

TECHNICAL SPECIFICATIONS
FOR
405 East Harper Avenue Garage
Maryville, TN
REPAIR AND PREVENTIVE MAINTENANCE

Desman Project No. 30-23123.02

July 1, 2024

Prepared For:

City of Maryville,
416 W. Broadway Ave
Maryville, TN 37801

Drawings and Specifications prepared by:

DESMAN

8201 Greensboro Drive, Suite 708
McLean, VA 22102

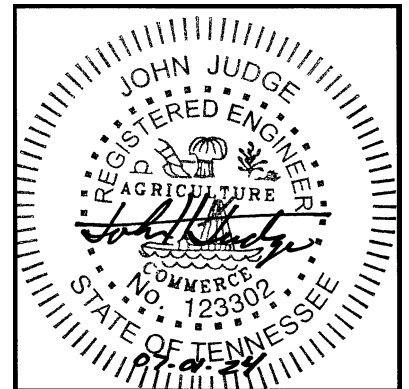


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*Items must be completed and turned in with the bid.

END OF SECTION

DIVISION 00

PROCUREMENT AND CONTRACT REQUIREMENTS

SECTION 00 01 15

LIST OF DRAWINGS

The Drawings dated 07/1/2024 and listed below form a part of the Contract.

405 East Harper Avenue Garage Repairs

<u>Drawing</u> <u>Number</u>	<u>Title</u>
T-1 -	TITLE SHEET
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END OF SECTION

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NOTICE TO BIDDERS

PART 1 - GENERAL

1.1 SUMMARY

A. **NOTICE TO BIDDERS**

Sealed bids for furnishing the materials and performing the labor for the restoration of **405 East Harper Avenue Garage Repairs**, in accordance with Plans and Specifications prepared by DESMAN, 8201 Greensboro Drive, Suite 708, McLean, Virginia 22102, will be received by the Purchasing Agent at the City of Maryville Municipal Building in the Engineering Conference Room (lower level)-416 W. Broadway Ave., Maryville, Tennessee, 37801 – until 2:00 p.m., local time, July 23rd, 2024, at which time bids will be publicly opened and read aloud. Sealed bids shall include both a paper copy and a digital copy of the completed bid documents on a USB flash drive in the bid envelope.

No bids will be received or accepted after the above specified time for the opening of Bids. Bids submitted after the designated hour will be deemed invalid and rejected.

Each proposal must be submitted upon the blank forms provided.

The right is hereby reserved to reject any or all proposals, or adjust the scope of work to meet available funds. The use of token unit bid amounts so as to produce an unbalanced bid situation may be cause for bid rejection.

A Pre-bid Conference will be held at 12:00 p.m. Eastern Time on July 16th, 2024 at the garage located at 405 East Harper Avenue, Maryville, TN 37804.

Electronic copies of BIDDING DOCUMENTS may be examined and downloaded from both the City of Maryville and the Knoxville Builders Exchange. Bidders are not required to purchase a set of bid documents, however the appropriate forms must be printed and filled out as described in the Instructions for Bidders.

**Engineering &
Public Works Department**

City of Maryville
416 W. Broadway Ave.
Maryville, TN 37801
(865) 273-3500
www.maryvillegov.com/bid-opportunities.html

Knoxville Builders Exchange

300 Clark Street
Knoxville, TN. 37921
(865) 525-0443
www.bxtn.org

All questions regarding the Plans and Specifications should be addressed to the following:

Starling Espaillat
DESMAN Project Manager
(703) 448-1190
sespaillat@desman.com

BIDS shall be accompanied by a BID Guarantee bond in the amount of no less than five percent (5%) of the BID made payable to City of Maryville, OWNER, and subject to the conditions provided in the INSTRUCTION FOR BIDDERS. Bidders should submit with their bid a Drug-Free Workplace Affidavit of Prime Bidder as required by TCA Section 50-9-113. A Title VI Disclosure should also be included with the bid to assist with the City of Maryville's compliance with Title VI of the Civil Rights Act of 1964.

The successful bidder will be required to furnish an acceptable Performance and Payment Bond in the amount of one hundred percent (100%) of the contract price, each bond.

All bidders must be able to demonstrate before the award of the contract that the proposer (and subcontractors if applicable) has all appropriate licenses and certifications required in the State of Tennessee to perform the Services.

This project is funded by the City of Maryville.

The Contractor shall comply with all State, Federal, and Local laws and/or regulations.

The City of Maryville does not discriminate based on race, color, or national origin in federal or state approved programs, pursuant to Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 00 21 16

INSTRUCTIONS TO BIDDERS

The Notice to Bidders, Instruction to Bidders, Bid Proposal, the Agreement, the General Conditions, the Supplementary Conditions, the Technical Specifications and Drawings compose the Contract Documents.

Terms used in these Instructions for Bidders which are defined in the Standard General Conditions of the Construction Contract, NSPE-ACEC Document EJCDC C-700 (2013edition) have the meanings assigned to them in the General Conditions. The term "Successful Bidder" means the lowest, qualified, responsible Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

Proposals to be entitled to consideration must be made in accordance with the following instructions:

A. PROPOSALS:

1. Complete sets of the Bidding Documents as stated in the Advertisement or Invitation may be obtained online from the City of Maryville website (<http://www.maryvillegov.com/bid-opportunities.html>), as well as the Knoxville Builders Exchange(www.bxtn.org).

Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the work and do not confer a license or grant for any other use.

The bidder is not required to purchase a set of printed bid documents from the City of Maryville. It shall be the responsibility of the bidder to print and fill out appropriate bid documents which include the following:

- Bid Form (including work reference form, envelope cover, bid schedule, etc.)
- Bid Bond
- Title VI Compliance Form
- Drug Free Workplace Affidavit
- Vendor Information Form
- Form W-9
- Iran Divestment Act Form
- Business Tax License Affidavit
- COM-Debarment Certification Form
- Non-Boycott_of_Israel
- Non-Collusion Affidavit Rev 2021

2. Proposals shall be submitted upon the form provided herein, and all blank spaces shall be fully filled; numbers shall be stated both in writing and figures; the signature shall be in long hand; and the completed form shall be without interlineations, alteration or erasure.
3. Each proposal shall be properly signed as follows:

When a CORPORATION with the name of the corporation, signature of an officer or other person properly authorized to enter into obligations for it and his title.

When a PARTNERSHIP with name of partnership and signature of one of the partners.

When SOLE PROPRIETORSHIP with his signature.

B. SCHEDULE OF CONSTRUCTION:

1. Execution of the Contract Documents will involve some consideration for allowing the Owners to carry on many of their normal functions. The Contractor shall be responsible not to make the conduct of normal daily business difficult or impossible due to noise, inaccessibility of non-work areas, odors, fumes or any hazardous condition. All noise producing operations shall be performed during the **day between 8 a.m. and 5 p.m. Monday-Friday. Work on Saturdays may be allowed by special permission so long as appropriate oversight can be provided by city staff, material testing contractors and/or special inspections. Any other quiet work can be performed at any time.** Successful bidder shall provide and maintain noise barriers as required to meet the above as well as any local noise regulations.
2. The garage areas not designated for repair shall be maintained open to parking and the building management personnel.
3. The successful Contractor, prior to start of work, shall submit a schedule of activities for each day during the entire repair period for approval by Owner and Engineer. The schedule shall include drawings showing the general phasing of the work and shoring locations on the level below.
4. Special consideration on a day-to-day basis and for particular problems coordinate with:

**Kevin Stoltenberg
Assistant Public Services Director
City of Maryville
416 W. Broadway Ave
Maryville, TN 37801
865-273-3500
ktstoltenberg@maryville-tn.gov**

5. The Contractor shall report daily to the Owners representative regarding progress of the work and plans for the next day.

C. STARTING AND COMPLETION TIME:

1. Work shall start within seven days after receiving any required permits. The work shall be performed strictly in accordance with the schedule proposed by the General Contractor (according to the requirements of B.3 above) and approved by the Owner/Engineer prior to starting of the work.
2. Bid Proposal shall be based on completion of all base contract and alternate work in calendar days, based on work hours as required (including weekend work) and noted in the plans.

D. GENERAL

1. Should a bidder find discrepancies in, or omissions from the drawings or documents, or should he be in doubt as to their meaning, he should at once notify the Engineer, who will send a written instruction to all bidders. Neither Owner nor Engineer will be responsible for any oral instructions. Lack of such notification to the Engineer will indicate that the bidder considers the documents to be sufficiently complete to prepare a bid for complete installation including all necessary accessory parts.
2. The drawings and specifications shall be considered to be cooperative and anything appearing in the specifications which may not be indicated on the plans, or vice versa, shall be considered as part of the contract and must be executed by the contractor the same as though indicated by both.
3. Before submitting a proposal, bidders should carefully examine the drawings and specifications: Check all schedules, visit the site, fully inform themselves as to all existing conditions and limitations and shall include in the proposal a sum to cover the cost of all items included in that part.
4. Any addenda issued during the time of bidding shall be taken into account in preparing proposals, and shall become a part of the contract documents.
5. The estimated quantities of work to be done and materials to be furnished under these specifications are given in the Proposal Form. All quantities are to be considered as approximate and are to be used only for the comparison of bids and as a basis for computing amounts of **payment and performance bonds** to be furnished. The unit and lump sum prices to be tendered are to be for the scheduled quantities as shown in the Proposal Forms. The actual quantities may be increased or decreased. Payment to the Contractor will be made only for the actual quantities of work performed and materials furnished at the specified quantity measurement unit (i.e. SF, LF) times the contract unit price in accordance with plans and specifications. Adjustments will not be permitted based on quantity measurement of the actual work (i.e. square foot bid items will not be based on volumetric calculations). The scheduled quantities of work to be done and materials to be furnished may be increased or decreased or entirely deleted, in the event, in the sole judgment of the Owner and the Engineer such changes become necessary for the best interest of the project due to circumstances not known at the time the contract was entered into or arising thereafter, without in anyway invalidating the unit and lump sum prices set forth in the proposals and embodied in the Contract. Bids shall be based on estimated quantities provided. Discrepancies regarding the quantities shall be brought to the attention of the Engineer during the bidding period.
6. To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five (5) days of Owner's request written evidence of the similar work types and financial data, previous experience and evidence of authority to conduct business in the jurisdiction where the Project is located. Each Bid must contain evidence of Bidder's qualifications to do business in the state where the Project is located or covenant to obtain such qualifications prior to award of the contract.
7. Provisions for liquidated damages, if any, are set forth in the Agreement.
8. Bids shall be submitted at the time and place indicated in the Invitation to Bid and shall be included in an opaque sealed envelope. Bidders should use the BID ENVELOPE COVER included in the Bid Form and attach it to the outside of the sealed envelope.

9. Bids must be accompanied by the required documents. If the bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof.
10. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening Bids.
11. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of his Bid, that Bidder may withdraw his Bid and the Bid Security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work.
12. Bids will be opened publicly and will be read aloud. An abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.
13. All Bids shall remain open for sixty (60) days after the day of the Bid opening, but Owner may, in his sole discretion, release any Bid and Return the Bid Security prior to that date.

E. MISCELLANEOUS

1. All (local, state, and federal) laws, codes, ordinances, and regulations pertaining to this class or type of construction shall be obeyed in regard to preparation of bids, letting of contracts, and complete installation of work.
2. Wherever in the contract documents, a particular article, material, device, form of construction, fixtures, etc., is shown or specified, such article, material, device, form of construction, fixture, etc., shall be known as standard. All PROPOSALS SHALL BE BASED ON STANDARDS SPECIFIED, and where two or more are named, bidders may bid on any so named. The Contractor is responsible for any extra cost due to changes required by substitutions or selection of any other than the first named product. If field conditions exist which would preclude the installation of any product or system as designed by the Engineer, the Contractor shall include, in his bid, an alternate to the specified product or system for the Owner and Engineer's consideration and approval. If the Contractor assumes an alternate without identifying it in the bid and is thereby less in the bid, he is still liable for installation of the specified product or system.
3. SUBSTITUTIONS for standards may be bid ONLY AS ALTERNATES, and written approval secured from the Engineer prior to award of the Contract.

F. CONSTRUCTION CONTRACT ADMINISTRATION:

1. Successful bidders shall furnish to the Owner and Engineer, at the time of submitting the proposals the following:
 - a. List of Sub-Contractors
 - 1) Division of Work

- 2) Amount of Sub-Contract
 - 3) Firm Name
 - 4) Address
 - 5) Telephone Number
 - 6) Representative
- b. List of Major Material Suppliers:
- 1) Division of Work
 - 2) Amount of Material Purchase Order
 - 3) Firm Name
 - 4) Address
 - 5) Telephone Number
 - 6) Representative
- c. Contract Cost Breakdown:
- 1) Shall be provided on AIA Form G-703.
2. Application for Payment:
- a. The Contractor shall furnish, free of charge, the necessary blank copies of AIA Form G-702 and G-703 for his applications for Payment.
 - b. Partial payments made as the work progresses shall in no way be considered as an acceptance of any portion of the labor or material embraced in the contract.
 - c. Material delivered at the site and approved by the Engineer and included in a certified estimate for partial payment shall become the property of the Owner and in no case shall such materials be removed from the site. However, if such material is stolen, destroyed or damaged by casualty before being used, the contractor will be required to replace it at his own expense. Storage of materials shall comply with the manufacturer's instructions or recommendations
 - d. The Contractor, upon receipt of payment, shall reimburse each sub-contractor for labor and materials for which the contractor has received payment from the Owner. The contractor upon receipt of payment, shall pay each material supplier for materials for which the contractor has received payment from the Owner.
 - e. Contractor's requests for payment shall normally be submitted by the Contractor once a month.
 - f. During the course of work, a retainage of ten (10%) percent will be withheld from work performed.
 - g. During the course of construction, payment on estimates approved by the Engineer and filed with the Owner shall be made within 30 days.

- h. All monies paid on account to any contractor for materials or labor shall be regarded as funds in his trust for payment of any and all obligations relating to this contract and no such amount of monies shall be permitted to accrue to the contractor until all such obligations are satisfied. Evidence, satisfactory to the Owner, shall be submitted with each payment request to show that all current obligations relating to this work are satisfied before releasing any payment due on the work. The evidence shall include all lien waivers from the general contractor, subcontractors and material suppliers. Before payment of the final estimate, each contractor shall file an affidavit with the Owner, stating that monetary obligations relating to lienable items in connection with this work have been fulfilled. When the major portion of the project is substantially completed and occupied, or in use, or otherwise accepted and there exists no other reasons to withhold retainage, the retained percentages held in connection with such portion will be released from escrow and paid to the Contractor, withholding only that amount necessary to assure completion. The balance of funds will be paid to the Contractor within thirty days from the date of completion and after acceptance by the Engineer and Owner. Provided, however, that nothing in this Contract shall be construed to create an obligation or incur a liability against the Owner in excess of the encumbrances issued to support this Contract.
- i. Payment for materials stored, but not installed, may require the Engineer to visit the Contractors place of storage for verification of all items on the Contractor's certificate. He shall certify that the items are in agreement with the specifications, and approved their incorporation into the project.

3. Progress Schedule:

The Progress Schedule required by the owner shall be based on starting construction upon receiving the Owner's authorization to proceed within 7 days after the notification of the award of the contract and completion of the Project as stipulated in the Contract. After contract is awarded, a meeting shall be held at the job before work is started, to be attended by representative of the General Contractor and all affected Subcontractors, the Engineer, and the Owner's Representative, to work out a definite schedule to be followed for starting and completing each Phase of the work and provide information for Progress Schedule.

G. PURPOSE AND INTENT:

- 1. In order to assist those invited to submit a proposal and their prospective subcontractors, the following sources are available for consultation:

- a) Engineering: Starling Espailat.....Project Manager
(703)-448-1190
sespaillat@desman.com

H. BONDS AND WARRANTY

- 1. The successful bidder will be required to furnish an acceptable Performance and Payment Bond in the amount of one hundred percent (100%) of the contract price, each bond.

2. The selected Bidder's security will be retained until he has signed the Contract and furnished the required Performance and Labor and Materials Payment Bonds.
3. The Owner reserves the right to retain the Bid Security of the 3 lowest Bidders until a responsible Bidder enters into Contract or until 60 days after Bid Opening Date, whichever is less. The Bid Security of all other unsuccessful bidders shall be returned to the bidders within fifteen (15) days after the opening of the bids.
4. If any bidder refuses to enter into Contract, the Owner shall retain his bid security as liquidated damages.
5. Simultaneously with the delivery of the executed Contract, the successful bidder shall furnish to the Owner Performance and Payment Bonds as required according to the specifications.
6. Attorneys-in-fact who sign said bonds on behalf of a surety must affix to each bond a certificate of effectively dated copy of their power of appointment.
7. The contractor is required to submit a Five-Year Corrective Certificate (Warranty) for all the work performed under this Contract except that a One Year Corrective Certificate (Warranty) may be submitted for all electrical, mechanical and plumbing work.

I. AWARD OF CONTRACT

1. Owner reserves the right to reject any and all Bids, to waive any and all irregularities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
2. In evaluating Bids, Owner shall consider the qualification of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid forms. It is Owner's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form but Owner may accept them in any order or combination.
3. Owner may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity to Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by Owner.
4. Owner may conduct such investigations as he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
5. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

6. If the contract is to be awarded, it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interest of the Project.
7. If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within sixty (60) days after the day of the Bid opening.

J. PERFORMANCE AND OTHER BONDS

1. The General Conditions set forth Owner's requirements as to performance and other Bonds. When the Successful Bidder delivers the executed Agreement to Owner it shall be accompanied by the required Contract Security.

K. SIGNING OF AGREEMENT

1. When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement and all other Contract Documents. Within fifteen days thereafter Contractor shall sign and deliver at least three counterparts (or number required by Engineer) of the Agreement to Owner with all other contract Documents attached. Within ten days thereafter Owner will deliver all fully signed counterparts to Engineer. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and such identification shall be binding on all parties.

L. 48 HOURS NON-CONTACT PERIOD

1. Questions or other inquiries regarding these plans and specifications prior to bidding shall be submitted a minimum of 4 days prior to bid opening. Any questions submitted after this time will not be accepted or responded to, at the discretion of the Engineer or the Owner.

M. DRUG-FREE WORKPLACE AFFIDAVIT OF PRIME BIDDER

1. If a Contractor has five (5) or more employees receiving pay, the Contractor shall have a drug-free workplace program that complies with Title 50, Chapter 9 of the Tennessee Code Annotated. (Affidavit attached).

N. TITLE VI COMPLIANCE

1. The City of Maryville does not discriminate based on race, color or natural origin in federal or state approved programs, pursuant to Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d). A Title VI Disclosure must be included with the bid to assist the City of Maryville with compliance with Title VI of the Civil Rights Act of 1964. (Disclosure attached).

END OF SECTION



FORMS



416 W. Broadway Avenue Maryville, TN. 37801
Phone: (865) 273-3500 Fax: (865) 273-3525

DRUG-FREE WORKPLACE AFFIDAVIT OF PRIME BIDDER

STATE _____ COUNTY _____

Comes the affidavit after having first been duly sworn and testifies as follows:

1. My name is _____ . I hold the principal office of
_____ for _____
(Name of Principal Office) *(Name of Bidding Entity)*

2. _____ has submitted a bid to the City of Maryville for the
(Name of Bidding Entity)

construction of: **Bid #08-24 405 East Harper Avenue Garage Repairs**

3. _____ employs no less than five (5) employees.
(Name of Bidding Entity)

4. In accordance with Tennessee Code Annotated Title 50, Chapter 9-113, this is to certify that
_____ has in effect, at the time of submission of its bid
(Name of Bidding Entity)

to perform the City of Maryville project described above, a drug-free workplace program that complies with Title 50, Chapter 9 of the Tennessee Code.

5. This affidavit is made on personal knowledge.

Further the affiant saith not this _____.
(Date)

Name: _____

Title: _____

Subscribed and sworn to before me this _____.
(Date)

Name: _____

My commission expires: _____

NOTE: This affidavit is to be attached to the Bid Form at the time of submission.

BUSINESS TAX & LICENSE AFFIDAVIT
Tennessee Code Annotated § 5-14-108(l)

The undersigned states that they have legal authority to swear this on behalf of _____, and that the business is not in any manner
Name of firm or individual
in violation of Tennessee Code Annotated § 5-14-108(l) which states, *“No purchase shall be made or purchase order or contract of purchase issued for tangible personal property or services by county officials or employees, acting in their official capacity, from any firm or individual whose business tax or license is delinquent.”*

Affiant affirms and warrants that their business licenses are currently valid, and all business taxes have been paid and are current as of the date of this affidavit. The business is licensed and pays business taxes in _____ County, _____.
Name of State

Business License Number: _____

BUSINESS

Signature: _____

Title: _____

Date: _____

Witness

Signature: _____

Date: _____



TITLE VI DISCLOSURE

NOTE TO BIDDERS: To assist the City of Maryville's compliance with Title VI of the Civil Rights Act of 1964, you are required to complete the following information and attach it to the submitted bid.

Name/Address of Firm:

_____ Telephone: () _____ - _____

_____ Fax: () _____ - _____

Are you a tax-exempt corporation? Yes _____ No _____

Exemption Number _____

Is your company a small business as defined by the U.S. Small Business Administration?

Yes _____ No _____

Are you incorporated? Yes _____ No _____

If yes, are you publicly traded? Yes _____ No _____

Owner's Gender: Male _____ Female _____

Identify company classification:

American Indian or Alaska Native _____ Hispanic or Latino _____

Asian _____ Native Hawaiian/Pacific Islander _____

Black or African American _____ Caucasian _____

Is your business classified as a Disadvantaged Business? Yes _____ No _____ Other _____

Names of Officers:

President: _____

Vice-President: _____

Contact Person for this bid: _____

Contact Telephone: _____



IRAN DIVESTMENT ACT

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 § 12- 12-106.

Bid Item/Project Name: _____

Bid Date: _____

Company Name: _____

Non-Boycott of Israel Certification

The Contractor certifies that it is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars (\$250,000) or to contractors with less than ten (10) employees.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

City of Maryville

Contractor Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 2 CFR 200.213 and 2 CFR Part 417. Copies of the regulations may be obtained online at www.ecfr.gov .

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS)

- (1) The Contractor/Vendor certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) The Contractor/Vendor acknowledges that this certification applies to all prospective and engaged lower tier covered transactions (subcontracts and subcontractors), and that the Contractor/Vendor will obtain a signed "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- (3) Where the Contractor/Vendor is unable to certify any of the statements in this certification, the Contractor/Vendor shall attach an explanation to this proposal.

Organization Name:

Names(s) and Title(s) of Authorized Representative(s) of the Contractor/Vendor:

Signature(s): _____

Date:

Instructions for Certification

1. By signing and submitting this form, the contractor is providing the certification set out in accordance with these instructions for both the Contractor/Vendor and any prospective lower tier participant

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

3. The contractor shall provide immediate written notice to the City of Maryville if at any time the Contractor or any prospective or engaged lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

5. The Contractor/Vendor agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The Contractor/Vendor further agrees by submitting this form that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. A copy of the "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions" is included in this document.

7. A Contractor/Vendor in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A Contractor/Vendor may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List/Excluded Parties list available at www.sam.gov .

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type. See Specific Instructions on page 3.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.		
	2 Business name/disregarded entity name, if different from above		
	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.		4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
	<input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate		Exempt payee code (if any) _____
	<input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____ Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.		Exemption from FATCA reporting code (if any) _____
	<input type="checkbox"/> Other (see instructions) ▶ _____		<i>(Applies to accounts maintained outside the U.S.)</i>
	5 Address (number, street, and apt. or suite no.) See instructions.		Requester's name and address (optional)
6 City, state, and ZIP code			
7 List account number(s) here (optional)			

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number											
				-			-				
or											
Employer identification number											
				-							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ▶	Date ▶
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

VENDOR INFORMATION FORM

Name: _____

Federal Tax ID Number: _____

Business License Number: _____

County and State of License: _____

Mailing Address: _____

Shipping Address: _____

Phone Number: _____

Fax Number: _____

Contact Person: _____

Email Address: _____

Corporation, Sole Proprietor, or Partnership: _____

(If the business is a sole proprietor the owners name): _____

NEW VENDORS WILL BE ADDED AFTER RECEIPT OF THIS COMPLETED FORM AND VERIFICATION OF A CURRENT BUSINESS LICENSE. VENDORS WITHOUT A CURRENT BUSINESS LICENSE WILL NOT BE ACCEPTED. IT IS THE RESPONSIBILITY OF THE FINANCE DEPARTMENT TO ENTER AND UPDATE ALL VENDOR INFORMATION. THANK YOU.

PROPOSAL FORM

FOR

REPAIRS AND PREVENTIVE MAINTENANCE

OF THE

405 EAST HARPER AVENUE GARAGE
Maryville, TN

Bidder's Name

_____, 2024

City of Maryville
416 W. Broadway Ave
Maryville, TN 37801

Attn: Mr. Kevin Stoltenberg:

The undersigned, having inspected the site and familiarized ourselves/myself with the Contract Documents and the Specifications, dated **July 1, 2024** the local conditions affecting the cost of the work, and having also received, read, and taken into account addendum nos. _____, all as prepared by and on file in the offices of DESMAN, 8201 Greensboro Drive, Suite 708, McLean, Virginia 22102, hereby propose to provide all labor, materials, tools, equipment and transportation necessary to complete the work for the **Repairs and Preventive Maintenance of the 405 East Harper Avenue Garage in Maryville, TN**, doing all work under the General Contract, as defined in the Contract Documents for the Contract amount of _____ Dollars (\$_____). This Contract is based on quantities as here in after listed for the concrete restoration work and the cost of all other work required for the completion of the project.

This Contract Amount shall be based on restoration work shown in the drawings and specifications. All items of material, labor, supplies, or equipment that are not specifically enumerated for payment as separate items, but which are reasonably required to complete the work as shown on the drawings as described in the specifications, are considered as subsidiary obligations of the Contractor. No separate measurement or payment is made for them. In performance of the work, the quantities listed below are not to be exceeded without first receiving written authorization from Owner.

The above Contract Amount includes the following:

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
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BID ITEM NO. 1 – STRUCTURAL REPAIRS

<p>1(a) Patch Full Depth Concrete Topping Repairs: Full depth removal of unsound and sound concrete topping as shown on plans and as directed by the Engineer (depth of topping may vary) using saws and chipping hammers, cleaning and painting of any exposed steel precast connections, placing new high strength concrete and tooling and sealing patch perimeter per detail 1/R-4 and as specified. Bid price shall include cleaning and touchup striping/graphics at affected areas to match existing.</p>	1,200SF	\$_____/SF	\$_____
<p>1(b) Patch Full Depth Concrete Double Tee Slab Repairs: Full depth removal of sound and unsound concrete at double tee flanges on floor and/or soffit using saws and small chipping hammers as shown on plans and as directed by the Engineer, cleaning of any exposed steel precast connections for inspection by the Engineer, painting of all exposed precast connections, replacing the concrete with high strength concrete and tooling and sealing patch perimeter per detail 1/R-4 and as specified. Bid price shall include cleaning and touchup striping/graphics at affected areas to match existing.</p>	30 SF	\$_____/SF	\$_____
<p>1(c) Patch Full Depth Slab-on-Grade Repairs: Full depth removal of sound and unsound concrete on floor using jackhammers as shown on plans and as directed by the Engineer, cleaning existing reinforcements, removal of corroded steel and replacement with new epoxy coated reinforcing to match existing size, supplementing new epoxy coated reinforcing and replacing the concrete with new high strength concrete and tooling and sealing patch perimeter. See detail 3/R-5.</p>	30 SF	\$_____/SF	\$_____
<p>1(d) Patch Full Depth Settled Slab-on-Grade Repairs: Full depth removal of settled concrete on floor using jackhammers as shown on plans and as directed by the Engineer, compacting subgrade, providing and compacting gravel base, installing new epoxy coated reinforcing, installing new premolded joint filler around the area of repair, replacing the concrete with new high strength concrete and routing and sealing perimeter of the repair. See detail 4/R-5.</p>	130 SF	\$_____/SF	\$_____

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
<p>1(e) Vertical Surface Repairs: Removal of deteriorated/damaged concrete at least 3/4" behind rebar from vertical wall and column surfaces using small chipping hammers, form and pour high strength concrete per detail 2/R-4 and as specified.</p>	40 SF	\$_____/SF	\$_____
<p>1(f) Spandrel Repairs: Removal of deteriorated/damaged concrete full width from the top of spandrel wall surfaces using small chipping hammers, form and pour high strength concrete per detail 4/R-4 and as specified.</p>	40 SF	\$_____/SF	\$_____
<p>1(g) Beam Ledge Repair: Removal of deteriorated/damaged concrete at least 3/4" behind rebar from beam using small chipping hammers, form and pour high strength concrete per detail 3/R-4 and as specified.</p>	30 SF	\$_____/SF	\$_____
<p>1(h) Double Tee Bearing Pad Replacement: Removal of concrete topping and joint sealants as required to access and release chord bars (where required), clip connections and shear connectors as required to lift double tee end. Remove and replace neoprene bearing pads under both stems of tee where directed by the Engineer per detail 3/R-6. Re-establish the clip connection, and shear connectors. Place new concrete topping and sealants. Include the price for reestablishing clip connections. New welds to match existing at a minimum. The cost to remove and replace concrete topping over connections is included within bid item 1(a). The cost to remove and replace sealants is included in bid items 2b and 2c. The cost to release and reestablish the shear is included in bid item 1j. The cost to remove and replace concrete topping, releasing and splicing chord bars is included as an allowance in bid item 5a and is to be perform as required. Lump sum price to include all double tee end locations bearing pads.</p>	LUMP SUM	LS	\$_____

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
<p>1(i) Girder Bearing Pad Replacement</p> <p>Removal of concrete topping and joint sealants as required to access and release chord bars (where required), clip connections, and shear connectors as required to lift girder end. Release column/spandrel connection. Remove and replace neoprene bearing pads under girder where directed by the Engineer per detail 1/R-8. Re-establish the clip connection, column/spandrel connection and shear connectors. Place new concrete topping and sealants. Include the price for reestablishing clip and column/spandrel connections. New welds and plates to match existing.</p> <p>The cost to remove and replace concrete topping over connections is included within bid item 1(a).</p> <p>The cost to remove and replace sealants is included in bid items 2b and 2c.</p> <p>The cost to release and reestablish the shear is included in bid item 1j.</p> <p>The cost to remove and replace concrete topping, releasing and splicing chord bars is included as an allowance in bid item 5a and is to be perform as required.</p>	2 EA	\$ _____/EA	\$ _____
<p>1(j) Shear Connector Repair:</p> <p>Restore failed shear connectors between adjacent precast double tees as shown on plans and as directed by the Engineer, and clean and paint all exposed steel shear connector components per detail 1/R-5 and as specified. Match existing slug and weld. At a minimum, new slug and weld connection shall be as shown in detail.</p>	240 EA	\$ _____/EA	\$ _____
<p>1(k) Spandrel and Columns Lift Pocket Repairs:</p> <p>Removal of unsound and sound concrete (for a depth that varies between 2" to 3") lift pocket using saws and small chipping hammers as shown on plans and as directed by the Engineer, cutting and removal of exposed anchor loop 2" minimum below top surface, cleaning and painting of any exposed steel reinforcements, replacing the concrete with high strength concrete and tooling and sealing patch perimeter. See detail 2/R-5 and applicable spec sections.</p>	210 EA	\$ _____/EA	\$ _____

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
<p>1(l) Concrete Wall and Asphalt Repairs: Full depth removal of asphalt paving to the limits shown on plan using jackhammers, removing 2" from the top of retaining wall, installing new #4 L-shaped dowels at 12" O.C. embedded 4" minimum, installing 2 continuous #4 bar, forming and pouring new high strength concrete, installing new cold applied waterproofing membrane, regrading and compacting earth as required and placing new asphalt (thickness to match existing), and sealing joints per detail 1/R-6 and 2/R-6 and as specified.</p>	LUMP SUM	LS	\$ _____
<p>1(m) Clip Connector Repairs: Replacement of severely corroded strap plates, embedded connection elements, and weldments to restore the clip connections between the DT flange-spandrel connections and cleaning and painting all exposed steel connection elements.</p> <p>The cost to removed and replace concrete or sealant over the shear connector is included in other bid items.</p>	20 EA	\$ _____/EA	\$ _____

BID ITEM NO. 2 – WATERPROOFING REPAIRS			
<p>2(a) Rout and Seal Concrete Cracks: Rout and seal all visible cracks throughout the garage concrete floor slabs per detail 1/R-7 and as specified.</p>	600 LF	\$ _____/LF	\$ _____
<p>2(b) Install Cove Joint Sealants: Removal of existing sealant material from all previously sealed cove joints throughout the elevated level. Install new sealant and backer rod where applicable at vertical to horizontal interfaces per detail 2/R-7 and as specified.</p> <p>Estimated quantity of repair is approximately 613f, which is to be verified in the field by the Contractor, prior to submitting bid price.</p>	LUMP SUM	LS	\$ _____

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
<p>2(c) Replace Double Tee Joint Sealant: Removal of existing sealant material from all previously sealed double tee joints throughout the garage. Clean all exposed shear connectors for inspection by the Engineer. Clean and seal the joints per detail 3/R-7.</p> <p>The cost for any shear connector repairs is NOT to be included. Estimated quantity of double tee joints to be sealed is approximately 2,340 lf which is to be verified in the field by the Contractor prior to submitting bid price.</p>	LUMP SUM	LS	\$ _____
<p>2(d) Interior Vertical Joint Sealant: Fully remove all interior vertical joint sealants throughout the elevated level of the garage and install new backer rod and sealant as specified and per detail 4/R-7.</p> <p>Estimated quantity of repair is approximately 180 lf, which is to be verified in the field by the Contractor, prior to submitting bid price.</p>	LUMP SUM	LS	\$ _____
<p>2(e) Pressure Injection of Chemical Grout: Pressure injection of chemical grout into leaking wall crack per detail 6/R-7 and as specified.</p>	60 LF	\$ _____/LF	\$ _____
<p>2(f) New Waterproofing Membrane: Preparing the exposed concrete slab surfaces (including locations of newly repaired concrete floor), and application of new coating material per manufacturer's instructions as shown on plans. Remove and replace wheel-stops as require for membrane application.</p> <p>Membrane Product on which bid unit price is based: _____</p> <p>Name of licensed applicator/subcontractor who will install the membrane: _____</p> <p>See detail on 5/R7 and applicable spec sections.</p> <p>Estimated quantity is approximately 17,820 sf which is to be verified in the field by the Contractor, prior to submitting bid price. Include any required sealant for cove joints, construction joints, etc.</p>	LUMP SUM	LS	\$ _____

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
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BASE BID ITEM NO. 3 - PAINTING

<p>3(a) Restripe Garage: Two coats of semi-gloss paint for striping of garage parking stalls and floor directional arrows throughout the garage including all ramps and all curb areas and as specified. Color to be selected by the Owner.</p>	LUMP SUM	LS	\$ _____
<p>3(b) Coating Interior Spandrel Panel: After all vertical repairs have been completed and concrete has properly cured, clean the interior vertical wall surfaces and apply a new elastomeric acrylic coating as specified. Standard color to be selected by the Owner.</p>	LUMP SUM	LS	\$ _____
<p>3(c) Painting of Miscellaneous Metals: Remove existing loose paint, rust, scale, dirt, laitance, etc. to bare metal, prime and provide two coats of paint to entire railing system as specified.</p>	LUMP SUM	LS	\$ _____

BASE BID ITEM NO. 4 – EXTERIOR

<p>4(a) Replacement of Exterior Joint Sealant: Fully remove all exterior joint sealants throughout the garage façade, clean substrate and install new backer rod and sealant as specified and per detail 4/R-7.</p> <p>Estimated quantity of repair is approximately 220lf, which is to be verified in the field by the Contractor, prior to submitting bid price.</p>	LUMP SUM	LS	\$ _____
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BASE BID ITEM NO. 5 - MISCELLANEOUS ITEMS

<p>5(a) General Construction Allowance: Allowance for additional repairs determined and authorized by the Engineer during construction.</p>	ALLOWANCE	ALLW	\$70,000
<p>5(b) General Conditions: General conditions compliance and mobilization costs to set up all necessary plant equipment, etc., and facilities required by local Ordinances. Amount will include all taxes, licenses, fees, excises, insurance, permits, etc., required per Contract Documents and all work required to complete the Contract and not included in other bid items.</p>	LUMP SUM	LS	\$ _____

CONTRACTOR'S NAME _____

Base Bid	Estimated Quantity	Unit Price	Cost
<p>5(c) Miscellaneous Work: Includes providing shoring and bracing for the concrete work; dustproofing and partitioning around the work area; protecting existing systems and equipment, HVAC inlets and outlets from exhaust, dirt, water and dust infiltration; providing traffic routing and control; maintaining electrical services and lighting; and protecting existing utilities including, but not limited to, fire alarm system, existing light fixtures and sprinkler lines during the construction.</p>	LUMP SUM	LS	\$ _____
<p>TOTAL BASE BID CONSTRUCTION COST (Sum of Bid Items 1 through 5)</p>			\$ _____

CONSTRUCTION TIME

The undersigned agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed", and to complete all work within the number of calendar days indicated below from and after receipt of any required permits.

BASE BID: _____ Calendar Days

RIGHT TO REJECT BIDS AND SIGNING CONTRACTS

In submitting this Bid, it is understood that the right is reserved by the Owner to reject any and all bids. If written notice of acceptance of this bid is mailed, telegraphed or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn by written notification, the undersigned agrees to execute and deliver a Contract in the prescribed form within 10 days after the Contract is presented to him for signature.

BID GUARANTEE

The undersigned agrees that this bid may be held by the Owner for a period not exceeding sixty (60) days from the date set up for the opening of bids and that the bid may not be withdrawn within that period.

IN WITNESS WHEREOF the undersigned Bidder has caused its/his/her signature and seal to be affixed thereto by duly authorized officers this _____ day of _____, 2024.

Firm Name: _____

Title: _____

Telephone No: _____

Official Address: _____

Attest: _____

Secretary: _____

(Note: If bidder is a corporation, the Corporate Seal must be affixed.)

* * * * *

**CONTRACTOR LICENSE INFORMATION
PAGE**

*(Complete and attach to the outside of written bid envelope or
attach to electronic bid submittal)*

**To: City of Maryville Purchasing Department
414 West Broadway Avenue
Maryville, TN 37804-5906**

BID NO:	08-24	
PROJECT	405 East Harper Avenue Garage Repairs	
BID DEADLINE DATE AND TIME:	July 23, 2024 2:00 P.M. EASTERN TIME.	
CONTRACTOR:		
ADDRESS:		
CITY/ST/ZIP:		
TN CONTRACTOR LICENSE NO:		LICENSE CLASSIFICATION(S):
EXPIRATION DATE:		LICENSE LIMITATION(S): \$
List below the Subcontractors to be used on this project, or check "N/A" if no subcontractors are to be used.		
ELECTRICAL <input type="checkbox"/> N/A	Subcontractor:	License No:
	Classification/Limitation:	Expiration Date:
CONCRETE <input type="checkbox"/> N/A	Subcontractor:	License No:
	Classification/Limitation:	Expiration Date:
TRAFFIC CONTROL <input type="checkbox"/> N/A	Subcontractor:	License No:
	Classification/Limitation:	Expiration Date:
CARPENTRY <input type="checkbox"/> N/A	Subcontractor:	License No:
	Classification/Limitation:	Expiration Date:
PAVEMENT MARKING <input type="checkbox"/> N/A	Subcontractor:	License No:
	Classification/Limitation:	Expiration Date:



BID BOND

B I D B O N D

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as CONTRACTOR, and _____ as Surety, are hereby held and firmly bound unto the City of Maryville, Tennessee, as OWNER in the penal sum of _____ for payment of which, well and truly to be made, were hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 2024.

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 construction of:

Bid #08-24 405 East Harper Avenue Garage Repairs

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the CONTRACTOR 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 respect 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 BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the CONTRACTOR 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.

BIDDER (*Name and Address*):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

City of Maryville
416 West Broadway Avenue
Maryville, TN 37801

BID

Bid Due Date:
Description (Project Name and Include Location):

BOND

Bond Number:
Date (Not earlier than Bid due date):

Penal sum _____
(Words)

\$ _____
(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary. Bond may be declared invalid if not accompanied by Power of Attorney.

SECTION 00 52 13

AGREEMENT FORM

PART 1 - GENERAL

1.01 FORM OF AGREEMENT:

The written agreement between the owner and the contractor shall be executed on an Owner Supplied Document as amended and is incorporated herein as if here set forth.

- A. Owner Agreement Form.
- B. Additional Documents to the Agreement:
 - 1. Supplementary Conditions
 - 2. *AIA Document G701 – Change Order*
 - 3. *AIA Document G702 – Application and Certification for Payment*
 - 4. *AIA Document G703 - Application for Payment and Continuation Sheet*
 - 5. *AIA Document G704 – Certification of Substantial Completion*
 - 6. Owner Provided Documents

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION



AGREEMENT

AGREEMENT

A G R E E M E N T

THIS AGREEMENT, made this ____ day of _____, 2024, by and between the City of Maryville, Tennessee, hereinafter called "OWNER" and

doing business as a corporation, hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

ARTICLE 1. WORK. The contractor will perform all Work as shown in the Contract Documents for the Completion of the Project generally described as follows:

Bid #08-24 405 East Harper Avenue Garage Repair

ARTICLE 2. ENGINEER. This project has been designed by DESMAN who will act as the ENGINEER in connection with completion of the project in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME. The City of Maryville anticipates this project to commence shortly after contract award and immediately after receipt of any required permit. The garage facility is expected to be fully closed for a period of 90 days. Substantial completion shall be required on or before **90 business days** of the closure at which time the garage should be at least 50% open for parking. Final completion shall be achieved within **30 business days** after the date for substantial completion as determined by Owner and Engineer, unless otherwise modified in writing.

LIQUIDATED DAMAGES: If the Contractor shall fail to complete the work within the time stipulated in this Agreement, including any extensions of time for excusable delays as provided for in the Supplemental General Conditions, the Contractor shall pay to the Owner liquidated damages in the stipulated amount of \$100.00/day for each calendar day of delay, until the work is substantially completed.

ARTICLE 4. CONTRACT PRICE. The OWNER will pay the CONTRACTOR for performance of Work and completion of the Project in accordance with the Contract Documents subject to adjustment modifications as provided therein the sum of:

\$ _____
as shown in the Bid Schedule.

ARTICLE 5. PAYMENT PROCEDURES. The OWNER will make progress payments on account of the Contract Price as provided in the General Conditions as follows:

A G R E E M E N T

- 5.1. Progress and final payments will be on the basis of the CONTRACTOR'S Applications for Payment as approved by the ENGINEER.
- 5.2. On or about the 1st day of each month during construction:
95 % of the Work completed and approved, and
95 % of material and equipment not incorporated in the Work, but delivered and suitably stored, less in each case the aggregate of payments previously made.
- 5.3. Upon Substantial Completion, a sum sufficient to increase the total payments to the CONTRACTOR to 100% of the completed and approved Work, less any amount, as applicable and as determined by the ENGINEER, for any unsettled claims.
- 5.4. Upon Final Completion of the Work and Settlement of all claims, the remainder, if any, of the payment for completed Work of this Contract.

ARTICLE 6. CONTRACT DOCUMENTS. The Contract Documents which comprise the contract between the OWNER and CONTRACTOR are attached hereto and make a part hereof and consist of the following:

- 6.1. This Agreement
- 6.2. CONTRACTOR'S Bid Form and Bid Bond
- 6.3. Specifications consisting of:
Instructions for Bidders
General Conditions
Supplementary Conditions
- 6.4. Drawings and Plans, which may be obtained at the City of Maryville Engineering & Public Works Department, 416 W. Broadway Ave., Maryville, TN. 37801.
- 6.5. Addenda numbers _____ to _____, and
- 6.6. Any Modifications, including Change Orders, duly delivered after execution of this Agreement.
- 6.7. Drug-Free Affidavit, Title VI Disclosure, Vendor Information Form, W-9 Form.

ARTICLE 7. MISCELLANEOUS.

- 7.1. Terms used in this Agreement which are defined in Article A of the General Conditions shall have the meanings indicated in the General Conditions.
- 7.2. Neither the OWNER nor the CONTRACTOR shall, without the prior written consent of the other, assign or sublet in whole or part this interest under any of the Contract Documents and, specifically, the CONTRACTOR shall not assign any moneys due or to become due without the prior written consent of the OWNER.

AGREEMENT

- 7.3. The OWNER and the CONTRACTOR each bind himself, his partners, successors, assigns and legal representatives to the other party hereto in respect of all covenants, agreements and obligations contained in the Contract Documents.
- 7.4. The Contract Documents constitute the entire agreement between the OWNER and the CONTRACTOR and may only be altered, amended or repealed by a duly executed written instrument.

AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in quadruplicate each of which shall be deemed an original on the date first above written.

OWNER _____

CONTRACTOR _____

By _____

By _____

Title _____

Title _____

{CORPORATE SEAL}

{CORPORATE SEAL}

Attest: _____

Attest: _____

By: _____ By: _____

Title: _____ Title: _____



PERFORMANCE BOND

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

City of Maryville
415 West Broadway Avenue
Maryville, TN 37801

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
 - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract; or
 2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
 - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without

PERFORMANCE BOND

duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.



PAYMENT BOND

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR *(Name and Address)*:

SURETY *(Name, and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

City of Maryville
416 West Broadway Avenue
Maryville, TN 37801

CONTRACT

Effective Date of Agreement:

Amount:

Project Description *(Name and Location)*:

BOND

Bond Number:

Date *(Not earlier than Effective Date of Agreement)*:

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

PAYMENT BOND

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

- O. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone 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 Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.



SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS INDEX

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SUPPLEMENTARY CONDITIONS

GENERAL

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2013 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect. These Supplementary Conditions are arranged in the same order as the paragraphs in the General Conditions and the paragraphs herein bear comparable numbers to those of the General Conditions but with the prefix "SC".

Section 5.03 SUBSURFACE AND PHYSICAL CONDITIONS

Add the following language at the end of section 5.03 of the General Conditions:

5.03C "Neither OWNER nor ENGINEER makes any warranties or representations about any subsurface conditions that may be encountered within the scope of the Work. The CONTRACTOR shall satisfy himself or subsurface conditions that may be encountered by performing on-site inspections, core drillings or other methods. The risk of encountering and correcting such subsurface conditions shall be borne solely by the CONTRACTOR, and the Contract Price shall include the cost of performing the work complete in place within the Contract Time and in accordance with the terms and conditions of the Contract Documents."

Section 6.03 CONTRACTOR'S INSURANCE

Add the following new paragraph immediately after paragraph 6.03J:

K. The limits of liability for insurance required by paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and related coverages under paragraphs 6.03A of the General Conditions:

a.	State: Tennessee	Statutory
b.	Applicable Federal (e.g. Longshoreman's):	Statutory
c.	Employer's Liability:	\$2,000,000
	Each Accident	\$1,000,000
	Disease – Policy Limit	\$500,000
	Disease – Each Employee	\$100,000

2. Contractor's General Liability under paragraphs 6.03B through H of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of the Contractor:

- a. General Aggregate \$2,000,000
- b. Products – Completed Operations Aggregate
\$2,000,000
- c. Personal and Advertising Injury \$1,000,000
- d. Each Occurrence
(1) (Bodily Injury and Property Damage) \$1,000,000
- e. Fire Damage (any one fire) \$1,000,000
- f. Medical Expenses (any one expense) \$5,000
- g. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
- h. Excess or Umbrella Liability
(1) General Aggregate \$2,000,000
(2) Each Occurrence \$2,000,000

3. Automobile Liability under paragraph 6.03D of the General Conditions:

- a. Bodily Injury:
 - (1) Each Person \$1,000,000
 - (2) Each Accident \$1,000,000
- b. Property Damage:
 - (1) Each Accident \$1,000,000
- c. Combined Single Limit of: \$1,000,000

4. The Contractual Liability coverage required by paragraph 6.03C.2 of the General Conditions shall provide coverage for not less than the following amounts:

- a. Bodily Injury:
 - (1) Each Accident \$1,000,000
 - (2) Annual Aggregate \$1,000,000
- b. Property Damage:

- | | | |
|-----|------------------|-------------|
| (1) | Each Accident | \$1,000,000 |
| (2) | Annual Aggregate | \$1,000,000 |
5. Builder's Risk Insurance – The Contractor shall carry Builder's Risk Insurance, including all-risk coverage, for an amount equal to the total value of the Contract.
 6. The Contractor shall furnish the Owner with a Certificate of Insurance naming Owner as an additional insured on all casualty policies.

Section 6.04 OWNER'S LIABILITY INSURANCE

Delete paragraph 6.04A and B of the General Conditions in its entirety and insert the following in its place:

6.04 The CONTRACTOR shall provide for additional liability coverage for OWNER and ENGINEER as will protect OWNER and ENGINEER against claims which may arise from operations under the Contract Documents. Such insurance coverage shall be provided by endorsement as additional insureds on CONTRACTOR'S General Liability Policy or by a separate "Owner's Protection Policy."

Section 7.06 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS

Add the following introduction to section 7.06 of the General Conditions:

CONTRACTOR shall include a list of all proposed Subcontractors with their bid submittal. Said list shall specify that a portion of the Work to be performed by each subcontractor. Each Subcontractor shall be subject to review and approval by the OWNER.

Section 7.08 PERMITS

Delete paragraph A and replace with the following new paragraph:

A. Contractor shall abide by all conditions of permits obtained by Owner including any additional insurance requirements requested by the permitting agency(s).

00 73 16

FIVE-YEAR CORRECTIVE CERTIFICATE (CC)

Date of Issuance _____

THIS IS TO CERTIFY THAT, in accordance with the terms of a Contract executed the _____ day of _____, 2024 by and between _____, the Contractor, and _____, the Owner, for the _____ Project.

The five-year period for correcting work found to be defective or not in accordance with the Contract Documents as stipulated in the General Conditions to the contract, by the above-named contractor, will begin on the day of _____ 2024, unless indicated as otherwise noted below.

SPECIFICATION SECTION

CORRECTIVE PERIOD START DATE

- 03 31 24.16 - Concrete Repairs with Fast Set Materials
- 05 50 00 - Miscellaneous Metals
- 07 18 16 - Traffic Bearing Waterproofing Membrane
- 07 92 00 – Sealants and Caulking

The Contractor, having examined the above Certificate, finds it correct and acknowledges receipt, upon the _____ day of _____ 2024, of said certificate.

Contractor

Title

NOTE: Work to be corrected within this period does not cover any normal maintenance work which has been abused or neglected by the Owner or his successor. The issuance of this Certificate and its acceptance are his without prejudice to any other rights of the Owner or Contractor under their Contract.

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 10 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 INTENT OF PLANS AND SPECIFICATIONS

- A. The intent of the Plans and Specifications is to describe The Work which the Contractor undertakes to do, in full compliance with the Contract, and it is understood that the Contractor will furnish, unless otherwise provided in the Contract, all materials, machinery, equipment, tools, supplies, transportation, labor, and all other incidentals necessary to the satisfactory prosecution and completion of the Work. The Plans and Specifications are complementary, and what is called for by either is as binding as if called for by both.
- B. The Special Conditions (if applicable) shall control where in conflict with the Standard Specifications. However, such portions of the Standard Specifications not in conflict or not rendered meaningless by the Special provisions shall remain in full force and effect and be binding on the parties hereto.
- C. In the event the Contractor discovers any error or discrepancy in the Contract Documents, he shall immediately call upon the Engineer for his decision. The Engineer shall then make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the Specifications, Special Conditions, Plans and other Contract Documents, as construed by him and his decision shall be final.

1.03 SUMMARY OF WORK

- A. General Mobilization: This work consists of all labor, materials, tools and equipment required for setting-up general plant, storage/staging areas and facilities required by State Laws and City Ordinances; and the general mobilization of equipment required for the completion of the work shown on the Contract Documents. The cost of this item shall include all permits and fees required to perform the project, unless otherwise noted in the Contract Documents, and all expenses for the de-mobilization to a 'broom clean or better' condition after the work has been completed. If a building permit is required, it will be the contractor's responsibility to get the necessary permit to perform the repair work, unless noted otherwise in the documents. This work shall also include the following items:

Reviewing existing electrical plans, if available, and existing conditions for each phase of the work to identify the likelihood of embedded conduits/wiring in the floor slabs. All existing mechanical and electrical services shall be maintained/restored by the Contractor for all work areas.

Provide effective ventilation system to safely remove all dust and hazardous fumes generated from the concrete demolition and any surface treatment applications.

Protection of overhead fire protection system to be maintained in-place, if any.

Protection of existing overhead mechanical and electrical systems, if any, to be maintained in-place.

Removal of loose overhead concrete from the structural concrete members in areas adjoining work locations within the structure prior to the start of any demolition work.

Coordinate and assist the security and property management personnel in respect to the security of commercial spaces during the repair work.

Electricity (power) and water required for the completion of the work shall be furnished by the Owner at existing fixtures or outlets. (The Owner will not provide any temporary pipes, cables, etc.). The contractor shall provide temporary lighting in the work areas, as required, during the restoration work. If the existing capacity is insufficient for the contractor's use, the contractor is responsible for supplementing existing capacity as needed.

- B. Concrete Work: **Patch full depth concrete repairs, vertical surface concrete repairs, lift pocket repairs, ledge beam repair.**
- C. Moisture Protection: **Rout and seal cracks, replacement of double tee joints, replacement of cove joints, replacement of interior and exterior vertical joint sealants, chemical grout injection, new traffic bearing waterproofing membrane.**
- D. Other Work: **Bearing pad replacement, shear and clip connector repair, asphalt repairs, striping, coat interior spandrel wall, painting of miscellaneous metals.**
- E. Miscellaneous Items: This work consists of items not otherwise specifically indicated or shown on the plans, but which are ancillary to the specified scope of work. This work shall also include the following:
 - 1. The contractor shall furnish, install, maintain, relocate and remove all signs, barricades, cones, warning lights, and other safety control devices and temporary signage required for the proper execution of the project. The Engineer and the Owner shall review the safety control device placement before work begins and also prior to the beginning of work on any subsequent construction stages. Any deficiencies in the location or arrangement of devices shall be corrected by the contractor before starting work.
 - 2. The miscellaneous work shall include documentation of any non-functioning electrical/mechanical systems within work areas prior to contractor's activities. This documentation should be based on the contractor's condition survey performed immediately prior to the scheduled mobilization. The contractor shall not start the mobilization until the Owner approves the submittal.
 - 3. The miscellaneous work shall also include the dismantling of any existing mechanical, fire protection and electrical installations in the repair areas in order to perform the overhead repairs to the deck soffit, as required. The temporarily dismantled installations shall be reinstalled immediately after the repairs are completed.

At other locations of repair areas, the contractor shall provide adequate protection systems, as required, for the existing mechanical, plumbing and electrical installations to remain in-place.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. In this Section materials and equipment, and in some cases, their installation are shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by Change Order.

- B. Types of allowances may include the following:

1. Lump sum allowances.
2. Unit cost allowances.
3. Contingency allowance.

1.03 SELECTION AND PURCHASE:

- A. At the earliest feasible date after Contract award, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed in order to avoid delay in performance of the Work.

1. When requested by the Architect, obtain proposals for each allowance for use in making final selections; include recommendations that are relevant to performance of the work.
2. Purchase products and systems as selected by the architect from the designated supplier.

1.04 SUBMITTALS:

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.05 UNUSED MATERIALS:

- A. Return unused materials to the manufacturer or supplier for credit to the Owner, after installation has been completed and accepted.
- B. Where it is not economically feasible to return unused materials for credit and when requested by the Architect, prepare unused material for the Owner's storage, and deliver to the Owner's storage space as directed. Otherwise, proper disposal of excess material is the Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.01 INSPECTION:

- A. Inspect products covered by an allowance promptly upon delivery for damage or defects.

3.02 PREPARATION:

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related construction activities.

3.03 SCHEDULE OF ALLOWANCE:

- A. General Construction Allowance: Include the sum of \$68,000 for additional repair work or changes in the existing scope of work as determined by the engineer in the field during the course of construction.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. This Section specifies administrative and procedural requirements for unit prices.
 - 1. A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials and/or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.
 - 2. Unit prices include all necessary labor, materials, equipment and incidentals, overhead, profit and applicable taxes.
 - 3. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- B. Schedule: A "Unit Price Schedule" is included in the Proposal Form and at the end of this Section.
 - 1. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.
 - 2. Repair Details referenced in the schedule contain requirements for the materials and drawings details described under each unit price.
 - 3. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 UNIT PRICE SCHEDULE:

- A. Unit prices for all items are as shown in the Bid Forms shall be considered an integral part of this Section.

3.02 PAYMENT FOR EXTRA WORK:

- A. Extra work which results from any of the changes as specified and for which no unit price is provided in the Contract, shall not be started until receipt of a written authorization or work order from the Owner, which authorization shall state the items of work to be performed and the method of payment for each item. The Contractor shall not be entitled to payment for work performed without such authorization.
- B. If it is practicable to pay for Extra Work on the unit price, or lump sum basis, a fair and equitable sum shall be fixed by agreement of the parties and shown in an Extra Work Order Agreement. Work to be performed directly by the Contractor should be submitted showing a detailed breakdown of labor and material costs to which a 15 percent markup should be added for overhead and profit.
- C. Work to be performed by the subcontractor should be submitted showing a detailed breakdown of labor and materials by the subcontractor to which a five percent markup should be added by the Contractor for overhead and profit.
- D. When the Owner deems it impracticable to handle any Extra Work on the unit price or lump sum basis, or if agreement of the parties cannot be reached, the work may be ordered done and paid for on a Force Account basis, as follows, unless otherwise stipulated in Owner's front end project documents:
 - 1) Labor: The Contractor will be paid the actual amount of wages for all labor and foremen who are actually engaged in such work, to which cost shall be added 10 percent of the sum of such wages. A foreman shall not be used when there are less than three laborers employed, except with the written consent of the Engineer.
 - 2) Welfare and Pension Fund: The Contractor will receive the actual additional amount of contributions paid for regular and uniform health and welfare benefits, pension fund benefits or other benefits, to which 10 percent shall be added, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the class of labor employed on the Work.
 - 3) Insurance and Tax: The Contractor will receive the actual cost or increase in cost of Contractor's Public Liability and Property Damage insurance, Workmen's Compensation tax, and Social Security tax required for Force Account work. The Contractor shall furnish satisfactory evidence of the cost or rates paid for such insurance and tax.
 - 4) Materials: The Contractor will receive the actual cost for all materials, including freight charges as shown by the original paid invoices, which become an integral part of the finished work, to which shall be added 10 percent of the sum thereof.

The Contractor will be reimbursed for any materials used in the construction of such work as sheeting, falsework, form lumber, etc., which are not an integral part of the finished work. The amount of reimbursement shall be agreed upon in writing before such work is begun, and no percent shall be added. The salvage value of such materials shall be taken into consideration in the reimbursement agreed upon.

- 5) Equipment: For any machinery or special equipment (other than small tools), the use of which has been authorized by the Engineer, the Contractor will be paid as following:
- a) For his own equipment, he will be paid by the monthly rate in accordance with the latest edition of Means Construction Cost Data.
 - b) For rental equipment, he will be paid for the actual invoice amount as shown by the original paid invoices.

The equipment shall be of a type and size reasonably required to complete the Extra Work. Compensation will not be allowed for transportation to or from The Work or for the time required for setting up and removing the equipment from The Work or for equipment of a type, size or condition unsuitable for The Work.

3.03 CANCELED ITEMS:

- A. It shall be in the sole judgment and sole discretion of the Engineer or its representatives to cancel or alter any or all portions of the Contract due to circumstances either unknown at the time of bidding or arising after the Contract was entered into. Should such actions result in elimination or non-completion of any portion of the Contract, payment shall be made as follows:
- 1) For the canceled work completed by the Contractor, payment shall be made to the Contractor for the actual number of units or items completed at the Contract unit or lump sum prices. For canceled work partially completed by the Contractor, payment shall be made to the Contractor for the partially completed units or items as specified in Payment for Extra Work.
 - 2) For materials obtained by the Contractor for the unfinished (uncompleted) portions of the canceled work, that have been inspected, tested and accepted by the Engineer, and that have not been incorporated in the canceled work, payment shall be made to the Contractor for the actual costs for all such materials, including freight charges, as shown by the original paid invoices, to which shall be added 10 percent of the sums thereof. The materials, when so paid for by the Owner, shall become the property of the Owner.

3.04 PARTIAL PAYMENTS:

- A. The Engineer shall review the Contractor's pay request for materials in-place and completed, the amount of work performed, and the value thereof, at the Contract Unit Prices. From the amount so determined there shall be deducted ten percent to be retained until after the completion of the entire work to the satisfaction of the Engineer, and the balance certified to the Owner for payment. Notwithstanding the above, after 50 percent or more of the work is completed, the Engineer may certify the remaining partial payments or some of them without any further retention, provided that satisfactory progress is being made in accordance with the Contract requirements and continues to be made, and provided that the amount retained shall not be less than five percent of the total adjusted Contract Price.

- B. If stored matter is lost or damaged prior to incorporation in The Work, the materials shall be replaced or satisfactory repaired at the Contractor's expense. Where payment is made for materials in storage and not yet incorporated into The Work, the Contractor shall provide to the Owner, satisfactory evidence of insurance against loss by damage or disappearance. The Contractor shall pay and be responsible for cost of storage, if any, of said materials.

3.05 ADJUSTMENT OF UNIT PRICES BASED ON ACTUAL QUANTITIES PERFORMED:

- A. For unit price bid items, the quantities as listed in the schedule of bid items are estimates only. The Contractor will be required to complete the work specified in accordance with the Contract and at the quoted unit prices, whether quantities greater or less than the estimated amounts are involved. Should the actual quantity of a unit price pay item vary from the original estimate, the following adjustments to the unit prices shall be made:
 - 1) When the actual quantity of a unit price pay item is less than 75 percent of the original bid estimate, the Contract will be paid an amount equal to the actual quantity times the original unit price plus 10 percent of the difference between this amount and the original estimated quantity times the original unit price for that particular item.
 - 2) When the actual quantity of a unit price pay item is greater than 120 percent of the original bid estimate (based upon prior approval to exceed this quantity by the Owner and Engineer) the Contractor will be paid for the actual work performed in excess of the 120 percent of the original bid estimate at an adjusted unit price of 0.90 times the original unit price. The first 120 percent of the bid estimate quantity will be paid at the original unit price.
- B. The foregoing provisions shall be instituted only after it can be accurately determined that the actual contract sum for the project (exclusive of all change orders unrelated to the original scope of work) will be greater than or less than the original contract sum by more than 5 percent. Until such time that this determination can be made, the Contractor will be paid at his base unit price for actual quantities of work performed. No associated adjustments will be made to lump sum items within the original contract sum due to changes in the actual quantities of unit price items and the Contractor shall not be entitled to an adjusted compensation for unit price items that are deleted in their entirety from the actual scope of work performed.

END OF SECTION

SECTION 01 31 00

PROJECT COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

- 1. Coordination.
- 2. Administrative and supervisory personnel.
- 3. General installation provisions.
- 4. Cleaning and protection.

- B. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

1.03 COORDINATION:

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

- 1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
- 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
- 3. Make adequate provisions to accommodate items scheduled for later installation.

- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

- 1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Project Close-out activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

1.04 SUBMITTALS

A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1. Show the interrelationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Comply with requirements contained in Section "Submittals."

B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work.

Secure Work true to line and level. Allow for expansion and building movement.

- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Consultant for final decision.

3.02 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessively high or low temperatures.
 - 3. Air contamination or pollution.
 - 4. Water or ice.
 - 5. Solvents.
 - 6. Chemicals.
 - 7. Puncture.
 - 8. Abrasion.
 - 9. Heavy traffic.
 - 10. Soiling, staining and corrosion.
 - 11. Bacteria.
 - 12. Combustion.
 - 13. Electrical current.
 - 14. Unusual wear or other misuse.
 - 15. Contact between incompatible materials.

16. Destructive testing.
17. Misalignment.
18. Excessive weathering.
19. Unprotected storage.
20. Improper shipping or handling.
21. Theft.
22. Vandalism.

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
 - 1. Contractor's construction schedule.
 - 2. Submittal schedule.
 - 3. Daily construction reports.
 - 4. Shop Drawings.
 - 5. Product Data.
 - 6. Samples.
 - 7. Material safety data sheets (MSDS)
- B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
 - 1. Permits.
 - 2. Applications for payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of Subcontractors.
- C. The Schedule of Values submittal is included in "Applications for Payment."
- D. Inspection and test reports are included in Section "Quality Control Services."

1.03 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
 - a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Consultant will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow two weeks for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Consultant sufficiently in advance of the Work to permit processing.

- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of Consultant.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.

- C. Submittal Transmittal: Package each submittal appropriately for electronic transmittal and handling. Electronically transmit each submittal from Contractor to Consultant using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
 1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. Transmittal Form: Use AIA Document G 810.

1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.

- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Consultant, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
 - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

1.05 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.
 - 1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
 - 2. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:
 - a. Scheduled date for the first submittal.
 - b. Related Section number.
 - c. Submittal category.
 - d. Name of subcontractor.
 - e. Description of the part of the Work covered.
 - f. Scheduled date for re-submittal.
 - g. Scheduled date the Consultant's final release or approval.
- B. Distribution: Following response to initial submittal, electronically distribute to the Consultant's, Owner, subcontractors, and other parties required to comply with submittal dates indicated.
 - 1. When revisions are made, distribute electronically to the same parties. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.06 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report, recording the following information concerning events at the site; and electronically submit to the Consultant at weekly intervals:
 - 1. List of subcontractors at the site.

2. Approximate count of personnel at the site.
3. High and low temperatures, general weather conditions.
4. Accidents and unusual events.
5. Meetings and significant decisions.
6. Stoppages, delays, shortages, losses.
7. Meter readings and similar recordings.
8. Emergency procedures.
9. Orders and requests of governing authorities.
10. Change Orders received, implemented.
11. Services connected, disconnected.
12. Equipment or system tests and start-ups.
13. Partial Completions, occupancies.
14. Substantial Completions authorized.

1.07 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
 1. Dimensions.
 2. Identification of products and materials included.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48".
 7. Initial Submittal: When possible electronically submit product sheets, MSDS sheets and shop drawings for the Consultant's review; the submittal will be reviewed and returned/distributed in the same manner.
 8. Final Submittal: When possible electronically submit reviewed product sheets, MSDS sheets and shop drawings where required for maintenance manuals and for final distribution.
 9. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
- C. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
 1. Preparation of coordination Drawings is specified in section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
 2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.08 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
 3. Preliminary Submittal: Submit a preliminary copy of Product Data where selection of options is required.
 4. Submittals: Electronically transmit each submittal where required for maintenance manuals. The Consultant will return submittals marked with action taken and corrections or modifications required.
 1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.09 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Consultant's Sample. Include the following:

- a. Generic description of the Sample.
 - b. Sample source.
 - c. Product name or name of manufacturer.
 - d. Compliance with recognized standards.
 - e. Availability and delivery time.
2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
 3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
 - a. Preliminary submittals will be reviewed and returned with the Consultant's mark indicating selection and other action.
 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit for action.
 5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
 - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.10 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Consultant will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Consultant will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "Accepted," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "Accepted as Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - 3. Returned for Re-submittal: When submittal is marked "Not Accepted, Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Not Accepted, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
 - 4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required."

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION

SECTION 01 42 00

REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 DEFINITIONS:

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Indicated: The term "indicated" refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.
- C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Consultant," "requested by the Consultant," and similar phrases.
- D. Approve: The term "approved," where used in conjunction with the Consultant's action on the Contractor's submittals, applications, and requests, is limited to the Consultant's duties and responsibilities as stated in the Conditions of the Contract.
- E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
- I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term "experienced," when used with the term "Installer," means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
 2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.
 3. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
 - a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
- K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.03 SPECIFICATION FORMAT AND CONTENT EXPLANATION:

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTER FORMAT numbering system.
- B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
 1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated shall be interpolated as the sense required. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the context of the Contract Documents so indicates.

2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
 - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.04 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Consultant for a decision before proceeding.
 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Consultant for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
 1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.
- F. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

AA Aluminum Association
900 19th St., NW, Suite 300
Washington, DC 20006 (202) 862-5100

AASHTO American Association of State Highway
and Transportation Officials
444 North Capitol St., Suite 225
Washington, DC 20001 (202) 624-5800

ACI American Concrete Institute
P.O. Box 19150
Detroit, MI 48219 (313) 532-2600

ACIL American Council of Independent Laboratories
1725 K St., NW
Washington, DC 20006 (202) 887-5872

AI Asphalt Institute
P.O. Box 14052
Lexington, KY 40512-4052 (606) 288-4960

AIA American Institute of Architects
1735 New York Ave., NW
Washington, DC 20006 (202) 626-7300

AISC American Institute of Steel Construction
One East Wacker Drive Suite 700
Chicago, IL 60601 (312) 670-2400

APA American Plywood Assoc.
P.O. Box 11700
Tacoma, WA 98411 (206) 565-6600

ARMA Asphalt Roofing Manufacturers Assoc.
6288 Montrose Rd.
Rockville, MD 20852 (301) 231-9050

ASC Adhesive and Sealant Council
1627 K Street, NW, Suite 1000
Washington, DC 20006 (202) 452-1500

ASPE American Society of Plumbing Engineers
3617 Thousand Oaks Blvd., Suite 210
Westlake, CA 91362 (805) 495-7120

ASTM American Society for Testing and Materials
1916 Race St.
Philadelphia, PA 19103 (215) 299-5400

AWS American Welding Society
550 LeJeune Road, NW
P.O. Box 351040
Miami, FL 33135 (305) 443-9353

BANC Brick Association of North Carolina
P.O. Box 13290
Greensboro, NC 27415-3290 (919) 273-5566

BHMA Builders' Hardware Manufacturers Assoc.
355 Lexington Ave., 17th Floor
New York, NY 10017 (212) 661-4261

BIA Brick Institute of America
11490 Commerce Park Drive, Suite 300
Reston, VA 22091 (703) 620-0010

CRSI Concrete Reinforcing Steel Institute
933 Plum Grove Rd.
Schaumburg, IL 60173 (847) 517-1200

EJMA Expansion Joint Manufacturers Assoc.
25 N. Broadway
Tarrytown, NY 10591 (914) 332-0040

HPMA Hardwood Plywood Manufacturers Assoc.
1825 Michael Farraday Drive
P.O. Box 2789
Reston, VA 22090 (703) 435-2900

IEEE Institute of Electrical and
Electronic Engineers
345 E. 47th St.
New York, NY 10017 (212) 705-7900

NAPA National Asphalt Pavement Assoc.
Calvert Building, Suite 620
6811 Kenilworth Ave.
Riverdale, MD 20737 (301) 779-4880

NCMA National Concrete Masonry Assoc.
P.O. Box 781
Herndon, VA 22070 (703) 435-4900

NEC National Electric Code (from NFPA)

NECA National Electrical Contractors Assoc.
7315 Wisconsin Ave.
Bethesda, MD 20814 (301) 657-3110

NFPA National Fire Protection Assoc.
One Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101 (617) 770-3000

NPCA National Paint and Coatings Assoc.
1500 Rhode Island Ave., NW
Washington, DC 20005 (202) 462-6272

NRCA National Roofing Contractors Assoc.
One O'Hare Centre
6250 River Road, Suite 8030
Rosemont, IL 60018(708) 318-6722

PCA Portland Cement Assoc.
5420 Old Orchard Road
Skokie, IL 60077 (847) 966-6200

PCI Prestressed Concrete Institute
175 W. Jackson Blvd.
Chicago, IL 60604 (312) 786-0300

PDI Plumbing and Drainage Institute
c/o Sol Baker
1106 W. 77th St., South Dr.
Indianapolis, IN 46260 (317) 251-6970

RMA Rubber Manufacturers Assoc.
1400 K St., NW
Washington DC 20005 (202) 682-4800

SSPC Steel Structures Painting Council
4400 Fifth Ave.
Pittsburgh, PA 15213 (412) 268-3327

WRI Wire Reinforcement Institute
1760 Reston Parkway, Suite 403
Reston, VA 22090 (703) 790-9790

- G. Federal Government Agencies: Names and titles of federal government standard or Specification producing agencies are often abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard or Specification producing agencies of the federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up to date as of the date of the Contract Documents.

CE Corps of Engineers
(U.S. Department of the Army)
Chief of Engineers - Referral
Washington, DC 20314

(202) 272-0660

CFR Code of Federal Regulations
Available from the Government Printing Office
N. Capitol St. between G and H St. NW
Washington, DC 20402 (202) 783-3238
(Material is usually first published
in the "Federal Register")

CPSC Consumer Product Safety Commission
5401 Westbard Ave.
Bethesda, MD 20816 (800) 638-2772

CS Commercial Standard
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402 (202) 377-2000

DOC Department of Commerce
14th St. and Constitution Ave., NW
Washington, DC 20230 (202) 377-2000

DOT Department of Transportation
400 Seventh St., SW
Washington, DC 20590 (202) 366-4000

EPA Environmental Protection Agency
401 M St., SW
Washington, DC 20460 (202) 382-2090

FAA Federal Aviation Administration
(U.S. Department of Transportation)
800 Independence Ave., SW
Washington, DC 20590 (202) 366-4000

NIST National Institute of Standards and Technology
(U.S. Department of Commerce)
Gaithersburg, MD 20899 (301) 975-2000

OSHA Occupational Safety and Health Administration
(U.S. Department of Labor)
Government Printing Office
Washington, DC 20402 (202) 523-6091

PS Product Standard of NBS
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402 (202) 783-3238

1.05 GOVERNING REGULATIONS/AUTHORITIES:

- A. The Consultant has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.
- B. Copies of Regulations: Obtain copies of the applicable regulations and retain at the Project Site, available for reference by parties who have a reasonable need for such reference.

1.06 SUBMITTALS:

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL SERVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for quality control services.
- B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include contract enforcement activities performed by the Consultant.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
 - 2. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for the Contractor to provide quality control services required by the Consultant, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.03 RESPONSIBILITIES

- A. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.
 - 1. The Contractor shall employ and pay an independent agency, to perform specified quality control services.

2. The Owner will engage and pay for the services of an independent agency to perform inspections and tests specified as the Owner's responsibilities.
 - a. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and if the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.
3. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
 - a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.
4. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
 - a. Providing access to the Work and furnishing labor and facilities necessary to facilitate inspections and tests.
 - b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 - c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
 - d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 - e. Security and protection of samples and test equipment at the Project site.
- B. Owner Responsibilities: The Owner will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the Contractor, except where they are specifically indicated as the Contractor's responsibility or are provided by another identified entity.
 1. The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the Owner's responsibility from the allowance set aside for testing in the contract sum.
- C. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Consultant and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.
 1. The agency shall notify the Consultant and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
 3. The agency shall not perform any duties of the Contractor.
- D. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition, the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.
 2. The contractor shall schedule pre-installation coordination meetings for key elements in this project:
 - a. Pre-Concrete Coordination meeting, including owner, engineer, concrete supplier, testing agency, and other specialty contractors/manufacturers such as the membrane manufacturer and installer.
 - b. Pre-Membrane installation coordination meeting, meeting, including owner, engineer, membrane, sealant, sealer, suppliers and manufacturer representative, and other specialty contractors/manufacturers such as the concrete contractor.

1.04 SUBMITTALS:

- A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Consultant, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.
1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
 2. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretation of test results.
 - j. Ambient conditions at the time of sample-taking and testing.
 - k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.

1.05 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.
 - 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.
- B. Protect construction exposed by or for quality control service activities and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities may include but are not limited to:
1. Water service and distribution subject to the scope of work.
 2. Temporary electric power and light subject to the scope of work.
- C. Temporary construction and support facilities may include but are not limited to:
1. Field offices and storage sheds.
 2. Sanitary facilities, including drinking water.
 3. Temporary enclosures, including noise abatement to meet local ordinances.
 4. Temporary Project identification signs and bulletin boards.
 5. Waste disposal services.
 6. Rodent and pest control.
 7. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities may include but are not limited to:
1. Temporary fire protection.
 2. Barricades, warning signs, lights.
 3. Environmental protection.

1.03 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.04 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
1. Building Code requirements.
 2. Health and safety regulations.
 3. Utility company regulations.

4. Police, Fire Department and Rescue Squad rules.
 5. Environmental protection regulations.
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
 2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood:
1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
 2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
 3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.
 4. For safety barriers, sidewalk bridges and similar uses, provide minimum 5/8" thick exterior plywood.
- C. Paint: Comply with requirements of Division-9 Section "Painting."

1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
 2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
 3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.
- D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Water: Provide potable water approved by local health authorities.
- F. Open-Mesh Fencing: Provide 11-gage, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts.

2.02 EQUIPMENT

- A. General: Provide new equipment; if acceptable to the Consultant, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air- conditioned units on foundations adequate for normal loading.
- G. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
- H. First Aid Supplies: Comply with governing regulations.

- I. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
 1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.
 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Consultant, and will not be accepted as a basis of claims for a Change Order.
- B. Temporary Water Service: The contractor shall make arrangements with the Building Management for temporary water from existing sources at the facility. The Contractor shall be responsible for all hoses, connections, etc., required from the point of water source at the facility.
- C. Temporary Electric Power Service: The Contractor shall make all arrangements for and shall install and pay for the temporary electric service. The Contractor shall furnish, install and maintain all temporary and power facilities required by the work. Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power

characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.

1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

D. Temporary Lighting:

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to the municipal system as directed by the sewer department officials.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

F. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access at locations approved by the Owner.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site as approved by the Owner.

- D. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- G. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- H. Drinking Water Facilities: Within temporary office, provide containerized tap-dispenser bottled-water type drinking water units, including paper supply.
- I. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
 3. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.
- J. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

3.04 PROTECTION FACILITIES INSTALLATION

- A. Temporary Fire Protection:
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

- B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- C. Security Enclosure and Lockup:
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.05 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Protection: Prevent water filled piping from freezing.
- C. Termination and Removal: Unless the Owner requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of the Contractor.
 - 2. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.
 - 3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

- a. Replace air filters and clean inside of ductwork and housings.
- b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.

END OF SECTION

SECTION 01 60 00

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."
- C. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.
- D. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."

1.03 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. Note that some product specifications require job specific purchase of the materials versus use from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.04 SUBMITTALS

- A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Consultant. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare the product listing schedule with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date, or time span of delivery period.
 3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
 4. Completed Schedule: Within 60 days after date of commencement of the Work, submit 3 copies of the completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
 5. Engineer's Action: The Consultant will respond in writing to the Contractor within 2 weeks of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers or products, but does not constitute a waiver of the requirement that products comply with Contract Documents. The Engineer's response will include the following:
 - a. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.05 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Consultant for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that

produce products that possess these qualities, to the fullest extent possible.

- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
 3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
 4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
 5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
 6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
 7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and

governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
 - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.
6. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Owner's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

8. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Owner will select the color, pattern and texture from the product line selected.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS:

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01 78 00

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Operating and maintenance manual submittal.
 - 4. Submittal of warranties.
 - 5. Submittal of 5-Year Corrective Period Certificate.
 - 6. Final cleaning/site demobilization of left over materials and equipment.
 - 7. Re-installation of any existing building features temporarily removed for access to work areas.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections.

1.03 SUBSTANTIAL COMPLETION:

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise Owner of pending insurance change-over requirements.
 - 3. Submit specific warranties, 5-year corrective period certificate, workmanship bonds, maintenance agreements, final certifications and similar documents.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 - 5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.

6. Deliver tools, spare parts, extra stock, and similar items.
 7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
 8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, the Consultant will either proceed with inspection or advise the Contractor of unfilled requirements. The Consultant will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Consultant will repeat inspection when requested and assured that the Work has been substantially completed.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL ACCEPTANCE:

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Consultant's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Consultant.
 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
 5. Submit consent of surety to final payment.
 6. Submit a final liquidated damages settlement statement.
 7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

- B. Re-inspection Procedure: The Consultant will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Consultant.
1. Upon completion of re-inspection, the Consultant will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 2. If necessary, re-inspection will be repeated.

1.05 RECORD DOCUMENT SUBMITTALS:

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Consultant's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
 3. Note related Change Order numbers where applicable.
 4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.
1. Upon completion of the Work, submit record Specifications to the Consultant for the Owner's records.

- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
1. Upon completion of mark-up, submit complete set of record Product Data to the Consultant for the Owner's records.
- E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Consultant and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.
- F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Consultant for the Owner's records.
- G. Maintenance Manuals: Organize operating and maintenance data into a single PDF file. Include the following types of information:
1. Emergency instructions.
 2. Copies of warranties.
 3. Copies of 5-Year Corrective Period Certificate
 4. Inspection procedures.
 5. Shop Drawings and Product Data.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES:

- A. Maintenance Instructions: Provide instruction by manufacturer's representatives to include a detailed review of the following items:
1. Maintenance manuals.
 2. Record documents.
 3. Hazards.
 4. Cleaning.
 5. Warranties
 6. Certificate of 5-Year Corrective Period
 7. Maintenance agreements and similar continuing commitments.

3.02 FINAL CLEANING:

- A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 - 1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
 - a. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 - b. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
 - 1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION

SECTION 01 78 30

WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
 - 1. Refer to the General and/or Special Conditions for terms of the Contractor's special warranty of workmanship and materials.
 - 2. General closeout requirements are included in Section "Project Closeout."
 - 3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, may be included in the individual Sections.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.04 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.05 SUBMITTALS

- A. Submit written warranties to the Consultant prior to the date certified for Substantial Completion. If the Consultant's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Consultant.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Consultant within fifteen days of completion of that designated portion of the Work.
- B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Consultant for approval prior to final execution.
 - 1. Refer to individual Sections for specific content requirements, and particular requirements for submittal of special warranties. In general, the Corrective Period for all work will be five (5) years.
- C. Form of Submittal: At Final Completion compile each required warranty properly executed by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

- D. A single PDF file of the project warranties are to be included as part of the project close-out documents and shall be distributed to all parties.
- E. If required, bind warranties in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
 - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
 - 2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES", the Project title or name, and the name of the Contractor.
 - 3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SCHEDULE OF WARRANTIES

- A. Schedule: Provide a five (5) year labor and material (manufacturers) warranty on products and installations specified.
- B. The General Contractor shall provide an executed Certificate of Five Year Corrective Period (included in the contract documents) for all repairs performed to conform with the specifications in addition to specific warranties for individual products.
- C. At the close of the project the contractor shall submit all as-builts and warranties as directed in the project manual, including a 5-year corrective certificate. It is the Contractors responsibility to meet the requirements and obtain all warranties as specified. Any warranties that cannot be obtained as specified shall be brought to the Owner/Engineers attention prior to bid submission.

END OF SECTION

DIVISION 02

EXISTING CONDITIONS

SECTION 02 41 00

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. DESCRIPTION

1. Furnish labor, materials, equipment and transportation necessary to do all concrete demolition, as shown on drawings and as specified herein, including but not necessarily limited to the following:
 - a. Removal of existing deteriorated concrete as noted on plans or directed by the Engineer.
 - b. Removal of existing vertical and overhead concrete where directed by the Engineer.
 - c. Dust and water control.
 - d. Removal and disposal of all debris.
 - e. Disconnecting and relocating/reinstalling any existing utility lines on the site, which interfere with the repairs.
 - f. Protection of all existing electrical systems, mechanical equipment, light fixtures, overhead piping, fire protection system etc. scheduled to remain.
2. Contractor shall provide barricades with warning lights, enclose the construction area and take all precautions necessary to ensure public and employee safety.
3. All work shall be done in accordance with the requirements of all local and state agencies.

B. QUALITY ASSURANCE

1. Demolition Contractor's Qualifications: Minimum of 5 years- experience on comparable projects.
2. Comply with all pertinent codes and regulations which apply to this type of work and with requirements of insurance carriers providing coverage for this work. Dispose of debris in a legal manner off site daily. Do not allow to accumulate on site.

C. JOB CONDITIONS

1. Dust and Water Control: Contractor shall contain particular debris generated by his work activities from polluting the atmosphere or waterways.
2. On-site burning shall not be permitted.
3. Use all means necessary to protect existing facilities, utilities, and appurtenances within the project areas.

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
 - 1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 2. Coordinate with Owner's continuing use of portions of existing building and/or with Owner's partial occupancy of completed new addition.
- C. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of work.

1.04 JOB CONDITIONS

- A. Occupancy: Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.
- B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur prior to start of selective demolition work.
- C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
 - 1. Storage or sale of removed items on site will not be permitted.
- D. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.
 - 1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of the project.
 - 2. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.

4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 5. Protect floors with suitable coverings when necessary.
 6. Construct temporary insulated dust resistant partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dust resistant doors and security locks.
 7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 8. Remove protections at completion of work.
- E. **Variations and Thicknesses:** Existing materials to be removed may vary in thickness and such variations shall be considered by the Contractor in determining means, methods and costs of performing the work of this section. Such variations will not be a basis for changing the value of work performed under this section.
- F. **Damages:** Promptly repair damages caused to adjacent facilities by demolition work.
- G. **Traffic:** Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- H. **Flame Cutting:** Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- I. **Utility Services:** Maintain existing utilities in service and protect them against damage during demolition operations.
1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
 2. Maintain fire protection services during selective demolition operations.
- J. **Environmental Controls:** Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Use appropriate materials and proper equipment to complete the work of this Section. Provide all necessary barricades, warning devices, enclosures, etc. as required to comply with governing safety regulations.

PART 3 - EXECUTION

3.01 PREPARATION

- A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.
1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
 2. Cover and protect equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
 3. Erect and maintain dust resistant partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
 - a. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust resistant partitions of minimum 4-inch studs and ½-inch fire-retardant plywood on demolition side.
 - b. Provide weatherproof closures for exterior openings resulting from demolition work.
 4. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
 - a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.
 5. No removal of concrete by conventional (mechanical impact) methods shall proceed within the parking deck following concrete placement within the same floor area until 48 hours of curing has elapsed, unless areas are separated by expansion joints or as approved by the Engineer.

3.02 DEMOLITION

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
1. Demolish concrete in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Consultant written, accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.
1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
 2. Burning of removed materials is not permitted on project site.

3.04 CLEANUP AND REPAIR

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

DIVISION 03

CONCRETE

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide formwork for concrete repairs as indicated on the Drawings and specified herein.
- B. Work includes formwork and shoring for concrete repairs, and installation into formwork of items such as anchor bolts, anchorages, inserts, and other items to be embedded in concrete.

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. American Concrete Institute (ACI):
347: Recommended Practice for Concrete Formwork
 - 2. American National Standards Institute (ANSI):
A199: Construction and Industrial Plywood
- B. Allowable Tolerances:
 - 1. Construction formwork to provide completed cast-in-place concrete structures complying with the tolerances specified in ACI 347.
 - 2. Before concrete placement check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and locations of concrete members and stability of forming systems.
 - 3. During concrete placement check formwork and related supports to ensure that forms are not displaced and that completed work will be within specified tolerances.

1.03 SUBMITTALS

- A. Manufacturer's Data:
 - 1. Submit manufacturer's data and installation instructions for materials including form coatings, manufactured form systems, ties and accessories.

- B. Shop Drawings:
1. Submit shop drawings for fabrication and erection of formwork for finished concrete surfaces. Show the general construction of forms including jointing, special formed joints for reveals, location and pattern of form tie placement, and other items which affect the exposed concrete visually.
 2. Design of formwork & shoring for structural stability and sufficiency is the Contractor's responsibility.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Forms for Exposed Finish Concrete:
1. Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other panel type materials acceptable to the Engineer, to provide continuous, straight, smooth as-cast surfaces. Furnish in largest practicable sizes to minimize number of joints. Forms shall be mortar-tight, sufficiently rigid to prevent distortion due to the wet concrete mix and other loads incident to construction operations, including vibration, and so constructed and maintained to prevent warping and opening of the joints due to shrinkage of the form material. Molding strips shall be placed in the corners of forms so as to produce beveled edges on permanently exposed concrete corners.
 - a. Plywood Forms: Use overlaid plywood complying with ANSI A 199.1, B-High Density Concrete Form Overlay, Class I.
- B. Forms for Concrete Not Exposed:
1. Form concrete surfaces which will not be exposed in the finished structure with plywood, lumber, metal, or other acceptable material. Use lumber that is dressed on at least 2 edges and 1 side for tight fit.
- C. Form Ties:
1. Use factory-fabricated, adjustable-length, removable or snap off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
 2. Unless otherwise shown, use ties so that portion remaining within concrete after removal of exterior parts is at least 1 inch from the outer concrete surface. Unless otherwise shown, use form ties which will not leave a hole larger than 1 inch diameter in the concrete surface.
 3. For exposed finish concrete, use plastic cones and coil ties where indicated on the drawings.

D. Forms Coating:

1. Use commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.
 - a. Coat forms for exposed finish concrete with a co-polymer resin compound equal to nox-Crete "Pre-Form" Concrete Form Sealer.
 - b. Provide a release agent equal to Nox-Crete "Form Coating".

E. Metal Inserts:

1. Use metal insets for anchorage of materials or equipment to concrete construction as required for the work.
2. Use threaded inserts of malleable cast iron, furnished complete with full-depth bolts; 3/4 inch bolt size, unless otherwise shown.

2.02 DESIGN OF FORMWORK

- A. Design, erect, support, brace, and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure. Carry vertical and lateral loads to ground by formwork system and in place construction that has attained adequate strength for that purpose.
- B. Support form facing materials by structural members spaced sufficiently close to prevent deflection. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities and within allowable tolerances.
- C. Design formwork to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.
- D. Use shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof. Use trussed supports when adequate foundations for shores and struts cannot be secured.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine the conditions under which concrete formwork is to be erected. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 FORM CONSTRUCTION

- A. Construct forms to be the exact sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, levels, and plumb work in finish

structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustifications, reglets, chamfers, blocking screeds, bulkheads, anchorage's and inserts, and other features required. Use selected materials to obtain required finishes.

- B. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Use crush plates or wrecking plates where stripping may damage cast concrete surfaces. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.
- C. Provide temporary openings where interior area of formwork is inaccessible for clean out, for inspection before concrete placement, and for placement of concrete. Brace temporary closures and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms in as inconspicuous location as possible; consistent with project requirements.
- D. Construct formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.
- E. Falsework:
 - 1. Erect falsework and support, brace, and maintain it to safely support vertical, lateral, and asymmetrical loads applied until such loads can be supported by in-place concrete structures. Construct falsework so that adjustments can be made for take-up and settlement.
 - 2. Use wedges, jacks or camber strips to facilitate vertical adjustments. Carefully inspect falsework and formwork during and after concrete placement operations to determine abnormal deflection or signs of failure; make necessary adjustments to produce work of required dimensions.
- F. Forms for Exposed Concrete:
 - 1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Do not splinter forms by driving ties through improperly prepared holes.
 - 2. Do not use metal cover plates for patching holes or defects in forms.
 - 3. Provide chamfered corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, intersections.
 - 4. Use extra studs, walers, and bracing to prevent bowing of forms between studs and to avoid bowed appearance in concrete.
 - 5. Place ties and spreaders symmetrically in plumb tiers and level rows.
 - 6. Place pouring strips in the forms wherever horizontal construction joints are made.

7. Assemble forms so they may be readily removed without damage to exposed concrete surfaces.
 8. Form molding shapes, recesses and projections with smooth-finish materials, and install in forms with sealed joints to prevent displacement.
- G. Corner Treatment:
1. Form exposed corners to produce smooth, solid, unbroken lines, except as otherwise shown.
 2. Form chamfers with 3/4 inch x 3/4 inch strips unless otherwise noted. Extend terminal edges to required limit and miter chamfer strips at changes in direction.
 3. Unexposed corners may be formed either square or chamfered.
- H. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screeds required.
- I. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of others. Accurately place and securely support items to be built into forms.
- J. Cleaning and Tightening:
1. Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is to be placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.

3.03 FORM COATINGS

- A. Apply coating to form surfaces, for exposed finish concrete, with form coating compound to provide a smooth glossy form surface. Apply material and cure panels in compliance with manufacturer's instructions.
- B. Prior to each concrete pour, treat form surfaces with a suitable release agent. Do not allow excess material to accumulate in the forms or to come into contact with surfaces which will be bonded to fresh concrete.

3.04 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of the items to be attached thereto.

3.05 SHORES AND RESHORES

- A. Comply with ACI 347 for shoring and reshoring in multistory construction, and as herein specified.
- B. Space out shoring in such a manner that no floor or member will be excessively loaded or will induce stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums if required to ensure the proper distribution of loads throughout the structure.
- C. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support the work without excessive stress or deflection.

3.06 REMOVAL OF FORMS

- A. Formwork not supporting concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F. for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operation, and provided that curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, roof slabs and other structural elements shall not be removed until concrete has attained a minimum compressive strength of 4,000 psi or 80% of its design compressive strength.

3.07 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces, except as acceptable to the Engineer.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION

- A. Furnish, fabricate and install reinforcement and associated items required or indicated on the drawings for cast-in-place concrete, including, but not necessarily limited to, conventional and epoxy-coated bars, welded wire fabric, ties, and supports.

1.03 WORK SPECIFIED ELSEWHERE

- A. Furnishing and placement of inserts, anchorages, and other embedded items as specified in other sections.

1.04 QUALITY ASSURANCE

- A. Unless otherwise shown or specified, fabrication and placement of all concrete reinforcement and related items shall conform to the following codes and standards:
 1. American Concrete Institute, ACI 318, "Building Code Requirement for Reinforced Concrete."
 2. American Concrete Institute, ACI 315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures."
 3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."

1.05 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with the ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures." Show bar schedule, stirrup spacing, diagrams of bent bars, arrangements and assemblies, for the fabrication and placement of concrete reinforcement.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver reinforcement to the Project Site bundled, tagged, and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

Protection: Use all means necessary to protect concrete reinforcement before, during, and after installation and to protect the materials and installed work of all trades. Take all necessary precautions to maintain identification of fabricated bars after bundles are broken.

Storage: Store concrete reinforcement materials at the site to prevent damage and accumulation of dirt or excessive rust. Epoxy-coated reinforcing bars shall be stored on protective cribbing.

Epoxy-coated reinforcing bars: Coating damage due to handling, shipment and placing need not be repaired where the damaged area is 0.1 square inches or smaller; damaged areas larger than 0.1 square inches shall be repaired with Section 2.01 C; the maximum amount of damage including repaired and unrepaired areas shall not exceed 2 percent of the surface area of each bar.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed.
- B. Welded Wire Fabric: ASTM A82 and ASTM A185. (EPOXY COATED)
- C. Epoxy-Coated Reinforcing Bars: ASTM A775. When required, damaged epoxy coating shall be repaired with patching material conforming to ASTM A775 and done in accordance with the material manufacturer's recommendations. Reinforcing bars to be coated shall conform to Section 2.01-A.
- D. Bar Supports: Bar supports and spacing of same shall be per recommendations set forth by Chapter 3 of the "CRSI Manual of Standard Practice." Epoxy coated reinforcing bars supported from formwork shall rest on coated wire bar supports, or on bar supports made of dielectric material or other acceptable materials. Wire bar supports shall be coated with dielectric material, compatible with concrete, for a minimum distance of 2 inches from the point of contact with epoxy-coated reinforcing bars. Reinforcing bars used as support bars shall be epoxy-coated.
- E. Tie Wire: Wire shall be 16 gauge or heavier, black-annealed. Epoxy-coated reinforcing bars shall be tied with plastic coated, epoxy coated, or nylon-coated tie wire or other acceptable materials.
- F. For epoxy grouting reinforcing steel use the Hilti "HIT RE 500 System" supplied by Hilti Fastening Systems, "Pure 110+"Dowel Fast" System by Powers Fasteners, or approved equal. Follow manufacturer's directions for installation and required surface preparation.

2.02 FABRICATION

- A. General Requirements: Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication to tolerances complying with CRSI Manual of Standard Practice. In case of fabricating errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
- B. Unacceptable Workmanship: Reinforcement with any of the following defects will not be permitted in the work:
 - 1. Bar lengths, depths and bends exceeding specified fabrication tolerances.
 - 2. Bends or kinks not indicated on drawings or final shop drawings.
 - 3. Bars with reduced cross-section due to excessive rusting or other cause.

- C. When epoxy-coated reinforcing bars are cut in the field, the ends of the bars shall be coated with the same material used for repair of coating damage.

PART 3 - EXECUTION

3.01 PLACING REINFORCEMENT

A. General Requirements:

1. All reinforcing bars shall be placed in accordance with CRSI "Recommended Practice for Placing Reinforcing Bars."
2. Bars shall be placed to the tolerance specified in ACI 318-2011.99.
3. Place all reinforcement according to the approved placement drawings. Use sufficient bar supports, tie anchors, additional reinforcing bars, if required, and other accessories to hold all bars securely in place.

- B. Concrete Coverage: Place reinforcement to obtain the minimum coverage specified on the drawings for concrete protection. Arrange, space, and securely tie bars and bar supports together with 16 gauge wire to hold reinforcement accurately in position during concrete placement operation. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.

- C. Cleaning Reinforcement: Steel reinforcement, at the time concrete is placed around it, shall be free from loose rust and mill scale, oil, grease, paint, earth, ice and all coatings, which would reduce or destroy bond between steel and concrete. Clean reinforcement as necessary prior to, during, or after placement to achieve this result. When bars project from construction joints, all cement mortar clinging to the bars from previous concreting shall be removed before the ensuing enveloping concrete is placed.

3.02 REINFORCING BAR LAP SPLICES

- A. New slab reinforcing bars may be spliced to existing bars by lapped splices if adequate lengths of exposed existing bars are available. Provide reinforcement lap splices by placing bars in contact and tying with wire tightly. Comply with the requirements of Engineering Data Report Number 45, 'Tension Development and Lap Splice Lengths of Reinforcing Bars Under ACI 318-08' for minimum required length of bar for lap splices. Alternatively, the contractor can follow the values provided below for lap splice lengths based on the following guidelines:

LAP SPLICE LENGTHS FOR BARS IN TENSION (IN INCHES)

<u>Bar Size</u>	<u>Uncoated Reinforcement</u>	<u>Epoxy-Coated Reinforcement</u>
3	19	22
4	19	28
5	24	35
6	28	42
7	41	61
8	47	70

- Note 1. Based on Class B splice = $1.3 l_d$ (l_d = tensile development length)
Normal weight concrete
 $f'_c = 4,000$ psi min.
Grade 60 reinforcement
Concrete cover = 1.00 in. or greater
Bars have less than 12 in. concrete cast below them.
- Note 2. Lap splice lengths for epoxy-coated steel based on concrete cover equal to or greater than 3 bar diameters and clear spacing between bars equal to or greater than 6 bar diameters.
- Note 3. For lightweight aggregate concrete, multiply the tabulated values by 1.3.

- B. Do not make splices at points of maximum stress if possible.
- C. Stagger top splices, and in horizontal wall reinforcement separate at least five feet longitudinally in alternate bars of opposite tiers.
- D. Stubs and dowels required to receive and engage subsequent work shall extend a sufficient length to develop the strength of the bar. Place dowel and stub bars in the forms and secure against displacement during the placing of concrete. Where stub steel and dowels extend through construction joints in walls, they shall be thoroughly cleaned of adhering particles of concrete, before continuing the placing of any subsequent concrete.
- E. Where splicing length is insufficient either additional concrete removal or mechanical bar splicing shall be implemented at the direction of the Engineer.

3.03 REINFORCING BAR MECHANICAL SPLICES

- A. Bars to be spliced by the mechanical splicing process shall be free of paint, oil, rust, scale or other foreign material. The splice shall be done in accordance with the manufacturer's recommendations which shall be submitted to the Engineer for approval.

The mechanical splice shall meet full tension requirement of 100% of the yield strength (f_y). The mechanical splices shall be performed using the Quick Wedge system manufactured by Erico Products, Inc. (800)248-2677, MBT Bar Lock System (800) 755-4888, or approved equal.

Test assemblies shall include the same bars, couplers and anchors. The same equipment shall be used to make these assemblies as to be used on the project.

- B. Unskilled operators must be trained and indoctrinated by an authorized representative of the system manufacturer. Upon satisfactory completion of the training, a certificate will be issued by the system manufacturer to show the splicer's name, badge, number/Social Security Number and date certified.
- C. Test splices should be made on the size, type and grade of rebar to be used in production. If a change of size, type of grade or rebar occurs, new test results should be obtained.

Minimum rebar deformation heights and spacing within the splice must conform to the requirements of ASTM A625, or ASTM A706 as appropriate. If minimum deformation heights

and spacing requirements cannot be satisfied, the system's manufacturer may at its option offer and get an approval for alternate splicing procedure to meet the specified splicing strength requirements.

- D. The frequency of test splices shall be as follows:

First Fifty (50) - One Test

Next Fifty (50) - One Test

Thereafter, every one hundred (100) - One Test

The test splice shall be a SISTER SPLICE (removable splice made in-place and in sequence adjacent to production splices by the same operator and under same conditions).

Separate test frequencies are not necessary to horizontal, vertical and diagonal splices.

- E. If any splice used for testing fails to meet the design code strength requirements, two splices in-place shall be cut from the previous lot and tested. If these sister splices fail, the contractor shall at his own expense, test as many splices as directed by the Engineer and re-splice all test and failed splices.

END OF SECTION

SECTION 03 31 24.16

CONCRETE REPAIR USING HIGH STRENGTH, FAST-SETTING MATERIALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SCOPE OF WORK

- A. This work shall consist of the removal of existing delaminated concrete and the installation of a fast-setting, high-strength concrete at locations jointly identified by the Contractor with the Engineer and as shown on plans.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The fast-setting concrete repairs must achieve a compressive strength of 3,500 psi or safely accept vehicular traffic within 3 hours of placement.
- B. The concrete shall resist freeze/thaw damage and scaling in compliance with ASTM Test Procedures C-666 and C-672. The products approved under this section shall be:
 - 1. "MasterEmaco T 1060 or 1061" as manufactured by BASF Building Systems (www.buildingsystems.basf.com)
 - 2. "MasterEmaco T 415 or T 430" as manufactured by BASF Building Systems (www.buildingsystems.basf.com)
 - 3. "SikaQuick 1000 or 2500" as manufactured by Sika Corporation (www.sikausa.com)
 - 4. "HP Deck Mix AE" as manufactured by USCP (410-561-8770).

Note: Products related to those above with extended working times may be acceptable at the discretion of the Engineer.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. The exact location of spalled concrete to be repaired will be determined in the field by tapping of slab with a sounding rod, chain drag or hammer. An outline of the area to be repaired will be marked with chalk.
- B. The areas of the spalled concrete to be removed will be outlined by making a sawcut around the perimeter of the spalled area. The nominal depth of sawcut shall be 1/2 inch. Do not, under any circumstances, cut existing reinforcing bars or.
- C. All loose unsound concrete shall be removed with pneumatic or electric jack hammer weighing no more than 15 lbs. . Where unsound concrete is below reinforcement, removal to 3/4 inch below reinforcement is required.
- D. All deteriorated reinforcing steel bars which have lost more than 20% (or more) of their cross-sectional areas or selected by the Engineer shall be replaced. New reinforcing steel bars shall be furnished and placed in accordance with Section 03 20 00 of the technical specifications and under the directions of the Engineer.
- E. The deck surface shall be blown clean with compressed air to assure that all loose or hollow concrete is removed. The reinforcing steel shall be sand blasted to remove all rust.

3.02 PLACING, FINISHING AND CURING

- A. Place and properly mixed concrete into the prepared area from one side to the other. Do not place concrete in lifts. Work the material firmly into the bottom and sides of the patch to assure good bond. Do not re-temper or finish material after initial set.
- B. For maximum performance and minimal shrinkage, wet curing shall be performed for a minimum of 3 hours followed by the application of an approved curing compound.

3.03 METHOD OF MEASUREMENT

This work will be measured for payment in square feet. The quantity of repair area will be computed from areas marked by the Contractor and approved by the Engineer.

END OF SECTION

SECTION 03 64 33

PRESSURE CHEMICAL GROUT INJECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION

- A. The Contractor shall provide all necessary materials, equipment, and labor required to seal all leaking cracks or joints at locations shown on plans or as designated by the Engineer.

1.03 APPLICATOR QUALIFICATIONS

- A. The Contractor shall have a minimum of three years of experience performing work similar to that shown in the drawings and specifications.
- B. The Contractor shall submit a list of five projects in which similar work to that specified was successfully completed. The list shall contain the following for each of the five projects:
 - 1. Project Name
 - 2. Owner of Project
 - 3. Owner's Representative, Address and Telephone Number
 - 4. Brief Description of Work
 - 5. Cost of Portion of Work Similar to that Specified in this Section
 - 6. Total Restoration Cost of Project
 - 7. Date of Completion of Work
- C. The sum of the costs of the five projects provided in B.5 above shall be a minimum of \$50,000.
- D. A full-time on-site supervisor shall be provided by the Contractor for the entire duration of the chemical grouting work. The supervisor shall have had a minimum of 2 years of documented supervisory experience with the products to be used. If the supervisor does not have that experience, the supplier or manufacturer of the materials shall provide a full-time qualified, certified by the manufacturer, field inspector on jobsite during the entire period of material application. The Installation Contractor shall submit with his bid to the Engineer a proof of obtaining licenses or permits as required.

1.04 SUBMITTALS

- A. The Contractor shall submit the following to the Engineer:

1. Documentation showing compliance with the Applicator Qualifications as specified herein before.
2. Technical data sheets published by the material manufacturers for each chemical grout product or formulation to be used showing that his products meet the requirements of the specifications. Technical data shall include the following:
 - a. Intended use
 - b. Pot life (neat)
 - c. Initial cure time (1000 psi)
 - d. Tack free (thin film)
 - e. Final cure (75% ultimate strength)
3. Submit safety data sheets for each product.

1.05 PRODUCT DELIVERY

- A. The product shall be delivered and handled strictly according to the manufacturer's recommendations. Any containers of the material to be used which have been opened previously shall not be accepted.

1.06 JOB CONDITIONS

- A. Existing and environmental conditions: The Installation Contractor shall examine the condition of surfaces into which the chemical grout is to be injected. He shall follow the recommendations of the manufacturer with regard to limitations of the materials in various moisture and temperature levels.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. "Mountain Grout" (polyurethane product dependent on project details) as manufactured by Green Mountain International LLC, 235 Pigeon Street, Waynesville, NC (www.polyurethanegrouts.com).
- B. "Scotch-Seal Chemical Grout 5600" as manufactured by Avanti, Webster, Texas (www.avantigrout.com).
- C. "Hydroactive Grouts" as manufactured by DeNeef America, Inc., 5610 Brystone Drive, Houston, Texas (www.deneef.com).
- D. Products to be used shall be one-component polyurethane and have low viscosity (180cps maximum at 570F.) for a hairline crack application, and regular viscosity (600 SPX maximum at 570F.) for a wide crack application as required by the Engineer.
- E. It is the responsibility of the Contractor to develop the correct mix proportions to achieve full depth injection of the cracks. The mix proportions shall be approved by the Engineer.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. The Installation Contractor shall thoroughly review the entire surface around the cracks or joints to be chemical grout injected to determine the applicability of grout materials in respect to the thickness of cracks/joints, existence of any foreign materials harmful to the application of the chemical grout used and deterioration of concrete surface which shall be repaired and cleaned prior to the application.
- B. If the Installation Contractor finds any cracks/joints being too wide to receive an application of the grout material to be used, he shall submit to the Engineer a complete written report regarding the locations, existing minimum and maximum thickness and length of the cracks/joints. The Engineer shall verify the non-applicability of the material to be used in the cracks/joints reported with the material manufacturer or supplier and direct the contractor with a proper repair method of wide cracks prior to application of the grout material.
- C. Where any detrimental foreign materials exists, the Contractor shall follow the recommendations of the chemical grout material manufacturer (subject to the Engineer's approval) in respect to the materials and methods of cleaning or removing the foreign materials.
- D. "Packers" shall be inserted into pre-drilled holes at strategic locations on surfaces. The Installation Contractor shall drill holes strictly according to the recommendations by the material manufacturer or supplier in respect to the locations, sizes and angle of the holes to be drilled.

3.02 APPLICATION

- A. Chemical grout shall be pumped and pressure injected into the packers which have been inserted into pre-drilled holes. Packers compatible with the grout material to be used shall be installed.
- B. The applicator shall allow the grout material with sufficient time to flow into all of the cracks/joints on its own.
- C. The Contractor shall clean surfaces of excess chemical grout used by proper means recommended by the material manufacturer and/or supplier so that only the edge thickness of completed grouted cracks is noticeable. Packers shall not extend beyond the plane of the surface of the existing concrete.
- D. The Contractor shall be responsible for performing test injections at a minimum of three selected locations to finalize material selections, injection procedures and testing procedures prior to the start of work. The contractor shall extract two full depth cores for every 500 lineal foot of injection of cracks to demonstrate that the cracks are fully filled with chemical grout. If injection is incomplete (less than 90% of the injected crack filled), re-injection and additional cores may be required at the direction of the Engineer at no extra cost to the Owner.

3.03 FIELD QUALITY ASSURANCE

- A. A warranty shall be submitted to the Engineer which guarantees that in the event of any water leak through the repaired cracks/joints, the material manufacturer/supplier and the Installation Contractor will jointly repair the cracks/joints which have failed any time during the warranty period of five (5) years with no cost to the Owner.

END OF SECTION

DIVISION 05

METALS

SECTION 05 50 00

MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 specification Sections apply to the work of this section.

1.02 DESCRIPTION OF WORK

- A. The extent of Miscellaneous Metal items is typically shown on the drawings or called for in the specifications.

1.03 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to verify and supplement dimensions shown on Repair Drawings, where possible. Do not delay job progress; allow for trimming and fitting wherever taking field measurements before fabrication might delay work.
- B. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Materials shall be properly marked and match-marked where field assembly so requires. The sequence of shipment shall be such as to expedite and minimize the field handling of materials.

1.04 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's specifications, anchor details and installation instruction for products to be used in the fabrication of miscellaneous metal work, including painting products.
- B. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations, and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor bolt installation. Fabrication shall not proceed until shop drawings have been reviewed. Fabrication, assembly and erection shall conform to reviewed shop drawings.
- C. Bearing Pad: Supply manufacturer's test data showing that material proposed shall support a compressive stress of 3000 psi with no cracking, splitting, or delaminating in the internal portions of the pad.

PART 2 - PRODUCTS

2.01 MATERIALS AND COMPONENTS

- A. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

- B. Steel Plates to be Bent or Cold Formed: ASTM A283, Grade C.
- C. Steel Bars and Bar-Size Shapes: ASTM A663 or A675, Grade 65, or ASTM A36.
- D. Wedge Inserts: Malleable iron insert with stainless steel askew-head ½" bolts, nuts, washers, and horseshoe shims; by Dayton Superior or Gateway or Hohmann & Bernard.
- E. Concrete Inserts: Threaded type, galvanized ferrous castings, either malleable iron ASTM A47 or cast steel ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
- F. All Miscellaneous metal components shall be factory hot-dipped galvanized and any abrasions shall be field corrected.
- G. T Flange Connection: Plates and bars; stainless steel per ASTM A666, Type 304, Grade A36.
- H. Welding Electrodes: Comply with AWS Standards
 - 1. Accessories: Provide clips, hangers, and other accessories required for installation of project units and for support of subsequent construction or finishes.
- I. Bearing Pads: Provide bearing pads for precast concrete units as indicated on drawings.
 - 1. Elastomeric Pads: Random oriented fiber reinforced elastomeric compound, molded to size or cut from a molded sheet 80 Shore A-Durometer.

2.02 FASTENERS

- A. General: Provide zinc-coated fasteners unless otherwise noted. Select fasteners for the type, grade and class required.
- B. Bolts and Nuts: Regular hexagon head type, ASTM A307-86a, Grade A.
- C. Lag Bolts: Square head type, FS FF-B-561C-70.
- D. Machine Screws: Cadmium plated steel, FS FF-S-92B-75B-75.
- E. Plain Washers: Round, carbon steel, FS FF-W-92B-74B-74.
- F. Toggle Bolts: Tumble-wing type, FS FF-B-588C-74, type, class and style as required.
- G. Lock Washers: Helical spring type carbon steel, FS FF-W-84A-69.

2.03 PRIMERS AND PAINT FINISHES – SEE SPEC SECTION 09 91 00 (Where Applicable)

2.04 FABRICATION, GENERAL

- A. Workmanship:
 - 1. Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of

materials shown or specified for various components of work.

2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise imparing work.
 3. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections grind exposed welds smooth and flush to match and blend with adjoining surfaces.
 4. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not shown, Phillips flat-head (countersunk) screws or bolts.
 - a. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
 - b. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.
- B. Galvanizing:
1. Provide a zinc coating for those items shown or specified to be galvanized, as follows:
 - a. ASTM A153 for galvanizing iron and steel hardware.
 - b. ASTM 123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strip 1/8 thick and heavier.
 - c. ASTM A386 for galvanizing assembled steel products.
- C. Shop Painting:
1. Shop paint miscellaneous metal work except surfaces and edges to be field welded and members or portions of members to be embedded in concrete or masonry which are galvanized, unless otherwise specified.
 2. Remove scale, rust and other deleterious materials before applying shop coat. Clean in accordance with SSPC SP-3-63 "Power Tool Cleaning" to remove all scale, rust, and foreign matter after first solvent cleaning to remove all oil and grease.
 3. Remove oil, grease and similar contaminants in accordance with SSPC SP-1 63 "Solvent Cleaning".
 4. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions, and at a rate to provide uniform dry film thickness of 2 to 4 mils for each coat. Use painting methods which will result in full coverage of joints, corners, edges and exposed surfaces.
 5. Apply one shop coat to fabricated metal items, except apply two coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

2.05 MISCELLANEOUS METAL FABRICATIONS

A. Rough Hardware:

1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel shapes as required.
2. Manufacture or fabricate items of sizes, shapes and dimensions required.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Furnish setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.02 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, and other connectors as required.
- B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry or similar construction.
- C. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrications, and are intended for bolted or screwed field connections.
- D. Field Welding: Comply with AWS Code for procedures of manual shielded metal arc-welding, appearance and quality of welds made, and methods used in correcting welding work.
 1. Protect units from damaged by field welding or cutting operations and provide non-combustible shield as required.
 2. Repair damaged metal surfaces by cleaning and applying a coat of liquid galvanizing repair compound to galvanize surfaces and compatible primer to painted surfaces.
- E. Touch-up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Section 09 90 00 of these specifications.
- F. Bearing Pads: Install flexible bearing pads where indicated. Set pads on level, uniform bearing surfaces and maintain in correct position until precast units are re-set.

END OF SECTION

DIVISION 07

THERMAL & MOISTURE PROTECTION

SECTION 07 18 16

TRAFFIC BEARING WATERPROOFING MEMBRANE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SCOPE OF WORK

This work shall consist of the installation of a new thin waterproofing membrane system as specified and as shown on plans. No substitutions to proposed systems in bid proposals other than the waterproofing membranes specified hereinafter shall be allowed unless approved in writing by the Consultant.

1.03 GENERAL

- A. The work of this Section includes, but is not limited to, surface preparation, installation of a liquid applied elastomeric membrane system to provide a waterproof, chemical and abrasion resistant non-skid traffic bearing topping.
- B. Examine existing surfaces and verify existing conditions. Determine acceptability of the concrete surfaces and notify, in writing, the General Contractor and the Consultant of acceptance. Verify dimensions as no extras will be allowed for inconsistency in dimensions.
- C. Cleaning and preparation of existing surfaces to receive materials shall be the Contractor's responsibility. Prepare surfaces as specified hereinafter and as recommended by manufacturer of the material selected.
- D. Provide and maintain barricades and traffic control at special coating areas during installation and curing period for vehicular and pedestrian traffic.

1.04 QUALIFICATIONS

- A. Work specified herein shall be performed by and be the responsibility of the Installation Contractor authorized, trained, approved and qualified by the manufacturer of materials used; having necessary equipment and facilities to fulfill requirements of the manufacturer and this section.
- B. Manufacturer Qualifications: Manufacturer shall provide evidence showing that the specified materials have been manufactured by the same source and successfully installed on a yearly basis for a minimum of ten years on projects of similar scope and complexity. Manufacturer to be ISO 9001 certified.
- C. Installer Qualifications: Waterproofing installer shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:

1. Licensing by the waterproofing manufacturer as an applicator of the product to be used in order to provide a warranty as described.
2. List of at least five projects (with reference names and phone numbers) satisfactorily completed under the current company name within the last 3 years, of similar scope and complexity to this project. Previous experience submittal shall correspond to specific membrane system proposed for use by applicator.
3. A minimum of five (5) years in business under the same name.

1.05 SUBMITTALS

- A. Each Bidder shall submit with its Bid a written description of the method proposed to be used for membrane removal, along with the name of the membrane removal subcontractor. Include with the Bid the following information:
 1. Description of the equipment to be used, including removal process and equipment manufacturer. Include in description any specialized equipment to be used for slab edges and other difficult access areas.
 2. Expected production rate.
 3. Description of resulting profile of concrete surface.
 4. Provisions for dust and moisture protection at the site.
 5. Procedures for disposal of removed material and waste, if any.
- B. Manufacturer's Data: Submit specifications, installation instructions and general recommendations by the manufacturer of fluid applied waterproofing materials. Include manufacturer's certified test data showing compliance with the requirements. Provide copy of license agreement between manufacturer and installer indicating division of warranty responsibility.
- C. Shop Drawings: Submit shop drawings showing large scale details of all edge terminations, joint treatments, penetration or projections and flashing conditions.
- D. Samples: Submit complete samples of each membrane system to be used. Sample shall be applied to plywood or similar rigid material.
- E. As-Built Information: Upon completion of the work and prior to final payment, submit two (2) maintenance manuals identified with the project name, location and date, types of coating systems applied and drawings indicating the types of coating systems and their location in the structure. Include a schematic drawing of each membrane type which clearly identified the successive coats or layers of the membrane system. Identify each coat or layer by dry film thickness or application rate and by manufacturer's reference number or name which specifically identifies the product used for each coat. Include recommendations for routine care and maintenance. Provide list of contractors nearest the project location who are qualified to perform repairs to the membrane. Identify common causes of damage and include instructions for temporary patching until permanent repairs can be made by qualified personnel.

- F. VOC Requirements: Where applicable, the manufacturers shall ensure that all components of specified products do not exceed volatile organic compound (VOC) limits of 400 g/l. Projects in the following locations are affected by this requirement.

Maricopa County (Arizona), California (excluding LA, Orange, San Bernadino and Riverside Counties), Connecticut, Delaware, Illinois, Indiana, Maine, Maryland, Massachusetts, New York, New Jersey, New Hampshire, Ohio, Pennsylvania, Vermont, Rhode Island, Washington DC and Arlington County, Alexandria, Fairfax County, Fairfax, Loudoun County, Falls Church, Prince William County, Manassas, Manassas Park, Stafford County (all northern Virginia).

1.06 DELIVERY AND STORAGE

- A. Deliver materials to project site in sealed, original packages or containers bearing name and brand of manufacturer. Each container shall have manufacturer's printed label. Materials shall be stored in the area designated by the General Contractor or Consultant.
- B. Upon delivery, notify the Consultant. Only materials brought to area and approved may be used.
- C. Store materials in single place designated by Owner and/or Consultant. Keep storage place neat and clean. Cleaning rags and waste materials shall be deposited in metal containers having tight covers or removed from the garage each night. Every precaution shall be taken to avoid danger of fire. Provide dry chemical or CO2 fire extinguishers in areas. Allow no smoking or open containers or solvents. Store solvents in safety cans.
- D. Empty containers used on job shall have labels canceled and shall be marked as to reuse.

1.07 JOB CONDITIONS

- A. A specified coating shall not be applied if weather is too cold, raining, snowing or if any other conditions exist that will not permit proper application or curing of coating. Follow manufacturer's written directions. Humidity should not deviate from acceptable ranges during application and curing. Protection required for proper installation and curing shall be the responsibility of the Coating Contractor and shall be reflected in Bid.
- B. Protect adjacent surfaces and materials with covering, duct tape and drop cloths as required to keep adjacent surfaces free of coating. Upon completing, remove protection and clean. Surfaces soiled or damaged by special coating shall be cleaned or replaced at no extra cost to Owner.
- C. Proceed with the installation of waterproofing only after the substrate construction has been completed and cured and after penetrating components have been installed, so that the membrane will not be penetrated or damaged by subsequent work.
- D. When payment for elastomeric deck coating is based on area of application, the area used in calculations shall be horizontal surfaces only.

1.11 WARRANTY

- A. Materials Manufacturer and Installation Contractor shall be jointly and severally responsible and shall submit an affidavit signed by both parties warranting the installed system for a minimum period of five years from date of final completion. The Installer shall repair or replace membrane which leaks water, deteriorates excessively, wears prematurely or otherwise fails to perform as required within the guarantee period, due to failure of materials or workmanship. The guarantee shall include an agreement to remove and reinstall other work which has been superimposed on elastomeric waterproofing work as required to repair or replace the waterproofing system if known at time of installation.

PART 2 - PRODUCTS

2.01 SOURCE OF MATERIALS

- A. The waterproofing membrane system shall be a complete system of compatible materials, designed by the manufacturer to produce a waterproofing, traffic-bearing and chemical resistance surface. Systems approved for use under this section shall be one of the following:

Standard Applications

Application of systems within this category are designed for stand-alone parking structures and/or other structures where the presence of odors due to solvents contained in the membrane materials are not expected to create a disruption to adjacent businesses, etc. Precautions should be taken during the installation and for a period of approximately one week thereafter to reduce the risk for fire due to the presence of solvents.

1. "Auto-Gard" as manufactured by Neogard (www.neogard.com).

The system consists of the following:

Epoxy Primer

Product: 7780/7781

WMT: NA

DMT: NA

Base Coat

Product: 70410

WMT: 25

DMT: 20

Wear Coat

Product: 7400

Aggregate Broadcast: 10-15 lbs/100 sf (12/20 Sieve Size)

WMT: 10

DMT: 8

Double Texture Coat

Product: 7400

Aggregate Broadcast: 10-15 lbs/100 sf (12/20 Sieve Size)

WMT: 15
DMT: 12

Lock Coat
Product: 7400
WMT: 15
DMT: 12

Total DMT: 52 (double texture)

This system consists of an epoxy primer applied to the cleaned concrete surface more than 24 hours prior to base coat application. When cured apply 70410 urethane base coat. When cured apply 7400 urethane wear coat and broadcast aggregate. When cured apply 7400 urethane double texture coat and broadcast aggregate. When cured apply 7400 urethane lock coat.

2. "Iso-Flex 780/750 Coating System," as manufactured by Lym-Tal (www.lymtal.com).

The system consists of the following:

Epoxy Primer
Product: 757 Primer
WMT: NA
DMT: NA

Base Coat
Product: 780 Basecoat
WMT: 23 mils
DMT: 20 mils

Wear Coat
Product: 780IC
Aggregate Loading: 15-20 lbs/100 sf (12/20 Sieve Size)
WMT: 21 mils
DMT: 18 mils

Lock Coat
Product: 750TCAR (no UV exposure) or 750 TCAL (UV exposure)
WMT: 15 mils
DMT: 12 mils

Total DMT: 50

This system consists of an epoxy primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply 780 Basecoat. When cured apply 780IC urethane wear coat and broadcast aggregate. When cured apply 750 TCAR (no UV exposure) or 750 TCAL (UV exposure) urethane lock coat.

3. "MasterSeal Traffic 1500," as manufactured by BASF Building Systems (www.buildingsystems.basf.com).

The system consists of the following:

Epoxy Primer

Product: MasterSeal P 255

WMT: NA

DMT: NA

Base Coat

Product: MasterSeal M 200

WMT: 25

DMT: 20

Wear Coat

Product: MasterSeal TC 225

Aggregate Broadcast: 40 lbs/100 sf (12/20 Sieve Size)

WMT: 25

DMT: 20

Lock Coat

Product: MasterSeal TC 225

WMT: 20

DMT: 15

Total DMT: 55

This system consists of an epoxy primer applied to the cleaned concrete surface less than 24 hours prior to base coat application. When cured apply MasterSeal M 200. When cured apply MasterSeal TC 225 and broadcast aggregate. When cured apply MasterSeal TC 225.

4. "Sikalastic 710/715", as manufactured by Sika Corporation (www.sikausa.com).

The system consists of the following:

Epoxy Primer

Product: Sikafloor FTP

WMT: NA

DMT: NA

Base Coat

Product: Sikalastic 710

WMT: 32

DMT: 23

Wear Coat

Product: Sikalastic 715

Aggregate Broadcast: 10-15 lbs/100 sf (12/20 Sieve Size)
WMT: 11
DMT: 8

Double Texture Coat
Product: Sikalastic 715
Aggregate Broadcast: 10-15/100 sf (12/20 Sieve Size)
WMT: 16
DMT: 12

Lock Coat
Product: Sikalastic 715
WMT: 16
DMT: 12

Total DMT: 55 (double texture)

This system consists of an epoxy primer applied to the cleaned concrete surface for no more than 24 hours prior to base coat application. When cured apply Sikalastic 710 urethane base coat. When cured apply Sikalastic 715 urethane wear coat and broadcast aggregate. When cured apply Sikalastic 715 urethane double texture coat and broadcast aggregate. When cured apply Sikalastic 715 urethane lock coat.

5. "Qualideck Coating System," as manufactured by APT (www.advpolytech.com).

The system consists of the following:

Epoxy Primer
Product: Qualipur 102 Primer
WMT: NA
DMT: NA

Base Coat
Product: 252 Basecoat
WMT: 20
DMT: 20

Wear Coat
Product: 372
Aggregate Loading: 15-20 lbs/100 sf (12/20 Sieve Size)
WMT: 15
DMT: 15

Lock Coat
Product: 372 (no UV exposure) or 512 (UV exposure)
WMT: 15
DMT: 15

Total DMT: 50

This system consists of an epoxy primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply 252 Basecoat. When cured apply 372 urethane wear coat and broadcast aggregate. When cured apply 372 (no UV exposure) or 512 (UV exposure) urethane lock coat.

B. WATERPROOFING MEMBRANE (Base Coat)

(1) The base coat (membrane) shall meet the following minimum performance criteria:

(a) Minimum Tensile Strength (ASTM D412):

Base Coat - 1,000 psi

Top Coat – 2,000 psi

(b) Minimum Elongation (ASTM D412):

Base Coat - 350%

(c) Minimum Adhesion – one of the following:

ASTM D903: Base Coat - 20 psi

ASTM C794: Base Coat – 25 psi

ASTM D4541: Base Coat – 250 psi

ACI 503: Failure occurs in concrete when $f_c < 6000$ psi

(d) A light application of primer compatible with the elastomeric seal coat shall be applied onto the clean, dry concrete surface. The elastomeric coating shall be applied uniformly to the primed surface. The elastomeric base coat shall be applied in strict accordance with manufacturer's requirements for the system and verified by wet mil thickness testing (minimum one test per 500 square feet). The coating shall be allowed to cure adequately. Special treatment shall be provided at all construction joints, cove joints and at all cracks over 1/16" in width. This special treatment shall be included in the bid price for the waterproofing membrane installation. The coating shall also be applied at base of columns, walls and curbs to produce a 4" minimum high base.

(2) Minimum System Thickness (Dry Mills): As herein specified or 20 mils, whichever is greater.

C. WEARING COURSE

(1) A compatible wearing course shall be applied over the base coat in accordance with the manufacturer's instructions. A selected aggregate shall be broadcast evenly over the surface and fall on the surface in vertical direction so as not to displace uncovered coating. **The aggregate shall be 12/20 mesh sand approved by the Engineer and broadcast evenly over the surface, unless noted**

otherwise.

- (2) A compatible second wearing course, when specified herein, shall be applied over the base coat in accordance with the manufacturer's instructions. A selected aggregate shall be broadcast evenly over the surface and fall on the surface in vertical direction so as not to displace uncovered coating. **The aggregate shall be 12/20 mesh sand approved by the Engineer and broadcast evenly over the surface, unless noted otherwise.**
- (3) Aggregates should be spread to an excess thickness until surface appears dry. After the coating has sufficiently cured, the excess aggregates shall be removed and the tie coat shall be applied to the surface.

D. LEVELING COURSE (IF REQUIRED)

- (1) A compatible leveling course shall be applied directly onto the concrete surface after cleaning and prior to application of the primer. The leveling course is intended to fill and smooth pop-outs, scaling, depressions and pitting in the concrete surface due to abrasion, finishing problems or other existing conditions. Products listed below should be confirmed with the manufacturer's instructions.

Neogard:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using a Neogard 70714/70715-09 epoxy and sand mixture or FC base coat, depending on profile of concrete.

Lym-Tal:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using Iso-Flex 750 base coat extended with sand.

MasterSeal:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using MasterSeal 350 two component, fast-setting 100% solids epoxy, extended with sand as needed.

Sika:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using either the Sikalastic 720 base coat with a mixture of sand, or by using the Sikadur 21 Lo-Mod with a mixture of sand as needed.

APT:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using 152 Urethane Primer extended with sand.

E. MOISTURE VAPOR REDUCER (IF REQUIRED)

1. A compatible moisture vapor reducer pre-primer shall be applied directly onto the concrete surface prior to the application of the specified waterproofing systems. Products listed below should be confirmed with the manufacturer's instructions.

Neogard:

Consult with manufacturer for recommended products.

Lym-Tal:

Iso-Flex 650 Two Component Epoxy Barrier Coat shall be applied directly to the concrete surface. Apply two coats – the first coat shall be applied at a rate of 100 square feet per gallon and allowed to cure 2 to 4 hours prior to the application of a second coat, which is to be applied at a rate of 150 square feet per gallon. Concrete surface shall be shot blasted, clean, and free of contaminants. Barrier coat is to be applied when test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 3 lbs but less than 7 lbs.

When test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 7 lbs but less than 25 lbs, Aquafin Vaportight Coat SG3 Two Component Low Viscosity Epoxy shall be applied directly to the concrete surface at an application rate of 80 square feet per gallon or per manufacturer's recommendation. Prior to application of primer, concrete surface shall be shot blasted, clean, and free of contaminants. Values above 25 lbs will require venting of the deck.

MasterSeal:

BASF MasterSeal 350 Two Component Rapid Set Epoxy shall be applied directly to the concrete surface at a wet mil thickness of 20 mils with silica sand broadcast to refusal. Application of the EP35 will be installed in-lieu of the Conipur Primer 78. The MasterSeal 350 is to be installed when test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 5 lbs but less than 8 lbs. Values above 8 lbs will require venting of the deck.

Sika:

Consult with manufacturer for recommended products.

APT:

Qualideck 172 Two Component Rapid Set Epoxy shall be applied directly to the concrete surface at a wet mil thickness of 20 mils with silica sand broadcast to refusal. Application of the 172 will be installed in-lieu of the Qualideck 152 Primer. The Qualideck 172 is to be installed when test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 5 lbs but less than 8 lbs. Values above 8 lbs will require venting of the deck.

PART 3 - EXECUTION

3.01 QUALITY CONTROL TESTING

A. General:

1. The Contractor will employ and pay for a testing laboratory to perform tests and to submit test reports.
2. All testing shall be performed by a qualified independent testing agency, which shall be submitted to the Engineer/Owner for approval.
3. All test reports shall include date, time, and existing site conditions (temperature, rain, fog, cloudy, etc.). All reports are to be submitted to the Engineer/Owner and manufacturer within one working day.
4. At the preconstruction meeting, a representative from an approved Testing Agency and a representative from the manufacturer must be present. During this meeting the scope of the testing program will be discussed.
5. Any test results that do not meet the specified requirements are to be reported immediately to the contractor. Immediate actions shall be taken by the contractor to address the non-compliant test result to insure that the system installed is as specified.

B. Moisture Emission Testing (If Required or when specified by Engineer/Owner)

1. Within one week of the installation of the waterproofing membrane system, the contractor shall conduct testing in accordance with ASTM F1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride." A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation. Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day.
2. Within 48 hours of the installation of the waterproofing membrane system, the contractor shall conduct testing in accordance with ASTM D 4263-83(2005) "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method." A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation. Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day.

C. Mil Thickness Readings

1. Wet Mil thickness readings shall be taken during the installation of the pre-primer (if required), primer, basecoat, wear course, additional wear course, lock coat, etc. One reading shall be performed per 1,000 s.f. and recorded. Test results recorded shall include material being measured (primer, basecoat, etc.), measured thickness, location (column lines, level, etc.). Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day.

2. Dry Mil thickness reading shall be between 2 to 3 days after the completion of the installation of the entire system. A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation. For sampling locations, testing agency will be required to install coupons (duct tape) on deck prior to installation of waterproofing membrane allowing a piece to extend above the finished surface. Once system is fully cured, each location shall be cut out and sent to lab for evaluation. Test results recorded shall include measured thickness and location (column lines, level, etc.). All sampling areas shall be repaired by contractor and shall receive entire waterproofing system.
- D. A manufacturer's representative shall be required to visit the site at least once per week during the installation process to inspect and evaluate surface preparation, material storage, installation procedures, testing, overall workmanship, etc. and any other factor(s) influencing the quality of the installation. A field report shall be issued and submitted to the Engineer/Owner summarizing the visit.
- E. Additional Tests: The testing service will make additional tests at no cost to the Engineer/Owner when test results indicate specified characteristics have not been attained, as directed by the Engineer. Testing service may conduct tests to determine DMT, proper adhesion (to both the substrate and/or intermediate coats), chemical composition of individual components (primer, basecoat, topcoat), or other methods as directed. Contractor shall pay for such tests.

3.02 CONDITION OF SUBSTRATE

- A. Examine the substrate and the conditions under which the elastomeric waterproofing work is to be applied. Do not proceed with the work until unsatisfactory conditions have been corrected and approved by the manufacturer's representative.
 - (1) Installation of products constitutes Installers and Manufacturer's acceptance of existing construction.

3.03 PREPARATION OF SUBSTRATE

- A. Clean the substrate of protrusions, dust, debris, oily materials and other substances detrimental to the work, as recommended by the waterproofing system's manufacturer.
 - (1) Shot blast horizontal surfaces to remove contaminants and to provide a clean uniform textured surface. Any other proposed cleaning methods must be submitted and approved by the Engineer.
 - (2) Clean vertical surfaces of column bases, spandrels, walls, protrusions, etc., to provide a clean uniform textured surface.
- B. Install cant strips and similar accessories as shown and as recommended by the waterproofing manufacturer (even though not shown) in the manner recommended by the manufacturer.

3.04 FLASHINGS, PRIMERS AND JOINT CONTROL

- A. Cracks/Construction Joints: At locations of possible movement in the substrate construction, including cracks which have developed and construction joints, prepare the substrate to increase the fluid applied waterproofing capability for bridging the movement without failure. Use only products which have been determined to be compatible with the elastomeric waterproofing.
- B. Fill voids and non-moving cracks and joints in the substrate with sealant or other compounds as recommended by the waterproofing manufacturer for compatibility. Fill rough areas of substrate (rough within limitations specified by the manufacturer) with a feathered-out coating of elastomeric waterproofing, squeegee-applied to form a smooth top surface.
- C. Prime substrate as recommended by the waterproofing system's manufacturer.
- D. Mask off adjoining surfaces not to receive fluid applied waterproofing, to effectively prevent the spillage or migration of materials outside the membrane area.

3.05 INSTALLATION

- A. Manufacturer's Technical Representative: Start the installation of elastomeric waterproofing membrane, only in the presence and with the advice of the manufacturer's technical representative. A series of four (4) wet mill gauge tests shall be conducted for every 1000 sq. ft. on the first day of installation in the presence of the representative to ensure proper coverage rate.
- B. General: Comply with manufacturer's instruction, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
- C. Mix separately packaged components in accordance with manufacturer's instructions.
- D. Apply the elastomeric membrane to the primed deck within the time specified by the manufacturer.
- E. Apply a uniform coating of cold applied elastomeric waterproofing to the substrate and adjoining surfaces indicated to receive the membrane.
 - (1) Apply coating by hand, complying with manufacturer's recommendations regarding horizontal and vertical surfaces.
 - (2) Provide waterproof membrane at base of columns, spandrels, to produce a 4" minimum high base. Curb surfaces shall be considered floors and waterproofed unless otherwise noted.
- F. Wearing Surface: Apply top coat in one or two applications to achieve the specified dry film thicknesses.
 - (1) While coating is still fluid, uniformly broadcast aggregate over the surface at the rate specified.

- (2) After top coat has cured, remove all excess aggregate from the deck surface.
- (3) Apply a tie coat to the cured surface to encapsulate the top layer of aggregate.

G. Permit cold applied membrane to cure without delay, and under conditions which will not contaminate or deteriorate the fluid applied waterproofing material. Block off traffic and protect membrane from physical damage.

3.06 CLEAN-UP

- A. Upon completion of work, carefully examine entire installation. Correct all defective or damaged work.
- B. Upon completion, or at such other times as directed, remove all surplus materials, cartons, rubbish and debris resulting from these operations and legally dispose of off-site.

3.07 PERFORMANCE REQUIREMENTS

- A. It is required that traffic topping be watertight and not deteriorate excessively under normal weather exposure and for normal traffic conditions in applications indicated, not under manufacturer-recommended cleaning procedures, for period of warranty.
- B. It is required that traffic topping work not deteriorate under spillage of motor oil, transmission fluids, and other motor vehicle operating compounds, nor for exposure to normal ice/snow melting substances not specifically excluded by manufacturer's product information.

3.08 PROTECTION

- A. Provide protection to ensure that work will be without damage or deteriorations at time of final acceptance.

END OF SECTION

SECTION 07 92 00

SEALANTS AND CAULKING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION OF WORK:

- A. Sealing and caulking of floor cracks, construction and/or control joints and cove joints in the areas shown on drawings or designated by the Consultant. In the case of repair of existing cracks/joints which are sealed or filled with other materials, the existing sealant material shall be raked out and the exposed concrete cleaned by sandblasting or grinding at those locations designated for repair. The sealant shall be compatible with any specified waterproofing membrane base coat material.
- B. Removal of all existing sealants throughout the building façade and installing silicone sealants.

1.03 QUALITY ASSURANCE

- A. Obtain elastomeric materials from only manufacturers who will, if required, send a qualified technical representative to project site, for the purpose of advising the installer of proper procedures and precautions for the use of the materials.
- B. The Contractor shall have a minimum of three years of experience in performing work similar to that shown in the drawings and specifications.
- C. The Contractor shall submit a list of five projects in which similar work to that specified hereinbefore was successfully completed. The list shall contain the following for each of the five projects:

1. Project Name
2. Owner of Project
3. Owner's Representative, Address and Telephone Number
4. Brief Description of Work
5. Cost of Portion of Work Similar to that Specified in this Section
6. Total Restoration Cost of Project
7. Date of Completion of Work

The sum of the costs of the five projects provided shall be a minimum of \$50,000.

- D. A full time on-site supervisor shall be provided by the contractor for the duration of the sealant and caulking work. This supervisor shall have had a minimum of 2 years documented supervisory experience with the products to be used.

1.04 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's specifications, recommendations and installation instructions for sealant, caulking compound and associated miscellaneous material required. Include manufacturer's published data, or letter of certification, or certified test laboratory report indicating that each material complies with the requirements and is intended generally for the applications shown.
- B. Samples: Submit color samples of caulking from which the Owner will select color.

1.05 JOB CONDITIONS

- A. Examine all surfaces to receive work of this Section and report to the Architect any condition which is not acceptable. Commencement of work on any continuous run constitutes acceptance of conditions and places the responsibility of a sound installation on this section.
- B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength. Wherever joint width is affected by ambient temperature variations, install elastomeric sealants only when temperatures are in the lower third of manufacturer's recommended installation temperature range, so that sealant will not be subjected to excessive elongation and bond stress at subsequent low temperatures. Coordinate time schedule to avoid delay of project.

1.06 DELIVERY AND STORAGE

- A. Materials shall be delivered and stored in original, unopened manufacturer's containers with brand marked clearly thereon. Materials shall be stored in a dry location, protected from adverse conditions.

1.07 SPECIAL PROJECT WARRANTY

- A. System manufacturer will have the full responsibility for: (1) Instructing the Contractor on the required configuration of joints and (2) Reviewing and approving tooled joints constructed as a part of surface preparation prior to installing the sealant.
- B. The Contractor shall provide a single source performance guarantee that the joint system repaired, including related work in the slab/facade installed by the Contractor, will achieve airtight or watertight seal, will not fail in adhesion, cohesion, will maintain color stability, will maintain bond and not stain. Provide copy of actual warranty to be provided at the completion of the work and a letter from manufacturer indicating their intent to issue warranty for referenced project. The warranty period will be as follows, from the date of acceptance by the Owner.
 - 1. For urethane sealants the warranty will be for a five- year period
 - 2. For hybrid sealants the warranty will be for a ten-year period
 - 3. For silicone sealants the warranty will be for a twenty-year period

- D. Should defects in materials or workmanship be discovered within the warranty period, make satisfactory repairs thereto promptly without additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. The joint sealant to be used for cracks and construction joints shall be two component polyurethane sealants of the chemically curing type containing no asphalt, coal tar, or plasticizers. The sealant shall be used with a compatible primer specified by the manufacturer. Approved products for use are:
1. "MasterSeal-SL-2" as manufactured by BASF Building Systems (www.buildingsystems.basf.com)
 2. "Vulkem 45SSL (with catalyst) or THC-900" as manufactured by Tremco 800-321-7906
 3. "Iso-Flex 880GB Sealant" as manufactured by LymTal International, Inc. 800-373-8100
 4. "Sikaflex-2C-SL," as manufactured by Sika Corporation 800-933-SIKA
- B. The sealant to be used shall meet or exceed the requirements of Interim Federal Specification TT-S0027-E, Sealants Class A, Type 1 and 2. The sealant shall not de-bond or fail while elongated 25 percent in a water immersion test, according to Federal Specification TT-S-0027-E. When tested according to Paragraph 4.3.5. of Federal Specification TT-S-0027-E, weight loss shall not be greater than 5 percent. Shore A hardness under standard conditions shall be 25-30.
- C. The cove sealant to be used shall be a non-sag, two component polyurethane sealants of the chemically curing type containing no asphalt, coal tar, or plasticizers. The cove joint sealant shall comply with Federal Specification TT-S-00227E, Type II, Class A, Corporation of Consultants CRD-C-506-72; ASTM C-920-79, Type M, Grade NS, Class 25.

Approved Cove Sealants are as follows:

1. "MasterSeal-NP-2" as manufactured by BASF Building Systems (www.buildingsystems.basf.com)
 2. "Dymeric 240FC" or "THC-901" as manufactured by Tremco 800-321-7906
 3. "Iso-Flex 881 NS Sealant" as manufactured by LymTal International, Inc. 810-373-8100
 4. "Sikaflex-2C-NS," as manufactured by Sika Corporation 800-933-SIKA
- D. The joint sealant to be used on the exterior, vertical control joints shall be a one-part, fast curing, non-sag, silyl-terminated polyether elastomeric sealant. If necessary, the sealant

shall be used with a compatible primer specified by the manufacturer. Approved products for use are:

1. "MasterSeal-NP-150" as manufactured by BASF Building Systems (www.buildingsystems.basf.com)
2. "Iso-Flex 825" as manufactured by LymTal International, Inc. (www.lymtal.com)
3. "Dymonic FC" as manufactured by Tremco (www.tremcosealants.com).

Note: Color selection shall be by the **Owner** from standard choices available.

- E. The joint sealant to be used throughout the **building façade** shall be a silicone rubber sealant.
1. ASTM C920, Type S, Class 25, Grade NS mold and mildew resistant type sealant.
 2. Approved silicone sealants must provide the required 20 year warranty.
 3. Products offered by manufacturers to comply with the requirements include the following:
 - a. Pecora
 - b. Tremco
 - c. General Electric
 - d. Dow

Note: Color selection shall be by the Owner from standard choices available.

- F. The manufacturer of the sealant system used in this project shall share responsibility for all sealant work and joint preparation.

2.02 PRIMER AND FILLERS

- A. Joint Cleaner: Provide the type of joint cleaning compound recommended by the sealant or caulking compound manufacturer, for the joint surfaces to be cleaned.
- B. Joint Primer/Sealer: Provide the type joint primer/sealer recommended by the sealant manufacturer, for the joint surfaces to be primed or sealed.
- C. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by the sealant manufacturer, to be applied to sealant-contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape wherever applicable.
- D. Sealant Backer Rod: Compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable non-absorptive material as recommended for compatibility with sealant by the sealant manufacturer. Provide size and shape of rod which will control the joint depth for sealant placement, break bond of sealant at bottom of joint, form optimum shape of sealant bead on back side, and provide a highly compressible backer to minimize the possibility of sealant extrusion when joint is compressed.

2.03 CELLULAR FOAM EXPANSION JOINT FILLERS

A. Expanded Polyethylene Joint Filler:

1. Provide flexible, compressible, closed-cell polyethylene of not less than 10 psi compression deflection (25%); except provide higher compression deflection strength as may be necessary to withstand installation forces and provide proper support for sealants; surface water absorption of not more than 0.1 lbs. per sq. ft.
2. Products offered by manufacturer to comply with the requirements include the following:
 - a. Ethafoam SB; Dow Chemical Co.
 - b. Sonofoam; Sonneborn Building Products.
 - c. Expand-O-Foam; Williams Products, Inc.

2.04 CONCRETE CONTROL-EXPANSION JOINT FILLERS

A. Bituminous and Fiber Joint Filler:

1. Provide resilient and non-extruding type premolded bituminous impregnated fiberboard units complying with ASTM D1751-73 (78), FS HH-F-341-F-77, Type I and AASHTO M213-74.
2. Products offered by manufacturers to comply with the requirements include the following:
 - a. Flexcell; Celotex Corporation
 - b. Cane Fiber 1290; W. R. Grace & Co.
 - c. Fibre; W. R. Meadows, Inc.

PART 3 - EXECUTION

3.01 CAULKING/SEALANT APPLICATION

A. Joint Surface Preparation: Clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond of sealant or caulking compound.

1. For elastomeric sealants, do not proceed with installation of sealant over joint surfaces which have been painted, lacquered, waterproofed or treated with water repellent or other treatment or coating unless a laboratory test for durability (adhesion), in compliance with Paragraph 4.3.9 of FS TT-S-00227E-70 has successfully demonstrated that sealant bond is not impaired by the coating or treatment. If laboratory test has not been performed, or shows bond interference, remove coating or treatment from joint surfaces before installing sealant.
2. Etch concrete and masonry joint surfaces to remove excess alkalinity, unless sealant manufacturer's printed instructions indicate that alkalinity does not interfere with sealant bond and performance.

B. Typical Surface Preparation for Slab:

1. The Contractor shall either grind the surface of all cracks and construction joints designated for repair with sealant to the shape of 1/2" x 1/2" v-groove, or sawcut a square 1/2" x 1/2" groove, grind sharp corner of groove and apply bond breaker to bottom horizontal surface. Edges of cracks or joints to be sealed shall be of sound concrete. Prior to installing sealant, surfaces shall be cleaned of foreign materials and debris, V-groove ground and primed.
- C. Installation: Comply with sealant manufacturer's printed instructions except where more stringent requirements are shown or specified and except where manufacturer's technical representative directs otherwise.
1. Prime or seal the joint surfaces wherever shown or recommended by the sealant manufacturer. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.
 2. Install sealant backer rod for liquid elastomeric sealants, except where recommended to be omitted by sealant manufacturer for the application shown.
 3. Install bond breaker tape wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly.
 4. Employ only proven installation techniques, which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight Cove so that joint will not trap moisture and dirt.
 5. Install sealants to depths as recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead.
 - a. For sealed with elastomeric sealants and subject to traffic and other abrasion and indentation exposures, fill joints to a depth equal to 75% of joint width, but not more than 5/8 inch deep or less than 3/8 inch deep.
 - b. For normal moving joints sealed with elastomeric sealants, but not subject to traffic, fill joints to a depth equal to 50% of joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.
 6. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces. Use masking tape or other precautionary devices to prevent staining of adjoining surfaces, by either the primer/sealer or the sealant/caulking compound.
 7. Remove excess and spillage of compounds promptly as the work progresses. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage, without damage to the adjoining surfaces or finishes.
- D. Cure and Protection:
1. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal

cohesive strength and surface durability.

2. Provide all procedures required for the protection of sealants and caulking compounds during the construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at the time of acceptance.

3.02 JOINT FILLERS

- A. Set units at proper depth or position in the joint to coordinate with other work, including the installation of bond breakers, backer rods and sealants. Do not leave voids or gaps between the ends of joint filler units.

3.03 RECORD OF SEALED CRACK AND JOINT LOCATIONS AND TYPES:

- A. After determining the cracks and joints to be sealed and the detail types required, the Contractor shall prepare scale shop drawings showing the sealed crack and/or joint locations and submit them to the Consultant for his approval. The Shop Drawings submitted shall be reviewed by the Consultant for the condition of the existing cracks/joints, the size/shape of the routed crack, and the type of detail selected.
- B. The Shop Drawings submitted shall be used as a record of the detail types used and the measured number of linear feet of each sealed crack. Quantities of work done on a unit price basis shall be recorded on the document and submitted to the Consultant with Request for Payment.

END OF SECTION

DIVISION 09

FINISHES

SECTION 09 91 00

PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION OF WORK

- A. The extent of painting work is shown on the drawings and specified herein to include, but not be limited to, the following:
1. Paint parking lines, traffic markings, handicap symbols and curb/island edges using a specified pavement marking paint throughout the entire parking deck.
 2. Paint concrete and masonry.
 3. Paint structural steel using a specified high-performance coating.
 4. Paint miscellaneous metals using a specified high-performance coating.

1.03 QUALITY ASSURANCE

- A. Paint Coordination:

Provide finish coats which are compatible with the prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates.

1.04 SUBMITTALS

- A. Manufacturer's Data:

1. Submit manufacturer's technical information in standard printed published form, including performance criteria and application instructions for each material proposed for use.
2. List each material and cross-reference to the specific paint and finish system and application. Identify by manufacturer's catalog number and general classification.

- B. Samples:

1. Submit samples of each color required, for Engineer's review.
2. Color shall be as herein specified or as selected by the Owner and Engineer prior to the start of work.

1.05 OWNER'S INVENTORY

- A. Provide one gallon of each color used, to Owner, for maintenance purposes.

1.06 DELIVERY AND STORAGE

- A. Deliver all paint to site in manufacturer's sealed and labeled containers. Labels shall bear manufacturer's name, brand, type of paint, Federal spec. number (if applicable), color of paint, and instructions for reducing.
- B. Store materials and equipment in a designated storage space on the site. Keep storage space neat, clean and accessible at all times. Protect floors from paint spillage.

1.07 PROTECTION

- A. Place paint or solvent-soaked rags, waste, or other materials which might constitute a fire hazard in metal containers and remove from premises at the close of each day's work. Take every precaution to avoid damage by fire.
- B. Provide foam type 2-1/2 gallon capacity fire extinguishers for each paint storage space.
- C. Protect the work of all other trades against damage, marking or injury by suitable covering during the progress of the painting and finishing work.

1.08 JOB CONDITIONS

- A. Examine all surfaces to receive coatings and report to the Engineer any condition which is not acceptable. Commencement of work and in any area constitutes acceptance of conditions and places the responsibility for a workmanlike job on this Section.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.

1.09 WARRANTY

- A. Materials Manufacturer and Installation Contractor shall warrant the installed system for a minimum period of five years from date of final completion, with the exception of pavement marking, which shall be warranted for a minimum period of one year from the date of final completion. The Installer shall repair or replace coatings that are debonded, peeling, prematurely faded, deteriorates excessively, wears prematurely, or otherwise fails to perform as required within the guarantee period, due to failure of materials or workmanship.

PART 2 - PRODUCTS

2.01 MATERIAL QUALITY

- A. Provide only absolutely pure linseed oil, turpentine, shellac, and other like materials that are of the highest quality, with identifying labels intact and seals unbroken. Use no thinners other than those specified by the manufacturer.
- B. Use only primers and undercoaters that are suitable for each surface to be covered and that are compatible with the finish coat required.
- C. Use products of the same manufacturer for succeeding coats.
 - 1. Where shop primed materials are to be finish painted and/or prime coat materials are by a different manufacturer than the finish coat materials, confirm compatibility of the primers with the manufacturer of the finish coat paints.
 - 2. Where existing previously painted surfaces are to be finish painted, confirm compatibility of existing painted surfaces with the manufacturer of the succeeding new paints.
- D. All materials shall comply with Environmental Protection Agency Pt. 59, Subpt. D, Table 1 of Section 40CFR Parts 53-59, Volume 5, 2004 Edition.

2.02 METALS

- A. Structural Steel/Miscellaneous Metals (UNO): High Performance Coating:
 - 1. Primer (bare metal locations same day as surface preparation)
 - a. Macropoxy 646 , Sherwin Williams
 - b. PPG Pitt-Guard 97-148 Series Epoxy
 - 2. High Build Epoxy
 - a. Macropoxy 646; Sherwin Williams
 - b. PPG Pitt-Guard 97-148 Series Epoxy
 - 3. Gloss Aliphatic Urethane Finish
 - a. Acrolon 218 HS; Sherwin Williams
 - b. PPG Pitthane Ultra 95-812 Series Gloss Urethane

2.03 CONCRETE & MASONRY COATINGS

- A. INTERIOR GARAGE

1. Concrete/CMU
 - a. Primers/Fillers
 - i. MasterProtect FL 749 as manufactured by BASF (800) 433-9517
 - ii. Neogard 7031-100 or 3090 Multi-Grip TM II Primer/Neogard 3781 Block Filler as manufactured by Neogard (214) 353-1600
 - iii. Elastocolor WB as manufactured by Mapei (888) 876-2734
 - iv. Sikagard 552W Primer or SikaLatex R as manufactured by Sika (800) 933-7452
 - b. Top Coat/Finish Coat
 - i. MasterProtect HB 200 LR as manufactured by BASF (800) 433-9517
 - ii. Neocrylic LR 7051 as manufactured by Neogard (214) 353-1600
 - iii. Elastocolor as manufactured by Mapei (888) 876-2734
 - iv. Sikagard 550W Elastocolor as manufactured by Sika (800) 933-7452

2.04 PAVEMENT MARKING PAINT

- A. Parking lines, arrows, handicap symbols and curb edges shall be yellow pavement marking paint, conforming to U.S. Bureau of Public Roads colors, unless otherwise noted.
 1. ZONELINE Traffic and Zone Marking Latex, 11-54 Yellow by PPG Industries;
 2. SETFAST Acrylic Latex Traffic Marking Paint, TM2161 Yellow by Sherwin Williams, 800-368-2026;
 1. Hotline Fast Dry Latex Traffic Marking Paint – Yellow TM2153 as manufactured by Sherwin Williams, 800-368-2026;
 2. Promar Low VOC Acrylic Copolymer Traffic Marking Paint – Yellow TM5713 as manufactured by Sherwin Williams, 800-368-2026.

2.05 PAINT SYSTEMS

- A. Metals: Provide the following paint systems for the various substrates, as indicated.
 1. Structural Steel/Miscellaneous Metals

- a. 1st Coat - High Build Epoxy (3.0-5.0 mils dft)
- b. 2nd Coat - High Build Epoxy (4.0-6.0 mils dft)
- c. 3rd Coat - Gloss Aliphatic Urethane (3.0-5.0 mils dft)

B. Concrete & Masonry Coating:

1. INTERIOR GARAGE

a. Concrete/CMU

- i. 1st Coat - Primer (4.0-8.0 mils dft) If necessary and/or as recommended by manufacturer.
- ii. 2nd Coat – Top Coat (4.0-8.0 mils dft) Note: Multiple top coats may be required to achieve specified dft.
- ii. 3rd Coat – Top Coat (4.0-8.0 mils dft) Note: Multiple top coats may be required to achieve specified dft.

Note: Minimum full system dft: 12.0-16.0 dft

- C. Pavement Markings: Two coats-Traffic Paint as specified in Section 2.04; 14 to 15 mil wet film thickness each coat.

PART 3 - EXECUTION

3.01 QUALITY CONTROL TESTING

A. General:

1. The Contractor will employ and pay for a testing laboratory to perform tests and to submit test reports.
2. All testing shall be performed by a qualified independent testing agency, which shall be submitted to the Engineer/Owner for approval.
3. All test reports shall include date, time, and existing site conditions (temperature, rain, fog, cloudy, etc.). All reports are to be submitted to the Engineer/Owner and manufacturer within one working day.
4. At the preconstruction meeting, a representative from an approved Testing Agency and a representative from the manufacturer must be present. During this meeting the scope of the testing program will be discussed.

B. Metals:

1. Dry mil thickness reading shall be taken in accordance with ASTM D7091, *Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals*. The frequency of the testing will be performed in accordance with SSPC-PA2, *Procedure for Determining Conformance to Dry Coating Thickness Requirements*. Based on SSPC-PA2, readings are to be taken at 5 spots for the first 1,000 s.f. painted area and then one spot for each additional 1,000 s.f. A minimum of 3 readings will be obtained per spot. All data will be recorded and shown on field drawings for identification purposes. This process will be followed on a per Phase basis. Atmospheric conditions (i.e. surface temperature, ambient temperature, humidity, dew point, etc.), as well as other conditions per the manufacturer's recommendations, shall be obtained and recorded for each day of coating application.
2. The manufacturer shall conduct a walk-thru of the finished product on a per Phase basis and issue an observation report.
3. Surface preparation shall be evaluated by a NACE Certified Inspector prior to the application of coatings for each application process, or as determined by the Engineer. A field report shall be issued for each evaluation.

C. Concrete and Masonry Materials:

1. Record wet film thickness readings every 1,000 s.f. or per manufacturer's recommendations, whichever is less square footage. Regardless of application area, a minimum of three readings shall be obtained.
2. Minimum dry film thickness shall be 6.0-8.0 mils per coat and/or per the manufacturer's recommendation.
3. Conduct adhesion testing per ASTM D3359. One test shall be performed every 5,000 s.f. or per manufacturer's recommendations, whichever is less square footage. A minimum of three tests shall be obtained.

3.02 SURFACE PREPARATION

A. General:

1. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
2. Clean surfaces to be completely dry prior to applying primers, paints or surface treatments. Remove oil and grease with clean cloths and cleaning solvents. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.
3. Before applying succeeding coats, primers and undercoats shall be completely integral and shall perform the function for which they are specified. Properly

prepare and touch up all scratches, abrasions or other disfigurements and remove any foreign matter before proceeding with the following coat. All spot-priming or spot-coating shall be featheredged into adjacent coatings to produce a smooth and level surface.

B. Metals:

1. For existing paint system being restored, power wash using approved cleaning solvents and minimum pressures of 2,500 to 5,000 PSI at a flow of 4 to 14 gallons per minute in accordance with SSPC-WJ4. Mechanical abrasion may be needed in order to ensure adhesion (i.e.sanding or powerwashing with sand injection)
2. For all other existing metals scheduled to be painted, sandblast clean to SSPC-SP6 or power tool according to SSPC SP 15 Commercial Grade Power Tool Cleaning.

C. Concrete and Masonry Materials:

1. Prepare surfaces of concrete and masonry (except glazed brick – see item 3.01.C.2) to be painted by using approved cleaning solvents (if necessary) and high-pressure power washing with a 15 degree tip at 14” or less from surface with a minimum pressure of 300 to 600 PSI for an existing coating and 1,500 to 3,000 PSI for bare concrete/masonry substrate and in accordance with SSPC SP1 to thoroughly remove all efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze, or provide sufficient bite on existing painted surfaces per the manufacturer’s recommendation.
2. For glazed brick, the surface shall be thoroughly cleaned, scuff sand the brick with 80 grit sanding sponges, then final wipe down with clean rags and denatured alcohol.

3.03 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials.

3.04 APPLICATION

- A. Apply paint with brush, roller, spray, or other acceptable practice in accordance with the manufacturer's directions.

- B. Spread all materials evenly and smoothly without runs, sags or other defects. Make edges of paint adjoining other materials or colors sharp and clean, without overlapping.
- C. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.
- D. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.
- E. For each coat of paint use slightly different shade than preceding coat. Tint final undercoat to color of finish coat.
- F. Paint directional arrows, parking stalls, marking lines, handicap symbols, etc., to be as detailed on the Drawings. Unless otherwise detailed, single line width to be four (4") inches wide. Striped areas shall be four (4) inch wide lines eighteen (18) inches on center. Lay out all painted lines and define with chalk markings for approval before proceeding with painting.

3.05 APPLICATION OF CONCRETE/MASONRY COATING

- A. Prior to application record surface moisture content and pH of substrate. Surface moisture content must be 12% or lower. Refer to manufacturer for pH requirements.
- B. Apply mock-up in a 36" x 36" square after surface is properly prepared.
- C. Allow mock-up to cure for 5 days at a substrate temperature of 50 degree F or higher.
- D. Conduct adhesion testing per ASTM D3359. A Classification of Adhesion Test Result of 4B or better is required, per Figure 1 of ASTM D3359.
- E. Once mock-up meets or exceeds testing requirements and approval of Owner and Engineer, apply coating in accordance with manufacturer's printed instructions, employing technically trained personnel, using equipment specifically designed for this purpose.
- F. Apply coating in two applications with a fine texture to match approved sample.
- G. Finished work shall match approved samples; be uniform in sheen, color and texture and be free from defects detrimental to appearance or performance.
- H. Verify dry film thickness of completed surfacing system in the field, at random, using a Tooke Inspection Gauge. Minimum thickness shall be as specified excluding foundation or fill coats. Conduct tests in presence of Engineer or his representative. A minimum of three readings are to be obtained or per manufacturer's recommendation, whichever is greater.

3.06 CLEAN-UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 12 19

ASPHALT PAVING WEARING COURSES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of asphalt paving is shown on the Drawings. Paving shall consist of a bituminous concrete base course and surface course as follows:
 - 1. Base Course: Two and a half inches bituminous concrete consisting of a mixture of coarse and fine aggregates and bituminous material applied over a primed subbase course.
 - 2. Surface Course: One and a half inches bituminous concrete consisting of a mixture of coarse and fine aggregates and bituminous material constructed on the primed base course to the lines, grades, and cross sections shown on the Drawings.
- B. Related Work specified elsewhere:
 - 1. Section 09 91 00 – Painting

1.02 QUALITY ASSURANCE

- A. Codes and Standards: Comply with requirements of the following codes, specifications and standards, except as herein modified:
 - 1. American Associations of State Highway and Transportation Officials (AASHTO).
 - 2. American Society for Testing and Materials (ASTM).
 - 3. The Asphalt Institute (AI) Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types (MS-2).
 - 4. Comply with latest Edition of Tennessee Department of Transportation (TDOT) Road construction Specifications standards, and approved addenda, except method of measurement and basis of payment.
- B. Testing and Inspection: Owner may engage testing and inspection services for quality control during the asphalt concrete paving operations.
 - 1. Allow designated testing laboratory to inspect and evaluate the construction and materials at any time during the progress of the work.

1.03 SUBMITTALS

- A. Materials List: Submit listing identifying the types and sources of materials proposed for this work.
- B. Testing Laboratory Reports: Submit laboratory test reports for tests performed in the process of mix design.

- C. Materials Certificates: Provide material certificates. Material certificates shall be signed by the material producer and the Contractor, certifying that each material item complies with, or exceeds, specified requirements.
- D. Delivery Tickets: Submit delivery tickets for each load of asphalt with the following information:
 - a. Supplier
 - b. Mix Type
 - c. Quantity
 - d. Deliver date and time of shipment
 - e. Placement Time

1.04 JOB CONDITIONS

- A. Weather Limitations: Apply bituminous prime and tack coat only when the ambient temperature is above 40 degrees F. and when the temperature has not been below 35 degrees F. for 12 hours immediately prior to application. Also, do not apply when the base surface is wet or contains an excess of moisture, which would prevent uniform distribution and the required penetration.
- B. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The binder course, when authorized, shall be used to level irregularities in the existing paved surface. The binder material shall conform to State of Tennessee Standard Specifications for Road Construction, latest revision. The asphalt mix shall be of the type and grade as specified in the plans and conform to the TDOT specifications for the mix design. Before commencement of work, the Contractor shall submit to the Engineer a proposed mix design for approval.
- B. This surface course shall conform to State of Tennessee Standard Specifications for Road Construction, latest revision. The asphalt mix shall be of the type and grade as specified in the plans and conform to the TDOT specifications for the mix design. The item #411-01.11 ASC Mix (PG64-22) Grading E Roadway must consist entirely of virgin aggregate. Mixes which contain RAP will NOT be approved by the City of Maryville. Limestone will only be permitted as described in the TDOT Standard Specifications for use as fine aggregate.

Before commencement of work, the contractor shall submit to the Engineer a proposed mix design for approval.

During the production of the asphalt, no other types of asphalt shall be placed on top of the City of Maryville's mix once it is in the silo.

- C. Tack coat shall conform to the latest revision of the TDOT Standard Specifications for Road Construction.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Existing Pavement: Saw cut existing pavement to full depth in straight lines, where new pavement abuts existing.

3.02 PROTECTION AND RESTORATION

- A. Asphalt Pavement: Protect improvements and facilities during tack coat and overlay binder coat applications to prevent overspray damage. Protect completed surface from damage. Do not permit heavy equipment or rollers on completed surface. Do not permit vehicular traffic on surface for 24 hours after completion. Restore damaged pavement as directed by Owner's Representative or Engineer, at no increase to Contract Sum.

3.03 PREPARING THE MIX

- A. Aggregate Storage: Keep each component of the various-sized combined aggregates in separate stockpiles. Maintain stockpiles so that aggregate size will not be intermixed and to prevent segregation.
- B. Asphalt Cement Preparation: Heat the asphalt cement at the mixing plant to a viscosity, which can readily be pumped and distributed throughout the asphalt concrete mixture. Add asphalt cement binder to aggregate at a temperature between 275 degrees F. and 375 degrees F.
- C. Aggregate Preparation: Dry aggregates and deliver to the mixer at a temperature between 250 degrees F. and 375 degrees F. Maintain the temperature between these limits according to the penetration grade viscosity characteristics of the asphalt cement, ambient temperature, and workability of the mixture, while the asphalt cement is being added.
- D. Mixing: Accurately weigh or measure dried aggregates and weigh or meter asphalt cement to comply with the job-mix formula requirements. Do not heat asphalt cement above 300 degrees F. at the time of introduction into the mixer.
 - 1. Mix aggregate and asphalt cement to achieve 90-95 percent of coated particles for base mixture and 85-90 percent of coated particles for surface mixture.

3.04 PLACING THE MIX

- A. General: Place the asphalt concrete mixture on the prepared surface, spread and strike-off using an acceptable bituminous paver. Spread mixture at a temperature within 25 degrees F. of the temperature specified in the approved mix formula, inaccessible and small areas may be placed by hand. Place each course in the required amounts so that when compacted, they will conform to the indicated grade, cross-section, and thickness.
- B. Hand Placing: Spread, tamp and finish the mixture using hand tools in areas where the use of

machine spreading is not practical. Place mixture at a rate that will ensure proper handling and compaction before mixture becomes cooler than acceptable working temperature.

C. Subbase Course

1. Place subbase course material on prepared substrate in one uniform layer to depth required to produce compacted thickness indicated. Shape material, to sections and elevations indicated and sloped for drainage. Control moisture content of base course material to within ± 2 percentage of optimum during compaction operations.
2. Place in strips not less than 10 feet wide, unless otherwise acceptable to the Architect. After the first strip has been placed and rolled, place all succeeding strips and extend rolling to overlap previous strips. Complete all base courses for section before placing any surface course materials. Place mixture in as continuous an operation as possible.

D. Placing hot-mix asphalt pavement

1. General: Provide plant-mixed, hot-laid asphalt-aggregate mixture complying with the requirements of the TDOT Road construction Specifications and as recommended by local paving authorities to suit project conditions.
2. Asphalt concrete mixtures shall not be placed when weather or surface conditions are such that the material cannot be properly handled, finished, or compacted. The surface upon which asphalt mixtures are to be placed shall be free of standing water, dirt, and mud and the base temperature shall conform to the following:
 - a. Place Hot-Mixed asphalt mixture on prepared surface, spread and strike off. Spread mixture at minimum temperature of 290°F. Place areas inaccessible to equipment by hand. Place each course to required grade, cross-section, and compacted thickness.
3. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean or replace damaged surfaces at no additional cost to Owner.
4. Tack Coat: Application of tack coat shall conform to the TDOT Road construction Specifications. Tack coat application should result in a thin, uniform coating of tack coat material covering approximately 95 percent of the pavement surface. Tack coat shall be applied at the rate of 0.02 gallons per square yard.
 - a. Allow tack coat to cure undisturbed before paving.
 - b. Care shall be taken to prevent spattering adjacent items.
5. Prime Coat: Application of prime coat shall conform to the TDOT Road construction Specifications. The purpose of a prime coat is to penetrate the base (about 1/4-inch minimum penetration is desired), fill most of the voids, promote adhesion between the base and the bituminous applications placed on top of it, and waterproof the base. Surfaces must be as clean as possible, and where dry conditions exist (dried-out surfaces), a light fog spray with water should be considered before priming actually begin. The quantity, rate of application,

temperature, and areas to be treated shall be approved by the engineer before application of the prime coat.

- a. For asphalt sections less than 4" thick, apply uniformly over surface of compacted aggregate base at a rate of 0.15 to 0.50 gal./sq. yd. Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 24 hours minimum.
- b. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use just enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
- c. Protect primed substrate from damage until ready to receive paving.
- d. If base course is to be left exposed, a prime coat shall be installed per above specification.

E. ASPHALT BASE COURSE

1. Subbase Course Surface Preparation: Apply tack coat material to previously placed asphalt base course, existing pavement, curbing, utility castings and any structure abutting or projecting into paved area.
2. Base Course Placement: Pavement courses shall be placed in layers not exceeding 4.0 times and less than 2.5 times the nominal maximum size aggregate in the asphalt mixture. The maximum thickness may be reduced if the mixture cannot be adequately placed in a single lift and compacted to the required uniform density and smoothness. Place material by approved manual methods in areas inaccessible to self-powered pavers. Temperature of material shall be not less than 225°F at any time of placement.
3. Promptly correct surface irregularities in paving course. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
4. Base Course Compaction: Compaction operations shall begin immediately following placement of base course material, and shall consist of breakdown, second (intermediate) and finish rolling. In-place compaction shall be completed before material cools below 185°F. Use self-powered tandem steel wheel rollers. Use power driven trench rollers in areas inaccessible to self-powered equipment. Begin rolling longitudinally at low side or edge and proceed toward high side or crown. Overlap successive roller trips one half-roller width. Do not terminate alternate roller trips at same location. Continue finish rolling until 98 percent to 102 percent theoretical maximum density is obtained and all roller marks are eliminated. Density test method: AASHTO T-230.

F. ASPHALT SURFACE COURSE AND OVERLAY

1. General: Provide overlay protective membrane treatment where indicated. Provide overlay protective membrane strips over long, running cracks or pavement joints except in areas where overlay protective membrane is already indicated.
2. Asphalt Base Course Surface Preparation: Remove loose material from surface before applying tack coat. Apply tack coat material uniformly to surface at a rate of 0.02 gallon per square yard. Allow tack coat to cure as long as required to properly set but not less than 12 hours.
3. Surface Course and Overlay Placement: Place asphalt, in one uniform layer, to depth required to produce compacted thickness indicated. Place with mechanical self-powered pavers capable of maintaining required line and grade. Place and spread asphalt by approved manual methods in areas inaccessible to self-powered pavers. Temperature of the material shall be not less than 225°F (107°C) at time of placement.
4. Surface Course and Overlay Compaction: Compaction operations shall begin immediately following placement of surface course material, and shall consist of joint, breakdown, intermediate and finish rolling. In-place compaction shall be completed before material cools below 185°F (85°C). Use power driven trench rollers in areas inaccessible to self-powered rollers. Begin rolling longitudinally at low side or edge and proceed toward high side or crown. Overlap successive roller trips, one-half roller width. Do not terminate alternate trips at same point. Continue finish rolling until 98 percent to 102 percent theoretical maximum density is obtained and all roller marks are eliminated. Density test method: AASHTO T 230.

G. ROLLING

1. General: The compaction of the asphalt concrete shall conform to the TDOT Road construction Specification Section 315.05. The surface shall be rolled when the mixture is in the proper condition. Rolling shall not cause undue displacement, cracking, or shoving.
2. The number, weight, and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition.
3. Rolling shall begin at the sides and proceed longitudinally parallel with the center of the pavement, each trip overlapping at least 1/2 the roller width, gradually progressing to the crown of the pavement
4. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
5. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.
6. Second (Intermediate) Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted. Continue rolling until hot-mix asphalt course has been uniformly compacted.

7. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated.
8. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory methods. Edges adjacent to curbs and curb and gutter sections shall be flush with the edge of concrete.
9. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot hot-mixed asphalt. Compact by rolling to specified surface density and smoothness.
10. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
11. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

H. SEAL COAT

1. Application of seal coat shall conform to the TDOT Road construction Specifications. The length of the spread of asphalt shall be regulated by the quantity of cover material in loaded trucks on the project. The spread of asphalt shall be not more than 6 inches wider than the width covered by the cover material from the spreading device. Asphalt shall not be allowed to chill, set up, dry, or otherwise impair retention of the cover material.
 - a. Asphalt shall not be allowed to chill, set up, dry, or otherwise impair the retention of the cover material.
 - b. Care shall be taken to prevent spattering adjacent items.

I. JOINTS

1. Make joints between old and new pavements, or between successive days' Work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.

3.05 JOINT SEALING

- A. Completely seal and fill joints along existing and new pavement and curbing inter-face with joint sealant.
- B. Construct joints between old and new pavement, or between successive days work, to ensure continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
 1. Clean contact surfaces and apply tack coat.
 2. Offset longitudinal joints in successive courses a minimum of 6 inches (150 mm).

3. Offset transverse joints in successive courses a minimum of 24 inches (600 mm).
4. Construct transverse joints as required by the TDOT Road construction Specifications standards.
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

3.06 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 1. Base Course: Plus or minus 1/2 inch (13 mm).
 2. Surface Course: Plus 1/4 inch (6 mm), no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 1. Base Course: 1/4 inch (6 mm).
 2. Surface Course: 3/16 inch (3 mm).
 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).
- C. Check surface areas at intervals as directed by Engineer.

3.07 CLEANING:

- A. Clean improvements and facilities damaged by tack coat overspray as directed by Owner's Representative or Architect.

END OF SECTION