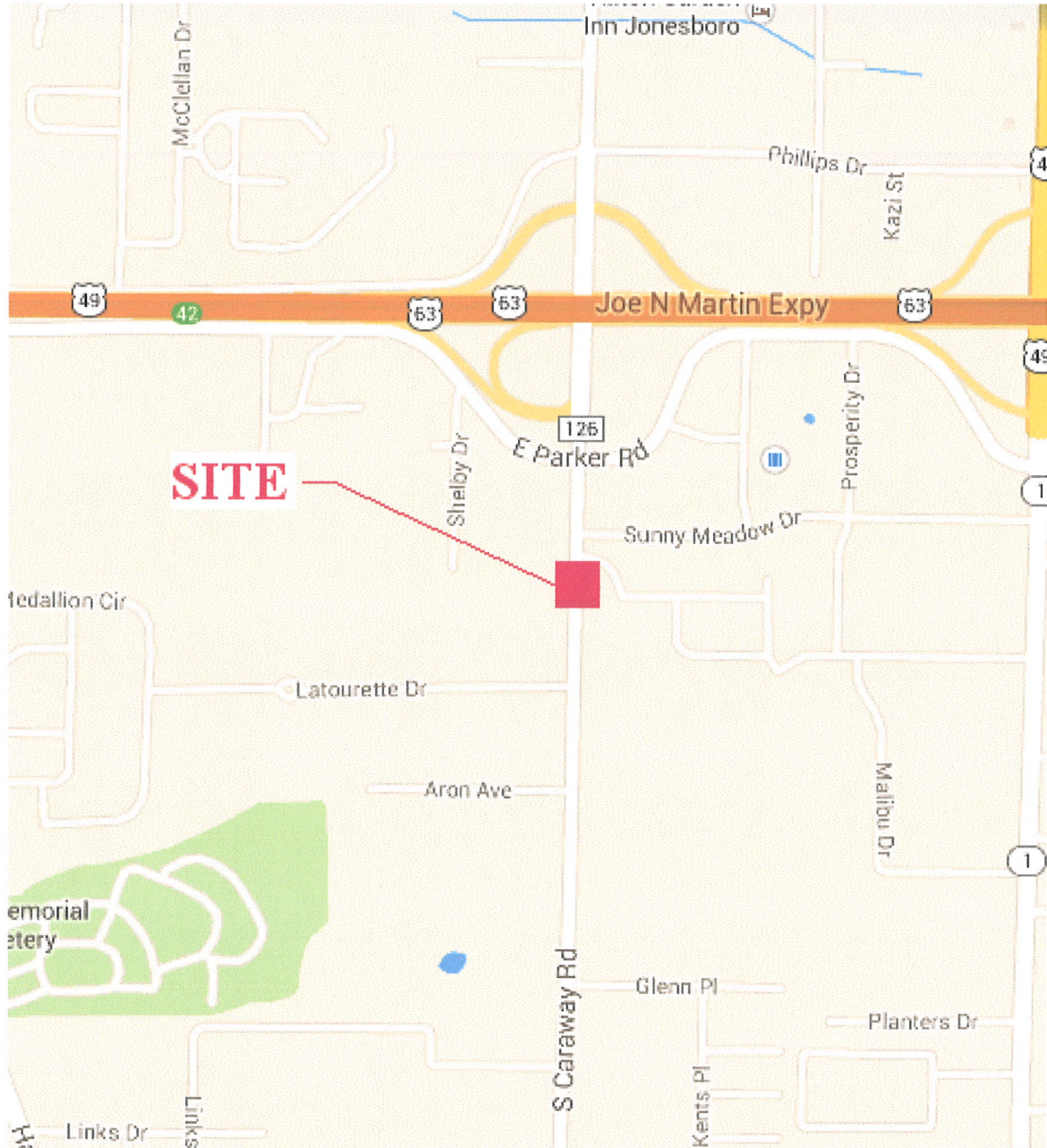
The analyses, conclusions, and recommendations contained in this report are based on site conditions as they existed at the time of our field investigation and further on the assumption that the exploratory borings are representative of the subsurface conditions throughout the site. If, during construction, different subsurface conditions from those encountered in our borings are observed, or appear to be present beneath excavations, we must be advised promptly so that we can review these conditions and provide new recommendations as becomes necessary. Recognize that both natural and manmade events may have changed site conditions since issuance of this report and further review may result. If after submission of this report structural loads or finished grades are changed from those that were assumed, we urge that we be promptly informed, and retained to review our report to determine the applicability of the conclusions and recommendations, considering the changed conditions and/or time lapse. Further, we request that our firm be retained to review those portions of the plans and specifications for this particular project that pertain to earthwork and foundations as a means to determine whether the plans and specifications are consistent with the recommendations contained in the report. The conclusions and recommendations contained herein are based on several assumptions regarding grades, anticipated loads, and location of the structure. It is understood that specific information was unavailable at this

early stage of planning. It is strongly recommended that this firm be provided a copy of the plans for review upon completion. An in-depth review is considered necessary to verify the recommendations included in the text and their suitability in the final design.

It should be understood that there is the possibility that even with the proper application of current engineering principles, conditions may exist on the site that could not be identified within the scope of this investigation or which were not reasonably identifiable from the available information. The conclusions and recommendations in this report contain all the limitations inherent to the principles and practice of geotechnical engineering. AECI has not performed any observations, investigation, study, or testing that is not specifically listed in the scope of services. Thus, AECI shall not be liable for failing to discover any condition whose discovery required the performance of services outside of the scope of services provided in our proposal.

* * * * *

APPENDIX A
PLATES



VICINITY MAP

JONESBORO, ARKANSAS

NOT DRAWN TO SCALE.



PLAN OF BORINGS

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LOG OF BORING

PROJECT: PROPOSED CARAWAY ROAD BRIDGE
 JONESBORO, ARKANSAS
 FOR: CITY OF JONESBORO

BORING NO: B1

LOCATION: SEE PLAN OF BORINGS

DATE: 07/17/14

JOB NO: 424214

BORING TYPE: AUGER/WASH W/SPT

DRILLER: JOHNSON
 HILYARD ATV

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				▣ Core	⊠ Standard Penetration	▤ J-Jar
				∇ Static Water Table	⚡ Hydrostatic Water Table	⊞ No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	22		VERY STIFF TO HARD MOIST DARK BROWN SILTY CLAY (CL)		
	P2	34		PP = 2.25 TSF		
	P3	36		CONTINUES (CL) - BECOMES LIGHT BROWN		
	P4	37		PP = 3.50 TSF		
	P5	43		PP = 3.75 TSF		
10	P6	46		PP = 3.75 TSF		
	P7	43		PP = 4.50 TSF		
	P8	46		WATER AT 14.0 FEET DURING DRILLING		
	P9	46		VERY STIFF TO HARD MOIST LIGHT BROWN SANDY CLAY (CL)		
20	P10	42		PP = 4.5+ TSF		
	P11	42		PP = 4.25 TSF		
	P12	17		PP = 1.75 TSF		
30	P13	19		CONTINUES (CL)		
	P14	37		PP = 2.00 TSF		
	P15	37		PP = 3.75 TSF		
40	P16	35	PP = 3.50 TSF			
	P17	50/3"	MEDIUM DENSE TO VERY DENSE MOIST DARK GRAY SILTY SAND (SM)			
50	P18	50/3"	CONTINUES (SM) WITH PEA GRAVEL			
	P19	50/4"	CONTINUES (SM) - BECOMES BROWN			
60	P20	29	BOTTOM OF HOLE AT 61.5 FEET. BORING CAVED AT 37.0 FEET. WATER ENCOUNTERED AT 14.0 FEET DURING DRILLING. WATER LEVEL AT 22.0 FEET UPON COMPLETION OF DRILLING.			
70						

LOG OF BORING

PROJECT: PROPOSED CARAWAY ROAD BRIDGE
 JONESBORO, ARKANSAS
FOR: CITY OF JONESBORO

BORING NO: B2

DATE: 07/17/14

JOB NO: 424214

LOCATION: SEE PLAN OF BORINGS

DRILLER: JOHNSON
 HILYARD ATV

GEOTECHNICIAN: JOHNSON

BORING TYPE: AUGER/WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				▣ Core	⊠ Standard Penetration	▤ J-Jar
				∇ Static Water Table	▽ Hydrostatic Water Table	⊠ No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	22		VERY STIFF TO HARD MOIST DARK BROWN SILTY CLAY (CL) PP = 2.25 TSF		
	P2	29		CONTINUES (CL) - BECOMES LIGHT BROWN PP = 3.00 TSF		
	P3	34		PP = 3.50 TSF		
	P4	33		PP = 3.50 TSF		
10	P5	40		PP = 4.00 TSF		
				▽ WATER AT 14.0 FEET DURING DRILLING		
	P6	44		VERY STIFF TO HARD MOIST LIGHT BROWN SANDY CLAY (CL) PP = 4.50 TSF		
20	P7	40		PP = 4.00 TSF		
	P8	20		PP = 2.00 TSF		
30	P9	20		CONTINUES (CL) PP = 2.00 TSF		
	P10	38		PP = 4.00 TSF		
40	P11	36		PP = 3.75 TSF		
	P12	50/8"		DENSE TO VERY DENSE MOIST DARK GRAY SILTY SAND (SM)		
50	P13	50+		CONTINUES (SM) WITH PEA GRAVEL		
	P14	50/6"				
60	P15	31	CONTINUES (SM) - BECOMES YELLOWISH BROWN			
70			BOTTOM OF HOLE AT 61.5 FEET. BORING CAVED AT 41.0 FEET. WATER ENCOUNTERED AT 14.0 FEET DURING DRILLING. WATER LEVEL AT 25.5 FEET UPON COMPLETION OF DRILLING.			

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON COHESIVE SOILS

(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 0 - 4 blows/ft.
Loose	- 4 to 10 blows/ft.
Medium Dense	- 10 to 30 blows/ft.
Dense	- 30 to 50 blows/ft.
Very Dense	- over 50

Relative Proportions

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

Particle Size Identification

Boulders	- 8-inch diameter or more
Cobbles	- 3 to 8-inch diameter
Gravel	- Coarse - 1 to 3-inch
	Medium - ½ to 1-inch
	Fine - ¼ to ½-inch
Sand	- Coarse - 0.6 mm to ¼-inch (dia. of pencil lead)
	Medium - 0.2 mm to 0.6 mm (dia. of broom straw)
	Fine - 0.05 mm to 0.2 mm (dia. of human hair)
Silt	- 0.06 mm to 0.002 mm (Cannot see particles)

COHESIVE SOILS

(Clay, Silt and Combinations)

Consistency

Very Soft	- < 2 blows/ft
Soft	- 2 to 4 blows/ft.
Medium Stiff	- 4 to 8 blows/ft.
Stiff	- 8 to 15 blows/ft.
Very Stiff	- 15 to 30 blows/ft.
Hard	- over 30

Plasticity

Degree of Plasticity	Plasticity Index
None to slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

NOTES

Classification on logs are made by visual inspection.

Standard Penetration Test - Driving a 2.0-inch O.D., 1⅜-inch I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140-pound hammer free falling a distance of 30.0 inches. It is customary for AECI to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6.0 inches of penetration on the drill log (Example: 6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e., 8 + 9 = 17 blows/ft.).

Strata Changes - In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (-----) represents an actually observed change, a dashed line (- - -) represents an estimated change.

Groundwater observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

KEY TO SOIL CLASSIFICATIONS AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM(1)					TERMS CHARACTERIZING SOIL STRUCTURE(2)
Major Divisions	Letter	Symbol		Name	
		Hatching	Color		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW		RED	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP		RED	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM		YELLOW	Silty gravels, gravel-sand-silt mixtures
		GC		YELLOW	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS	SW		RED	Well-graded sands or gravelly sands, little or no fines
		SP		RED	Poorly-graded sands or gravelly sands, little or no fines
		SM		YELLOW	Silty sands, sand-silt mixtures
		SC		YELLOW	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS	SILTS AND CLAYS LL<50	ML		GREEN	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		GREEN	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		GREEN	Organic silts and organic silt-clays of low plasticity
	SILTS AND CLAYS LL>50	MH		BLUE	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		BLUE	Inorganic clays of high plasticity, fat clays
		OH		BLUE	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	Pt		ORANGE	Peat and other highly organic soils	

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance.

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

LAMINATED (VARVED) - composed of thin layers of varying color and texture, usually grading from sand or silt at the bottom to clay at the top.

CRUMBLY - cohesive soils which break into small blocks or crumbs on drying.

CALCAREOUS - containing appreciable quantities of calcium carbonate, generally nodular.

WELL GRADED - having wide range in grain sizes and substantial amounts of all intermediate particle sizes.

POORLY GRADED - predominantly of one grain size (uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded).

SYMBOLS FOR TEST DATA

M/C = 15 - Natural moisture content in percent.
 $\gamma = 95$ - Dry unit weight in pounds/cubic foot.
 $Q_u = 1.23$ - Unconfined compression strength in tons/square foot.
 $Q_c = 1.68$ (21 psi) - Confined compression strength at indicated lateral pressure.
 51-21-30 - Liquid limit, Plastic limit, and Plasticity index.
 30% FINER - Percent finer than No. 200 mesh sieve.
 30 B/F - Blows per foot, Standard Penetration test.
 ▼ - Hydrostatic water table.
 ▽ - Static water table.

TERMS DESCRIBING CONSISTENCY OF SOILS(2)				
COARSE GRAINED SOILS		FINE GRAINED SOILS		
DESCRIPTIVE TERM	NO. BLOWS/FOOT STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FOOT STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT.
Very Loose	0 - 4	Very Soft	<2	<0.25
Loose	4 - 10	Soft	2 - 4	0.25 - 0.50
Firm (medium dense)	10 - 30	Plastic (medium stiff)	4 - 8	0.50 - 1.00
Dense	30 - 50	Stiff	8 - 15	1.00 - 2.00
Very Dense	over 50	Very Stiff	15 - 30	2.00 - 4.00
		Hard	over 30	over 4.00

Field classification for "Consistency" is determined with a 0.25-inch diameter penetrometer.

(1) - From Waterways Experiment Station Technical Memorandum No. 3-357
 (2) - From "Soil Mechanics in Engineering Practice" by Terzaghi and Peck

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

Major divisions		Group Symbols	Typical Names	Laboratory Classifications Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (more than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C^* = \frac{D_{10}}{D_{60}}$ between 1 and 3 $C^c = \frac{D_{10} \times D_{60}}{(D_{30})^2}$ between 1 and 3	
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW
		Gravels with fines (Appreciable amount of fines)	GM*	d	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4 Above "A" line with P.I. Between 4 and 7 are borderline cases requiring use of dual symbols
				u		
		GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7		
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C^* = \frac{D_{10}}{D_{60}}$ between 1 and 3 $C^c = \frac{D_{10} \times D_{60}}{(D_{30})^2}$ between 1 and 3	
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM*	d	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4 Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u		
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:
 Less than 5 percent GW, GP, SW, SP
 More than 12 percent GM, GC, SM, SC
 5 to 12 percent Borderline cases requiring dual symbols **

Major divisions	Group Symbols	Typical Names	
Fine-grained soils (More than half of material is smaller than No. 200 sieve)	Sils and clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	Sils and clays (Liquid limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
Highly Organic soils	Pt	Peat and other highly organic soils	

Plasticity Chart

*Division of GM and SM groups into subdivisions of d and u are for roads and airfield only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; u used when L.L. is greater than 24.

**Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example GW-GC, well-graded gravel-sand mixture with clay binder.

Pile Design Calculations

PROJECT: Proposed Caraway Road Bridge
 PROJECT NO.: 424214 DATE: 08/26/14
 BORING NO.: SEL SAFETY FACTORS: QC: 3.00 QT: 3.00
 PILE TYPE: 16.0 in. Square Concrete Pile

Df ft	Depth from	ft. to	STRATA H - ft	Phi	N B/F	Shear Res KSF	Skin Friction K/F	Bearing Sum	Bearing Cap KSF
1.5	0.0	1.5	1.5	16	22	1.14	1.72	1.72	7.01
4.0	1.5	4.0	2.5	16	29	1.51	3.77	5.49	9.13
6.5	4.0	6.5	2.5	16	34	1.77	4.42	9.91	10.63
9.0	6.5	9.0	2.5	16	33	1.72	4.29	14.20	10.33
11.5	9.0	11.5	2.5	16	40	2.08	5.20	19.40	12.43
16.5	11.5	16.5	5.0	20	44	2.29	11.44	30.84	13.63
21.5	16.5	21.5	5.0	20	42	2.18	10.92	41.76	13.03
26.5	21.5	26.5	5.0	20	17	0.88	4.42	46.18	5.47
31.5	26.5	31.5	5.0	20	19	0.99	4.94	51.12	6.09
36.5	31.5	36.5	5.0	20	37	1.92	9.62	60.74	11.53
41.5	36.5	41.5	5.0	20	35	1.82	9.10	69.84	10.93
46.5	41.5	46.5	5.0	25	50	3.20	16.00	85.84	32.25
51.5	46.5	51.5	5.0	25	50	3.20	16.00	101.84	32.25
56.5	51.5	56.5	5.0	25	50	3.20	16.00	117.84	32.25
61.5	56.5	61.5	5.0	25	29	1.86	9.28	127.12	16.09

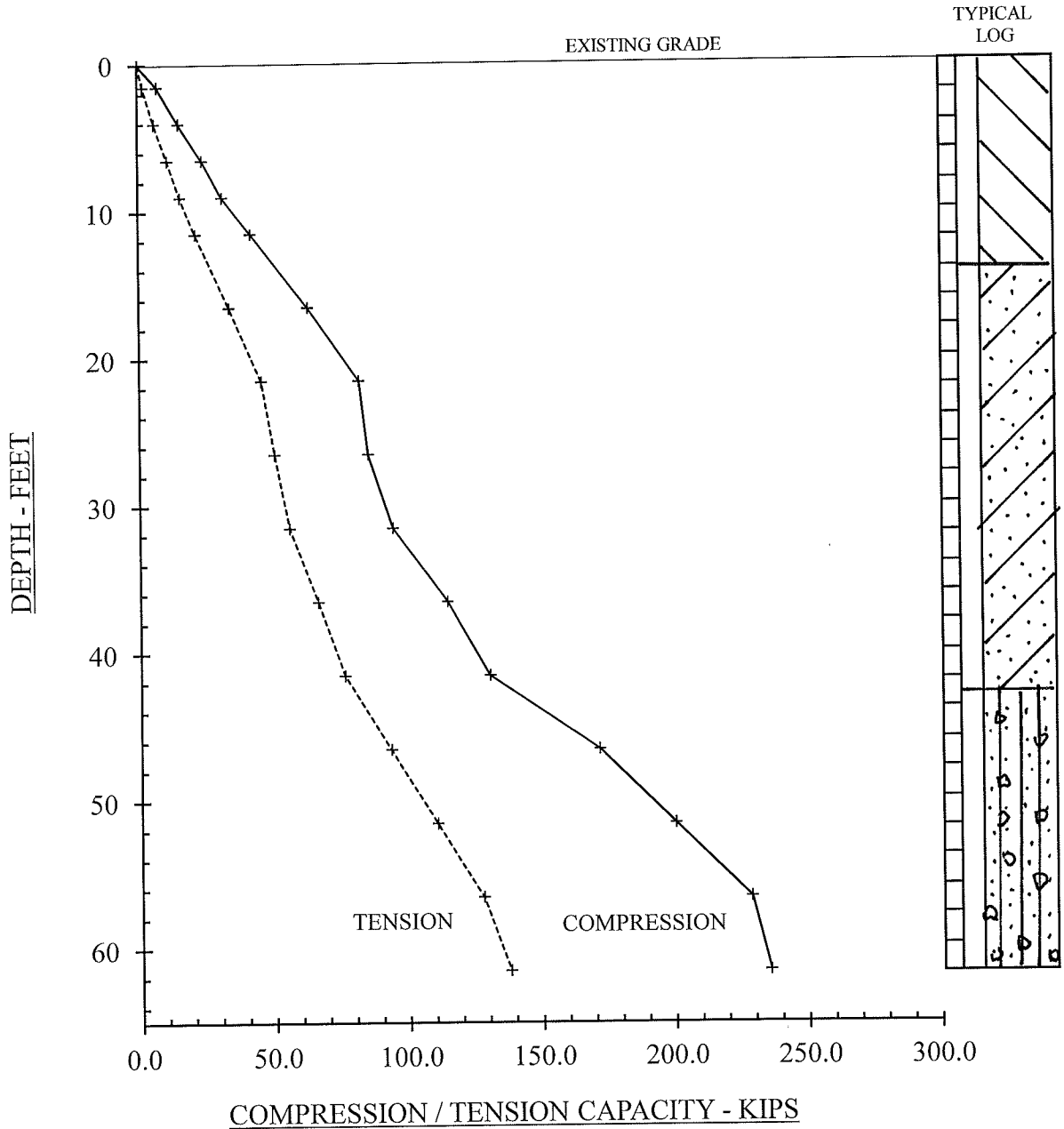
Df ft	Qf KIPS	sum Qf KIPS	Qt KIPS	Qw KIPS	QT KIPS	QC KIPS
1.5	9.2	9.2	12.5	0.4	1.9	7.2
4.0	20.1	29.3	16.2	1.1	6.1	15.2
6.5	23.6	52.8	18.9	1.7	10.9	23.9
9.0	22.9	75.7	18.4	2.4	15.6	31.4
11.5	27.7	103.4	22.1	3.1	21.3	41.8
16.5	61.0	164.5	24.2	4.1	33.7	62.9
21.5	58.2	222.7	23.2	4.9	45.5	82.0
26.5	23.6	246.3	9.7	5.7	50.4	85.3
31.5	26.3	272.6	10.8	6.5	55.8	94.5
36.5	51.3	323.9	20.5	7.2	66.2	114.8
41.5	48.5	372.5	19.4	8.0	76.1	130.6
46.5	85.3	457.8	57.3	8.8	93.3	171.7
51.5	85.3	543.1	57.3	9.6	110.5	200.2
56.5	85.3	628.5	57.3	10.3	127.8	228.6
61.5	49.5	678.0	28.6	11.1	137.8	235.5

Water Table Level 14.0 ft.

PILE CAPACITY CURVES

PROJECT: **Proposed Caraway Road Bridge**
LOCATION: **Jonesboro, Arkansas**
WATER TABLE: **14.0 ft.**
PILE DESIGN: **16.0 in. Square Concrete Pile**

PROJECT NO.: **424214**
DATE: **08/26/14**
SAFETY FACTOR: **3.00**
BORING NO.: **SEL**



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Pile Design Calculations

PROJECT: Proposed Caraway Road Bridge
 PROJECT NO.: 424214 DATE: 08/26/14
 BORING NO.: SEL SAFETY FACTORS: QC: 3.00 QT: 3.00
 PILE TYPE: 16.0 in. Octagonal Concrete Pile

Df ft	Depth from	ft. to	STRATA H - ft	Phi	N B/F	Shear Res KSF	Skin Friction K/F	Sum	Bearing Cap KSF
1.5	0.0	1.5	1.5	16	22	1.14	1.72	1.72	7.01
4.0	1.5	4.0	2.5	16	29	1.51	3.77	5.49	9.13
6.5	4.0	6.5	2.5	16	34	1.77	4.42	9.91	10.63
9.0	6.5	9.0	2.5	16	33	1.72	4.29	14.20	10.33
11.5	9.0	11.5	2.5	16	40	2.08	5.20	19.40	12.43
16.5	11.5	16.5	5.0	20	44	2.29	11.44	30.84	13.63
21.5	16.5	21.5	5.0	20	42	2.18	10.92	41.76	13.03
26.5	21.5	26.5	5.0	20	17	0.88	4.42	46.18	5.47
31.5	26.5	31.5	5.0	20	19	0.99	4.94	51.12	6.09
36.5	31.5	36.5	5.0	20	37	1.92	9.62	60.74	11.53
41.5	36.5	41.5	5.0	20	35	1.82	9.10	69.84	10.93
46.5	41.5	46.5	5.0	25	50	3.20	16.00	85.84	32.25
51.5	46.5	51.5	5.0	25	50	3.20	16.00	101.84	32.25
56.5	51.5	56.5	5.0	25	50	3.20	16.00	117.84	32.25
61.5	56.5	61.5	5.0	25	29	1.86	9.28	127.12	16.09

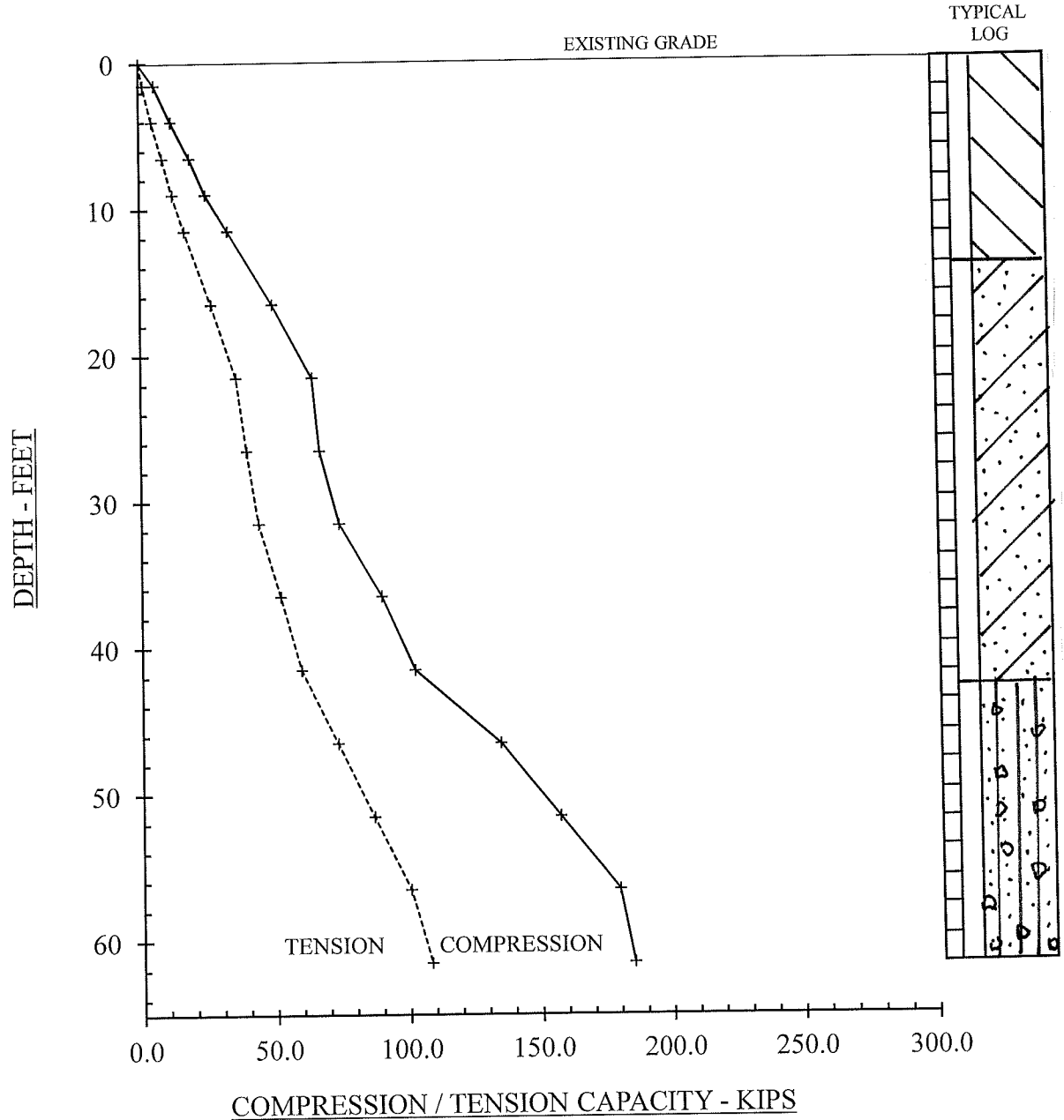
Df ft	Qf KIPS	sum Qf KIPS	Qt KIPS	Qw KIPS	QT KIPS	QC KIPS
1.5	7.2	7.2	9.8	0.3	1.5	5.7
4.0	15.8	23.0	12.7	0.8	4.8	11.9
6.5	18.5	41.5	14.8	1.4	8.6	18.8
9.0	18.0	59.5	14.4	1.9	12.3	24.6
11.5	21.8	81.2	17.3	2.4	16.7	32.9
16.5	47.9	129.2	19.0	3.2	26.5	49.4
21.5	45.7	174.9	18.2	3.8	35.8	64.4
26.5	18.5	193.4	7.6	4.5	39.6	67.0
31.5	20.7	214.1	8.5	5.1	43.8	74.2
36.5	40.3	254.4	16.1	5.7	52.0	90.2
41.5	38.1	292.5	15.3	6.3	59.8	102.6
46.5	67.0	359.5	45.0	6.9	73.3	134.9
51.5	67.0	426.6	45.0	7.5	86.8	157.2
56.5	67.0	493.6	45.0	8.1	100.3	179.5
61.5	38.9	532.5	22.4	8.7	108.2	185.0

Water Table Level 14.0 ft.

PILE CAPACITY CURVES

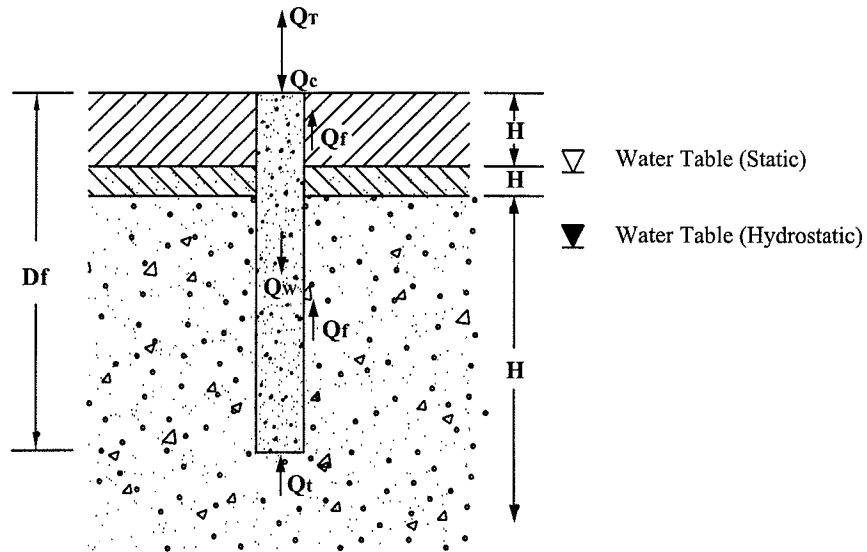
PROJECT: **Proposed Caraway Road Bridge**
LOCATION: **Jonesboro, Arkansas**
WATER TABLE: **14.0 ft.**
PILE DESIGN: **16.0 in. Octagonal Concrete Pile**

PROJECT NO.: **424214**
DATE: **08/26/14**
SAFETY FACTOR: **3.00**
BORING NO.: **SEL**



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DRIVEN OR AUGER CAST PILES



Explanation of Calculations Shown in Tables

D_f = Depth from ground surface to tip of pile (feet)

Depth = Depth from top to bottom of soil strata (feet)

Strata H = Thickness of soil strata (feet)

Φ = Angle of internal friction of soil (degrees)

N = Standard penetration N -value (blows per foot)

Shear Resistance = Ultimate shearing resistance of the soil (ksf)

Skin Friction = Ultimate friction capacity of pile (kip per foot)

Bearing Capacity, Q_m = Ultimate soil strength (kips)

Q_f = Ultimate skin friction capacity of pile in each soil strata strata (kips)

Q_t = Ultimate end bearing capacity of pile (kips)

Q_w = Weight of pile corrected for water table (kips)

Q_r = Allowable tension capacity = $(Q_f + Q_w) \div$ Safety Factor (kips)

Q_c = Allowable compression capacity = $(Q_f + Q_t) \div$ Safety Factor (kips)

EXPLANATION OF BEARING CAPACITY CALCULATIONS

APPENDIX B
SUPPORTING LABORATORY DATA

**ATTERBERG LIMIT DETERMINATION
ASTM D 4318**

Project: Proposed Caraway Road Bridge
Location: Jonesboro, Arkansas

Project No.: 424214
Date: 07/23/14

LIQUID LIMIT

Sample Number	B1;P2	B1;P6	B1;P8	B1;P10	B1;P11	B2;P3
Tare Number	14	204	73	67	412	503
Number of Blows	24	25	23	25	27	27
Tare + Wet Soil (g)	51.73	47.64	42.73	48.73	46.89	46.53
Tare + Dry Soil (g)	44.01	41.11	37.08	41.96	41.53	40.38
Tare (g)	13.86	14.51	13.76	14.16	20.01	14.24
Water (g)	7.72	6.53	5.65	6.77	5.36	6.15
Dry Soil (g)	30.15	26.60	23.32	27.80	21.52	26.14
Water Content (%)	25.61	24.55	24.23	24.35	24.91	23.53
Liquid Limit	25	25	24	24	25	24

PLASTIC LIMIT

Sample Number	B1;P2	B1;P6	B1;P8	B1;P10	B1;P11	B2;P3
Tare Number	208	501	511	601	0	505
Tare + Wet Soil (g)	19.24	19.70	19.84	19.40	20.37	19.40
Tare + Dry Soil (g)	18.48	18.94	19.12	18.64	19.56	18.70
Tare (g)	14.11	14.53	14.76	14.21	15.17	14.21
Water (g)	0.76	0.76	0.72	0.76	0.81	0.70
Dry Soil (g)	4.37	4.41	4.36	4.43	4.39	4.49
Water Content (%)	17.39	17.23	16.51	17.16	18.45	15.59
Plastic Limit	17	17	17	17	18	16
Plasticity Index	8	8	7	7	7	8
Classification (#40)	CL	CL	CL-ML	CL	CL	CL

**MECHANICAL GRAIN SIZE ANALYSES
ASTM D 422 & D 1140**

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B1;P2	Sample Depth:	2.5'-4.0'
Soil Description:	Light brown silty clay		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.0	0.0	0.0	100.0
#40	13.1	13.1	2.3	97.7
#200	17.2	30.3	5.4	94.6
PAN	527.3	557.6	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	557.6g
Percent Sample Sand:	5.4	Washing Loss:	527.3g
Percent Sample Silt/Clay:	94.6		

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B1;P6	Sample Depth:	15.0'-16.5'
Soil Description:	Light brown silty clay w/sand		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	13.6	13.6	2.5	97.5
#40	22.4	36.0	6.6	93.4
#200	49.9	85.9	15.8	84.2
PAN	457.8	543.7	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	543.7g
Percent Sample Sand:	15.8	Washing Loss:	457.8g
Percent Sample Silt/Clay:	84.2		

**MECHANICAL GRAIN SIZE ANALYSES
ASTM D 422 & D 1140**

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B1;P8	Sample Depth:	25.0'-26.5'
Soil Description:	Light brown silty clay w/sand		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.0	0.0	0.0	100.0
#40	21.7	21.7	3.7	96.3
#200	69.3	91.0	15.5	84.5
PAN	496.6	587.6	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	587.6g
Percent Sample Sand:	15.5	Washing Loss:	496.6g
Percent Sample Silt/Clay:	84.5		

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B1;P10	Sample Depth:	30.0'-31.5'
Soil Description:	Light brown silty clay w/sand		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	10.3	10.3	3.0	97.0
#10	11.3	21.6	6.3	93.7
#40	11.2	32.8	9.6	90.4
#200	21.8	54.6	16.0	84.0
PAN	286.1	340.7	100.0	0.0

Percent Sample Gravel:	3.0	Sample Weight:	340.7g
Percent Sample Sand:	13.0	Washing Loss:	286.1g
Percent Sample Silt/Clay:	84.0		

**MECHANICAL GRAIN SIZE ANALYSES
ASTM D 422 & D 1140**

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B1;P11	Sample Depth:	40.0'-41.5'
Soil Description:	Light brown silty clay w/sand		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	8.1	8.1	1.7	98.3
#40	23.6	31.7	6.7	93.3
#200	68.7	100.4	21.1	78.9
PAN	376.0	476.4	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	476.4g
Percent Sample Sand:	21.1	Washing Loss:	376.0g
Percent Sample Silt/Clay:	78.9		

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B1;P13	Sample Depth:	50.0'-51.5'
Soil Description:	Dark brownish gray silty clayey sand w/gravel		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	90.2	90.2	32.6	67.4
#10	49.8	140.0	50.7	49.3
#40	28.4	168.4	60.9	39.1
#200	33.2	201.6	72.9	27.1
PAN	74.8	276.4	100.0	0.0

Percent Sample Gravel:	32.6	Sample Weight:	276.4g
Percent Sample Sand:	40.3	Washing Loss:	74.8g
Percent Sample Silt/Clay:	27.1		

**MECHANICAL GRAIN SIZE ANALYSES
ASTM D 422 & D 1140**

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B2;P2	Sample Depth:	2.5'-4.0'
Soil Description:	Light brown silty clay		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	5.4	5.4	1.4	98.6
#40	13.2	18.6	4.9	95.1
#200	8.9	27.5	7.2	92.8
PAN	352.7	380.2	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	380.2g
Percent Sample Sand:	7.2	Washing Loss:	352.7g
Percent Sample Silt/Clay:	92.8		

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B2;P4	Sample Depth:	7.5'-9.0'
Soil Description:	Light brown silty clay		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	4.2	4.2	1.2	98.8
#40	14.8	19.0	5.5	94.5
#200	18.1	37.1	10.8	89.2
PAN	307.1	344.2	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	344.2g
Percent Sample Sand:	10.8	Washing Loss:	307.1g
Percent Sample Silt/Clay:	89.2		

MECHANICAL GRAIN SIZE ANALYSES ASTM D 422 & D 1140

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B2;P6	Sample Depth:	15.0'-16.5'
Soil Description:	Light brown silty clay w/sand		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	0.0	0.0	0.0	100.0
#40	71.3	71.3	13.1	86.9
#200	17.6	88.9	16.3	83.7
PAN	454.9	543.8	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	543.8g
Percent Sample Sand:	16.3	Washing Loss:	454.9g
Percent Sample Silt/Clay:	83.7		

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/24/14
Sample No.:	B2;P8	Sample Depth:	25.0'-26.5'
Soil Description:	Light brown silty clay w/sand		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	0.0	0.0	0.0	100.0
#10	14.7	14.7	2.6	97.4
#40	36.3	51.0	8.9	91.1
#200	40.7	91.7	16.0	84.0
PAN	481.9	573.6	100.0	0.0

Percent Sample Gravel:	0.0	Sample Weight:	573.6g
Percent Sample Sand:	16.0	Washing Loss:	481.9g
Percent Sample Silt/Clay:	84.0		

MECHANICAL GRAIN SIZE ANALYSES ASTM D 422 & D 1140

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/21/14
Sample No.:	B2;P12	Sample Depth:	45.0'-46.5'
Soil Description:	Dark brownish gray sandy silt w/gravel		

Sieve or Screen	Weight Retained (grams)	Cumulative Weight Retained (grams)	Percent Retained	Percent Passing
3"	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	100.0
#4	59.6	59.6	15.4	84.6
#10	17.5	77.1	19.9	80.1
#40	100.8	177.9	45.9	54.1
#200	87.6	265.5	68.5	31.5
PAN	121.9	387.4	100.0	0.0

Percent Sample Gravel:	15.4	Sample Weight:	387.4g
Percent Sample Sand:	53.1	Washing Loss:	121.9g
Percent Sample Silt/Clay:	31.5		

SHRINKAGE / SWELL INDEX TESTS

Project:	Proposed Caraway Road Bridge	Project No.:	424214
Location:	Jonesboro, Arkansas	Date:	07/23/14
Sample No.:	B2;P3	Sample Depth:	5.0'-6.5'
Soil Description:	Light brown silty clay	K PRC:	2.0

Liquid Limit:	24	Est. Specific Gravity:	2.65
Plastic Limit:	16	No. of Layers:	4
Plasticity Index:	8	No. Blows/Layer:	7

WATER CONTENT

	Before Test		After Test
Tare Number	71	Tare Number	82
Tare + Wet Soil	133.5 g	Tare + Wet Soil	123.4 g
Tare + Dry Soil	117.9 g	Tare + Dry Soil	108.4 g
Tare	50.3 g	Tare	50.2 g
Water Content	23.0 %	Water Content	25.7 %
Saturation	100.0 %	Saturation	100.0 %
Dry Density	105.3 pcf	Dry Density	105.9 pcf

VOID RATIO DETERMINATION

Vo	57.795 ccm	Vf	57.795 ccm
Wt of Soil + Ring	361.7 g	Wt of Soil + Ring	365.1 g
Wt of Ring	241.7 g	Wt of Ring	241.7 g
Moist Wt of Soil	120.0 g	Moist Wt fo Soil	123.4 g
Vs	36.822 ccm	Vs	36.822 ccm
EO	0.5696	Ef	0.5696

SWELL DATA

Time	Dial (* 0.0001)	Pressure	Void Ratio
10.00	0.00	0.0	0.6512
13.00	0.50	69.3	0.6514
15.00	1.00	138.6	0.6515
17.00	1.00	138.6	0.6515
32.00	1.00	138.6	0.6515
34.00	1.00	138.6	0.6515
58.00	1.00	138.6	0.6515

Final Dial Reading: 1.00

Swell Pressure: **139 PSF**

Heave = 0.016 % = 0.0019 inches/foot

SHRINKAGE DATA

Linear Shrinkage (Bar Method):

Linear Shrinkage:	5.0 %
Volumetric Shrinkage:	14.3 %