

Contract Documents and Specifications

City of Knoxville, Tennessee

**KNOXVILLE COLISEUM GARAGE C  
IMMEDIATE REPAIRS**

**WPM Project No. D07.17015.01**



**WALTER P. MOORE AND ASSOCIATES, INC.**

300 S. Orange Avenue, Suite 1200  
Orlando, FL 32801  
407-418-2218

Knoxville, Tennessee

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**CITY OF KNOXVILLE**

***INVITATION TO BID***

Project No. WPM Project No. D07.17015.01

Project: Knoxville Coliseum Garage C Immediate Repairs

Sealed bids will be received by the City of Knoxville, in Room 667-674, City County Building, 400 Main St., Knoxville, Tennessee, until 11:00:00 a.m. Eastern Time, on April 27, 2018 for the Knoxville Coliseum Garage C Immediate Repairs Project. The work consists of providing all materials, labor, equipment, supervision, permits and services, and any other work needed to complete the project as directed by the Engineer.

All bidders must be licensed contractors and must have a BC-B Construction classification.

**A Pre-Bid Conference will be held at the Knoxville Civic Auditorium and Coliseum at 9:00 a.m.. on April 13, 2018. The meeting will begin in the KCAC lobby and include a walk-through of the garage.**

**All interested potential bidders are strongly encouraged to view the “Invitation to Bid and Information for Bidders” on the City of Knoxville’s procurement website @ [www.knoxvilletn.gov/bids](http://www.knoxvilletn.gov/bids).**

## INFORMATION FOR BIDDERS

Bids will be received by the City of Knoxville, Tennessee (Herein called the "Owner") by the Purchasing Agent of the City of Knoxville, acting for the Mayor, in Room 667-674, City County Building, 400 Main Avenue, Knoxville, Tennessee, 37902 until 11:00:00 A.M. Eastern Time on April 27, 2018, and then at said office publicly opened and read aloud.

Each Bid must be submitted in a sealed envelope, addressed to the Purchasing Agent for the City of Knoxville; Room 667-674, City County Building; 400 Main Street; Knoxville, Tennessee 37902. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Owner.

No bid will be received or accepted after the above-specified time for the opening of bids. Bids that arrive late due to the fault of U.S. Postal Service, United Parcel Services, DHL, FEDEX, any delivery/courier service, or any other carrier of any sort are still considered late and shall not be accepted by the City. Such bids shall remain unopened and will be returned to the submitting entity upon request.

All Bids must be made on the required bid form supplied with the Contract documents. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Only one copy of the bid form is required.

All Bidders must be licensed contractors as required by the Contractors Licensing Act of 1994, and all Acts amendatory thereof and must have BC-B Construction classification. Bidder's name, address, license number, date of expiration of license, and that part of the license classification applying to the Bid must be placed on the sealed envelope containing the bid. Prior to submitting their bids, bidders are to be registered with the Purchasing Division by registering to be a Vendor with the City. Instructions for registering on-line are available at [www.knoxvilletn.gov/purchasing](http://www.knoxvilletn.gov/purchasing) by clicking on the Vendor Registration link. **Bid submissions from un-registered bidders may be rejected.**

If applicable, sub-contractors for electrical work, plumbing work, and HVAC must be shown on the outside of the envelope along with their respective license numbers, expiration date, and classification; where the total cost of the masonry portion of the project exceeds \$100,000 in materials and labor, the license number, expiration date, and classification must be listed on the outside of the envelope for the masonry sub-contractor. The envelope must be plainly marked, "Bid on (project) to be opened on (date) at (time)," otherwise the bid cannot be opened or considered. Any bid envelope which contains the listing of more than one contractor in each classification shall be considered in violation and the bid shall not be opened or considered. These requirements are detailed in Tennessee Code Annotated § 62-6-119 (B), the State of Tennessee, Department of Commerce and Insurance Board for licensing contractors can provide additional information if required.

Attention is called to Chapter 2, Article VIII (Procurement Code) of the Knoxville City Code, which requires that prevailing wages shall be paid workmen on all buildings and construction projects wherein any City funds are expended for such purposes. The Contractor agrees to comply with and to post the prevailing wage laws as provided in the "Prevailing Wage Act of 1975," Tennessee Code Annotated § 12-4-401 et seq. For the purpose of this contract the prevailing wage rates shall be the wage rate incorporated in these documents. The City reserves the right to demand the payroll records of Contractor at any time to monitor compliance with the wage rate/discrimination clause(s). Failure by Contractor to provide City with said records within ten working days of the written notice shall constitute a breach of this agreement.

Any Bid may be withdrawn prior to the above scheduled time for the opening of the Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No

Bidder may withdraw a Bid within ninety (90) days after the actual date of the opening thereof. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the drawings and Specifications including addenda. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done. When discrepancies occur between unit prices and total prices on the Bid Schedule, the total price submitted for each pay item will be maintained and corrections will be made to the unit prices.

The Contract documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the Contract.

Inquiries pertaining to this ITB shall be made in writing and be in the hands of the Purchasing Agent by the close of the business day on April 20, 2018. Questions can be submitted by letter, fax (865-215-2277), or email to the Assistant Purchasing Agent of the City of Knoxville ([powens@knoxvilletn.gov](mailto:powens@knoxvilletn.gov)); or City County Building; 400 Main Street; Room 667-674; P.O. Box 1631; Knoxville, TN 37901. The City is not responsible for oral interpretations given by any City employee, representative, or others; and no interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally. The issuance of written addenda is the only official method whereby interpretation, clarification, or additional information can be given. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be posted to the City's website at [www.knoxvilletn.gov/bids](http://www.knoxvilletn.gov/bids). Submitting organizations are strongly encouraged to view this website often to see if addenda are posted. Failure of any bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

All Bids must be signed in full by the Bidder or Bidders in their business name or style and must show his or their complete address. If the Bidder be a firm or a corporation, the signature shall be a duly authorized member of the firm or officer of the corporation stating his official title or position with such firm or corporation, with the corporate seal attached, attested to by the proper officer. If the Bidder be a firm, the full names and addresses of all members of the firm must be shown. If the Bidder be a corporation, the name of the state under the laws of which it is incorporated must be shown. If the Bid is signed in the name of an agent, legal evidence of his authority to bind his principals must accompany the papers.

All Bids exceeding \$100,000 must be accompanied by a Bidder's Bond equal to 5 percent of the bid price, executed by the Bidder and a surety company authorized to transact business in the State of Tennessee or by a cashier's or certified check on a duly authorized bank made payable to the City of Knoxville, as a guarantee that, if the Bid is accepted, the required Contract will be executed and the required Performance and Payment Bonds furnished. As soon as the bid prices have been compared, the Owner will return the bonds of all except the three lowest responsible Bidders. When the Agreement is executed, the bonds of the two (2) remaining unsuccessful Bidders will be returned. The Bid Bond of the successful Bidder will be retained until the Payment Bond and Performance Bond have been executed and approved, after which it will be returned.

A Performance Bond and a Payment Bond, each in the amount of one hundred percent (100%) of the Contract price, with a corporate surety approved by the Owner, will be required for the faithful performance of the Contract.

Attorneys-in-fact who sign Bid Bonds and Performance Bonds must file with each bond a certified and effective dated copy of their power of attorney.

All bidders must submit with their bid a "Subcontractor/Consultant Statement" form as described in the General Conditions. Any bid not containing such documentation may be rejected.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond within fifteen (15) days from the date when notice of award is delivered to the Bidder. The notice of award shall be accompanied by the necessary Agreement and bond forms. In case of failure of the Bidder to execute the Agreement, the Owner may at his option consider the Bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the Owner.

The Owner within ninety (90) calendar days of receipt of acceptable Performance Bond, Payment Bond, and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by written notice withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

Notice to proceed shall be issued within ninety (90) days of the execution of the Agreement by the Owner. Should there be reasons why the notice to proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and Contractor. If the Notice to Proceed has not been issued within the ninety (90) day period or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

Award will be made as a whole to one Bidder. By execution and delivery of a bid submission, the bidder agrees that any additional terms and conditions, whether submitted to the City purposely or inadvertently, shall have no force or effect.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout. Attention is called to Section 2-1016 et seq. of the Knoxville City Code, which requires that prevailing wages shall be paid workmen on all buildings and construction projects wherein any City funds are expended for such purposes. The Contractor agrees to comply with and to post the prevailing wage laws as provided in the "Prevailing Wage Act of 1975," Tennessee Code Annotated 12-4-401 et seq.

Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his Bid.

Further, the Bidder agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the General Conditions. Attention is also called to Section 15-26 of the Knoxville City Code, requiring and defining a non-discrimination clause which shall be contained in all Contracts with the City of Knoxville wherein City funds are expended for the purpose of construction, alteration, repair or demolition of any building, street, alley or sewer, or for the providing of any services, and all leases, franchises or concession through which

property of the City of Knoxville is to be used.

All bidders must comply with Title VI of the Civil Rights Act of 1964, as codified in 42 U.S.C. 2000 (d). The successful bidder must follow Title VI guidelines in all areas including hiring practices, operating facilities, insurance, and wages. The City of Knoxville reserves the right to review all compliance records by a contract compliance officer designated by the City. The Drug Free Workplace Affidavit form must be submitted with the bid.

The Drug Free Workplace Affidavit, the Non-Collusion Affidavit, and the Iran Divestment Act Form, fully executed, must be submitted with the bid.

The Contractor shall maintain such insurance as detailed in the General Conditions section of this ITB as will protect him and/or the City from all claims including Workman's Compensation and will save harmless the City from all claims and damages which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Certificates of insurance acceptable to the City shall be filed with the City prior to commencement of the work.

The Contract will be awarded with reasonable promptness by written notice to the responsive and responsible Bidder whose Bid is determined to contain the lowest bid price or lowest evaluated bid price in accordance with Section 2-862 of the Knoxville City Code.

The City may waive technicalities concerning bid documents and may follow up with individual organizations after the bid opening to obtain such documents when it is in the best interests of the City. The City of Knoxville reserves the right to waive any informalities or to reject any or all bids, to evaluate bids, and to accept any bid which, in its opinion, may be in the best interest of the City.

BID PROPOSAL  
CITY OF KNOXVILLE,  
TENNESSEE

**Knoxville Coliseum Garage C Immediate Repairs**

TO THE PURCHASING AGENT  
CITY OF KNOXVILLE, TENNESSEE

\_\_\_\_\_ hereby propose(s) to furnish all material, labor, and appliances and do all work required to complete the Contract for the Knoxville Coliseum Garage C Immediate Repairs, WPM Project No. D07.17015.01, located in the City of Knoxville, Tennessee, in a workmanlike manner and in accordance with the plans of Walter P. Moore and specifications herewith attached.

Bidder further agrees that in case of failure to sign a delivered contract within thirty (30) days, the certified check or bid bond accompanying this bid and the proceeds thereof shall be the property of the City of Knoxville if the City chooses to retain said bid bond or check.

**BID SCHEDULE**

TASK ITEM No.	TASK ITEM DESCRIPTION	UNITS	QUANTITY (1)	UNIT PRICE (2)	EXTENSION (1)x(2)=
1.1	Project Mobilization/General Conditions/Permit	LS	1		
2.3	Partial Depth Concrete Floor Repair	S.F.	5		
2.4	Full Depth Concrete Floor Repair	S.F.	150		
2.8	Concrete Wash	L.S.	1		
3.1	Overhead Slab Repair	S.F.	150		
3.4	Joist Repair	S.F.	30		
7.1	Crack Repair	L.F.	800		
7.6	Epoxy Injection	L.F.	2200		

TOTAL BID      \$ \_\_\_\_\_

In submitting this bid it is understood that the right is reserved by the City of Knoxville to reject any and all bids. If written notice of the acceptance of this bid is mailed, telegraphed or delivered to the undersigned within ninety (90) days after the opening thereof, or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver a contract in the prescribed form and furnish the required bond within fifteen (15) days after the contract is presented to him for signature.

Security of the sum of \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_), in the form of \_\_\_\_\_, is submitted herewith in accordance with the Specifications.

The bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting room, work areas, rest rooms and wash rooms, restaurants and other eating areas, time-clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The bidder agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the Project within \_\_\_\_\_ (\_\_\_\_) calendar days thereafter. Bidder further agrees to pay liquidated damages in the sum of two hundred dollars (\$200.00) for each consecutive calendar day thereafter as provided in the General Conditions.

Bidder acknowledges receipt of the following addendum:

The Bidder is prepared to submit a financial and experience statement upon request.

Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this proposal or any other proposal. Also attached is a Statement of Bidder's Qualifications.

Date: \_\_\_\_\_, 20\_\_\_\_      \_\_\_\_\_  
Name of Bidder

State License No: \_\_\_\_\_ By

Tax ID Number: \_\_\_\_\_ Title

Official Address (including Zip Code):

Incorporated under the laws of the State of

State of .....)  
 )ss.  
 County of.....)

Title \_\_\_\_\_

My commission expires: \_\_\_\_\_

## BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

As Principal, and

as Surety, are hereby held and firmly bound unto

\_\_\_\_\_ as Owner in the penal sum of

\_\_\_\_\_ for the payment of which, well

and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

The condition of the above obligation is such that whereas the Principal has submitted to

\_\_\_\_\_ a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in writing for the

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such extension.

IN WITNESS, THEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

\_\_\_\_\_(L.S.)  
Principal

Surety

SEAL By\_\_\_\_\_

## PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_ hereinafter called Principal,  
(Corporation, Partnership, or Individual)

and \_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)  
hereinafter called Surety, are held and firmly bound unto

\_\_\_\_\_  
(Name of Owner)

\_\_\_\_\_  
(Address of Owner)  
hereinafter called Owner, in the penal sum of  
\_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in lawful money of the United States, for the payment of  
which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and  
severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that whereas, the Principal entered into a  
certain contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_, a copy  
of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the  
undertakings, covenants, terms, conditions, and agreements of said contract during the original term  
thereof, and any extensions thereof which may be granted by the Owner, with or without notice to  
the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands  
incurred under such contract, and shall fully indemnify and save harmless the owner from all costs  
and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the  
Owner all outlay and expense which the Owner may incur in making good any default, then this  
obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to work to be performed thereunder to the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

In Witness Whereof, this instrument is executed in \_\_\_\_\_

(number)

counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ATTEST:

(Principal)

\_\_\_\_\_  
(Principal) Secretary  
(SEAL)

By \_\_\_\_\_(S)

(Witness as to Principal)

(Address)

\_\_\_\_\_  
(Address)

\_\_\_\_\_

(Surety)

ATTEST:

(Surety) Secretary

(SEAL)

\_\_\_\_\_  
Witness as to Surety

By

Attorney-in-fact

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

## PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

---

(Name of Contractor)

(Address of Contractor)

a \_\_\_\_\_, hereinafter called

(Corporation, Partnership or Individual)

Principal, and \_\_\_\_\_

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called Owner, in the penal sum of \_\_\_\_\_ Dollars,  
\$(\_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be  
made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain  
contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, a copy of which is  
hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,  
subcontractors, and corporations furnishing materials for or performing labor in the prosecution of  
the work provided for in such contract, and any authorized extension or modification thereof,  
including all amount due for materials, lubricants, oil, gasoline, coal and coke, repairs or machinery,  
equipment and tools, consumed or used in connection with the construction of such work, and all  
insurance premiums on said work, and for all labor, performed in such work whether by  
subcontractor or otherwise, and all taxes, licenses, assessments, contributions, penalties, and interest  
thereon, when and if the same may be lawfully due, then this obligation shall be void; otherwise to  
remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no  
change, extension of time, alteration or addition to the terms of the Contract or to the work to be  
performed thereunder or the specifications accompanying the same shall in any wise affect its  
obligation on this bond, and it does hereby waive notice to any such change, extension of time,  
alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_\_ counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST:

\_\_\_\_\_  
Principal

(Principal) Secretary

(SEAL)

By \_\_\_\_\_(s)

\_\_\_\_\_  
(Address)

Witness as to Principal

(Address)

\_\_\_\_\_

\_\_\_\_\_  
Surety

ATTEST:

BY \_\_\_\_\_  
Attorney-in-fact

(Surety) Secretary

(SEAL)

\_\_\_\_\_  
Witness as to Surety

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute bond.

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, \_\_\_\_\_, the  
duly authorized and acting legal representative of

\_\_\_\_\_, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Date:

## NOTICE TO PROCEED

To: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_

Project: \_\_\_\_\_

\_\_\_\_\_

Contract No: \_\_\_\_\_

You are hereby notified to commence work in accordance with Agreement dated \_\_\_\_\_, 20\_\_\_\_\_, on or before \_\_\_\_\_, 20\_\_\_\_\_, and you are to complete the WORK within \_\_\_\_\_ calendar days thereafter. The date of completion of all WORK is therefore \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
City of Knoxville

Owner

By \_\_\_\_\_

Title Chief Civil Engineer

## ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO

PROCEED is hereby acknowledged

by \_\_\_\_\_,

this the \_\_\_\_\_ day of \_\_\_\_\_,

20\_\_\_\_\_.

By

Title

c:

## CHANGE ORDER

Order No. \_\_\_\_\_

Date: \_\_\_\_\_

NAME OF PROJECT: \_\_\_\_\_

OWNER: \_\_\_\_\_ City of Knoxville, Tennessee

CONTRACTOR: \_\_\_\_\_

THE FOLLOWING CHANGES ARE HEREBY MADE TO THE CONTRACT DOCUMENTS:

JUSTIFICATION:

CHANGE TO CONTRACT PRICE:

Original Contract Price \$ \_\_\_\_\_

Current Contract Price adjusted by previous Change Order \$ \_\_\_\_\_.

The Contract Price due to this Change Order will be (increased) (decreased) by: \$ \_\_\_\_\_.

The new Contract Price including this Change Order will be \$ \_\_\_\_\_.

CHANGE TO CONTRACT TIME:

The Contract Time will be (increased) (decreased) by \_\_\_\_\_ calendar days.

The date for completion of all work will be \_\_\_\_\_.

All other provisions of document number \_\_\_\_\_ shall remain in full force and effect.

Requested by (Civil Engineering Chief) \_\_\_\_\_

Accepted by (Contractor) \_\_\_\_\_

Approved by (Director of Engineering) \_\_\_\_\_

Approved by (Director of Finance) \_\_\_\_\_

Approved as to form (Director of Law) \_\_\_\_\_

Ordered by (Mayor) \_\_\_\_\_

## 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, including City, State, and Zip Code.
3. When organized.
4. If a corporation, where incorporated.
5. Contracts on hand: (Schedule these, showing gross amount of each contract and the appropriate anticipated dates of completion.)
6. General character of work performed by your company.
7. Have you ever failed to complete any work awarded to you? If so, where and why?
8. Have you ever defaulted on a contract? If so, where and why?
9. List the more important contracts recently completed by you, stating approximate gross cost for each, and the month and year completed.
10. List on **Table IV** your major equipment available for this contract.
11. List your experience in structural restoration and other work similar in importance to this project.
12. List on **Table III** the background and experience of the principal members and superintendents of your organization.
13. Credit available: \$ \_\_\_\_\_.
14. Give bank reference.
15. Will you upon request, fill out a detailed financial statement and furnish any other information that may be required by the City of Knoxville?
16.
  - (a) Have you ever been a party to or otherwise involved in any action or legal proceeding involving matters related to race, creed, nationality, sex, religion or nationality? If so, give full details.
  - (b) Have you ever been accused of discrimination based upon race, color, sex, nationality, or religion in any action or legal proceeding, including any proceeding related to any Federal Agency? If so, give full details.

17. What percentage of work do you normally perform with your own work forces?
18. List on Table I the last five **parking facility** restoration projects your firm has completed **with contact information for references.**
19. List on **Table II** the **structural** restoration projects your organization has in progress at this time.
17. The undersigned hereby authorizes and requests any person, firms, or corporation to furnish any information requested by the City of Knoxville in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

By

Title

State of \_\_\_\_\_ )  
 )ss  
County of \_\_\_\_\_ )

\_\_\_\_\_ being duly sworn, deposed and  
says that he is the \_\_\_\_\_ of  
and that the answers to the foregoing questions and all statements therein contained are true and  
correct.

Subscribed and sworn to before me this \_\_\_\_\_ day \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Notary Public

My commission expires

**TABLE I - LAST FIVE PARKING FACILITY RESTORATION PROJECTS COMPLETED**

Name and Address of Contractor			Date:
Name and Address and Phone Number of Owner	Type of Restoration Work	Contract Amount	Date Completed

**TABLE II - LIST OF STRUCTURAL RESTORATION PROJECTS IN PROGRESS**

Name and Address of Contractor			Date:
Name and Address and Phone Number of Owner	Type of Work	Contract Amount	Scheduled Completion Date

**TABLE III - CONSTRUCTION EXPERIENCE OF PRINCIPALS AND SUPERINTENDENTS**

Name and address of Contractor:					Date:
Name	Position	Years of Experience		Type of Work	Contract Amount
		Construction	Restoration		

**TABLE IV - LIST OF EQUIPMENT**

Name and address of Contractor:			Date:
Description of Equipment	Quantity	Years of Service	Current Book Value

## CONTRACT AGREEMENT

THIS AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_, by and between the CITY OF KNOXVILLE, a municipal corporation organized and existing under the laws of the State of Tennessee, and \_\_\_\_\_.

WHEREAS, the Purchasing Agent for the City of Knoxville advertised for competitive sealed bids for the “\_\_\_\_\_”, Project No. \_\_\_\_\_ and

WHEREAS, \_\_\_\_\_ submitted the lowest qualified (Unit Price Bid)(Lump Sum Bid) \_\_\_\_\_, which bid was approved by the Council of the City of Knoxville on \_\_\_\_\_, by Resolution \_\_\_\_\_.

NOW, THEREFORE, the CITY OF KNOXVILLE and

for the mutual considerations stated herein agree as follows:

1. STATEMENT OF WORK. \_\_\_\_\_

shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, and perform and complete all work required on the \_\_\_\_\_, and required supplemental work for the City of Knoxville, Tennessee, all in strict accordance with the contract documents for said project including all addenda thereto as prepared by the Engineering Department of the City of Knoxville and dated \_\_\_\_\_.

II. CONTRACT PRICE. The City of Knoxville shall pay to \_\_\_\_\_  
for the satisfactory performance of the contract in current funds, subject to additions and deductions  
and in accordance with the (Unit Prices Bid)(Lump Sum Bid) as provided in the contract documents,  
but not to exceed the sum of \_\_\_\_\_ unless modified by a Contract Change Order.

III. CONTRACT. The executed Contract Documents shall consist of the following:

- a. This contract
- b. Addenda
- c. Invitation for Bids
- d. Instructions to Bidders
- e. Signed copy of Bid and Proposal
- f. General Conditions
- g. Supplemental General Conditions
- h. Special Conditions
- i. Technical Specifications
- j. Drawings

This Agreement, together with other documents enumerated in this Article III, which said other documents are as fully a part of the contract as if hereto attached or herein repeated, forms an Agreement between the parties hereto.

IN WITNESS WHEREOF, the CITY OF KNOXVILLE and \_\_\_\_\_

have caused this Agreement to be executed in five copies on the day and year first written above.

CITY OF KNOXVILLE

By  
MADELINE ROGERO  
Mayor

APPROVED AS TO FORM  
AND CORRECTNESS:

CHARLES SWANSON  
Senior Law Director

By \_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Business Address)

## DRUG-FREE WORKPLACE AFFIDAVIT

State of

County of

\_\_\_\_\_, being duly sworn, deposes, and says that:

- (1) He/She is a principal officer of \_\_\_\_\_, the firm that has submitted the attached Proposal, his or her title being \_\_\_\_\_ of the firm; and
- (2) He/She has personal knowledge of the policies of the above-named firm with respect to the maintenance of a drug-free workplace; and
- (3) He/She certifies that all provisions and requirements of the Tennessee Drug-Free Workplace Program, as established by Tenn. Code Ann. §§ 50-9-100 et. seq., have been met and implemented.

(Signed)

(Title)

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Title

My Commission expires

## IRAN DIVESTMENT ACT

### Certification of Noninclusion

**NOTICE:** Pursuant to the Iran Divestment Act, Tenn. Code Ann. § 12-12-106 requires the State of Tennessee Chief Procurement Officer to publish, using creditable information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105. Inclusion on this list makes a person ineligible to contract with the state of Tennessee; if a person ceases its engagement in investment activities in Iran, it may be removed from the list. A list of entities ineligible to contract in the State of Tennessee Department of General Services or any political subdivision of the State may be found here:

[https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/cpo-library/public-information-library/List\\_of\\_persons\\_pursuant\\_to\\_Tenn.\\_Code\\_Ann.\\_12-12-106\\_Iran\\_Divestment\\_Act\\_updated\\_7.7.17.pdf](https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/cpo-library/public-information-library/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12-106_Iran_Divestment_Act_updated_7.7.17.pdf)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to T.C.A. § 12-12-106.

Vendor Name (Printed)	Address
By (Authorized Signature)	Date Executed
Printed Name and Title of Person Signing	

## **GENERAL CONDITIONS**

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports, and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work, Termination and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance Requirements for Contractors
22. Contract Security
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
30. Taxes
31. Traffic Control
32. Job Offices and Other Temporary Buildings
33. Work by Utilities
34. Maintenance
35. Estimate of Quantities
36. Air Pollution and Dust Control
37. Care of Work
38. Tennessee One Call
39. Notice of City Procurement Code Prohibitions
40. Prevailing Wages
41. Equal Business Opportunity Program Forms

1. Definitions - Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.1 Abbreviations -

AASHTO	American Association of State Highway and Transportation Officials
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ASTM	American Society for Testing and Materials
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KUB	Knoxville Utilities Board
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TDOTSS	Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction, 2015
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1.2 Approved (also "directed," "required," "permitted") shall mean as approved, directed, required or permitted by the Engineer, unless specified otherwise.

1.3 Addenda - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawing, and Specifications, by additions, deletions, clarifications or corrections.

1.4 Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed. Included in the Bid Schedule which shall list all items to bid upon, and the total bid price for the Work.

1.5 Bidder - Any person, firm, or corporation submitting a Bid for the Work.

1.6 Bonds - Bid, Performance, and Payment Bonds and other instruments of security, furnished by the Contractor and his surety in accordance with the Contract Documents.

1.7 Change Order - A written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.

1.8 Contract Documents - The Contract including Advertisement for bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Change Order, Drawings, Specifications, Addenda, General Conditions, Supplemental General Conditions, and Certificate of Owner's Attorney.

1.9 Contract Price - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

- 1.10 Contract Time - The number of calendar days stated in the Contract Documents for the completion of the Work.
- 1.11 Contractor - The person, firm, or corporation with whom the Owner has executed the Agreement.
- 1.12 Drawings - The part of the Contract Documents which show the characteristics and scope of the Work to be performed and which have been prepared or approved by the Engineer.
- 1.13 Engineer - The Director of Engineering or his duly authorized assistant or representative.
- 1.14 Field Order - A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.
- 1.15 Notice of Award - The written notice of the acceptance of the Bid from the Owner to the successful Bidder.
- 1.16 Notice to Proceed - Written communication issued by the Owner to the Contractor authorizing him to proceed with the work and establishing the date of commencement of the Work.
- 1.17 Owner - City of Knoxville, Tennessee
- 1.18 Plans - The approved Plans, profiles, cross-sections, working drawings and supplemental drawings which show the location, character, dimensions, and details of the construction to be performed.
- 1.19 Project - The undertaking to be performed as provided in the Contract Documents.
- 1.20 Resident Project Representative - The authorized representative of the Director of Engineering who is assigned to the Project site or any part thereof.
- 1.21 Shop Drawings - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor, which illustrate how specific portions of the Work shall be fabricated or installed.
- 1.22 Specifications - A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- 1.23 Subcontractor - An individual, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.
- 1.24 Substantial Completion - That date as certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract

Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.

- 1.25 Supplemental General Conditions - Modifications and Additions to General Conditions as deemed necessary by the Owner or Engineer prior to inclusion in the Contract Documents.
- 1.26 Suppliers - Any person, supplier, or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.
- 1.27 Work - All labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the Project.
- 1.28 Written Notice - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the Work.
- 2. Additional Instructions and Detail Drawings
  - 2.1 The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents.
  - 2.2 The additional drawings and instruction thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.
- 3. Schedules, Reports, and Records
  - 3.1 The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data as the Owner may request concerning Work performed or to be performed.
  - 3.2 Prior to the first partial payment estimate, the Contractor shall submit schedules showing the order in which he proposes to carry on the Work, including dates at which we will start the various parts of the Work, estimated date of completion of each part and, as applicable:
    - 3.2.1 The dates at which special detail drawings will be required; and
    - 3.2.2 Respective dates for submission of Shop Drawings, the beginning of manufacture, the testing and the installation of materials, supplies and equipment. Each such schedule to be subject to change from time to time in accordance with the progress of the Work.
- 4. Drawings and Specifications

- 4.1 The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the Work in accordance with the Contract Documents and all incidental work necessary to complete the Project in an acceptable manner, ready for use, occupancy or operation by the Owner.
- 4.2 In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed drawings shall govern over general drawings. Anything mentioned in the Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.
- 4.3 Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.
5. Shop Drawings
  - 5.1 The Contractor shall provide Shop Drawings as may be necessary for the prosecution of the Work as required by the Contract Documents. The Engineer shall promptly review all Shop Drawings. The Engineer's approval of any Shop Drawing shall not release the Contractor from responsibility for deviations from the Contract Documents. The approval of any Shop Drawing which substantially deviates from the Requirement of the Contract Documents shall be evidenced by a Change Order.
  - 5.2 When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification that he has reviewed, checked and approved the Shop Drawings and that they conform to the requirements of the Contract Documents.
  - 5.3 Portions of the Work requiring a Shop Drawing or sample submission shall not begin until the Shop Drawing or submission has been approved by the Engineer.
6. Materials, Services and Facilities
  - 6.1 It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete and deliver the Work within the specified time.
  - 6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection.

- 6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
- 6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.
- 6.5 The Contractor warrants that he has good title to all materials, supplies, and equipment used by him in the work. Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
- 6.6 All materials required in the Work may be stored on the site subject to approval by the Engineer, but all such materials and machinery shall be neatly and compactly stored in such a manner as to cause the least inconvenience to property owners and traffic. All fire hydrants, water and gas shut-off boxes, and other underground utility accesses must be kept free and unobstructed at all times. Proper lighting and signing must be provided to warn the traffic of any obstructions caused by the storage of materials or equipment upon public thoroughfares.
- 6.7 The Contractor shall make his own arrangements for delivery and handling of equipment and materials as he may require for the prosecution of the Work. The location of all temporary lines, roadways and similar facilities shall be subject to the approval of the Engineer and these shall be located and operated so as not to interfere with other work carried on by the Owner or by other Contractors. These temporary power lines, roadways or other facilities which the Contractor furnishes, installs, maintains, and removes may be used by the Owner or other Contractors at such reasonable times as may be directed by the Engineer.
- 6.8 Adequate sanitary facilities shall be provided by the Contractor. All such sanitary facilities shall conform to the requirements of the Tennessee Department of Public Health and the Knoxville-Knox County Health Department.
- 7. Inspection and Testing
  - 7.1 All materials and equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with accepted standards.
  - 7.2 The Contractor shall provide at his expense the necessary testing and inspection services required by the Contract Documents, unless otherwise provided.
  - 7.3 Where mill tests of materials are found necessary by the Engineer to be used for acceptance, the Contractor shall furnish certified copies of such mill tests.
  - 7.4 Where shop equipment performance tests are specified, the Engineer shall be permitted to witness such tests. In the absence of a witnessed test, certified copies of shop tests shall be submitted at the discretion of the Engineer.

- 7.5 The Owner shall provide all other inspection and testing services not required by the Contract Documents. No payment will be made to the Contractor for samples taken for tests, such as concrete cylinders, etc.
- 7.6 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.
- 7.7 Neither observations by the Engineer nor inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.
- 7.8 The Engineer and his representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection, or testing thereof.
- 7.9 If any Work is covered contrary to the written request of the Engineer, it must if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense.
- 7.10 If any Work has been covered which the Engineer has not specifically requested to observe prior to its being covered, or if the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, materials, tools and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate Change Order shall be issued.

## 8. Substitutions

- 8.1 Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and functions for those referred to in the Contract Documents by reference to brand name or catalogue number and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be appropriately modified by Change Order. The Contractor warrants that if substitutes are approved, no major changes in

the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time.

9. Patents

- 9.1 The Contractor shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the Owner harmless from loss on account thereof except that the Owner shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Engineer.

10. Survey, Permits, Regulations

- 10.1 The Owner shall furnish all land surveys and establish all base lines for locating the principal component parts of the Work together with a suitable number of bench marks adjacent to the Work as shown in the Contract Documents. Unless otherwise specified in the Contract Documents, the Engineer shall furnish the Contractor all lines, profiles, grades and measurements necessary for proper construction of the project. The Contractor's attention is called to the fact that the Engineer will determine what surveying and construction layout is necessary for the Project and that minor measurements incidental to the construction process will be made by the Contractor. Items normally determined as necessary include such things as staking grades and alignment of the roadway, "Blue top stakes", slope stakes, grades and alignments of storm sewers, and staking 50' centerline stations. The Contractor shall notify the Engineer 48 hours in advance of needed construction staking.
- 10.2 The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or negligent destruction by the Contractor, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.
- 10.3 Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Section 13, Changes in the Work.
- 10.4 Construction and demolition debris must be disposed of in a state permitted and approved construction and demolition landfill (TDEC Class I, III, or IV).

10.5 Debris shall be removed and transported in such a manner that prevents spillage on streets or adjacent areas. Federal, State and local regulations regarding hauling and disposal of waste shall apply.

11. Protection of Work, Property and Persons

11.1 The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of Construction.

11.2 The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, and not attributable directly or indirectly in whole or in part to the fault or negligence of the Contractor.

11.3 In emergencies affecting the safety of persons or the Work or property at the side or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. He will give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

11.4 In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and 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 course of employment on work under the Contract.

11.5 The Contractor alone shall be responsible for 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.

11.6 The Contractor shall, at his own expense, shore up and protect any buildings, bridges, or other public or private structures which may be encountered or endangered in the prosecution

of the Work, and that may not be otherwise provided for, and he shall repair and make good any damages to such property by reason of his operations. All existing fences which due to prosecution of the Work that were removed shall be replaced by the Contractor. No extra payment will be made for said work or materials unless specified.

- 11.7 Contractor shall repair or replace at his own expense any property pins, bench marks, existing water pipes, sewers, drainage ditches and all plantings including grass that are damaged during construction. The site shall be left in its present condition after all clean up work has been done. Any damage to drainage or water pipes, local sewers, planting including grass, utilities, roads, parking space or other structures, shall be repaired and replaced immediately in the condition found. Such repairs and replacements shall be at the expense of the Contractor.
- 11.8 Contractor will be required, at his own expense, to do everything necessary to support, protect and sustain all sewer, water or gas pipes; service pipes; electric lights; power, telephone or telegraph poles; conduits; and other fixtures laid across or along the site of the Work. The Engineer, as well as the company or corporation owning said poles, pipes or conduits must be notified by the Contractor before any such fixtures are removed or molested. In case any of the said sewer, gas, or water pipes; service pipes; electric lights; power; telephone or telegraph poles; conduits; or other fixtures be damaged, they shall be repaired by the authorities having control of the same, and the expense of said repairs shall be deducted from the monies due or to become due the Contractor under this Contract.
- 11.9 Should it become necessary to temporarily change the position or remove poles, electric conduits, water pipes, gas pipes, or other pipes or wires, the Contractor shall notify the Engineer and company or the corporation owning the said poles, pipes or conduits of the location and circumstances, and shall cease work if necessary until satisfactory arrangements have been made by the owners of the said poles, pipes, conduits or wires to properly care for the same. No claims for damages will be allowed on account of any delay occasioned thereby. The entire cost of such temporary changes or removal must be included in the unit or lump sum prices bid for the various items under this Contract.
- 11.10 Before, during and after installation, the Contractor shall furnish and maintain satisfactory protection to all equipment against injury by weather, flood or breakage, thereby permitting the Work to be left in a perfect condition at the completion of the Contract. No extra payment will be made for this work but the entire cost of the same shall be included in the price bid for the construction of the work done under this contract.
- 12. Supervision by Contractor
  - 12.1 The Contractor will supervise and direct the Work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all

communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.

13. Changes in the Work

- 13.1 The Owner may at any time, as the need arises, order changes within the scope of the Work without invalidating the Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the Work, an equitable adjustment shall be authorized by Change Order. All Change Orders must be approved by the Owner and the Engineer.
- 13.2 The Engineer, also, may at any time, by issuing a Field Order make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such Field Order entitles him to a change in Contract Price or Time, or both, in which event he shall give the Engineer Written Notice thereof within fifteen (15) days after the receipt of the ordered change, and the Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the Owner.
- 13.3 No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Engineer approved by the Owner, and the claim presented with the first estimate after the change or extra work is done. When the Work is performed under the terms of Article 14 of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

14. Changes in Contract Price

- 14.1 The Contract Price may be changed only by a Change Order. The value of any Work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:
- (a) Unit prices previously approved.
  - (b) An agreed lump sum.
  - (c) The actual cost for labor, direct overhead, materials supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the Work to cover the cost of general overhead and profit.

15. Time for Completion and Liquidated Damages

- 15.1 The date of beginning and the time for completion of the Work are essential conditions of the

Contract Documents and the Work embraced shall be commenced on a date specified in the Notice to Proceed.

- 15.2 The Contractor will proceed with the Work at such rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration average climatic and economic conditions and other factors prevailing in the locality of the Work.
- 15.3 If a Contractor shall fail to complete the Work within the Contract Time, or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages as specified in the Bid for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.
- 15.4 The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is due to the following, and Contractor has promptly given Written Notice as such delay to the Owner or Engineer.
  - 15.4.1 To any preference, priority or allocation order duly issued by the Owner.
  - 15.4.2 To unforeseeable causes 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 the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and
  - 15.4.3 To any delays of Subcontractors occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.
16. Correction of Work
  - 16.1 The Contractor shall promptly remove from the premises all Work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the Work in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of making good all Work of other Contractors destroyed or damaged by such removal or replacement.
  - 16.2 All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within ten (10) days after receipt of Written Notice, the Owner may remove such Work and store the materials at the expense of the Contractor.
  - 16.3 If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged

materials or to reconstruct or correct any portion of the Work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgement of the Engineer shall be equitable.

17. Subsurface Conditions

17.1 The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by Written Notice of:

17.1.1 Subsurface or latent physical conditions at the site, differing materially from those indicated in the Contract Documents; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in Work of the character provided for in the Contract Documents.

17.2 The Owner shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the Work, and equitable adjustment shall be made and the Contract Documents shall be modified by a Charge Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required Written Notice; provided that the Owner may, if he determines the facts justify, consider and adjust any such claims asserted before the date of final payment.

17.3 If the Bidder wishes to make borings for his own use, the Owner will make the site of the Work available to the Bidder to do this exploratory work. Written permission must be obtained from the Engineer before the Bidder begins Work on the site. Cost of such borings shall be at the expense of the Bidder.

18. Suspension of Work, Termination and Delay

18.1 The Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the Contractor, by Written Notice to the Contractor and the Engineer on which Notice shall fix the date on which Work shall be resumed. The Contractor will resume that Work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

18.2 If the Contractor is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment or if he

disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the Work or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and his surety a minimum of ten (10) days from delivery of a Written Notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.

- 18.3 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.
- 18.4 After ten (10) days from delivery of a Written Notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable profit.
- 18.5 If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) days by the Owner or under an order of court or other public authority, or the Engineer fails to act on any request for payment within thirty (30) days after it is submitted, or the Owner fails to pay the Contractor substantially the sum approved by the Engineer or awarded by arbitrators within thirty (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a Written Notice to the Owner and the Engineer, terminate the Contract and recover from the Owner payment for all Work executed and all expenses sustained. In addition and in lieu of terminating the Contract, if the Engineer has failed to act on a request for payment or if the Owner has failed to make any payment as aforesaid, the Contractor may upon ten (10) days notice to the Owner and the Engineer stop the Work until he has been paid all amounts then due, in which event and upon resumption of the Work, Change Orders shall be issued for adjusting the Contract Price or extending the Contract Time or both to compensate for the costs and delays attributable to the stoppage of the Work.
- 18.6 If the performance of all or any portion of the Work is suspended, delayed, or interrupted as a result of a failure of the Owner or Engineer to act within the time specified in the Contract Documents, or if no time is specified, within a reasonable time, an adjustment in the Contract Price or an extension of the Contract Time, or both, shall be made by Change Order to compensate the Contractor for the costs and delays necessarily caused by the failure of the Owner or Engineer.

- 18.7 The Owner may terminate this Agreement at any time, with or without cause, by written notice of termination to the Contractor. If the Owner terminates this Agreement, and such termination is not a result of a default by the Contractor, the Contractor shall be entitled to receive as its sole and exclusive remedy the following amount from the Owner, and the Owner shall have no further or other obligations to the Contractor: The amount due to the Contractor for work executed through the date of termination, not including any future costs, profits, or other compensation or payments which the Contractor would have been entitled to receive if the Agreement had not been terminated.
19. Payments to Contractor
- 19.1 Payment by the Owner to the contractor will be made on a monthly basis. Work performed during the month will be submitted by the Engineer for payment on or before the 10th day of the following month. Payment will then be made by the City of Knoxville Finance Department to the Contractor. The Owner shall retain five (5%) percent of all work covered by the Contract Documents.
- 19.2 The Contractor may request partial payment for materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site. Such a request shall be accompanied by supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment and protect his interest therein, including applicable insurance.
- 19.3 All Work covered by payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work upon which payments have been made or the restoration of any damage Work, or as a waiver of the right of the Owner to require the fulfillment of all terms of the Contract Documents.
- 19.4 Upon completion and acceptance of the Work, the Engineer shall issue a certificate attached to the final payment request that the Work has been accepted by him under conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the Owner, shall be paid to the Contractor within thirty (30) days of completion and acceptance of the Work.
- 19.5 The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with

the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

19.6 No separate payment will be made for any items specified in the General Conditions, Supplementary General Conditions or the General Provision, Payments for such items shall be included in the unit price and lump sum prices bid by the Contractor for items listed in the Bid Schedule.

20. Acceptance of Final Payment as Release

20.1 The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in state amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner and others relating to or arising out of this Work. Any payment, however, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bonds.

21. Insurance Requirements for Contractors

21.1 Contractor shall at its sole expense obtain and maintain in full force and effect for the duration of the Agreement and any extension hereof at least the following types and amounts of insurance for claims which may arise from or in connection with this Agreement. All insurance must be underwritten by insurers with an A.M. Best rating of A-VIII or better.

21.2 *Commercial General and Umbrella Liability Insurance:* occurrence version commercial general liability insurance, and if necessary umbrella liability insurance, with a limit of not less than \$2,000,000 each occurrence for bodily injury, personal injury, property damage, and products and completed operations. If such insurance contains a general aggregate limit, it shall apply separately to the work/location in this Agreement or be no less than \$3,000,000.

Such insurance shall:

- a. Contain or be endorsed to contain a provision that includes the City, its officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations. The coverage shall contain no special limitations on the scope of its protection afforded to the above-listed insureds. Proof of additional insured status up to and including copies of endorsements and/or policy wording will be required.

- b. For any claims related to this project, Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees, and volunteers. Any insurance or self-insurance programs covering the City, its officials, officers, employees, and volunteers shall be excess of Contractor's insurance and shall not contribute with it.
  - c. At the sole discretion of the City, dedicated limits of liability for this specific project may be required.
- 21.3 *Automobile Liability Insurance:* including vehicles owned, hired, and non-owned, with a combined single limit of not less than \$1,000,000 each accident. Such insurance shall include coverage for loading and unloading hazards. Insurance shall contain or be endorsed to contain a provision that includes the City, its officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of automobiles owned, leased, hired, or borrowed by or on behalf of Contractor.
- 21.4 *Workers' Compensation Insurance.* Contractor shall maintain workers' compensation insurance with statutory limits as required by the State of Tennessee or other applicable laws and employers' liability insurance with limits of not less than \$500,000. Contractor shall require each of its subcontractors to provide Workers' Compensation for all of the latter's employees to be engaged in such work unless such employees are covered by Contractor's workers' compensation insurance coverage. Such insurance shall include a waiver of subrogation in favor of the City. Proof of waiver of subrogation up to and including copies of endorsements and/or policy wording will be required.
- 21.5 *Other Insurance Requirements.* Contractor shall:
- a. Prior to commencement of services, furnish the City with original certificates and amendatory endorsements effecting coverage required by this section and provide that such insurance shall not be cancelled, allowed to expire, or be materially reduced in coverage except on 30 days' prior written notice to the City Attorney of Knoxville, P.O. Box 1631, Knoxville, Tennessee 37901. Proof of policy provisions regarding notice of cancellation will be required.
  - b. Upon the City's request, provide certified copies of endorsements and policies in lieu of or in addition to certificates of insurance. Copies of policies will only be requested when contracts are deemed to be extremely or uniquely hazardous, include a dollar amount that is significant to the overall budget of the City or a City Department, or the coverage(s) may not follow standard insurance forms. A policy will only be requested after the City's Risk Manager has reviewed the contract and proof of coverage has been provided. Should the certificate of insurance refer to specific coverage wording or endorsement(s), proof of such policy wording or endorsement(s) will be required.

- c. Replace certificates, policies, and endorsements for any such insurance expiring prior to completion of services.
- d. Maintain such insurance from the time services commence until services are completed. Failure to maintain or renew coverage or to provide evidence of renewal may be treated by the City as a material breach of contract.
- e. If Contractor cannot procure insurance through an insurer having an A.M. Best rating of A-VIII, Contractor may, in the alternative, place such insurance with insurer licensed to do business in Tennessee and having A.M. Best Company ratings of no less than A. Modification of this standard may be considered upon appeal to the City Law Director.
- f. Require all subcontractors to maintain during the term of the Agreement Commercial General Liability insurance, Business Automobile Liability insurance, and Workers' Compensation/Employer's Liability insurance (unless subcontractor's employees are covered by Contractor's insurance) in the same manner as specified for Contractor. Contractor shall furnish subcontractors' certificates of insurance to the City without expense immediately upon request.

Any deductibles and/or self-insured retentions greater than \$50,000 must be disclosed to and approved by the City of Knoxville prior to the commencement of services. Use of large deductibles and/or self-insured retentions will require proof of financial ability as determined by the City.

The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, and employees for losses arising from work performed by Contractor for the City. Proof of waiver of subrogation up to and including copies of endorsements and/or policy wording will be required.

All general liability policies must be written on an occurrence basis unless the Risk Manager determines that a claims made basis is reasonable in the specific circumstance. Use of policies written on a claims made basis must be approved by the Risk Manager and retroactive dates and/or continuation dates must be provided to the City prior to commencement of any work performed. Professional Liability and Environmental Liability (Pollution Coverage) are most commonly written on a claims made basis and are generally acceptable in that form.

- 21.6 Builders' Risk Insurance. Contractor shall procure and shall maintain or shall cause to be procured and maintained Builders' Risk Insurance on a replacement cost basis during the construction of the project. Insurance is to be on an "all risks" basis and shall insure against the perils of fire and extended coverage and physical loss or damage including, but not limited to, theft, vandalism, malicious mischief, collapse, temporary building and debris removal including demolition occasioned by enforcement of any applicable legal

requirements and shall cover reasonable compensation for architect's services and expenses required as a result of such insured loss. Insurance is to cover all property of Contractor (and its subcontractors) and the City of Knoxville at the construction site. Coverage shall cover the completed value of the construction including without limitation, slab on grade, excavations, foundations, caissons, tenant finish work, and retaining walls around the perimeter of the project. Any exclusion of so-called underground damage to pipes, collapse of structure, or damage resulting from explosion or blasting shall be deleted. This coverage shall be issued on a completed value form basis for 100% of the insurable replacement value of the project. Such policy shall provide that any loss thereunder shall be payable to Contractor, the City of Knoxville, and others as their interests may appear and shall also have a replacement cost endorsement. The insurer shall waive all rights of subrogation against the City. Partial occupancy or use shall not commence until the insurance company or companies providing the insurance have consented to such partial occupancy or use by endorsement or otherwise. Contractor shall be responsible for the deductible in the event of a loss.

22. Contract Security

- 22.1 The Contractor shall within fifteen (15) days after the receipt of the Notice of Award furnish the Owner with a Performance Bond and Payment Bond in penal sums equal to the amount of the Contract Price, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions and agreements of the Contract Documents, and upon the prompt payment by the Contractor to all persons supplying labor and materials in the prosecution of the Work provided by the Contract Documents. Such Bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the state in which the Work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these Bonds shall be borne by the Contractor. If at any time a surety on any such Bond is declared a bankrupt or loses its right to do business in the state in which the Work is to be performed or is removed from the list of Surety Companies accepted on Federal Bonds, Contractor shall within ten (10) days after notice from the Owner to do so, substitute an acceptable Bond (or Bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such Bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable Bond to the Owner.

23. Assignments

- 23.1 Neither the Contractor nor the Owner shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.
- 23.2 In case the Contractor assigns all or any part of any monies due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it

is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work call for in this contract.

24. Indemnification Clause

24.1 Contractor shall defend, indemnify and hold harmless the City, its officers, employees and agents from any and all liabilities which may accrue against the City, its officers, employees and agents or any third party for any and all lawsuits, claims, demands, losses or damages alleged to have arisen from an act or omission of Contractor in performance of this Agreement or from Contractor's failure to perform this Agreement using ordinary care and skill, except where such injury, damage, or loss was caused by the sole negligence of the City, its agents or employees.

24.2 Contractor shall save, indemnify and hold the City harmless from the cost of the defense of any claim, demand, suit or cause of action made or brought against the City alleging liability referenced above, including, but not limited to, costs, fees, attorney fees, and other expenses of any kind whatsoever arising in connection with the defense of the City; and Contractor shall assume and take over the defense of the City in any such claim, demand, suit, or cause of action upon written notice and demand for same by the City. Contractor will have the right to defend the City with counsel of its choice that is satisfactory to the City, and the City will provide reasonable cooperation in the defense as Contractor may request. Contractor will not consent to the entry of any judgment or enter into any settlement with respect to an indemnified claim without the prior written consent of the City, such consent not to be unreasonably withheld or delayed. The City shall have the right to participate in the defense against the indemnified claims with counsel of its choice at its own expense.

24.3 Contractor shall save, indemnify and hold City harmless and pay judgments that shall be rendered in any such actions, suits, claims or demands against City alleging liability referenced above.

24.4 The indemnification and hold harmless provisions of this Agreement shall survive termination of the Agreement.

25. Separate Contracts

25.1 The Owner reserves the right to let other contracts in connection with this Project. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, and shall properly connect and coordinate his Work with theirs. If the proper execution or results of any part of the Contractor's Work depends upon the Work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such Work that render it unsuitable for such proper execution and results.

25.2 The Owner may perform additional Work related to the Project by himself, or he may let

other contracts containing provisions similar to these. The Contractor will afford the other Contractors who are parties to such Contracts (Or the Owner, if he is performing the additional work himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate his Work with theirs.

- 25.3 If the performance of additional Work by other Contractors or the Owner is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the Contractor prior to starting any such additional Work. If the Contractor believes that the performance of such additional Work by the Owner or others involves in additional expense or entitles him to an extension of the Contract Time, he may make claim therefore as provided in Sections 14 and 15.

26. Subcontracting

- 26.1 The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty Subcontractors. Work shall not be awarded to the Subcontractor without prior approval of the Owner.
- 26.2 The Contractor shall not award Work to Subcontractor(s), in excess of fifty (50%) percent of the Contract Price, without prior written approval of the Owner.
- 26.3 The Contractor shall be fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- 26.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.
- 26.5 Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

27. Engineer's Authority

- 27.1 The Engineer shall act as the Owner's representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and Work performed. He shall interpret the intent of the Contract Documents in a fair and unbiased manner. The Engineer will make visits to the site and determine if the Work is proceeding in accordance with the Contract Documents.
- 27.2 The Contractor will be held strictly to the intent of the Contract Documents in regard to the quality of materials, workmanship and execution of the Work. Inspections may be made at the factory of fabrication plant of the source of material supply.

- 27.3 The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.
- 27.4 The Engineer shall promptly make decisions relative to interpretation of the Contract Documents.
- 27.5 The Engineer may appoint inspectors as he desires. An inspector is placed on the Work to keep the Engineer informed as to the progress and manner in which construction is being done, and to assure adherence by the Contractor to the Drawings and Specifications. The inspector will have the authority to reject defective materials and to suspend any construction that is being improperly done, subject to final decision of the Engineer. The inspector will not have the authority to revoke, alter, enlarge or relax the provisions of these conditions, or to issue instructions contrary to Drawings and Specifications.
28. Land and Rights-of-Way
- 28.1 Prior to issuance of Notice to Proceed, the Owner shall obtain all land and rights-of-way necessary for carrying out and for the completion of the Work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.
- 28.2 The Owner shall provide to the Contractor information which delineates and describes the lands owned and rights-of-way acquired.
- 28.3 The Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities, or for storage of materials.
29. Guaranty
- 29.1 The Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion.
30. Taxes
- 30.1 The Contractor will pay all sales, consumer, use and other similar taxes required by the law of the place where the Work is performed.
31. Traffic Control
- 31.1 The Contractor shall submit to the City of Knoxville Traffic Engineer a traffic control plan for the roadways within the project area. The Contractor shall not begin construction until the traffic control plan has been approved by the Traffic Engineer. Flagmen, barricades, signs and traffic control furnished by the Contractor shall conform to the standards established in the latest edition of the "Manual on Uniform Traffic Control Devices,"

published by the U.S. Department of Transportation.

32. Job Offices and other Temporary Buildings

32.1 The Contractor shall furnish office space for the Resident Engineer. Space shall be at least 150 square feet in area and shall be located conveniently to the Work. Office shall be furnished with a desk, drafting table, applicable chairs, drawing rack, surveying instrument storage, telephone service, lights, heat, air conditioning, windows and one door with cylinder lock.

32.2 No shanties, camps or buildings for the housing of men employed on the Work shall be erected on land owned or leased by the Owner unless a permit, in writing, is secured from the Engineer allowing their construction. Should permission be asked and granted, the Contractor must comply with all regulations regarding the construction and maintenance of such buildings.

33. Work by Utilities

33.1 During the life of the contract, the Knoxville Utility Board Bureau of Water, Bureau of Gas and Bureau of Electricity; BellSouth Telephone Company, Scripps-Howard Cable Television, Traffic Engineering Department, and Service Department may install or adjust their respective utilities in the project area and work shall be performed by the Contractor in cooperation with the Utilities. The Contractor shall be responsible for the coordination of his work with the respective Utility Owner.

33.2 Any costs for relocation of the Utility during construction such as power poles, etc. to facilitate the work of the Contractor for the convenience of the Contractor shall be borne by the Contractor.

34. Maintenance

34.1 The Contractor shall undertake to provide reasonable maintenance for those items listed below and cost of said work shall be included in the unit or lump sum prices bid for the various items of Work under this Contract, and the manner of providing for this work shall meet with the approval of the Engineer:

34.1.1 The Contractor shall make ample provisions for both vehicular and pedestrian traffic on any public road. Effort must be made to minimize by-passing traffic during construction.

34.1.2 The Contractor shall furnish all the necessary equipment, shall take all necessary precautions and shall assume the entire cost of handling any sewage, seepage, storm, surface and flood flows which may be encountered at any time during the construction of the Work.

34.1.3 The Contractor shall lay and maintain temporary driveways, culverts, and crossings, such as in the opinion of the Engineer are necessary to reasonably accommodate the public.

34.1.4 The Contractor will minimize siltation and bank erosion during construction.

34.2 The contractor will be required to restore all street surfaces and utilities damaged by his operations to as good condition as they were previous to the work. He will be required to maintain all improvements, constructed by him, in good condition until they are accepted by the Engineer.

### 35. Estimate of Quantities

35.1 Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the Contract Documents including the proposal, they are given for use in comparing Bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

### 36. Air Pollution and Dust Control

36.1 The contractor shall comply with all air pollution control rules, regulations, ordinances, and statues which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statues, specified in the Tennessee Department of Public Health's, "Air Pollution Control Regulations" or any municipal regulations pertaining to air pollution.

36.2 All available precautions shall be taken to control dust. When the Engineer judges dust to be a problem, the Contractor shall control the dust by sprinkling, by applying calcium chloride, or by other methods as directed. Payment for dust control will be made at the applicable contract unit prices for the various items used and said contract unit prices will be full compensation for furnishing all materials, equipment, tools, labor and incidentals required to control dust. No additional compensation will be allowed for any costs incurred due to delays caused by necessary dust control operations.

### 37. Care of Work

37.1 The Contractor expressly undertakes at his own expense:

- a. To clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the site of the Work shall present a neat, orderly and workmanlike appearance;
- b. Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition;

- 37.2 The Owner expressly disclaims any responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing structures and pipelines and the Contractor will not be entitled to any extra compensation on account of inaccuracy or incompleteness of such information, said structures and pipelines being shown only for the convenience of the Contractor who must verify the information to his own satisfaction. The giving of this information upon the Drawings will not relieve the Contractor of his obligations to support and protect all pipelines and other structures which may be encountered during the construction of the Work and to make good all damages done to such pipelines and structures.
38. Tennessee One Call
- 38.1 The Contractor shall notify Tennessee One Call (1-800-351-1111) 3 working days prior to any excavation in public street right-of-way. This is a requirement of Tennessee state law to protect facilities located within the right-of-way.
39. Notice of City Procurement Code Prohibitions
- 39.1 It shall be unlawful for any employee of the City to participate, directly or indirectly, through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing or otherwise, in any proceeding or application, request for ruling or other determination, claim or controversy or other matter pertaining to any contract or subcontract and any solicitation or proposal therefore, where to the employee's knowledge there is a financial interest possessed by:
- (1) The employee or the employee's immediate family;
  - (2) A business other than a public agency in which the employee or a member of the employee's immediate family serves as an officer, director, trustee, partner or employee; or
  - (3) Any other person or business with whom the employee or a member of the employee's immediate family is negotiating or has an arrangement concerning prospective employment.
- 39.2 It shall be unlawful for any member of council, member of the board of education, officer or employee of the city to have or hold any interest in the profits or emoluments of any contract, job, work or service, either by himself or by another, directly or indirectly. Any such contract for a job, work or service for the City in which any member of council, member of the board of education, officer or employee has or holds any such interest is void.
- 39.3 It is unlawful for any person to offer, give or agree to give to any person, while a city employee, or for any person, while a city employee, to solicit, demand, accept or agree to

accept from other person, anything of a pecuniary value for or because of:

- (1) Any official action taken, or to be taken, or which could be taken;
- (2) A legal duty performed, or to be performed, or which could be performed; or
- (3) A legal duty violated, or to be violated, or which could be violated by such person while a City employee.

Anything of nominal value shall be presumed not to constitute a gratuity under this section. It is unlawful for any payment, gratuity or benefit to be made by or on behalf of a subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

#### 40. Prevailing Wages

- 40.1 Contractor shall at all times in performing the work under this contract comply with the City's policy on payment of prevailing wages as set forth in the Knoxville Municipal Code sections 2-1016 et seq. More specifically, but without limiting the scope of these ordinances, Contractor shall pay not less than the prevailing wage rates for all types and classifications of the Contractor's employees as determined by the City Purchasing Department under section 2-1018 of the Knoxville Municipal Code. Contractor shall furnish to the City any forms, papers, payroll copies or other information that may be required by the City and the City shall have the right to audit Contractor's books to verify that the Contractor is in compliance with the provisions cited above.

# DIVERSITY BUSINESS ENTERPRISE (DBE) PROGRAM

The City of Knoxville strongly encourages prime contractors to employ diverse businesses in the fulfillment of contracts/projects for the City of Knoxville.

The City of Knoxville's Fiscal Year 2017 goal is to conduct 3.33% of its business with minority-owned businesses, 9.21% of its business with women-owned businesses, and 45.5% with small businesses.

While the City cannot engage (pursuant to state law), in preferential bidding practices, the city does **strongly encourage** prime contractors to seek out and hire diverse businesses in order to help the city meet its goals as stated above. As such, the City encourages prime contractors to seek out and consider competitive sub-bids and quotations from diverse businesses.

For DBE tracking purposes, the City requests that prime contractors who are bidding, proposing, or submitting statements of qualifications record whether or not they plan to employ DBE's as sub-contractors or consultants. With that in mind, please fill out, sign and submit (with your bid/proposal) the following sub-contractor/consultant statement.

## CITY OF KNOXVILLE DIVERSITY BUSINESS DEFINITIONS

Diversity Business Enterprise (DBE's) are minority-owned (MOB), women-owned (WOB), service-disabled veteran-owned (SDVO), and small businesses (SB), who are impeded from normal entry into the economic mainstream because of past practices of discrimination based on race or ethnic background. These persons must own at least 51% of the entity and operate or control the business on a daily basis.

**Minority:** A person who is a citizen or lawful admitted permanent resident of the United States and who is a member of one (1) of the following groups:

- a. African American, persons having origins in any of the Black racial groups of Africa;
- b. Hispanic American, persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race;
- c. Native American, persons who have origin in any of the original peoples of North America ;

- d. Asian American, person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

Minority-owned business (MOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more minority individuals.

Woman-owned business (WOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more women.

Service Disabled Veteran-owned business (SDOV) is a continuing, independent, for profit business that performs a commercially useful function, owned by any person who served honorably on active duty in the armed forces of the United States with at least a twenty percent (20%) disability that is service connected. Meaning such disability was incurred or aggravated in the line of duty in the active military, naval or air service, and is at least fifty-one percent (51%) owned and controlled by one (1) or more service disabled veteran.

Small Business (SB) is a continuing, independent, for profit business which performs a commercially useful function and has total gross receipts of not more than ten million dollars (\$10,000,000) average over a three-year period or employs no more than ninety-nine (99) persons on a full-time basis.

**Subcontractor/Consultant Statement**  
(TO BE SUBMITTED IN THE BID/PROPOSAL ENVELOPE)

We \_\_\_\_\_ do certify that on the  
(Bidder/Proposer Company Name)

\_\_\_\_\_  
(Project Name)  
( \$ \_\_\_\_\_ )  
(Amount of Bid)

**Please select one:**

☐ **Option A: Intent to subcontract using Diverse Businesses**

A Diversity business will be employed as subcontractor(s), vendor(s), supplier(s), or professional service(s). The estimated **dollar value** of the amount that we plan to pay is:

\$ \_\_\_\_\_.  
Estimated Amount of Subcontracted Service

<b>Diversity Business Enterprise Utilization</b>			
Description of Work/Project	Amount	Diverse Classification (MOB, WOB, SB, SDOV)	Name of Diverse Business

☐ **Option B: Intent to perform work “without” using Diverse Businesses**

We hereby certify that it is our intent to perform 100 % of the work required for the contract, work will be completed without subcontracting, or we plan to subcontract with non-Diverse companies.

DATE: \_\_\_\_\_ COMPANY NAME: \_\_\_\_\_

SUBMITTED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_  
(Authorized Representative)

ADDRESS: \_\_\_\_\_

CITY/STATE/ZIP CODE: \_\_\_\_\_

TELEPHONE NO: \_\_\_\_\_

## **SPECIAL CONDITIONS**

## SPECIAL CONDITIONS

### General

All bidders must submit with their bid a non-collusion affidavit as contained in these documents.

Where there appears to be a discrepancy between the Special Conditions and any other part of the Contract documents and Specifications these Special Conditions shall govern.

The City of Knoxville reserves the right to increase or decrease quantities for the items listed in the Bid Proposal and also add or delete from the proposed construction.

### Materials Testing and Sampling:

Materials for construction shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended. All testing, sampling, and inspection of materials, as described below, shall be provided and paid for by the Contractor. All materials testing shall utilize methods as detailed in the technical specifications or as approved by the Engineer. Personnel performing materials testing shall be properly certified and approved by the Engineer. It is the Contractor's responsibility to take said samples to an approved independent laboratory and obtain test results. A minimum of three copies of all test results shall be provided to the Engineer to verify conformance to contract specifications.

The materials testing required by the Contractor shall be as described below:

#### Concrete:

Concrete shall be tested for slump, air entrainment, temperature and compressive strength for the first load of concrete delivered on the project. If the first load of concrete does not meet specifications, then each load delivered thereafter will be tested for slump, air entrainment and temperature until the concrete meets specifications. Once the concrete meets specifications, then it shall be tested for slump, air entrainment, temperature and compressive strength a minimum of every fifth load of concrete delivered or as directed by the Engineer. Compressive strength testing shall consist of four (4) cylinders and tests performed at ages of 7, 28, 28 days and one reserve cylinder. Compressive strength tests shall be in accordance with AASHTO Designation T 22 and T 23. Air entrainment testing shall be in accordance with AASHTO Designation T 152. Slump testing shall be in accordance with AASHTO Designation T 119.

### Core Drilling

The City of Knoxville reserves the right to coredrill any pavement section and have the core evaluated for compliance with the appropriate specifications. The cost of such coring and testing

shall be borne by the Contractor. These costs to the City of Knoxville shall be deducted from monies earned or to be earned by the Contractor.

#### Tennessee One Call

Contractor shall notify Tennessee One Call prior to excavation on street right-of-way according to Tennessee State Law (1-800-351-1111).

#### Title VI Compliance

All bidders must comply with Title VI of the Civil Rights Act of 1964, as codified in 42 U.S.C. 2000d. The successful bidder must follow Title VI guidelines in all areas including hiring practices, open facilities, insurance, and wages. The City of Knoxville reserves the right to review all compliance records by a contract compliance officer designated by the City.

# **TECHNICAL SPECIFICATIONS**

## **TABLE OF CONTENTS** **TECHNICAL SPECIFICATIONS**

Section 01 10 00 – Task Items

Section 03 01 01 – Surface Preparation for Patching

Section 03 01 05 – Concrete Repair Materials

Section 03 65 00 – Epoxy Related Work

Section 07 92 00 - Joint Sealants

SECTION 01 10 00 - TASK ITEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions and Division-1 Specification sections, apply to work of this section.

1.2 TASK ITEM (T.I.) DESCRIPTION

T.I. 1.1 PROJECT MOBILIZATION/GENERAL CONDITIONS/PERMIT

A. Scope of Work

- 1. Work consists of coordinating, scheduling, obtaining and assembling at construction site all equipment, materials, permits, supplies, manpower and other essentials and incidentals necessary to perform Work defined in this Contract.

T.I. 1.2 CONCRETE FORMWORK

A. Scope of Work

- 1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to install shoring and formwork as required for cast-in-place concrete or trowel applied materials. Concrete formwork is incidental to all other Task Items.

T.I. 2.3 PARTIAL DEPTH CONCRETE FLOOR REPAIR

A. Scope of Work

- 1. Work consists of furnishing all labor, materials, equipment, staging, formwork, supervision, and incidentals necessary to locate existing spalls, locate and remove full delaminated and unsound concrete from post-tensioned slab, conventionally cast-in-place slab or slab-on-grade, prepare cavities, and install repair materials to restore concrete floor slab to original condition and appearance. Refer to Detail 2.3/S2.0 for specific requirements. Refer to Plan Sheets for location of work.

B. Materials

- 1. Material for repair areas shall be as specified in Section "Concrete Repair Materials."

C. Execution

- 1. Contractor shall locate and mark all work areas as specified in Section "Surface Preparation for Patching." Marking will be done with methods

approved by Engineer and Owner. Contractor shall identify all critical repair work areas before starting the work.

2. Procedure for delaminated, spalled, and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching."
3. All steel exposed within cavities shall be cleaned to bare metal by abrasive methods or other approved methods as specified in Section "Surface Preparation for Patching."
4. Exposed steel shall be epoxy coated with an approved epoxy product as specified in Section "Surface Preparation for Patching."
5. Contractor shall prepare cavities for repair placement as specified in Section "Surface Preparation for Patching."
6. Patch installation procedures shall be in accordance with referenced specifications for selected material.

T.I. 2.4 FULL DEPTH CONCRETE FLOOR REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, shoring, formwork, supervision, and incidentals necessary to locate and remove full depth delaminated concrete surfaces, form and install concrete slab to original condition and appearance. Refer to Detail 2.4/S2.0 for specific requirements. Refer to Plan Sheets for location of work.

B. Materials

1. Material for repair areas shall be as specified in Section "Concrete Repair Materials."

C. Execution

1. Contractor shall locate and mark all work areas as specified in Section "Surface Preparation for Patching." Marking will be done with methods approved by Engineer and Owner. Contractor shall identify all critical repair work areas before starting the work.
2. Procedure for delaminated, spalled, and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching."
3. All steel exposed within cavities shall be cleaned to bare metal by abrasive methods or other approved methods as specified in Section "Surface Preparation for Patching."
4. Exposed steel shall be epoxy coated with an approved epoxy product as specified in Section "Surface Preparation for Patching."
5. Contractor shall form concrete with an approved materials and prepare cavities for repair placement as specified in Section "Surface Preparation for Patching."

6. Patch installation procedures shall be in accordance with referenced specifications for selected material.

T.I. 2.8 CONCRETE WASH

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, formwork, supervision, and incidentals necessary to install concrete wash along expansion joint. Refer to Detail 2.8/S2.1 for specific requirements. Refer to Plan Sheets for location of work.

B. Materials

1. Material for repair areas shall be as specified in Section "Concrete Repair Materials."

C. Execution

1. Contractor shall locate and mark all work areas as specified in Section "Surface Preparation for Patching." Marking will be done with methods approved by Engineer and Owner. Contractor shall identify all critical repair work areas before starting the work.
2. Existing surface shall be roughened to ICRI CSP-9 prior to installing new material.
3. Minimum thickness of wash shall be ¾-inch. Install key at edge of wash to meet minimum thickness requirements.
4. Installation of concrete repair materials shall be in accordance with referenced specifications for selected material.
5. Install ½" wide control joints on concrete wash at 5'-0" on center. Fill joints with an approved sealant.

T.I. 3.1 OVERHEAD SLAB REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, scaffolding, shoring, and incidentals necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities, and install patching materials to restore slab to original condition and appearance. Refer to Detail 3.1/S2.8. Refer to Plan Sheets for location of work.

B. Materials

1. Material for repairs shall be as specified in Section "Concrete Repair Materials."

C. Execution

1. Contractor shall locate and mark all work areas as specified in Section "Surface Preparation for Patching." Contractor shall identify all critical repair work areas before starting the work.
2. Procedure for delaminated, spalled, and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching."
3. All steel exposed within cavities shall be cleaned to bare metal by abrasive methods as specified in Section "Surface Preparation for Patching."
4. Exposed steel shall be epoxy coated with an approved epoxy product as specified in Section "Surface Preparation for Patching."
5. Contractor shall form concrete with approved materials and prepare cavities for repair placement as specified in Section "Surface Preparation for Patching."
6. Patch installation procedures shall be in accordance with referenced specifications for selected material.

T.I. 3.4 JOIST REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, scaffolding, shoring, and incidentals necessary to locate and remove delaminated/spalled concrete, prepare cavities, and install patching materials to restore joists to original condition and appearance. Refer to Detail 3.4/S2.2. Refer to Plan Sheets for location of work.

B. Materials

1. Material for repairs shall be as specified in Section "Concrete Repair Materials."

C. Execution

1. Contractor shall locate and mark all work areas as specified in Section "Surface Preparation for Patching." Contractor shall identify all critical repair work areas before starting the work.
2. Procedure for delaminated, spalled, and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching."
3. All steel exposed within cavities shall be cleaned to bare metal by abrasive methods as specified in Section "Surface Preparation for Patching."
4. Exposed steel shall be epoxy coated with an approved epoxy product as specified in Section "Surface Preparation for Patching."
5. Contractor shall prepare cavities for repair placement as specified in Section "Surface Preparation for Patching."
6. Patch installation procedures shall be in accordance with referenced specifications for selected material.

T.I. 7.1 CRACK REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to locate, prepare, rout and seal random cracks in concrete floor slab. Refer to Detail 7.1/S2.2 for specific requirements. Refer to Plan Sheets for location of work.

B. Materials

2. Approved materials to be used in this Work are specified in Section "Joint Sealants."
3. Joint sealant material shall be compatible with traffic caoting materials specified in Section "Traffic Coatings."

C. Execution

4. Contractor shall thoroughly inspect concrete slabs for cracks in the areas shown in the drawings. Those identified as either greater than 1/32 in. wide or showing evidence of water and/or salt staining on ceiling below shall be sealed.
5. All cracks identified for repair shall be marked to aid in precision routing. Obtain depths to top reinforcing bars in area of repair by use of non-destructive methods.
6. Determine depth of electrical conduit (if applicable). Do not exceed ½ of this depth of routing where the crack to be repaired crosses the embedded items. Damage to embedded items will require repair or replacement at no cost to the Owner.
7. Cracks shall be ground or saw-cut to an adequate width and depth as required by Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut.
8. Cavities shall be thoroughly cleaned by either abrasive methods or grinding to remove all laitance, unsound concrete and curing compounds which may interfere with adhesion. Groove shall be air blasted to remove remaining debris.
9. Sealant materials and associated reference specifications are listed in Section "Joint Sealants." Sealant installation procedures shall be in accordance with referenced specifications for selected material.

T.I. 7.6 EPOXY INJECTION

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, staging, supervision, and incidentals necessary to locate cracks, prepare and inject

approved cracks with epoxy resin. Refer to Detail 7.6/S2.3 for specific requirements. Refer to Plan Sheets for location of work.

B. Materials

1. Material for crack repairs shall be as specified in Section “Epoxy Related Work.”

C. Execution

1. Contractor shall locate all cracks to receive injection and report them to Engineer for verification.
2. Clean ½” wide strip on each side of crack.
3. When concrete surface adjacent to crack has deteriorated, create a “V” groove in the crack until sound concrete is reached.
4. Install ports into cracks with a spacing not to exceed 6 inches.
5. Install cap seal on crack to prevent leakage of epoxy during injection.
6. Install repair materials in strict accordance with manufacturer’s recommendations and referenced specifications for selected material.
7. At completion of the injection work, contractor shall remove injection ports and cap seal, and repair the concrete profile to match existing conditions.

END OF SECTION 01 10 00

## SECTION 03 01 01 - SURFACE PREPARATION FOR PATCHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the provisions of all labor, materials, supervision and incidentals required to locate and remove all delaminated and unsound concrete, including preparation of cavities created by removal to receive patching material and preparation of existing surface spalls to receive patching material.
- B. Related Sections include the following:
  - 1. Division 03 Section "Concrete Repair Materials."
- C. Contractor shall fully acquaint himself with the existing job site conditions and discuss the accessibility of the work areas with the Owner.
- D. Provide barricades around the work area with appropriate signage to keep non-construction people from entering work area.
- E. Contractor shall provide all traffic cones or barriers to direct traffic during the repair of the facility. This work shall be done in consultation with the Owner.

#### 1.2 REFERENCES

- A. Applicable Standards:
  - 1. Canadian Standards Association
    - a. CSA-A23.1 Concrete Materials and Methods of Concrete Construction
    - b. CSA-A23.2 Methods of Test and Standard Practice for Concrete
    - c. CSA-S448.1 Repair of Reinforced Concrete In Buildings and Parking Structures
  - 2. American Concrete Institute (ACI), latest version:
    - a. ACI 301 Specifications for Structural Concrete
    - b. ACI 546.1R Guide for Repair of Concrete Bridge Structures
    - c. ACI 546R Concrete Repair Guide
  - 3. International Concrete Repair Institute (ICRI):
    - a. ICRI 310.1R Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion
    - b. ICRI 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

- c. ICRI 320.2R Guide for Selecting and Specifying Materials for Repair of Concrete Surfaces

## PART 2 - PRODUCTS AND MANUFACTURERS

- A. Cementitious epoxy coating for existing exposed non-prestressed steel reinforcement:

1. BASF: MasterEmaco P 124
2. Sika Chemical Corporation: Armatec 110 EpoCem
3. Euclid Chemical: Duralprep A.C.

### 2.2 SUBSTITUTIONS

- A. Substitutions may be considered provided complete technical information and job references are furnished to the Owner/Engineer and approved prior to commencement of work.
- B. Changes in products required to suit temperature and environmental conditions at the time of material application shall be specified as separate line items by the Contractor showing credit or additions to the price for the various tasks.
- C. In using the above products, follow strictly the manufacturer's specifications and directions for mixing and application. Also heed all label warnings by manufacturer. Make application in accordance with applicable safety laws.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Horizontal Surfaces

1. Contractor shall sound all designated floor areas for delaminations.

- B. Vertical and Overhead Surfaces

1. Contractor shall sound only vertical and overhead surfaces in designated areas that show evidence of cracking and/or staining. Cracks, usually horizontal in orientation along beam faces, and vertical in orientation near column corners are indicators of delaminated concrete.

- C. Delaminated areas: Once located by Contractor, Contractor shall further sound and mark them to define limits.

- D. Spalls: Contractor shall locate spalls by visual inspection, and mark boundaries.

- E. Engineer may mark additional unsound concrete for removal.

- F. Areas to be removed shall be rectangular to provide adequate appearance.

- G. Contractor shall locate and determine the depth of all embedded reinforcement, electrical conduit, post-tensioned tendons, in repair area and mark these locations for reference during concrete removal. Do not cut any embeds unless approved by Engineer.

### 3.2 ABRASIVE BLASTING

- A. Necessary approvals shall be obtained by the Contractor from authorizing governmental or other agencies prior to abrasive-blasting. Abrasive-blasting operations shall comply with the requirements of OSHA and NIOSH (National Institute for Occupational Safety and Health) Standard PB-246-697.

### 3.3 RESURFACING PREPARATION

- A. All delaminated, spalled and unsound concrete shall be removed from within marked boundary to minimum depth of 1/8 inch (3 mm) using 15 lb (65N) to 30 lb (130N) air hammers equipped with chisel point bits. When directed by Engineer, chipping hammers less than 15 lb (65N) shall be used to minimize damage to sound concrete. If delaminations exist beyond minimum removal depth, chipping shall continue until all unsound and delaminated concrete has been removed from cavity.
- B. Where embedded reinforcement, anchorages, or electrical conduit is exposed by concrete removal, proceed with caution to avoid damaging it during removal of unsound concrete. If bond between exposed embedded reinforcement/anchorages and adjacent concrete is impaired by Contractor's removal operation, Contractor shall perform concrete repair instead of concrete resurfacing along entire length affected at no cost to owner.
- C. If rust is present on embedded reinforcement where it enters sound concrete perform concrete repair instead of concrete resurfacing along the length of corroded reinforcement. Additional removal shall continue until non-rusted reinforcement is exposed, or may be terminated per Engineer's instructions.
- D. Edges of patch areas shall be dressed perpendicular to member face to eliminate feather edges. All edges shall be straight and resurfacing areas square or rectangular-shaped. Do not overcut patch corners during sawcutting, chipping, or grinding.
- E. Contractor shall exercise extra caution during saw cutting to avoid damaging existing reinforcement particularly post-tensioned tendons, sheathing, electrical conduit and any other embedded items near surface of concrete. Any damage to existing embedded items shall be repaired by Contractor with Engineer's approved methods at no additional cost to Owner.

### 3.4 REPAIR PREPARATION

- A. Contractor shall review all marked removal and preparation areas and request clarification by Engineer of shoring requirements in questionable areas. Shores shall be in place prior to concrete removal and cavity preparation in any area requiring shores.
- B. All delaminated, spalled and unsound concrete shall be removed from within marked boundary to minimum depth of 3/4 inch (19mm) using 15 lb (65N) to 30 lb (130N) air hammers equipped

with chisel point bits. When directed by Engineer, chipping hammers less than 15 lb (65 N) shall be used to minimize damage to sound concrete. If delaminations exist beyond minimum removal depth, chipping shall continue until all unsound and delaminated concrete has been removed from cavity.

- C. Where embedded reinforcement, anchorages, or electrical conduit is exposed by concrete removal, proceed with caution to avoid damaging it during removal of unsound concrete. If bond between exposed embedded reinforcement/anchorages and adjacent concrete is impaired by Contractor's removal operation, Contractor shall perform additional removal around and beyond perimeter of reinforcement for minimum of 3/4 inch (19mm) along entire length affected at no cost to owner.
- D. If rust is present on embedded reinforcement where it enters sound concrete, additional removal of concrete along and beneath reinforcement will be required. Additional removal shall continue until non-rusted reinforcement is exposed, or may be terminated per Engineer's instructions.
- E. Removal of concrete for repair requires saw cutting 3/4 inch (19mm) into floor slab of the perimeter of the removal, unless a more stringent criteria applies. For vertical and overhead surfaces marked areas shall be saw-cut, ground, or chipped to depth of 1/2 inch (12 mm) to existing concrete, measured from original surface.
- F. Edges of patch areas shall be dressed perpendicular to member face to eliminate feather edges. All edges shall be straight and patch areas square or rectangular-shaped. Do not overcut patch corners during sawcutting, chipping, or grinding.
- G. Contractor shall exercise extra caution during saw cutting to avoid damaging existing reinforcement particularly post-tensioned tendons, sheathing, electrical conduit and any other embedded items near surface of concrete. Any damage to existing embedded items shall be repaired by Contractor with Engineer's approved methods at no additional cost to Owner.

### 3.5 INSPECTION OF REPAIR PREPARATION

- A. After removals are complete, but prior to final cleaning, cavity and exposed reinforcement shall be inspected by Contractor and subject to verification by Engineer for compliance with requirements of this Section.
- B. Contractor shall inspect embedded reinforcement and conduits exposed within cavity for defects due to corrosion or damage resulting from removal operations. Contractor shall notify Engineer of all defective and damaged reinforcement or conduits. Replacement of damaged or defective reinforcement/conduits shall be performed in accordance to the requirements of this Section.

### 3.6 CLEANING OF REINFORCEMENT

- A. All exposed reinforcing steel shall be cleaned and free of rust and other contaminants. Cleaning shall be accomplished by abrasive methods. Cleaning shall be completed immediately before patch placement to insure that base metal is not exposed to elements and further rusting for extended periods of time. Use powered wire brushes in locations where reinforcing steel cannot be cleaned by abrasive-blasting or water-blasting.

- B. All exposed reinforcing steel shall be coated with a corrosion inhibiting product specified in Part 2 of this specification prior to mortar application. Protect prepared surfaces from damage prior to and during patch placement.

### 3.7 REINFORCEMENT IN REPAIR AREAS

- A. All embedded reinforcement exposed during surface preparation that has lost more than 15% of original cross-sectional area due to corrosion shall be considered defective. Defective reinforcement shall be supplemented in accordance to Engineer's instructions and shall be paid for by Owner.
- B. Damaged reinforcement caused during removals made by Contractor shall be supplemented in accordance to Engineer's instructions and shall be paid for by Contractor.
- C. Supplement defective or damaged embedded reinforcement of equal diameter with a Class B splice in accordance to ACI-318 beyond damaged portion of reinforcement. Secure new reinforcement to existing reinforcement with approved anchors. Supplemental steel shall be A615 Grade 60 steel except where more stringent requirements apply in drawings and/or details.
- D. Loose reinforcement exposed during surface preparation shall be securely anchored prior to patch placement. Loose reinforcement shall be adequately secured with wire ties to bonded reinforcement or with drilled-in anchors. Drilled-in anchors shall be TW-1400 anchors by ITW Ramset/Red Head, Tie-Wire Wedge-All anchors by Simpson Strong-Tie, or approved equal. Engineer will determine adequacy of wire ties and anchors. Securing loose reinforcement is incidental to surface preparation.
- E. Minimum of 1-1/2 inch (38 mm) concrete cover shall be provided over all new/existing reinforcement except where more stringent requirements apply in drawings and/or details.

### 3.8 PREPARATION OF CAVITY FOR PATCH PLACEMENT

- A. Cavities will be examined prior to commencement of patching operations. Sounding surface shall be part of examination. Delaminations noted during sounding shall be removed as specified in this Section.
- B. All debris shall be removed from site prior to commencement of patching.

END OF SECTION 03 01 01

## SECTION 03 01 05 – CONCRETE REPAIR MATERIALS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the provisions of all labor, materials, supervision and incidentals required to prepare deteriorated or damaged concrete surfaces and install patching materials to restore original surface condition and integrity.
- B. Related Sections include the following:
  - 1. Division 03 Section “Surface Preparation for Patching.”
  - 2. Division 03 Section “Cast-in-Place Concrete.”
- C. Contractor shall fully acquaint himself with the existing job site conditions and discuss the accessibility of the work areas with the Owner.
- D. Contractor shall ensure that there is adequate ventilation in areas where repair work is being performed and that no work results in nauseating, annoying or toxic fumes and odors from entering occupied areas. Provide barricades around the work area with appropriate signage to keep non-construction people from entering work area.
- E. Contractor shall provide all traffic cones or barriers to direct traffic during the repair of the facility. This work shall be done in consultation with the Owner.

#### 1.3 REFERENCES

- A. Applicable Standards:
  - 1. American Concrete Institute (ACI), latest version:

ACI 301R	Specifications for Structural Concrete
ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to Curing Concrete
ACI 318R	Building Code Requirements for Structural Concrete
ACI 548.1R	Guide for Use of Polymers in Concrete
  - 2. American Society for Testing and Materials (ASTM):

ASTM C109	Test Method for Compressive Strength of Hydraulic Cement Mortars
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#### 1.4 INFORMATION SUBMITTALS

- A. Make submittals in accordance with requirements of Division 01 and as specified in this Section.

#### 1.5 ACTION SUBMITTALS

- A. Proposed Means and Methods:
  - 1. Contractor shall submit procedures to protect fresh resurfacing, patches, and concrete from weather and traffic.

#### 1.6 QUALITY ASSURANCE

- A. Work shall conform to requirements of the American Concrete Institute (ACI) as applicable except where more stringent requirements are shown on Drawings or specified in this Section.  
Qualifications
  - 1. Manufacturer's Qualifications: Companies furnishing the repair materials shall have a proven track record of at least five years. Furthermore, they shall have in existence a program of training, certifying, and supporting a nationally organized program of approved contractors. Evidence of this shall be made available to the Engineer/Owner upon request.
  - 2. Contractor's Qualifications: Contractor performing the work shall be an approved contractor by the manufacturer furnishing the repair materials, and shall have no less than five years of experience in the various types of work required in this project. Upon request by the Engineer, a notarized certification from the manufacturer attesting to the training shall be submitted to the Engineer/Owner.
  - 3. Applicator's Qualifications:
    - a. Repair work shall only be performed by contractors who have successfully used this process on at least three similar structural repairs of equal scope which have performed successfully for a minimum period of five years.
    - b. Only adequately trained and experienced personnel shall be used on the job.

### PART 2 - PRODUCTS

#### 2.1 GENERAL REQUIREMENTS FOR POLYMER MODIFIED CEMENTITIOUS MORTARS

- A. Mortar used for bonding, patching, and resurfacing in exposed or exterior environmental conditions with large cyclic temperature changes shall have the following properties:
  - 1. Mortar shall be non-sagging.

2. Acceptable materials shall have minimum 3-day compressive strength of 3,000 psi, and 5,000 psi at 28 days as certified by manufacturer.
3. Coefficient of thermal expansion shall be comparable with that of concrete [5.5 x 10<sup>-6</sup> in/in/°F).
4. Sand used in preparing mortar shall be graded oven dry quartzite furnished in bags.
5. The mortar patch material shall match the existing texture and color of existing exposed/cured concrete without giving a blotchy appearance. A test patch shall be applied for approval prior to final acceptance of the mortar. Size of test patch shall be approximately equal to the size of the average mortar patch to be used on the project.

## 2.2 CONCRETE REPAIR MATERIALS

### A. Polymer Modified Mortar for Horizontal Repairs (Task Item 2.3):

1. MasterEmaco N 300 CI (formerly EMACO R300 CI), MasterEmaco T 310 CI (formerly EMACO R310 CI) by BASF
2. SikaTop 122 Plus by Sika
3. Sika 222 with Latex R by Sika
4. Eucocrete Supreme by Euclid Chemical Company

### B. Polymer Modified Mortar for Full Depth Repairs (Task Item 2.4):

1. Sikacrete 211 Plus by Sika
2. MasterEmaco S440 (formerly LA40 Repair Mortar) by BASF
3. Eucocrete by Euclid Chemical Company

### C. Polymer Modified Mortar for Overhead/Vertical Repairs (Task Items 3.1 and 3.4):

1. MasterEmaco N 425 (formerly Gel Patch) by BASF
2. MasterEmaco T 310 CI (formerly EMACO R 310 CI) by BASF
3. SikaTop 123 Plus by Sika
4. Sika 223 with Latex R by Sika
5. Verticoat by Euclid Chemical Company
6. Verticoat Supreme by Euclid Chemical Company

### D. Non-Polymer Modified High Early Strength Products (Task Item 2.8):

1. MasterEmaco T 415 (formerly EMACO T415) or MasterEmaco T 430 (formerly EMACO T430) by BASF
2. MasterEmaco T 1060 (formerly 10-60 Rapid Mortar) or MasterEmaco T 1061 (formerly 10-61 Rapid Mortar) by BASF
3. SikaQuick 1000 or SikaQuick 2500 by Sika
4. VersaSpeed by Euclid Chemical

### E. Substitutions may be considered provided complete technical information and job references are furnished to the Owner/Engineer and approved prior to commencement of work.

- F. Changes in products required to suit temperature and environmental conditions at the time of material application shall be specified as separate line items by the Contractor showing credit or additions to the price for the various tasks.
- G. In using the above products, follow strictly the manufacturer's specifications and directions for mixing and application. Also read all label warnings by manufacturer. Make application in accordance with applicable safety laws.

### PART 3 - EXECUTION

#### 3.1 PATCHING WITH REPAIR MORTAR

##### A. Surface Preparation

- 1. Concrete surface to which the mortar is to be applied shall be exposed parent concrete free of loose and unsound materials. Preparation of cavity to receive new mortar shall be in accordance to Section "Surface Preparation for Patching" and manufacturer's instructions.
- 2. Ensure that the surface and ambient temperature is at least 45°F and rising at the time of application.

##### B. Bonding Grout

- 1. Apply grout in strict accordance with manufacturer's recommendations.
- 2. If bonding grout dries, cavity shall not be patched until it has been re-cleaned and prepared as indicated in Section "Surface Preparation for Patching." Grout shall not be applied to more cavities than can be patched within 15 min. by available manpower.
- 3. Patching materials shall be placed immediately following grout application in strict accordance with manufacturer's instructions.

##### C. Mortar Application

- 1. Condition polymer mortar material to 65°F-80°F (18°C-26°C) unless otherwise recommended by the manufacturer. Materials beyond this range of temperature shall not be used.
- 2. Mix the two components in a clean container free of contaminants as recommended by the manufacturer.
- 3. Thoroughly blend components and aggregates with portable mixers to a uniform and homogenous mixture. Small batches of one quart or less may be mixed by spatulas, palette knives or similar devices.
- 4. Mixing should be accomplished within three minutes when using Jiffy mixer or five minutes when mixed by hand.
- 5. Apply mortar by means suitable for the consistency of the mortar mix.

6. Use appropriate forms as required for retaining mortar if mixed to a flowable consistency.
7. Consolidate the mortar thoroughly to remove entrapped air.
8. Supplemental wire mesh shall be required for delamination and spall repairs greater than 2" in depth. Fresh bonding grout is required between successive lifts of patching material.
9. Finish surface of mortar to match the texture and contours of existing concrete.

### 3.2 CURING

- A. Immediately after finishing, keep patch material continually moist for at least 24 hrs. Continue curing for first 7 days after patch placement. During initial and final curing periods maintain patch material above 50 °F.
- B. Prevent rapid drying at end of curing period.
- C. Provide additional curing as required by manufacturer's recommendations.

### 3.3 CLEANUP

- A. Protect surfaces surrounding the work areas against spillage.
- B. Material spillage shall be cleaned before they set and become difficult to remove.
- C. Cleanup all portions of the existing structure that are soiled or stained in the process of mortar repair work.

### 3.4 FIELD QUALITY CONTROL

- A. Acceptance of completed repairs will be in accordance with ACI 301
- B. Repaired areas shall be hammer sounded by Engineer and Contractor after curing for a minimum of 72 hours. Contractor shall repair all hollowness detected by removing and replacing affected area, at no cost to Owner.
- C. If shrinkage cracks appear in a repair area after the initial curing period is concluded, the patch in question shall be considered unacceptable and it shall be removed and replaced by Contractor at no cost to Owner.

END OF SECTION 03 01 05

SECTION 03 65 00 - EPOXY RELATED WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to the work of this section.
- B. Related Sections include the following:
  - 1. Division 03 Section "Surface Preparation for Patching."
  - 2. Division 03 Section "Concrete Repair Materials."

1.2 SCOPE OF WORK

- A. The following epoxy related work is shown on the drawings and in this project manual:
  - 1. Crack locations for epoxy injection work.

These drawings are for the Contractor's guidance only, and are to be considered as a minimum for pricing. Contractor shall not do any additional work beyond what is shown in the drawings without prior written approval of the Engineer.
- B. Contractor shall fully acquaint himself with the existing job site conditions and discuss the accessibility of the work areas with the Owner.
- C. Contractor shall provide all traffic cones or barriers to direct traffic during the repair of the parking garage. This work shall be done in consultation with the Owner.

1.3 QUALITY ASSURANCE

- A. Applicable Standards
  - 1. American Society for Testing and Materials (ASTM)
    - C881 Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
  - 2. American Concrete Institute (ACI)
    - ACI 503 Use of Epoxy Compounds with Concrete
- B. Manufacturer's Qualifications: Companies furnishing the epoxy materials shall have a proven track record of at least five years. Furthermore, they shall have in existence a program of training, certifying and supporting a nationally organized program of approved contractors. Evidence of this shall be made available to the Engineer/Architect upon request.

- C. Contractor's Qualifications: Contractor performing the work shall be an approved contractor by the manufacturer furnishing the epoxy materials, and shall have no less than five years experience in the various types of epoxy related work required in this project. A notarized certification from the manufacturer attesting to the training shall be submitted to the Engineer/Architect along with the proposal to do the work.
- D. Injection Equipment Requirements: Injection equipment used by the Contractor shall be from a manufacturer who has been producing such equipment for a minimum of five years. Such equipment shall have a record of satisfactorily proportioning, mixing, and dispensing of the injection resin being used.

## PART 2 - PRODUCTS

### 2.1 GENERAL REQUIREMENTS FOR EPOXY MATERIALS

- A. All epoxy material shall be new and manufactured within the shelf life limitations set forth by the manufacturer.
- B. Epoxy shall be a two-part epoxy adhesive material, and shall be of epichlorohydrin/amine type. Polysulphide epoxies are not acceptable.
- C. Epoxy used shall be insensitive to the presence of water and moisture, and shall be capable of application and of strength development even when applied to damp surfaces having a temperature of 40° or above.
- D. Epoxy used shall develop a minimum strength of 2000 psi in tension and 4000 psi in compression at the end of seven days.
- E. Epoxies used shall not deteriorate under approximately 200 freeze thaw cycles.
- F. Epoxies used shall be 100% solids without solvents.
- G. The viscosity of the epoxy used for injection work shall be low enough (about 300 cps at 77°F) to completely fill hairline cracks as small as 10 mils.

### 2.2 PRODUCTS AND MANUFACTURERS

- A. Epoxy Injection Work
  - 1. BASF: MasterInject 1380 (formerly SCB Concrecive 1380) or MasterInject 1500 (formerly Concrecive Standard LVI)
  - 2. Sika Corporation: Sikadur 35 Hi-Mod LV or Sikadur 52 Injection Resin
  - 3. Euclid Chemical: Eucopoxy Injection Resin or Dural 452 LV

Substitutions may be considered provided complete technical information and job references are furnished to the Engineer and approved prior to commencement of work.

Changes in products required to suit temperature and environmental conditions at the time of material application shall be specified as separate line items by the Contractor showing credit or additions to the price for the various tasks.

In using the above products, follow strictly the manufacturer's specifications and directions for mixing and application. Also heed all label warnings by manufacturer. Make application in accordance with applicable safety laws.

### PART 3 - EXECUTION

#### 3.1 EPOXY INJECTION

##### A. Applicator's Qualifications

1. Epoxy injection work shall only be performed by contractors who have successfully used this process on at least five similar structural repairs of 1000 linear feet or longer, and which have performed successfully for a minimum period of five years.
2. Only adequately trained epoxy injection applicators shall be used on the job. Furnish certificate of training prior to commencing work.

##### B. Preparation

1. Before proceeding, the space in the vicinity of the crack location receiving epoxy shall be swept and be in a generally clean condition to permit proper bonding of surface seal.
2. Cracks may be dry or damp, but free of standing water and frost.
3. Entry points shall be established judiciously at a distance along the seal so that epoxy penetrates the crack completely. Spacing of entry points, however, shall be no greater than the thickness of the concrete at that location. Tighter joints will require closer spacing of entry ports.
4. Adequate surface seal shall be applied to the face of the crack between the entry points. Use masking tape at the pre-established entry points to prevent the surface sealer from sealing the entry points. Alternatively, drill and port method may be used to establish entry points. Use only rotary-percussion type drills for drilling holes. Drills shall be fitted with bits having single tooth that produce large cuttings, and hollow stem drill rods that permit simultaneous blowing of compressed air providing immediate expulsion of the cuttings from the hole. Ensure that the drilling operation does not contaminate the cracks.
5. For through cracks, surface seal shall be applied to both faces. Provide entry ports on both faces staggered with each other when the cracked concrete element is greater than 8" thick. Injection of cracks from both faces shall also be necessary when the cracks are contaminated in concrete elements equal to or less than 8" thick.

6. Pre-sealing between ports may be done using a material meeting the requirements of these specifications.
7. Allow adequate time for the surface seal material to cure before proceeding with the injection.

C. Equipment for Injection

1. Pumps used for injection shall be a positive displacement type with interlock to provide positive ratio control in proper proportions. The pumps used shall be electrically or air powered, portable and shall provide an in-line mixing and metering system for the two-component epoxy. The pressure hoses and injection nozzle shall be of such a design as to allow proper mixing of the two components of the epoxy. Dwell time in mixing head shall not exceed ten seconds.
2. The injection equipment shall have automatic pressure control, and shall be capable of injection pressures up to 300 psi to ensure complete penetration of cracks. Equipment used shall also have the capability of presetting the pressures, and shall be equipped with manual pressure control override.
3. The presence of a stand-by injection unit shall be required.

D. Crack Cleaning

1. All cracks shall be cleaned and flushed with water, and checked for port-to-port transmission.
2. Blow the water out of the cracks using compressed air, and allow adequate time for drying before injecting with epoxy.
3. If in the process of water flushing the cracks, the Contractor notices rust particles being flushed out with the water, or if the water has rust stains, the Engineer shall be notified prior to doing any epoxy injection work. The Engineer will then evaluate the extent of corrosion in the embedded reinforcement, and make necessary adjustments in the repair procedure. The Engineer/Owner reserves the right to either issue a change order for any additional work involved or to delete those portions of the work which show evidence of corrosion of the reinforcing steel. When work is deleted, the Contractor shall give a credit to the Owner on the basis of unit prices quoted for the project.
4. When temperature is near the freezing point of water, ensure that the crack is free of ice before doing the injection work.

E. Epoxy Injection

1. Condition epoxy materials at temperature between 65°F-80°F unless otherwise recommended by the manufacturer. Epoxies beyond this range of temperature shall not be used. Do not store epoxy (even for a short period) in direct sunlight.
2. Epoxy adhesive shall be injected into the crack at the first lower entry port with sufficient pressure to advance the epoxy to the next adjacent port. The original

port shall be sealed and entry shifted to the port in which the epoxy appears. This manner of port-to-port injection shall be continued until each joint has been injected for the entire length.

3. If port-to-port travel of epoxy is not achieved, the crack shall be identified, and the Engineer notified.
4. Samples of mixed material shall be injected into a paper cup every 60 minutes to test ratio mix. These samples shall be dated and numbered and left at the sampling location until reviewed by the testing laboratory.
5. Solvents shall not be used to thin epoxy introduced into the cracks.

F. Test Cores

1. A minimum of one test core shall be taken for every 100 feet of epoxy injection work. The total number of test cores taken shall not be less than three.
2. Cores shall be 2" to 4" in diameter, taken from locations marked by the Engineer. Before taking the cores from those locations, the Contractor shall use a magnetic reinforcing bar locator or employ other procedures to ensure that the core will not cut through any reinforcing steel. Should it be determined by the Contractor that the core location marked by the Engineer will cut through the reinforcing steel or prestressing tendons, the Contractor shall notify the Engineer for selecting alternate locations.
3. The cores shall be visually inspected for penetration of epoxy in the cracks. If the penetration is less than 95%, the repair work shall be considered unsatisfactory and unacceptable.
4. In addition to the visual inspection, one third of the cores or a minimum of three cores shall be tested under compression by an independent testing laboratory employed by the Owner. The epoxy injection work shall be considered acceptable if the concrete fails prior to adhesive failure.
5. If cores indicate either lack of penetration or deficiency in bond strength under compression test, the Contractor shall re-inject or perform other remedial work acceptable to the Engineer. Engineer then reserves the right to specify and request additional core samples for inspection and compression test by the testing laboratory, the cost of which shall be borne entirely by the Contractor.
6. All test cores shall be filled completely with polymer mortar to match color, finish, and texture of existing concrete. Mortar used shall comply with the requirements of these specifications.

G. Finishing

1. Allow epoxy adhesive in the cracks to cure before removing the surface seal. Ensure that there is no drainage of epoxy from the cracks due to premature removal of surface seal.

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2. The surface of the crack herein treated shall be finished flush with the adjacent concrete surfaces and shall show no indentations or evidence of port fittings.
3. All work shall be performed and conducted in a neat, orderly manner. Clean-up whatever portions of the existing structure that get soiled or stained in the process of epoxy injection work.

END OF SECTION 03 65 00

## SECTION 07 92 00 – JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the provisions of all labor, materials, supervision and incidentals required to install joint sealants and associated materials.
- B. Contractor shall fully acquaint himself with the existing job site conditions and discuss the accessibility of the work areas with the Owner.
- C. Contractor shall provide all traffic cones or barriers to direct traffic during the repair of the facility. This work shall be done in consultation with the Owner.

#### 1.3 REFERENCES

- A. Applicable Standards:
  - 1. American Society for Testing and Materials (ASTM):
    - a. ASTM C 1193 Standard Guide for Use of Joint Sealants

#### 1.4 INFORMATION SUBMITTALS

- A. Make submittals in accordance with requirements of Division 01 and as specified in this Section.
- B. Product Data: Product data sheets, Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS), and installation instructions for each product proposed for use on the project.
- C. Material Certificates: Where product data does not indicated material compatibility of independent products that form a system assembly; provide a written statement of material compatibility from the system assembly manufacturer. System assembly shall include:
  - 1. Substrate Cleaning Solvents
  - 2. Backer Materials
  - 3. Primers
  - 4. Sealant Materials
- D. Environmental Certification:

1. Certification that products and installation comply with applicable EPA, OSHA, and VOC requirements regarding health and safety hazards.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project Site in original unopened containers, or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multicomponent materials.
- B. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

#### 1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
  1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturers.
  2. When joint substrates are wet due to rain, frost, condensation or other causes.
  3. Joint Width Conditions: Do not proceed with installation of joint sealants when joint widths are less than allowed by sealant manufacturer for application indicated.

#### 1.7 QUALITY ASSURANCE

- A. A. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required. Provide one year warranty on installation and materials.
- B. Contractor's Qualifications: Contractor performing the work shall be an approved contractor by the manufacturer furnishing the materials, and shall have no less than three years experience in related work required in this project. Upon request by the Engineer, a notarized certification from the manufacturer attesting to the training shall be submitted to the Engineer/Owner.

### PART 2 - PRODUCTS

#### 2.1 JOINT SEALANTS

- A. General requirements for traffic grade Polyurethane Sealants
  1. Primer: Provide type recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate and field tests.
  2. Self-leveling polyurethane sealants require tooling in accordance with project details.

3. Compounds used for sealants shall not stain concrete or masonry. Aluminum pigmented compounds not acceptable.
  4. The color of sealants shall match adjacent surfaces.
- B. Polyurethane Sealant For Horizontal, Non-Cove Joints and Crack Repairs: Two-component, non-sagging, polyurethane based, elastomeric sealant meeting the requirements of ASTM C920, Type M, Grade P, Class 25, Use T.
1. BASF Construction Chemicals
    - a. Primer: MasterSeal P 173
    - b. Sealant: MasterSeal SL 2
  2. Sika Corporation
    - a. Primer: Sikaflex 260, 429 or 449
    - b. Sealant: Sikaflex-2c NS TG

## 2.2 ACCESSORY PRODUCTS

- A. Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.
- B. Backer Materials
1. General: Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
  2. Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
  3. Backer Rod: Either flexible, open cell polyurethane foam or non-gassing, closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer.
  4. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back surface of joint. Provide self-adhesive taper where applicable.
- C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

## 2.3 SUBSTITUTIONS

- A. Product substitutions may be considered provided complete technical information and job references are furnished to the Owner/Engineer and approved prior to commencement of work.
- B. Changes in products required to suit temperature, environmental conditions, and local VOC regulations at the time of material application shall be specified as separate line items by the Contractor showing credit or additions to the price for the various tasks.
- C. Product substitutions are not permitted for this project.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Require installer to inspect joints indicated to receive joint sealants for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealant performance. Obtain installer's written report listing any condition detrimental to performance of joint sealant work. Do not allow joint sealant work to proceed until unsatisfactory conditions have been corrected.

### 3.2 SURFACE PREPARATION

- A. Surface Cleaning of Joints and Cracks: Clean out joints and routed cracks immediately before installing joint sealants to comply with recommendations of joint sealant manufacturers and the following requirements:
  - 1. Remove all foreign material from joint or crack substrates which could interfere with adhesion of joint sealant, including dust; paint, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellants; water; surface dirt and frost.
  - 2. Clean concrete, substrate surfaces, by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
  - 3. Remove laitance from concrete.
- B. Priming: Prime all substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primers to areas of joint sealant bond. Do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF SEALANTS

- A. General: Comply with joint sealant manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
  - 1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
  - 2. Do not leave gaps between ends of joint-fillers.
  - 3. Do not stretch, twist, puncture or tear joint-fillers.
  - 4. Remove absorbent joint-fillers which have become wet prior to sealant application and replace with dry material.
  - 5. Install bond breaker tape between sealants and joint-fillers, compression seals or back of joint where required to prevent third-side adhesion of sealant to back of joint.
- D. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability. Do not smear sealant onto adjacent surfaces.
- E. Tooling of Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants in concave joint configuration per ASTM C 1193, unless otherwise indicated to form smooth, uniform beads of configuration indicated, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

### 3.4 PROTECTION AND CLEANING

- A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and reseal joints with new materials to produce sealant installations with repaired areas indistinguishable from original work.
- B. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by the manufacturer of the sealants and of the products used in the joints.

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END OF SECTION 07 92 00