

THE CITY OF NORMAN



**NORMAN FOWARD
INVITATION TO BID NO. 2021-25
GRIFFIN PARK N.W. FIELDS PHASE 4
1001 E. ROBINSON ST., NORMAN, OK**



Date: September 24, 2020

CITY OF NORMAN
Office of the Purchasing Division
Norman, Oklahoma

INVITATION TO BID NO. **2021-25**

The City of Norman, Oklahoma will open sealed bids in the Multi-Purpose Room (201 W. Gray St.), Norman, Oklahoma, City of Norman on the below listed item at **2:00 P.M. on October 15, 2020**

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

All bids must be in the Central Purchasing Office, 201 C West Gray St., Norman, Oklahoma, 73070, **BEFORE THE FINAL CLOSING HOUR** as shown on the Invitation to Bid. If bid is mailed, to be considered it **should** be addressed as follows:

Attention: Purchasing Division, Opening of Bids, City of Norman, P.O. Box 370, Norman, Oklahoma, 73070. In addition, the bid envelope **should** be plainly marked on both sides indicating the product which you bid.

To receive consideration, bids **must** be submitted on the City of Norman "Form for Bidders" and "Bidders Proposal" (if applicable), which are hereby made part of this Invitation to Bid.

Alternate bids **may** be considered. An **Alternate Bid** (or **Alternate**) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the work, as described in the Bidding Documents, is accepted.

The affairs of the City of Norman, whether in the conduct of its governmental or proprietary functions, involve the health, safety and welfare of the public; and because the item(s) specified are necessary and proper for the conduct of said affairs, any delay in the delivery of the item(s) being bid can jeopardize the health, safety and welfare of the public, and can result in the incurring of additional expenses to the City. For these reasons, it is understood by the bidder that the duration of time from the date of the City of Norman's Purchase Order to the date of delivery of the item(s) being bid herein is considered to be an integral part of this bid and **may** be considered in awarding the contract. Use pen and black ink or typewriter in filling in quotation and initial any corrections. Bid and affidavit **must** be signed in black ink by an authorized representative of the company making the bid. Bidders **should** submit one original and one duplicate Form for Bidders and Proposals. All bids **will** be awarded by Section or Sections whichever is in the best interest of the City. If the above procedures are not followed, bid **may** be disqualified. The right is reserved by the City to reject any or all bids or parts of bids. All bids are public records and are available during regular office hours.

The General Provisions and/or Conditions in the Front End Documents of the City of Norman, Oklahoma, which are a part of this Invitation to Bid, shall supersede and take precedence over any subsequent general provision and/or conditions in the Project Manual, or the Specifications published by the Consultant of Record, should there be a conflict.

City of Norman

GENERAL PROVISIONS/CONDITIONS
SPECIFICATIONS AND CONTRACT DOCUMENTS

CITY OF NORMAN, OKLAHOMA,

CITY MANAGER OFFICE

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

CITY OF NORMAN
CITY MANAGER OFFICE
201 WEST GRAY
BUILDING C
NORMAN, OKLAHOMA

FOR INFORMATION ON CONTRACT DOCUMENTS:

<http://www.normanok.gov/finance/purchasing>

TABLE OF CONTENTS
GENERAL PROVISIONS/CONDITIONS
SPECIFICATIONS AND CONTRACT DOCUMENTS

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

NOTICE TO BIDDERS

REQUIREMENTS FOR BIDDERS

BID PROPOSAL

BID AFFIDAVITS

- Non-Collusion Affidavit
- Business Relationships Affidavit
- False Information Affidavit

CERTIFICATE OF NONDISCRIMINATION

STATUTORY BOND

PERFORMANCE BOND

CLAIM OR INVOICE AFFIDAVIT

MAINTENANCE BOND

CONTRACT

GENERAL PROVISIONS

LOCATION MAP

GENERAL CONDITIONS

- Section 201 - Definitions
- Section 202 - Proposal Requirements and Conditions
 - .01 Contents of Proposal Form
 - .02 Interpretation of Plans and Specifications
 - .03 Examination of Documents and Site of Work
 - .04 Preparation of Proposal
 - .05 Proposal Affidavit

- .06 Proposal Guaranty
- .07 Filing of Proposals
- .08 Withdrawal of Proposals
- .09 Opening of Proposals
- .10 Irregular Proposals
- .11 Rejection of Proposals
- .12 Disqualification of Bidders

Section 203 - Award and Execution of Contract

- .01 Consideration of Proposals
- .02 Award of Contract
- .03 Return of Proposal Guaranty
- .04 Surety Bonds
- .05 Execution of Contract
- .06 Failure to Execute Contract

NOTICE TO BIDDERS / RFP RECIPIENTS

When submitting bids or responses to RFPs, corporate entities are required to comply with State law regarding authorized signatures.

State statute requires that bids/RFPs “be signed by the chair or vice chair of the Board of Coordinators, or the President, or by a Vice President, and attested by the Secretary or an Assistant Secretary; or by officers as may be duly authorized to exercise the duties....” 18 O.S. §1007

However, if some other official with the corporation, such as a secretary signing a document, such signature needs to be accompanied by a certificate or a copy of a resolution adopted by the Board setting forth the authority of that individual to execute a contract.

With respect to limited liability corporations, every manager is presumed to be acting as an agent of the company for the purpose of business and binds the limited liability company. Therefore, instruments and documents shall be valid and binding upon the limited liability company if executed by one or more of its managers, unless the City/NMA is notified otherwise. 18 O.S. § 2019.

As set forth above when submitting bids and RFPs, certification adhering to the state statutes should accompany documents being turned in for review.

- A. **This project is tax exempt. The Norman Municipal Authority will be purchasing the supplies and materials for the project and providing them to the contractor and sub-contractors.**

NOTICE TO BIDDERS

Notice is hereby given that the City of Norman, Oklahoma, will receive sealed bids in the Office of the Purchasing Division, 201 West Gray Street, Building C, Norman, Oklahoma 73069, until **2:00 P.M. on October 15, 2019** at which time and place they shall be publicly opened and read for the following project:

GRIFFIN SOCCER COMPLEX NORTHWEST FIELDS – PHASE 4

Bids shall be made in accordance with the Notice to Bidders, Requirements for Bidders, Plans, Specifications, and Bidders Proposal, which are on file and available for examination at the Office of the Purchasing Division and are made a part of this notice as though fully set forth herein, a copy of which may be obtained from the Office of the Purchasing Division. All bids shall remain on file at least forty-eight (48) hours thereafter before a contract shall be made and entered into thereon.

Bidders attention is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract.

An Affirmative Action Plan must be submitted for any contractor or subcontractor to assure equal opportunity employment guidelines are being met.

Bids received more than ninety-six (96) hours, excluding Saturdays, Sundays, and holidays, before the time set for opening of bids, as well as, bids received after the time set for opening bids, will not be considered and will be returned unopened.

A cashier's check, a certified check, or a surety bond in the amount of five percent (5%) of the bid shall accompany the sealed proposal of each bidder. Deposits will be returned to the unsuccessful bidders upon Council award of the bid.

A Mandatory Pre-Bid Conference will be held in the NYSA Soccer Office, 1001 E. Robinson, Norman OK 73071, on Tuesday October 6, 2020, at 10:00 A.M.

BID PROCEDURES

Questions: All questions to be submitted by a General Contractor. General Contractor to submit questions via consolidated emails to the following email address:

Geoff Evans gevans@pdgtulsa.com All questions shall be submitted on or before end of business on **October 9, 2020**. All questions will be responded to via addendum.

All questions shall include the following:

1. Name of General Contractor
2. Name of Sub Contractor, if applicable
3. Related specification division number
4. Related drawing and sheet number

Substitutions: All substitution requests must be approved prior to bid opening. Refer to specification section 016001 for substitution request form. Form shall be filled out in entirety to be considered. All substitution requests shall be submitted by a General Contractor. General Contractor to submit completed substitution request forms by email to the following email address: **Geoff Evans** gevans@pdgtulsa.com All substitution forms shall be submitted on or before end of business on **October 8, 2020**. All substitutions shall be approved via addendum. If the substitutions are not listed in an addendum as approved those substitutions are considered not approved.

The City Council of the City of Norman and the Norman Municipal Authority (NMA) reserves the right to reject any and all bids and to waive any or all formalities of the bidding process.

City of Norman and Norman Municipal Authority

REQUIREMENTS FOR BIDDERS

In accordance with State Law, the following documents must be included in the bid proposal packet submitted for consideration in the:

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

Failure to submit all of the items called for may render the bid proposal incomplete and thus eliminate the bidder from further consideration. They are:

1. Complete Bid Proposal
2. Bid Affidavits
 - a. Non-Collusion Affidavit
 - b. Business Relationship Affidavit
 - c. False Information Affidavit
3. Proposal Guaranty in the amount of five percent (5%) of the total bid
4. Certificate of Non-Discrimination

BID PROPOSAL

DATE: _____

PROJECT:

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

LOCATION: **_1001 E. Robinson St., Norman OK 73071**

Proposal of
(hereinafter called "Bidder") a corporation/partnership/an individual (strike out inapplicable terms)
doing business in the state of

To: The City of Norman, Oklahoma, and the Norman Municipal Authority

Gentlemen:

The undersigned, as the Bidder, declares that before preparing his bid, he read carefully the instructions to bidders, the general conditions/general provisions, and the general detailed specifications, examined the form of the contract and the several bonds and the information blanks to be submitted, and that he is familiar with all the provisions of the same and with all the

requirements of the complete contract to be entered into and bonds to be executed; that he has carefully examined the specifications for the proposed work on file with the City Controller and Development Coordinator, that he has visited the site of the work, has examined carefully all local conditions, has informed himself by his independent research and soundings of all the difficulties to be encountered, has judged for himself of the accessibility of the work, and the quantities and character of the materials to be encountered or excavated and all attending circumstances affecting the cost of doing the work and the time required for its completion and that this bid is made with full knowledge of the difficulties that may be encountered and the kinds, quantity and quality of the plant work, and materials required or to be encountered, and with full knowledge of all specifications and estimates and all provisions of the contract and bonds, gained by the independent research of the Bidder.

Said Bidder proposes and agrees that if his proposal is accepted, he will enter into a contract with the Norman Municipal Authority, within ten (10) days after the acceptance of his bid, for the furnishing of all necessary tools, all work necessary to erect, construct and install the structure and appurtenances complete in place in the manner and under conditions required by the contract and by the specifications therefore, on file in the Office of the City Controller and the City Manager Office, Norman, Oklahoma for the following amounts:

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract attached within ten (10) days and deliver a surety bond or bonds as required by the general conditions/general provisions. The Contractor hereby agrees to commence work within ten (10) days following issuance of a written NOTICE-TO-PROCEED from the Owner and to complete same within **(95) Work Days, as defined in SECTION VIII, B., of this Front End Document.** Enclosed is a surety bond, certified check, or cashier's check in the amount of Dollars (\$ _____) as called for in the NOTICE TO BIDDERS, the amount being five percent (5%) of the total bid price.

If partnership, give name
and address of each member.

SIGNED:

Contractor

BY: _____
Representative

ADDRESS: _____

Incorporated under the laws of:

State

STATE OF _____)
COUNTY OF _____)

_____ of lawful age, being first duly sworn, upon his oath deposes and says: That he executed the accompanying bid on behalf of the bidder therein named for the construction of the above improvement in the City of Norman, Oklahoma, and that he had lawful authority to do so and said bidder has not directly nor indirectly entered into any agreement, expressed or implied, with any bidder or bidders, having for its object the controlling of the price or amount of such bid or bids, the paying to anyone any money for promotion to any bidder or bidders or other persons of any part of the contract or any part of the subject matter the bid or bids of the profits thereof, and that he has not and will not divulge the sealed bid on such public improvements to any persons whatsoever, except those having partnership or other financial interest with him in said bid or bids, until after the said sealed bid or bids are opened.

SIGNED: _____

Subscribed and sworn to before me, a Notary Public, in and for the State of

_____, County of _____ this _____ day of

_____, 20_____.

My Commission Expires: _____

Commission Number: _____

BID PROPOSAL

DATE: _____

**To:Norman Municipal Authority
On behalf of the City
Norman, OK**

From:

(Firm Name)

(Address)

(City, State, Zip)

(Telephone Number) _____
(EIN/TIN)

(Email address)

1. The undersigned, being familiar with the local conditions affecting the cost of the work, and with the Contract Documents, including the Solicitation for Bids Notice, general conditions/general provisions, supplemental conditions for Construction Contracts, Specifications, Plans and Addendum Number(s) _____, _____, _____, _____, _____, _____, _____, _____ on file in the **City of Norman, OK, Purchasing Division**, and in accordance with the provisions thereof, hereby proposes to furnish all labor, materials and equipment necessary for the following, in accordance with the plans and specifications for Project Name: **GRIFFIN SOCCER COMPLEX NORTHWEST FIELDS – PHASE 4** for the sums listed.
2. In submitting the bid, it is understood that the right is reserved by the Owner to reject any and all bids, and it is agreed that this bid may not be withdrawn for a period of thirty (30) days after the date of closing of same. Work is to start within ten (10) days after receipt of NOTICE TO PROCEED/WORK ORDER.

3. If the bid exceeds \$50,000, it shall be accompanied by a certified check or a cashier's check made payable to the **City of Norman, OK**, or a Corporate Surety Bond of a surety company duly authorized to do business in the State of Oklahoma, in the sum of five percent (5%) of the total amount of the bid (unless otherwise specified in the bid documents) which is submitted as bid security, conditioned upon the Bidder's entering into a contract with the **Norman Municipal Authority** in accordance with the terms of the bid. It is agreed that said bid security of the successful bidder will constitute liquidated damages, and not a penalty for the failure of the bidder to enter into a contract in accordance with this bid.
4. We propose to complete this work within **(95) Work Days** from the date of receipt of the NOTICE TO PROCEED/WORK ORDER. **(Work Days defined in SECTION VIII, B., of this Front End Document.)**
5. **The Bidder certifies that:**
 - A. They are an Equal Employment Opportunity Employer and that they do not discriminate in any of their business or employment practices.
 - B. They, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes but is not limited to the free Employment Verification Program (E-Verify) available at www.dhs.gov/E-Verify.
6. Each unit Price space provided herein shall be filled out by the bidder and shall become a part of the Base Proposal. Prices quoted herein shall include all amounts that would be payable to the Contractor in case of additions to the Contract, or would be deducted from the Contract sum by the Owner in case of reductions. Unit Prices shall include all expenses incurred in performing all of the work required under the Contract Documents as applicable to the unit item, including taxes payable, labor, material, equipment, supplies, supervision, overhead and profit. It is expressly stated that the Contract Sum is derived from the entire work as called for in the Contract Documents and while these Unit Prices may or may not have been used in the computing the Contract Sum, their inclusion here is for the purpose herein described, and the Owner reserves the right to deduct from the Base Proposal or add to the Base Proposal any of the items prices or portions thereof at the price quoted herein either before or after Contract awarding.
7. This proposal is based on the Contract Documents, Technical Specifications and Drawings as listed in the Table of Contents and any addendum issued.
8. Bidder agrees to perform all the construction described in the specifications and shown on the Plans for the following unit prices: (NOTE: Bids shall include applicable taxes and fees.)

9. Unit prices in Base Bid and Add Alternates must contain the same Unit Price when Bid Items Identical. If Unit Prices vary from Base Bid and Alternate Bid Items, the lower of the Unit Prices will be used for all Identical Bid Items.
10. Lowest and best bidder will be determined by the sum of the Base Bid and all, some, or none of the Add Alternates. The City reserves the right to award all, some, or none of the Add Alternates.
11. Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words for unit prices will govern.
12. The unit prices shall include all labor, materials, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for.

For the performance of all the work necessary to complete the work under Bid Schedule, as defined in the Contract Documents.

BID FORM

BASE BID PAY ITEMS

Item	Description	Unit	Quantity	Amount
1	General Conditions/Bonding/Insurance @_____ Dollars (\$_____)	LS	1 =	\$ _____
2	Demolition/Clearing - CIP @_____ Dollars (\$_____)	LS	1 =	\$ _____
3	Private Utility Locate - CIP @_____ Dollars (\$_____)	LS	1 =	\$ _____
4	Erosion Control - CIP @_____ Dollars (\$_____)	LS	1 =	\$ _____
5	Earthwork - Excavation/Compaction/Fine Grading - CIP @_____ Dollars (\$_____)	LS	1 =	\$ _____
6	STD. Design 2-3 Curb Inlet - CIP @_____ Dollars (\$_____)	EA	1 =	\$ _____
7	24" ADS N-12 ST-1B Pipe - CIP @_____ Dollars (\$_____)	LF	765 =	\$ _____
8	12" ADS N-12 ST-1B Pipe - CIP @_____ Dollars (\$_____)	LF	120 =	\$ _____
9	24" Drain Basin - CIP @_____ Dollars (\$_____)	EA	6 =	\$ _____
10	Rip Rap - CIP @_____ Dollars (\$_____)	SY	7 =	\$ _____
11	French Drain - CIP @_____ Dollars (\$_____)	LF	935 =	\$ _____
12	Concrete Paving - CIP @_____ Dollars (\$_____)	SF	6345 =	\$ _____
13	Concrete Walls - CIP @_____ Dollars (\$_____)	LF	800 =	\$ _____
14	4' HT. Black Vinyl Coated Chainlink Fence w/ Gates - CIP @_____ Dollars (\$_____)	LF	745 =	\$ _____
15	Concrete Fence Band - CIP @_____ Dollars (\$_____)	LF	578 =	\$ _____
16	ADA Viewing Rails - CIP @_____ Dollars (\$_____)	LF	46 =	\$ _____
17	Handrails - CIP @_____ Dollars (\$_____)	LF	100 =	\$ _____
18	1/2" Dark Forest Compost tilled into 4"-6" of existing soil - CIP @_____ Dollars (\$_____)	CY	372 =	\$ _____
19	1" Masonry/Topdressing Sand tilled into 4"-6" of existing soil - CIP @_____ Dollars (\$_____)	TONS	1,005 =	\$ _____
20	Irrigation Additions/Modifications - CIP @_____ Dollars (\$_____)	LS	1 =	\$ _____
21	U-3 Bermuda Solid Sod - CIP @_____ Dollars (\$_____)	SF	45,000 =	\$ _____
22	U-3 Bermuda Sprigs - CIP @_____ Dollars (\$_____)	ACRE	4.50 =	\$ _____

Item	Description	Unit	Quantity	Amount
23	Sprig and Sod 60 Day Grow-In and Maintenance - CIP @_____ Dollars (\$_____)	LS	1	= \$_____
24	Construction Allowance @_____ Dollars (\$_____)	LS	1	= \$_____

TOTAL BASE BID ITEMS _____ Dollars (\$_____)

ALTERNATE BID PAY ITEMS

Item	Description	Unit	Quantity	Amount
1	U-3 Bermuda Solid Sod - CIP (Used In Place of Sprigs) @_____ Dollars (\$_____)	SF	196,020	= \$_____

TOTAL ALTERNATE BID ITEMS _____ Dollars (\$_____)

TOTAL BASE & ALT. BID ITEMS _____ Dollars (\$_____)

BID AFFIDAVITS

The following affidavits are to accompany the bid:

A. **Non-Collusion Affidavit**

STATE OF _____)

COUNTY OF _____)

_____, of lawful age, being first duly sworn on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any government official or employee as to quantity, quality, or price in the prospective contract, of any other terms of said prospective contract; or in any discussions between bidders and any government official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder/ contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the City of Norman (or other entity) any money or other thing of value, either directly or indirectly in the procuring of the award of a contract pursuant to this bid.

SIGNED: _____

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

Notary Public

My Commission Expires: _____

Commission Number: _____

B. Business Relationships Affidavit

STATE OF _____)

COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships herein above mentioned exist, affiant should so state.)

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

Notary Public

My Commission Expires: _____

Commission Number: _____

FALSE INFORMATION AFFIDAVIT

STATE OF _____)
) SS:
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the Agent authorized by the Firm/Company of _____ to submit the above Contract to the City of Norman, Oklahoma, and the Norman Municipal Authority.

This affidavit further states that neither the bidding company nor any other company, owned or previously owned by anyone who is in an ownership or managerial capacity with the bidding company has ever knowingly submitted false information to the City.

Contractor

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

Notary Public

My Commission Expires: _____
Commission Number: _____

CERTIFICATE OF NONDISCRIMINATION

In connection with the performance of work under this contract, the contractor agrees as follows:

- A. The contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, or ancestry. The Contractor shall take affirmative action to insure that employees are treated without regard to their race, creed, color, sex, national origin, or ancestry. Such actions shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruiting or recruitment, advertising, lay-off, or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Contractor and Subcontractor shall agree to post in a conspicuous place, available to employees and applicants for employment notices to be provided by the City Clerk of the City of Norman setting forth provisions in this section.

- B. In the event of the Contractor's noncompliance with this nondiscrimination clause, the contract may be canceled or terminated by the City Council. The Contractor may be declared by the City Council ineligible for further contracts with the said agency until satisfactory proof of intent to comply shall be made by the Contractor.

- C. The Contractor agrees to include this nondiscrimination clause in any subcontracts connected with the performance of this agreement.

I have read the above stated clause and agree to abide by its requirements.

Contractor

ATTEST:

SECRETARY

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, a corporation organized under the laws of the State of _____, and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto the Norman Municipal Authority, a public trust of the State of Oklahoma, herein called Authority in the sum of DOLLARS (\$_____), for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, The conditions of this obligation are such that the Principal, being the lowest and most advantageous bidder on the following Project:

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

and has entered into a certain written contract (**K-2021-46**) with the Norman Municipal Authority, dated _____, 20_____, for the erection and construction of this Project, that Contract being incorporated herein by reference as if fully set forth.

NOW, THEREFORE, if the Principal, shall properly and promptly complete the work on this Project in accordance with the Contract, and shall well and truly pay all indebtedness incurred for labor and material and repairs to and parts for equipment furnished in the making of the Project, whether incurred by said Principal, its subcontractors, or any material men, then this obligation shall be void. Otherwise, this obligation shall remain in full force and effect. If debts are not paid within thirty (30) days after same becomes due and payable, the person, firm, or corporation entitled thereto may sue and recover on this bond, the amount so due and unpaid.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

It is further expressly agreed that the Principal's obligations under this Bond include payment of not less than the prevailing hourly rate of wages as established by the Commissioner of Labor of the State of Oklahoma and by the Secretary of the U.S. Department of Labor or as determined by a court on appeal.

Bond # **B-2021-40**

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal (where applicable) to be hereunto affixed by its duly authorized representative(s), on the ____ day of _____, 20__ and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its authorized representative, on the ____ day of _____, 20__.

(Corporate Seal) (where applicable)

Principal

ATTEST:

Signed: _____
Authorized Representative

Corporate Secretary (where applicable)

Title
Address: _____
Telephone: _____

(Corporate Seal) (where applicable)

Surety

ATTEST:

Signed: _____
Authorized Representative

Corporate Secretary (where applicable)

Title
Address: _____
Telephone: _____

CORPORATE ACKNOWLEDGMENT

STATE OF OKLAHOMA _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 20____, by _____ (Name & Title) of _____, a _____ corporation, on behalf of the corporation.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

Bond # **B-2021-40**

INDIVIDUAL ACKNOWLEDGMENT

STATE OF OKLAHOMA _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 20__,
by _____ of _____,
(Name and Title) of _____.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

PARTNERSHIP ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____, 20__,
by _____ partner (agent) on behalf of
_____, a partnership.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

NORMAN MUNICIPAL AUTHORITY

Approved as to form and legality this ____ day of _____, 20__.

City Attorney

Approved by the NORMAN MUNICIPAL AUTHORITY this ____ day of
_____, 20__.

ATTEST:

Secretary

Chairperson

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, a corporation organized under the laws of the State of _____, and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto the Norman Municipal Authority, a public trust of the State of Oklahoma, herein called Authority, in the full and just sum of _____ DOLLARS, (\$ _____), for the payment of which sum Principal, and Surety bind themselves, their heirs, executors, and its successors and assigns jointly and severally, firmly by these presents.

The conditions of this obligation are such, that whereas, said Principal is the lowest and most advantageous bidder on the following project.:

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

and has entered into a certain written contract (**K-2021-46**) with the Norman Municipal Authority, dated _____20_____, for the erection and construction of this Project, that Contract being incorporated herein by reference as if fully set forth.

NOW, THEREFORE, if said Principal shall, in all particulars, well, truly and faithfully perform and abide by said Contract and each and every covenant, condition and part thereof and shall fulfill all obligations resting upon said Principal by the terms of said contract and said specifications; and if said Principal shall promptly pay, or cause to be paid, all labor, materials and/or repairs and all bills for labor performed on said work, whether by subcontract or otherwise; and if said Principal shall protect and save harmless said City of Norman and Norman Municipal Authority from all loss, damage and expense to life or property suffered or sustained by any person, firm, or corporation caused by said Principal or his or its agents, servants, or employees in the construction of said work, or by or in consequence of any negligence, carelessness or misconduct in guarding and protecting the same, or from any act or omission of said Principal or his or its agents servants, or employees, and if said Principal shall protect and save the City of Norman and Norman Municipal Authority harmless from all suits and claims of infringement or alleged infringement or patent rights or processes, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties thereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

It is further expressly agreed that the Principal's obligations under this Bond include payment of not less than the prevailing hourly rate of wages as established by the Commissioner of Labor and by

the Secretary of the U.S. Department of Labor or as determined by a court on appeal.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal (where applicable) to be hereunto affixed by its duly authorized representative(s), on the ____ day of _____, 20__ and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its authorized representative, on the _____ day of _____, 20__.

(Corporate Seal) (where applicable) _____
Principal

ATTEST: _____ Signed: _____
Authorized Representative

_____ Title
Corporate Secretary (where applicable)

Address: _____
Telephone: _____

(Corporate Seal) (where applicable) _____
Surety

ATTEST: _____ Signed: _____
Authorized Representative

_____ Title
Corporate Secretary (where applicable)

Address: _____

Telephone: _____

CORPORATE ACKNOWLEDGMENT

STATE OF OKLAHOMA _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 20__, by _____ (Name & Title) of _____, a _____ corporation, on behalf of the corporation.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

Bond # **B-2021-39**

INDIVIDUAL ACKNOWLEDGMENT

STATE OF OKLAHOMA _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____,
20__, by _____ of
_____, (Name and Title) of _____.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

PARTNERSHIP ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____,
20__, by _____ partner (agent) on behalf of
_____, a partnership.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

NORMAN MUNICIPAL AUTHORITY

Approved as to form and legality this ____ day of _____, 20__.

City Attorney

Approved by the NORMAN MUNICIPAL AUTHORITY this ____ day of _____,
20 .

ATTEST:

Secretary

Chairperson

MAINTENANCE BOND

Know all men by these presents that _____, as Principal, and _____, a corporation organized under the laws of the State of _____, and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound under the Norman Municipal Authority, a public trust of the State of Oklahoma, hereinafter designated as the Authority, in the sum of _____ dollars (\$_____), such sum being equal to the contract price and being in force for a period of one year from the date of the acceptance of the below described improvements by the Trustees of the Norman Municipal Authority and/or the Council of the City of Norman, Oklahoma, and thereafter for the sum of _____ dollars (\$_____), such sum being not less than fifteen percent (15%) of the total contract price of said improvements for a period of _____ year(s) thereafter, for the payment of which sum Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, the conditions of this obligation are such, that the Principal, being the lowest and most advantageous bidder on the following project:

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

has entered into a written Contract (**K-2021-46**) with the Norman Municipal Authority, dated _____, for the erection and construction of this Project, that Contract being incorporated herein by reference as if fully set forth; and,

WHEREAS, the Principal is required to furnish to the Authority a maintenance bond covering said construction of this Project, the bond to include the terms and provisions hereinafter set forth, as a condition precedent to final acceptance of the Project.

NOW THEREFORE, if the Principal shall keep and maintain, subject to normal wear and tear, the construction, except for defects not occasioned by improper workmanship, materials, or failure to protect new work until it is accepted, and if the Principal shall promptly repair, without notice from the Authority any and all defects arising from improper workmanship, materials, or failure to protect new work until it is accepted; all for a period of one (1) year from the date of the written final acceptance by the Trustees of the Authority and/or Council of the City of Norman, then this obligation shall be null and void. Otherwise, this obligation shall remain in full force and effect at all times.

Provided further, however, that upon neglect, failure or refusal of the Principal to maintain or make any needed repairs upon the construction on the Project, as set out in the preceding paragraph, within ten (10) days after the mailing of notice to the Principal by letter deposited in the United States Post Office at Norman, Oklahoma, addressed to the Principal at the address set forth below, then the Principal and Surety shall jointly and severally be liable to the Authority and the City of Norman for the cost and expense for making such repair, or otherwise maintaining the said construction.

If is further expressly agreed and understood by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal (where applicable) to be hereunto affixed by its duly authorized representative(s), on the _____ day of _____, 20____ and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its authorized representative, on the _____ day of _____, 20____.

(Corporate Seal) (where applicable) _____
Principal

ATTEST: _____ Signed: _____
Authorized Representative

Corporate Secretary (where applicable) Title

Telephone: _____ Address: _____

(Corporate Seal) (where applicable) _____
Surety

ATTEST: _____ Signed: _____
Authorized Representative

Corporate Secretary (where applicable) Title

Address: _____

Telephone: _____

CORPORATE ACKNOWLEDGMENT

STATE OF OKLAHOMA _____)

COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____ (Name & Title) of _____ a _____ corporation, on behalf of the corporation.

WITNESS my hand and seal this ____ day of _____, 20____.

Notary Public My Commission
Expires: _____

Bond # **B-2021-25**

INDIVIDUAL ACKNOWLEDGMENT

STATE OF OKLAHOMA _____)
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____,
20__, by _____ of
_____, (Name and Title) of _____.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

PARTNERSHIP ACKNOWLEDGMENT

The foregoing instrument was acknowledged before me this ____ day of _____,
20__, by _____ partner (agent) on behalf of
_____, a partnership.

WITNESS my hand and seal this ____ day of _____, 20__.

Notary Public

My Commission Expires: _____

NORMAN MUNICIPAL AUTHORITY

Approved as to form and legality this ____ day of _____, 20__.

City Attorney _____

Approved by the NORMAN MUNICIPAL AUTHORITY this ____ day of _____,
20 .

ATTEST:

Secretary

Chairperson

CONTRACT

THIS CONTRACT made and entered into this _____ day of _____, 20____, by and between _____, as Party of the First Part, hereinafter designated as the Contractor, and Norman Municipal Authority, a public trust having as its sole beneficiary the City of Norman, Oklahoma, a municipal corporation, hereinafter designated as the Owner, Party of the Second Part.

WITNESSETH

WHEREAS, the Owner has caused to be prepared in accordance with law, specifications, and other bidding documents for the work hereinafter described and has approved and adopted all of said bidding documents, and has caused Notice to Bidders to be given and advertised as required by law, and has received sealed proposals for the furnishing of all labor and materials for the following project:

**GRIFFIN SOCCER COMPLEX
NORTHWEST FIELDS – PHASE 4**

as outlined and set out in the bidding documents and in accordance with the terms and provisions of said Contract; and,

WHEREAS, the Contractor, in response to said Notice to Bidders, has submitted to the Owner on the manner and at the time specified, a sealed proposal in accordance with the terms of this Contract; and,

WHEREAS, the Owner, in the manner provided by law, has publicly opened, examined, and canvassed the proposals submitted and has determined and declared the above-named Contractor to have submitted the lowest responsible bid that is most advantageous to the Owner on the above-prepared project, and has duly awarded this Contract to said Contractor, for the sum named in the proposal, to wit: _____ Dollars (\$_____);

NOW, THEREFORE, for and in consideration of the mutual agreements, and covenants herein contained, the parties to this Contract have agreed, and hereby agree, as follows:

GENERAL PROVISIONS

SECTION I-DEFINITIONS

A. Definitions. When used herein, the terms below shall have the following definitions:

1. "The Consultant" shall mean the person lawfully licensed to practice architecture or

engineering or an entity lawfully practicing architecture or engineering identified as such in the Contract and is referred to throughout the Contract Documents as if singular in number. The term "Consultant" means the Consultant or the Consultant's authorized representative. For this Project, the Consultant is _____.

2. "The Contract Documents" shall mean the Bid Notice published in the Norman Transcript, the Notice to Bidders, Instructions to Bidders, the General Provisions/Conditions in the Front End Document of the City of Norman, Addenda issued prior to execution of the Contract, the Contractor's Bid or Proposal, the Construction Drawings, Specifications, Provisions, and Bonds thereto, this agreement between the Owner and the Contractor (hereinafter called "the Contract"), other documents listed in the Contract, and any Change Orders or Contract Amendments issued after execution of the Contract.
3. "The Contract Time" is the period of time, including authorized adjustments by Change Order, allotted in the Contract Documents for Substantial Completion of Work.
4. "Critical Path" shall mean the sequential construction tasks (each of a particular duration) that results in the least amount of time required to complete a project.
5. "The Date of Commencement" shall mean the date established in the Notice to Proceed. The date shall not be postponed by the failure of the acts of the Contractor or of persons or entities for whom the Contractor is responsible.
6. "The Date of Substantial Completion" shall mean the date certified by the Consultant and approved by the Owner in accordance with Section IX(G).
7. "The Drawings" shall mean the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, and includes plans, elevations, sections, details, schedules, diagrams and drawing notes.
8. "The Project" shall mean the total construction of which the Work performed under the Contract Drawings and may be the whole or a part and include construction by the Owner or by separate contractors.
9. "The Specifications" shall mean those documents located in the Project Manual and are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services. Where there is a discrepancy between the Drawings and the Specifications, the Specifications will take precedence. Such discrepancies shall be brought to the attention of the Consultant before execution of any work related to the discrepancies.
10. "A Subcontractor" is a person or entity who has a direct contract with the Contractor to

perform a portion of the Work on the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor.

11. “Substantial Completion” shall mean the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.
12. “A Sub-subcontractor” is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.
13. “The Work” shall mean the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor’s obligations. The Work may constitute the whole or a part of the Project.

B. Execution, Correlation and Intent.

- 1.) The Contract Documents shall be executed by authorized representatives of the Owner and the Contractor.
- 2.) Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.
- 3.) The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents are reasonably inferable from them as being necessary to produce the intended results.
- 4.) Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.
- 5.) Unless otherwise stated in the Contract Documents, words which have well known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

C. Ownership and Use of Drawings, Specifications and Other Documents.

1. The Drawings, Specifications and other documents prepared by the Consultant are the property of the Owner. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Consultant. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Owner, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Consultant, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents appropriate to and for use in the execution of their Work under the Contract Documents.
2. The Contractor shall provide all copies of the Drawings and Project Manuals required to complete the Work. The Owner will provide an electronic copy of the documents to the reproduction company for printing purposes.

SECTION II – THE OWNER

- A. Owner's Right to Alter Specifications. The Owner may make such changes in the character of the work as may be necessary or desirable to insure completion of the work in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications or change the general nature of the work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the Contract.
- B. Owner's Right to Stop the Work. If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Section XII(B) or persistently fails to carry out Work in accordance with the Contract Documents, the Owner, by written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section VI(A).
- C. Owner's Right to Carry Out the Work. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-

day period give the Contractor a second written notice to correct such deficiencies within a second seven-day period. If the Contractor within such second seven-day period after receipt of such second notice fails to commence and continue to correct any deficiencies, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Consultant's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such payments, the Contractor shall pay the difference to the Owner.

- D. Owner's Right to Reject Work. The Owner shall have the authority to reject Work which does not conform to the Contract Documents.
- E. Owner's Right to Approve Payment Applications. The Owner shall have the right to review, evaluate and approve or reject Applications for Payment and Certificates for Payment.

SECTION III – THE CONTRACTOR

A. Review of Contract Documents and Field Conditions.

1. The Contractor shall carefully study and compare the Contract Documents with each other and shall at once report to the Consultant or Owner any errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner or Consultant for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such error, inconsistency or omission and knowingly failed to report it to the Consultant or Owner. The Contractor shall do all work as provided in the Contract Documents and shall do such additional extra and incidental work as may be considered necessary to complete the work in a satisfactory and acceptable manner. The Contractor shall furnish all labor, materials, tools, equipment and incidentals necessary to the prosecution of the work, unless otherwise specified. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Consultant, the Contractor shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the attributable costs for correction.
2. The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Consultant before proceeding with the work.

B. Supervision and Construction Procedures.

1. The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.
2. The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.
3. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Consultant in the Consultant's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.
4. The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

C. Labor and Materials.

1. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
2. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

D. Warranty. The Contractor warrants to the Owner and Consultant that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Consultant, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

E. Taxes. The Contractor shall pay all applicable sales, consumer, use and similar taxes for the Work or any portions thereof, (unless the project is declared Tax Exempt by the Owner.)

F. Permits, Fees and Notices.

1. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for permits, fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when Bids are received. Building permits from local municipalities are required for Work.
2. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.
3. If the Contractor observes that portions of the Contract Documents are at variance with applicable laws, statutes, ordinances, building codes or other applicable rules and regulations, the Contractor shall promptly notify the Consultant and Owner in writing, and necessary changes shall be accomplished by appropriate Change Order.
4. If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Consultant and Owner, the Contractor shall assume full responsibility for such Work and shall bear any costs attributable to such work.

G. Allowances.

1. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.
2. Unless otherwise provided in the Contract Documents:
 - a. Materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay in the Work.
 - b. Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts.
 - c. Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances.
 - d. Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order.

H. Superintendent and Other Workers. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the

Work. The Contractor shall submit the name and experience qualifications of the proposed superintendents to the Owner for approval. The Consultant may demand the dismissal of any person or persons employed by the Contractor, in, about, or on the work, who shall misconduct himself or be incompetent or negligent in the proper performance of his or her duties or neglect or refuse to comply with the directions of the Consultant, and such persons shall not be employed again thereon without the written consent of the Consultant. Should the Contractor continue to employ or again employ such person or persons without the written consent of the Consultant, then the Consultant may withhold all progress payments which are, or may become due, or may suspend the work until compliance of such orders. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

I. Work Day: Work shall be done only during regular and commonly accepted and prescribed working hours Monday through Friday. No Work shall be done nights, Saturdays, Sundays, or legal holidays, as recognized by the City of Norman, unless the Contractor submits a written request to the Owner which requests working outside of regular working hours, or on Saturdays, Sundays, or legal holidays. The Owner will respond to each of these requests, individually. Eight (8) hours shall constitute a day's work and the Contractor shall observe all State laws and City ordinances governing hours of work.

J. Contractor's Construction Schedules.

1. Prior to the Notice to Proceed being issued, the Contractor shall prepare and submit for the Owner's and Consultant's information a "90 Day Construction Schedule" which shall be used to monitor the progress of the Work during the first ninety (90) calendar days of the Contract. During this ninety day period, the Contractor shall prepare and submit the "Critical Path Construction Schedule" for the entire project, including the "90 day Project Schedule", which shall be used to monitor the remainder of the Work. The overall duration of the "Construction Schedule" shall coincide with and shall not exceed the time limits specified in the Contract Documents. During construction, if the progress of the Work does not meet the "Construction Schedule" the Contractor shall revise and resubmit the schedule for the delayed activities within 21 days of any delayed activity. Resubmitted schedules shall indicate the revised times for each activity and shall not exceed the time limits specified in the Contract Documents and any approved Change Orders. Failure to resubmit the delayed activity or maintain a current "Construction Schedule" shall be considered a breach of the Contract.
2. The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Consultant.
3. Failure of the Contractor to construct the Work in accordance with the "90 Day Construction Schedule" or the "Construction Schedule" shall be considered a substantial breach of the Contract Documents and the Owner may terminate the Contract in accordance with Section 14.2. All "Float" time in the "Construction Schedule" shall be available to the Owner for the Owner's use.

4. The Contractor shall prepare and keep current, for the Consultant's approval, a schedule of submittals which is coordinated with the Contractor's "Construction Schedule" and allows the Consultant reasonable time to review submittals.

K. Documents and Samples at the Site

1. The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, Addenda, Change Orders and other Contract Documents, in good order and marked currently to record changes and selections made during construction and, in addition, approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Consultant and shall be delivered to the Consultant for submittal to the Owner upon completion of the Work.
2. Additionally, the Contractor shall maintain at the site the Drawings that have been stamped and approved by the Norman Fire Marshal. This approved set of Drawings is only for the use of the Norman Fire Marshal's office.

L. Shop Drawings, Product Data and Samples.

1. Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
2. Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
3. Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.
4. Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate, for those portions of the Work for which submittals are required, the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Consultant is subject to the limitations of Section IV(A)(7).
5. The Contractor shall review, approve and submit to the Consultant Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate Contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.
6. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Consultant. Such Work shall be in accordance with approved submittals.

7. By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
 8. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Consultant's approval of Shop Drawings, Product Samples or similar submittals unless the Contractor has specifically informed the Consultant in writing of such deviation at the time of submittal and the Consultant has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Consultant's approval thereof.
 9. The Contractor shall direct specific attention, in writing, or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Consultant on previous submittals.
 10. Informational submittals upon which the Consultant is not expected to take responsive action may be so identified in the Contract Documents.
 11. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Consultant shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.
- M. Use of Site. The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents.
- N. Cutting and Patching
1. The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
 2. The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate Contractor except with written consent of the Owner and of such separate Contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate Contractor the Contractor's consent to cutting or otherwise altering the Work.
- O. Cleaning Up.
1. The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project site, all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

2. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.
- P. Access to Work. The Contractor shall provide the Owner and Consultant access to the Work in preparation and progress wherever located.
- Q. Royalties and Patents. The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Consultant harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Consultant.
- R. Indemnification.
1. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Consultant, Consultant's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property other than the Work itself including loss of use resulting there from, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section III, R.
 2. In claims against any person or entity indemnified under this Section III, R., by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section III, R., shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under Oklahoma's workers' compensation laws.

SECTION IV. CONTRACT ADMINISTRATION

- A. Consultant's Administration of the Contract.
1. The Consultant will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the correction period described in Section XII(B). The Consultant will advise and consult with the Owner. The Consultant will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

2. The Consultant and sub-consultants will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Consultant will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of onsite observations as an Architect or Engineer, the Consultant will keep the Owner informed of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.
3. The Consultant will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Section III(B). The Consultant will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Consultant will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.
4. Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Consultant and copy the Program Manager. Communications by and with the Consultant's consultants shall be through the Consultant. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.
5. Based on the Consultant's observations and evaluations of the Contractor's Applications for Payment, the Consultant will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.
6. The Consultant will have authority to reject Work that does not conform to the Contract Documents. Whenever the Consultant considers it necessary or advisable for implementation of the intent of the Contract Documents, the Consultant will have authority to require additional inspection or testing of the Work in accordance with Section XIII(H) whether or not such Work is fabricated, installed or completed. However, neither this authority of the Consultant nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Consultant to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.
7. The Consultant will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but

only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Consultant's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate Contractors, while allowing sufficient time in the Consultant's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities (which shall be measured according to the United States Standards Measurement at the point of delivery) or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Consultant's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections III(B, D and K). The Consultant's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Consultant, of any construction means, methods, techniques, sequences or procedures. The Consultant's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

8. When modifications to the Contract or Contract Documents are being requested, the Contractor shall prepare and submit a Change Order to the Consultant. The Work described in the approved Change Order may be started by the Contractor upon receipt of the approved "Change Order".
9. The Consultant will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.
10. If the Owner and Consultant agree, the Consultant will provide one or more project representatives to assist in carrying out the Consultant's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.
11. The Consultant will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Consultant's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Consultant shall be furnished in compliance with this Section IV(A), then delay shall not be recognized on account of failure by the Consultant to furnish such interpretations until 15 days after written request is made for them.

12. Interpretations and decisions of the Consultant will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings.

B. Claims and Disputes.

1. **Definition.** A Claim is a demand or assertion by the Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by submitting a Change Order .
2. **Decision of Consultant.** Claims, including those alleging an error or omission by the Consultant, shall be referred initially to the Consultant for action as provided in Section IV(C). A decision by the Consultant, as provided in Section IV(C)(4) shall be required as a condition precedent to consideration by the Owner.
3. **Time Limits on Claims.** Claims must be made within 24 hours after occurrence of the event giving rise to such Claim or within 24 hours after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered unless submitted in a timely manner.
4. **Continuing Contract Performance.** Pending final resolution of a Claim, including protest, unless otherwise agreed in writing the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make monthly progress payments in accordance with the Contract Documents.
5. **Waiver of Claims: Final Payment.** The making of final payment shall constitute a waiver of Claims except those arising from:
 - a. liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
 - b. failure of the Work to comply with the requirements of the Contract Documents; or
 - c. terms of special warranties required by the Contract Documents.
6. **Claims for Concealed or Unknown Conditions.** If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction

activities of the character provided for in the Contract Documents, then written notice by the Contractor shall be given to the Consultant and Owner promptly before conditions are disturbed and in no event later than seven (7) days after first observance of the conditions. The failure by the Contractor to give such written notice of the discovered concealed or unknown condition prior to executing any additional Work shall constitute a waiver of any claim for additional compensation or time extension. Upon receipt of a written notice, the Consultant will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. Any change in the Contract Sum or Contract Time shall only be made by the execution of a Change Order. If the Consultant determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Consultant shall so notify the Owner and Contractor in writing, stating the reasons. Claims by the Contractor in opposition to such determination must be made within 21 days after the Consultant has given notice of the decision.

7. Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section (X)(B). If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Consultant, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Consultant, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with the procedure established herein. Any change in the Contract Sum shall only be made by the execution of a Change Order.
8. Claims for Additional Time
 - a. If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include a description of the probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary. Any change in the Contract Time shall only be made by the execution of a Change Order.
 - b. Consultant and Authority must be notified of all potential claims for additional days that exceed the work days as indicated in the Authority of Norman Office of the Purchasing Division, **Invitation to Bid No. 2021-25** and the Contract Documents thereof, within (24) hours of the occurrence of the claim, in writing, with documentation from the National Oceanic & Atmospheric Administration (NOAA) Norman/Max Westheimer site at (<http://w1.weather.gov/data/obhistory/KOUN.html>). Other sources must be

submitted to the Consultant and Owner, the Authority of Norman, for approval prior to use.

- c. All claims for additional time due to adverse weather conditions, e.g. the requirement of rainfall at the construction site in excess of 0.5 inches, within (8) hours of the next working day, or a minimum of 0.5 inches of rain at the beginning of work occurring on the Critical Path Schedule planned for that day, or during the work day, with evidence substantiating the resultant loss of working time on the Critical Path Schedule, shall be submitted as stated previously, and reviewed and approved or rejected by the Consultant with the monthly payment application.
 - d. Claims for weather conditions and lost work days shall be recorded daily by the Contractor as required by Section IV(B)(8)(b) and submitted to the Consultant with the monthly payment applications, along with an updated construction schedule. A Change Order shall be executed and signed by all parties for all valid claims in order to add time to the original Contract Time as indicated in the Contract Documents.
 - e. Weather conditions and lost work days shall be recorded daily by the Contractor and submitted to the Consultant with the monthly payment applications.
9. Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Section IV(B)(7) or (8).

C. Resolution of Claims and Disputes

1. The Consultant will review Claims and take one or more of the following preliminary actions within ten days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) reject the Claim in whole or in part, stating reasons for rejection, (3) recommend approval of the Claim by the Owner or (4) suggest a compromise. The Consultant may also, but is not obligated to notify the surety, if any, of the nature and amount of the Claim.
2. If a Claim has been resolved, the Consultant will prepare or obtain appropriate documentation.

3. If a Claim has not been resolved, the Contractor shall, within ten days after the Consultant's preliminary response, take one or more of the following actions: (1) submit additional supporting data requested by the Consultant, (2) modify the initial Claim or (3) notify the Consultant that the initial Claim stands.
4. If a Claim has not been resolved after consideration of the foregoing and of further evidence presented to the Owner by the Consultant or Contractor, the Owner will notify the Consultant and Contractor in writing that the Owner's decision will be made within seven days. Upon expiration of such time period, the Owner will render to the parties the Owner's written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Owner may, but is not obligated to, notify, the surety and request the surety's assistance in resolving the controversy.
5. The Contractor may appeal the Owner's decision by submitting written notice of a protest to the Consultant within ten (10) days of receiving the Owner's decision as described in Section IV(C)(4) above.

SECTION V. SUBCONTRACTORS

A. Award of Subcontracts and Other Contracts for Portions of the Work.

1. The Contractor, within seven (7) days of issuance of the Notice to Proceed, shall furnish in writing to the Owner, through the Consultant, the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Consultant will promptly reply to the Contractor in writing stating whether or not the Owner or the Consultant, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Consultant to reply promptly shall constitute notice of no reasonable objection.
2. The Contractor shall not contract with a proposed person or entity to whom the Owner or Consultant has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.
3. If the Owner or Consultant has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Consultant has no reasonable objection. The Contract Sum shall be increased or decreased by the difference in cost occasioned by such change and an appropriate Change Order shall be issued. However, no increase in the Contract Sum shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

4. The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Consultant makes reasonable objection to such change.
- B. Sub-Contractual Relations. By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and Consultant. Each subcontract agreement shall preserve and protect the rights of the Owner and Consultant under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.
- C. Nothing herein should be construed to relieve the Contractor from its responsibility for the Work. The Contractor, shall at all times, when work is in operation, be represented either in person or by a qualified superintendent or other designated representative.

SECTION VI. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

- A. Owner's Right to Perform Construction and to Award Separate Contracts.
1. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided elsewhere in the Contract Documents.
 2. The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary

after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

B. Mutual Responsibility

1. The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.
2. If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Consultant apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.
3. Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefor.
4. The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section X(A)(7).

C. Owners' Right to Clean Up. If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Section III(N), the Owner may clean up and allocate the cost among those responsible as the Consultant determines to be just.

SECTION VII. CHANGES IN THE WORK

A. Changes.

1. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order or order for a minor change in the Work, subject to the limitations stated in this Section VII and elsewhere in the Contract Documents.
2. A Change Order shall be based upon agreement among the Owner, Contractor and Consultant and an order for a minor change in the Work may be issued by the Consultant alone.

3. Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order.

B. Change Orders.

1. A Change Order, Form G701, is a written instrument prepared by the Consultant and signed by the Owner, Contractor and Consultant, stating their agreement upon all of the following:
 - a. a change in the Work;
 - b. the amount of the adjustment in the Contract Sum, if any; and
 - c. the extent of the adjustment in the Contract Time, if any.
2. The cost or credit to the Owner resulting from a change in the work shall be determined by the Contractor completing a Change Order which requires a listing of:
 - a. All materials with the cost per item;
 - b. all labor with the number and cost of hours; and
 - c. all equipment used with an hourly cost.
3. The Contractor must include a breakdown of costs for each Subcontractor similar to the requirements in Section VII(B)(2).

C. Minor Changes in the Work. The Consultant will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

SECTION VIII. TIME

A. Progress and Completion.

1. Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Contract the Contractor confirms that the Contract Time is a reasonable period for performing the Work.
2. The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the date of commencement as established by the Notice to Proceed issued by the Owner.
3. The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

B. Work Day: Work shall be done only during regular and commonly accepted and prescribed working hours Monday through Friday. No Work shall be done nights, Saturdays, Sundays, or legal holidays, as recognized by the City of Norman, unless the Contractor submits a written request to the Owner which requests working outside of regular working hours, or on Saturdays, Sundays, or legal holidays. The Owner will respond to each of these requests, individually. Eight (8) hours shall constitute a day's work and the Contractor shall observe all State laws and City ordinances governing hours of work.

C. Delays and Extensions of Time.

1. If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Consultant, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending hearing results, or by other causes which the Consultant determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Consultant and Owner may determine.
2. Claims relating to time shall be made in accordance with applicable provisions of Section IV(B).
3. An extension of the Contract Time is the sole and exclusive remedy available to the Contractor, in the event of delays described in Section 8(B). In no event, and under no circumstances, shall the Contract Sum be increased, nor shall the Contractor claim, recover or receive payment for any delay to the Project, whether or not such delayed event is in the critical path of the construction schedule.

D. Failure to Complete Work on Time.

1. Time is of the essence. The Parties stipulate that the damage for failure to complete the project within the designated Contract Time is **\$500** per day. For each working day that exceeds the Contract Time, **\$500** per day will be deducted from the monies due the Contractor. Also, for each working day that exceeds the amount of time designated for correction of the Punch List, after Substantial Completion, \$500 per day will be deducted from the monies due the Contractor.

SECTION IX. PAYMENTS AND COMPLETION

A. Contract Sum. The Contract Sum is **TBD** and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. The Contract Sum shall only be changed by a Change Order.

B. Schedule of Values. Before the first Application for Payment is submitted, the Contractor shall submit to the Consultant and Owner a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Consultant and Owner may require. Each value indicated on the Schedule of Values shall be the exact amount of each subcontract or portion of the Work it represents. This schedule, unless objected to by the Consultant or Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

C. Applications for Payment.

1. At least ten days before the date established for each progress payment, the Contractor shall submit to the Consultant an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized and supported by such data substantiating the Contractor's right to payment as the Owner or Consultant may require, such as copies of requisitions from Subcontractors and material suppliers.
2. The period covered by each Application for Payment shall be one calendar month ending the last day of the month.
3. Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.
4. Five percent (5%) of all partial payments made shall be withheld as retainage.
5. All payment applications must be accompanied by the affidavits provided with the Contract Documents.
6. Such applications shall not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.
7. Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location properly bonded or insured as a warehouse for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site. All stored materials shall be protected from weather conditions by properly secured methods. The Owner shall not pay for stored materials that are not properly protected.

8. The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

D. Certificates for Payment.

1. The Consultant will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Consultant determines is properly due, or notify the Contractor and Owner in writing of the Consultant's reasons for withholding certification in whole or in part as provided in Section IX(E)(1). The Owner shall have the right to review and approve the Certificates for Payment.
2. The issuance of a Certificate for Payment will constitute a representation by the Consultant to the Owner, based on the Consultant's observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Consultant's knowledge, information and belief, quality of the Work is in accordance with the Contract Documents. The amount indicated in the Certificate of Payment shall be computed as follows:
 - a. Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedules of values, less retainage of five percent (5%).
 - b. Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5%).
 - c. Subtract the aggregate of previous payments made by the Owner; and
 - d. Subtract amounts, if any, for which the Consultant has withheld or nullified a Certificate for Payment as provided for herein.

E. Decisions to Withhold Certification.

1. The Consultant or Owner may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect

the Owner, if in the Consultant's opinion the representations to the Owner required by Section (IX)(D)(2) cannot be made. If the Consultant is unable to certify payment in the amount of the Application, the Consultant will notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Consultant cannot agree on a revised amount, the Consultant will promptly issue a Certificate for Payment for the amount for which the Consultant is able to make such representations to the Owner. The Consultant may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Consultant's opinion to protect the Owner from loss because of:

- a. defective Work not remedied;
 - b. third party claims filed or reasonable evidence indicating probable filing of such claims;
 - c. failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
 - d. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
 - e. damage to the Owner or another Contractor;
 - f. reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
 - g. persistent failure to carry out the Work in accordance with the Contract Documents.
2. When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

F. Progress Payments.

1. After the Consultant has issued a Certificate for Payment, the Owner shall review for approval and make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Consultant.
2. The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.
3. The Consultant will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Consultant and Owner on account of portions of the Work done by such Subcontractor.

4. Neither the Owner nor Consultant shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law
5. Payment to material suppliers shall be treated in a manner similar to that provided in Section IX(F)(2), (3) and (4).
6. A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.
7. Should the project extend beyond the Contract Time, progress payments shall continue including approved Change Orders. Progress payments made after the Contract Time will be reduced by any applicable disincentives provided herein.

G. Substantial Completion.

1. When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Consultant a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include all items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, the Consultant will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Consultant's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Consultant. The Contractor shall then submit a request for another inspection by the Consultant to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Owner will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the Punch List accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.
2. Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Consultant, the Owner shall make payment, reflecting adjustment for retainage for such Work or portion thereof as provided in the Contract Documents.

H. Partial Occupancy or Use.

1. The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is authorized by the Owner. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, Retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Consultant as provided under Section IX(G)(1). Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Consultant.
2. Immediately prior to such partial occupancy or use, the Owner, Contractor and Consultant shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
3. Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

I. Final Completion and Final Payment.

1. Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Consultant will promptly make such inspection and, when the Consultant finds the Work acceptable under the Contract Documents and the Contract fully performed, the Consultant will promptly issue a final Certificate for Payment stating that to the best of the Consultant's knowledge, information and belief, and on the basis of the Consultant's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said final Certificate is due and payable. The Consultant's final Certificate for Payment will constitute a further representation that conditions listed in Section (IX)(I)(2) as precedent to the Contractor's being entitled to final payment have been fulfilled.
2. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Consultant an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied.
3. Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall

constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment. Such waivers shall be in addition to the waiver described in Section IV(B)(5).

4. When the Contract Time has been exceeded, including approved Change Orders, and claims for additional compensation are submitted by Consultants for extended services that are made necessary solely by the delay of the Contractor, the Owner shall deduct the amount of the claims from the final payment to the Contractor.

SECTION X. PROTECTION OF PERSONS AND PROPERTY

A. Safety of Persons and Property.

1. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:
 - a. employees on the Work and other persons who may be affected thereby.
 - b. the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
 - c. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
2. The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.
3. The Contractor shall not enter upon private property for any purpose without first obtaining permission and he shall be responsible for the preservation of and shall use every precaution necessary to prevent damage to all trees, fences, culverts, bridges, pavements driveways, sidewalk, etc. to all water, sewer, gas or electric lines or appurtenance thereof and to all other public or private property along or adjacent to the work.
4. The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.
5. Materials shall be stored so as to insure the preservation of their quality and fitness for the work. When directed by Consultant, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and shall be placed under cover when directed. Stored materials shall be located so as to facilitate prompt inspection.

6. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.
 7. The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Section IX(A)(1) caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Section IX(A), except damage or loss attributable to acts or omissions of the Owner or Consultant or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section III(Q).
 8. The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Consultant.
 9. The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.
- B. Emergencies. In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Section IV(B) and Section VII.

SECTION XI. INSURANCE AND BONDS

A. Contractor's Liability Insurance

1. The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the State of Oklahoma such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:
 - a. claims under worker compensation;
 - b. claims involving contractual liability insurance;
 - c. liability insurance required by 61 O.S. §113 in an amount not less than \$25,000 for any claim of loss of property arising out of a single act, \$125,000 for any claim of injuries, including accidental death; and \$1,000,000 for any number of claims arising out of a single accident; and

d. builder's risk insurance

2. The insurance required by Section XI(A)(1) shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverage, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final acceptance by the Owner.
3. Certificates of Insurance acceptable to the Owner shall be filed with the Owner with the executed Contract. These Certificates and the insurance policies required by this Section XI(A) shall contain a provision that coverage afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner.

B. Performance Bond, Maintenance Bond and Statutory Bond

1. The Contractor is required to have three bonds for Contracts with the Authority exceeding Fifty Thousand Dollars (\$50,000.00):
 - a. Performance Bond for 100% of the value of the Contract to insure completion of the Work.
 - b. Maintenance Bond for 100% of the value of the Contract to provide correction of defects in the construction and equipment for one year after acceptance of the Work; and
 - c. Statutory Bond for 100% of the Contract to assure that the Owner is protected from the action of Subcontractors, suppliers and employees for unpaid debts of the Contractor.
2. All bonds shall be on the forms prescribed and issued by the Owner. All bond submittals shall contain all terms and conditions of the bonds or applicable to the bonds.
3. Irrevocable Letters of Credit may be used as a substitute for the bonds required in (B)(2) above. The Letters must be on the forms prescribed and provided by the Owner and issued by a financial institution insured by Federal Deposit Insurance Corporation or the Federal Savings and Loan Insurance Corporation.
4. Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor or the Owner shall promptly furnish a copy of the bonds or of letters of credit or shall permit a copy to be made.

SECTION XII. UNCOVERING AND CORRECTION OF WORK

A. Uncovering of Work.

1. If a portion of the Work is covered contrary to the Consultant's request or to requirements

specifically expressed in the Contract Documents, it must, if required in writing by the Consultant, be uncovered for the Consultant's observation and be replaced at the Contractor's expense without change in the Contract Time.

2. If a portion of the Work has been covered which the Consultant has not specifically requested to observe prior to its being covered, the Consultant may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

B. Correction of Work.

1. The Contractor shall promptly correct Work rejected by the Consultant or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected Work, including additional testing and inspections and compensation for the Consultant's services and expenses made necessary thereby.
2. If, within one year after the date of Final Completion of the Work or after the date for commencement of warranties established under Section IX(G)(1), or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This obligation under this Section XII(B)(2) shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.
3. The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.
4. If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section II(C). If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Consultant, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Consultant's

services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

5. The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate Contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
6. Nothing contained in this Section XII(B) shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents.

SECTION XIII. MISCELLANEOUS PROVISIONS

- A. **Governing Law.** The Contract shall be governed by Oklahoma law.
- B. **Successors and Assigns.** The Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or any portion thereof without written consent of the Owner. If the Contractor attempts to make such an assignment without such consent, the Contractor shall nevertheless remain legally responsible for all obligations under the Contract.
- C. **Written Notice.** Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.
- D. **Rights and Remedies.**
 1. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.
 2. No action or failure to act by the Owner, Consultant or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

3. Contractor's Claim for Damages. Should the Contractor claim compensation for any alleged damage by reasons of the acts or omissions of the Owner, he shall within ten (10) days after the sustaining of such damage, make a written statement to the Consultant setting out in detail the nature of the alleged damage. On or before the 25th day of the month succeeding that in which any such damage is claimed to have been sustained, the Contractor shall file with the Consultant an itemized statement of the details and amount of such damage and upon request give the consultant access to all books of accounts, receipts, vouchers, bills of lading and other books or papers containing any evidence as to the amount of such damage. Unless such statement shall be filed as thus required, the Contractor's claim for compensation shall be waived and he shall not be entitled to payment on account of any such damage.

E. Tests and Inspections.

1. Tests, inspections and approvals of portions of the Work required by the Contract Documents shall be made at appropriate times as specified. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with the independent testing laboratory under separate contract with the Owner. The Contractor shall give the Consultant timely notice of when and where tests and inspections are to be made so the Consultant may observe such procedures. The Owner shall bear costs of tests, inspections or approvals.
2. If the Consultant or Owner determine that portions of the Work require additional testing, inspection or approval not included under Section XIII(H)(1), the Consultant will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Consultant of when and where tests and inspections are to be made so the Consultant may observe such procedures. The Owner shall bear such costs except as provided in Section XIII(H)(3).
3. If such procedures for testing, inspection or approval under Section XIII(H)(1) and (2) reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Consultant's services and expenses.
4. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Consultant.
5. If the Consultant is to observe tests, inspections or approvals required by the Contract Documents, the Consultant will do so promptly and, where practicable, at the normal place of testing.
6. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

- F. Audits and Records: As used in this clause, “records” includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form. In accepting this contract, the Contractor agrees any pertinent entity will have the right to examine and audit all records relevant to execution of the resultant contract. The contractor is required to retain all records relative to this contract for the duration of the contract term and for a period of three years following completion and/or termination of the contract. If an audit, litigation, or other action involving such records are started before the end of the three year period, the records are required to be maintained for three years from the date that all issues arising out of the action are resolved or until the end of the three year retention period, whichever is later.
- G. The Contractor certifies that it and all proposed subcontractors, whether known or unknown at the time this contract is executed or awarded, are in compliance with 25 O.S. §1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes but is not limited to the free Employee Verification Program (E-Verify) available at www.dhs.gov/e-verify.
- H. Americans with Disabilities Act of 1990 (“ADA”) (42 U.S.C. 12101). As a public entity, the City may only contract with other entities which comply with the ADA. Contractors, by signing the bid documents and entering into a contract with the City of Norman, signify that they are aware of and comply with the requirements of the ADA. Failure to be in compliance with the ADA may require cancellation of a contract.

SECTION XIV. TERMINATION OR SUSPENSION OF THE CONTRACT

A. Termination by the Contractor.

1. The Contractor may terminate the Contract if the Work is stopped for a period of 30 days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:
 - a. issuance of an order of a court or other public authority having jurisdiction;
 - b. an act of government, such as a declaration of national emergency, making material unavailable; or
 - c. If repeated suspensions, delays or interruptions by the Owner as described in Section XIV(C) constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.
2. If one of the above reasons exists, the Contractor may, upon seven additional days written notice to the Owner and Consultant, terminate the Contract and recover from the Owner payment for Work executed.

3. If the Work is stopped for a period of 60 days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days written notice to the Owner and the Consultant, terminate the Contract and recover from the Owner as provided in Section XIV(A)(2).

B. Termination by the Owner for Cause

1. The Owner may terminate the Contract if the Contractor:

- a. persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- b. fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- c. persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- d. repeatedly fails to comply with the terms and conditions of the Contract and Contract Documents.
- e. otherwise is guilty of substantial breach of a provision of the Contract Documents.

2. When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- a. take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- b. accept assignment of subcontracts; and
- c. finish the Work by whatever reasonable method the Owner may deem expedient.

3. When the Owner terminates the Contract for one of the reasons stated in Section B(1) herein, the Contractor shall not be entitled to receive further payment until the Work is finished.

4. If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Consultant's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Consultant, upon application, and this obligation for payment shall survive termination of the Contract.

C. Suspension by the Owner for Convenience

1. The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

2. An adjustment shall be made for increases in the cost of performance of the Contract. No adjustment shall be made to the extent:

- a. that performance is, was or would have been so suspended, delayed or interrupted by another cause which the Contractor is responsible; or
- b. that an equitable adjustment is made or denied under another provision of this Contract.

3. Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

Contract # **K-2021-46**

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed, in three (3) duplicate originals, the day and year first above written.

CONTRACTOR

(Corporate Seal) (where applicable)

Principal

ATTEST:

Signed: _____
Authorized Representative

Corporate Secretary (where applicable)

Title

Address: _____

Telephone: _____

Contract Affidavit:

STATE OF _____)

COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by CONTRACTOR to submit the above CONTRACT to the CITY. Affiant further states that CONTRACTOR has not paid, given or donated or agreed to pay, give, or donate to any officer or employee of the CITY any money or other thing of value, either directly or indirectly, in the procuring of the CONTRACT.

Principal

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

Notary Public

My Commission Expires:

Contract # **K-2021-46**

OWNER

Approved as to form and legality this _____ day of _____, 20____.

General Counsel

Approved by the Norman Municipal Authority this _____ day of _____, 20____.

ATTEST:

City Clerk

Mayor

AFFIDAVIT

STATE OF _____

P.O. NO. _____

COUNTY OF _____

INVOICE NO. _____

AMOUNT _____

The undersigned contractor, of lawful age, being duly sworn, on oath says that this invoice or claim is true and correct and that (s)he is authorized to submit the invoice pursuant to an approved Contract. Affiant further states that the work, as shown by this invoice, has been completed in accordance with the plans and specifications furnished the Affiant. Affiant further states that (s)he has made no payments, given, or donated or agreed to pay, give or donate, either directly or indirectly, to any elected official, officer or employee of the City of Norman, money or any other thing of value to obtain payment of the invoice or to procure award of this Contract order pursuant to which an invoice is submitted.

Company Name

By: Architect, Contractor, Supplier,
Engineer, or Supervisory Official

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

Notary Public (or Officer having
Power to Administer Oaths)

My Commission Expires: _____

Commission Number: _____

This form must be completed and submitted before any invoice over \$12,500.00 can be processed for payment.

GENERAL CONDITIONS

SECTION 201 - DEFINITIONS OF TERMS

201.01 - Definitions

Wherever the words, forms or phrases herein defined, or pronouns used in their stead, occur in these specifications, in the contract or in the advertisement or any document or instrument herein contemplated or to which these specifications apply, the intent and meaning shall be interpreted as follows:

Advertisement.....All of the legal publications pertaining to the work contemplated or under contract.

A.N.S.I.....American National Standards Institute.

A.S.T.M.....The American Society for Testing Materials.

Award.....The decisions of the City to accept the lowest responsible and most advantageous bid for the work, subject to the execution and approval of a satisfactory contract and the required bonds therefor, and to such other conditions as may be specified or otherwise required by law.

Authority.....The Norman Municipal Authority

Bidder.....Any person or persons, partnership, company, firm or corporation acting directly or through a duly authorized representative submitting a proposal for the work contemplated.

City.....City of Norman, Oklahoma, a Municipal Corporation, acting through its duly authorized assistants or agents.

City Attorney.....The City Attorney of the City of Norman, Oklahoma, or his duly authorized assistants or agents.

City Clerk.....The City Clerk of the City of Norman, Oklahoma, or her duly authorized assistants or agents.

City Manager.....The Manager of the City of Norman, Oklahoma

City Controller.....The City Controller of the City of Norman, Oklahoma or his duly authorized assistants or agents.

Contract.....The written agreement covering the performance of the

work. The Contract includes the Advertisement and Notice to Bidders, Proposal, Bonds, Specifications, including special provisions, plans or working drawings and any supplemental agreement pertaining to the work or materials therefore.

Contractor.....The person or persons, partnership, company, firm or corporation entering into Contract for the execution of the work, acting directly or through a duly authorized representative.

Consultant.....The City of Norman Development Coordinator, or his duly authorized agents, assistants, inspectors, or Superintendent.

Furnish..... To supply.

Maintenance Bond.....The approved form of security furnished by the Contractor and his Surety as a guarantee that he will maintain the work constructed by him in good condition for the period of time required.

Mayor.....The Mayor of the City of Norman, Oklahoma.

Performance Bond.....The approved form of security furnished by the Contractor and his surety as a guarantee of good faith on the part of the Contractor to execute the work in accordance with the plans and specifications and terms of the Contract.

Plan or Plans..... All of the drawings pertaining to the Contract and made a part thereof, including such supplementary drawings as the Consultant may issue from time to time, in order to elucidate other drawings or for the purpose of showing changes in the work as authorized under the Section "Changes and Alterations," or for showing details not shown thereon.

Proposal.....The written statement or statements duly filed with the Purchasing Agent of the person or persons, partnership, company, firm, or corporation proposing to do the work contemplated.

Proposal Form.....The approved form on which the formal bids for the work are to be prepared and submitted.

Proposal Guaranty.....The security, designated in the "Proposal Form" and in the "Advertisement," to be furnished by the Bidder as a guarantee of good faith to enter into contract with the City and to execute the required bonds for the work contemplated after the work is awarded to him.

Provide.....To furnish and erect or install.

Special Provisions.....The special clauses setting forth conditions or requirements peculiar to the specific project involved supplementing the Standard Specifications and taking precedent over any conditions or requirements of the Standard Specifications with which they are in conflict.

Specifications.....The directions, provisions, and requirements contained herein, together with the "Special Provisions" supplemental hereto, pertaining to the method and manner of performing the work or to the quantities or qualities of materials to be furnished under the Contract.

Statutory Bond.....The approved form of Surety set up and furnished by the Contractor and his Surety as a guarantee that he will pay, in full, all bills and accounts for materials and labor used in the construction of the work, as provided by law.

Surety or Sureties.....The corporate body which is bound by such bonds as are required with and for the Contractor, and engages to be responsible for the entire and satisfactory fulfillment of the Contract and for any and all requirements as set out in the specifications, Contract, or plans.

The Work.....All work, including the furnishing of labor, materials, tools, equipment and incidentals, to be performed by the Contractor under the terms of the Contract.

Working Day..... Work shall be done only during regular and commonly accepted and prescribed working hours Monday through Friday. No Work shall be done nights, Saturdays, Sundays, or legal holidays, as recognized by the City of Norman, unless the Contractor submits a written request to the Owner which requests working outside of regular working hours, or on

Saturdays, Sundays, or legal holidays. The Owner will respond to each of these requests, individually. Eight (8) hours shall constitute a day's work and the Contractor shall observe all State laws and City ordinances governing hours of work.

SECTION 202

PROPOSAL REQUIREMENTS AND CONDITIONS

202.01 - Contents of Proposal Form

The Authority will furnish Bidders with proposal forms which will state the general locations and description of the contemplated work and which will contain a list of the items of work to be done or materials to be furnished and upon which bid prices are asked. The proposal form will state the time limits for commencing and for completing the work and will provide for entering the amount of the proposal guaranty. The proposal form will contain a Non-Collusion Affidavit.

202.02 - Interpretation of Plans and Specifications

If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the plans, specifications or other proposed Contract documents, he may submit to the Consultant a written request for an interpretation thereof. The person submitting such request will be responsible for its prompt delivery. An interpretation of the proposed documents will be made only by Addendum issued and a copy of such Addendum will be mailed or delivered to each person receiving a set of such documents. The Authority will not be responsible for any other explanations or interpretations of the proposed document.

202.03 - Examination of Documents and Site of Work

Bidders are required, prior to submitting any proposal, to read carefully the Specifications, the Proposal, Contract and Bond forms; to examine carefully all plans on file with the City Controller and Consultant; to visit the site of work; to examine carefully local conditions; to inform themselves by their independent research of the difficulties to be encountered and judge for themselves of the accessibility of the work and all attending circumstances affecting the cost of doing the work in the time required for its completion and obtain any information required to make an intelligent proposal. Bidders shall rely exclusively upon their own estimates, investigations and other data which are necessary for full and complete information upon which the proposal may be based. It is mutually agreed that submission of a proposal will evidenced that the Bidder has made the examinations and investigations required herein.

202.04 - Preparation of Proposal

The Bidder shall submit his proposal in duplicate on the forms furnished by the Authority. All blank

spaces in the proposal forms shall be correctly filled in and the Bidder shall state the prices, written in ink, both in words and numerals, for which he proposes to do the work contemplated or furnish the materials required.

Such prices shall be written distinctly legible. In case of conflict between words and numerals, the words will govern. If the proposal is submitted by an individual, his name must be signed by him or his duly authorized agent and his post office address given. If the proposal is submitted by a firm or partnership, the name and post office address of each member must be given and the proposal signed by a member of the firm or partnership as a person duly authorized. If the proposal is made by a company or corporation, the company or corporate name and the state under the laws of which said company or corporation is chartered and the business address must be given and the proposal signed by an official or agent duly authorized. Powers of Attorney, authorizing agents or other to sign proposals must be properly certified and must be in writing and on file with the City Clerk or submitted with the proposal.

202.05 - Proposal Affidavit

Each proposal or copy thereof shall be accompanied by a sworn statement in writing that the person signing the proposal executed said proposal in behalf of the Bidder therein named and that he had lawful authority to do so and that the said Bidder has not directly or indirectly entered into any agreement, express or implied, with any other Bidder or Bidders having for its object the controlling of the amount of such bid or any bids, the limiting of the bids or bidders, the parceling or farming out to any Bidder or the subject matter of the bid or the profits thereof, and that he has not and will not divulge said sealed bid to any person whatever except those having a partnership or other financial interest with him in said bid, until after the said sealed bids are opened.

202.06 - Property Guaranty

Proposals will not be considered unless the original filed with the Purchasing Agent is accompanied by a Bidder's bond, or certified or cashier's check in the required amount, made payable to the "Norman Municipal Authority." The check shall be in the amount as designated in the Advertisement. The Proposal Guaranty is required as evidence of good faith and as a guarantee that, if awarded the Contract, the Bidder will execute the contract and furnish the required bonds within the required time.

202.07 - Filing of Proposals

No proposals will be considered by the Authority unless they are filed in a sealed envelope, with the Purchasing Agent at his office at 201 West Gray Street, Building C, Norman, Oklahoma, within the time limit for receiving proposals, as stated in the Advertisement. The proposal shall be plainly marked on the envelope with the word "Proposal" and the name of the project.

202.08 - Withdrawal of Proposals

Permission will not be granted to withdraw or modify and proposal after it has been filed and before

the time set for opening proposals. Request for non-consideration of proposals must be made in writing, addressed to the Norman Municipal Authority and filed with the Purchasing Agent before the time set for opening proposals. After other proposals are opened and read, the proposal for which withdrawal is properly requested and granted will be returned unopened.

202.09 - Opening of Proposals

The proposals filed with the Purchasing Agent will be opened at the time stated in the Advertisement and shall thereafter remain on file in the office of the Purchasing Agent two (2) days before any Contract will be entered into, based on such proposals.

Bidders are invited to attend the opening of the proposals.

202.10 - Irregular Proposals

Proposals will be considered irregular if they show any omissions, alterations of forms, additions or conditions not called for, unauthorized alternate bids or irregularities of any kind. However, the Authority reserves the right to waive technicalities as to changes, alterations or reservations and make the award in the best interest of the Authority.

202.11 Rejection of Proposals

The Authority reserves the right to reject any or all proposals, and all proposals submitted are subject to this reservation. Proposals may be rejected for any of the following specific reasons:

- (a) Proposal received after time limit for receiving proposals as stated in the Advertisement.
- (b) Proposal prices obviously unbalanced.
- (c) Summation of proposal prices on any one project above the Engineer's estimate of cost for such project.
- (d) Proposal containing any irregularities.

202.12 - Disqualification of Bidders

Bidders will be disqualified and their proposals not considered for any of the following specific reasons:

- (a) Where more than one proposal for an individual, firm, partnership or corporation is filed under the same or different names and where such proposals are not identical in every respect.
- (b) Reasonable grounds for believing that any Bidder is interested in more than one proposal for the work contemplated or materials to be

- furnished.
- (c) Reason for believing that collusion exists among the Bidders.
 - (d) The Bidder being in arrears on any existing Contracts, interested in any litigation against the Authority, or having defaulted on a previous Contract.
 - (e) Lack of competency, as revealed by the financial statement, experience and equipment questionnaires, etc.
 - (f) Uncompleted work, in the judgment of the Authority, will hinder or prevent the prompt completion of additional work, if awarded.

202.13 – False Information Affidavit

Each bidder must submit with the bid proposal a “False Information Affidavit” which states that neither the bidding company nor any other company, owned or previously owned by anyone who is in an ownership or managerial capacity with the bidding company has ever knowingly submitted false information to the Authority.

SECTION 203

AWARD AND EXECUTION OF CONTRACT

203.01 - Consideration of Proposals

After the proposals are opened, those proposals containing unit prices will be tabulated for comparison on the basis of the quantities shown in the approximate estimate. Until the final award of the Contract, the City reserves the right to reject any or all proposals, to waive technicalities and to advertise for new proposals or proceed to do the work otherwise when the best interest of the Authority will be promoted thereby.

203.02 - Award of Contract

The Authority reserves the right to withhold the award of the Contract for a reasonable period of time from the date of opening the proposals and no award will be made until the necessary investigations are made as to the responsibility of the low Bidder. No Contract will be awarded until at least 24 hours after opening the proposals. The awarding of the Contract shall give the Bidder no right of action or claim against the Authority upon such Contract until the execution of the Contract shall have been completed and the Contract delivered to the Contractor. The Authority reserves the right to award all or any portion of the work.

203.03 - Return of Proposal Guaranty

As soon as the proposal prices have been compared, the Authority may, at its discretion, return the proposal guaranties accompanying those proposals which, in its judgment would not be considered in making the award. After the award is made, only the successful Bidder's check will be retained

until the required Contract and Bonds have been executed, after which it will be returned to the Bidder. Should the awarding of the Contract be delayed more than thirty (30) days, all Bidders' checks will be returned, unless such delay is from causes beyond the control of the Authority, and, in such event, the proposal and Bidder's check, of any Bidder, will be returned at the Bidder's option.

203.04 - Surety Bonds

With the execution of delivery of the Contract, the Contractor shall furnish and file with the Authority in the amounts required, the following surety bonds:

- (a) A good and sufficient Performance Bond in an amount equal to one hundred (100%) percent of the approximate total amount of the Contract, guaranteeing the full and faithful execution of the work and performance of the Contract and for the protection of the Authority and all property owners interested against any damage by reason of negligence of the Contractor, or the improper execution of the work of the use of inferior materials.
- (b) A good and sufficient Statutory Bond in an amount equal to one hundred (100%) percent of the approximate total amount of the Contract, guaranteeing payment for all labor, materials, and equipment used in the construction of the improvements.
- (c) A good and sufficient Maintenance Bond in an amount equal to one hundred (100%) percent of the total amount of the Contract, guaranteeing the maintenance in good condition of such improvements for a period to one (1) year from and after the time of the completion and acceptance by the City of said improvements.

No Surety will be accepted who is now in default or delinquent on any bond or who is interested in any litigation against the Authority. All bonds shall be made on forms furnished by the Authority and shall be executed by surety companies licensed to do business in the State of Oklahoma and acceptable to the Authority. Each bond shall be executed by the Contractor and the Surety. Should any Surety on the Contract be determined unsatisfactory at any time by the Authority, notice will be given to the Contractor to that effect, and the Contractor shall forthwith substitute a new Surety or Sureties satisfactory to the Authority. No payment will be made under the Contract until the new Surety or Sureties, as required, have qualified and been accepted by the Authority. The Contract shall not be operative nor shall any payments be due until approval of the bonds has been made to the Authority.

203.05 - Execution of Contract

The person or persons, partnership, company, firm, or corporation to whom the Contract is to be awarded, shall sign the necessary agreements entering into the required Contract with the Authority and execute and deliver the required bonds.

No Contract shall be binding on the City until it has been approved by the City Attorney, executed by the Authority, and delivered to the Contractor.

203.06 - Failure to Execute Contract

Upon failure of the Bidder to execute the required bonds or to sign the required Contract after the Contract is transmitted to the Contractor, he will be considered to have abandoned his proposal. By reason of the uncertainty of market prices of the materials and labor and it being impracticable and extremely difficult to fix the amount of damages to which the Authority would be put by reasons of said Bidder's failure to execute said Bonds and Contract, the proposal guaranty accompanying the proposal shall be the agreed amount of damages which the Authority will suffer by reason of such failure on the part of the Bidder and shall thereupon be retained by the City as liquidated damages. The filing of a proposal will be considered as an acceptance of this provision.

Time is of the essence. The Parties stipulate that the damage for failure to complete the project within the designated Contract Time is \$500 per day. For each working day that exceeds the Contract Time, \$500 per day will be deducted from the monies due the Contractor. The parties also stipulate that \$500 per day will be deducted from the monies due the Contractor, for each day that exceeds the allotted time for completion of the punch list issued by the Consultant.

LOCATION MAP: GRIFFIN PARK 1001 E. Robinson St., Norman, OK



TECHNICAL SPECIFICATIONS TABLE OF CONTENTS

GRIFFIN SOCCER COMPLEX NORTHWEST FIELDS PHASE 4

These Special Provisions are included in and are a part of the Bidding Documents for this project.

	<u>No. of Pages</u>
Statement of Qualifications Form	5
<u>Division 1 - General:</u>	
01050 Field Engineering	2
01152 Application for Payment	2
01200 Project Meetings	2
01340 Submittals	6
01380 Pre-Construction Photographs	1
01500 Temporary Facilities and Controls	2
01510 Site Access	4
01700 Contract Closeout	3
01720 Project Record Documents	4
01730 Operation and Maintenance Data	3
<u>Division 2 - Site Work:</u>	
02000 Site Work	2
02070 Selective Demolition	2
02100 Site Preparation	3
02211 Rough Grading	3
02220 Earthwork	8
02265 Finish Grading	3
02400 Site Drainage	6
02445 Vinyl Coated Chain Link Fencing	8
02810 Irrigation	17
02934 Sodding	3
02939 Sprigging	4
<u>Division 3 - Concrete:</u>	
03100 Concrete Formwork	4
03210 Steel Reinforcement	4
03300 Cast-In-Place Concrete	8
03345 Concrete Finishing	2
<u>Division 5 - Metal:</u>	
05500 Metal Fabrication	3
<u>Division 7 – Moisture Protection:</u>	
07900 Sealants	5

**STATEMENT OF QUALIFICATIONS
GRIFFIN PARK NORTHWEST FIELDS PHASE 4**

The low bidder will be asked to complete a Statement of Bidder's Qualifications prior to award of the contract. Should the low bidder be found not qualified the next lowest bidder will be asked to complete the Qualifications Statement.

The Owner reserves the right to reject the bid of any Bidder or disapprove any subcontractor who has not been pre-qualified or has previously failed to perform properly, or to complete on time, contracts of similar nature; who is not in a position to perform the contract; or who has habitually and without just cause neglected the payment of bills or otherwise disregarded his obligations to subcontractors, material-men or employees. In addition, the following elements will be considered: Whether the person or firm involved (1) maintains a permanent place of business; (2) has adequate equipment available to do the work properly and expeditiously; (3) has suitable financial resources to meet the obligations incident to the work; (4) has appropriate technical experience.

Said prime contractor shall have at least five (5) years of experience in projects of similar nature prior to submission of his bid. The Bidder shall offer proof of his qualifications in meeting this standard. For all other contracts, the City reserves the right to consider as unqualified to do the work, any Bidder or subcontractor who does not habitually perform, with his own work forces, the basic work involved.

All questions must be answered. The data must be clear and comprehensive. If it is necessary to give a more complete answer, you may add separate sheets.

The contractor shall have financial stability in order to fulfill all warranty requirements Contractor may be required to provide financial statements.

The following criteria will serve as a guide and will be used by the owner to evaluate the contractor.

- The prime bidder shall have at least five (5) years of experience in projects of a nature similar to the proposed project prior to submission of bids.
- Attest to the fact that the contractor has met the required level of experience per the specifications.

The following criteria will serve as a guide and will be used by the owner to evaluate the sub-contractors.

- The sub-contractors must meet all requirements of the specifications.
- Attest to the fact that the sub-contractor has met the required level of experience per the specifications.

GENERAL CONTRACTOR'S QUALIFICATIONS STATEMENT

- 1. Name of Bidder_____
- 2. Permanent Main Office Address_____
- 3. When organized_____
- 4. If incorporated, when and where_____
- 5. How many years have you been engaged in the contracting business under your present firm or trading name?_____
- 6. General character of work performed by your company_____
- 7. Have you ever been informed you were not qualified to bid a project?_____
- 8. Have you ever failed to complete any work awarded to you?_____
- 9. Bonding Capacity:

Total Bonding Capacity	\$
Total Currently under Contract	\$
Total Currently out for Bid or Award	\$

- 10. State 5 trade references with whom you do business:

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

**STATEMENT OF QUALIFICATIONS
GENERAL CONTRACTOR
GRIFFIN PARK NORTHWEST FIELDS PHASE 4**

11. List three (3) previous projects completed by General Contractor prior to bid submission date involving work of a similar nature to this proposed project. Show job name, contact person, phone number, size, cost, and completion date.

Project	Owner	Owner Contact Information	Type (Prime or Sub)	% with own forces	Size in Dollars	Completion Date

Add additional sheets if necessary

12. Experience in work similar in importance to this contract. _____
13. Average number of employees on your payroll during the past year: _____
14. Have you ever been declared ineligible to receive awards on contracts from the Federal, State or local Governments? _____
15. If any Bidder feels that any information other than that requested above is pertinent to a determination of bidder's qualifications, such information may be added hereto and submitted together with this statement.

The undersigned will furnish any other information that Owner/Architect may request and the undersigned hereby authorizes request any person, firm or corporation to furnish any information requested by the Owner/Architect in verification of the recitals comprising this statement of Bidder's Qualifications.

Dated at _____ this _____ day of _____, 202__

(Name of Bidder)

By:

Title:

State of: _____)

County of: _____) SS.

, being duly sworn deposes and says that he is of lawful age and that the answers to the foregoing questions and all statements contained herein are true and correct.

SWORN to before me this _____ day of _____, 202__

Notary Public

**STATEMENT OF QUALIFICATIONS
SUB-CONTRACTOR
GRIFFIN PARK NORTHWEST FIELDS PHASE 4**

1. List three (3) previous projects completed by Sub-Contractor prior to bid submission date involving work of a similar nature to this proposed project. Show job name, contact person, phone number, size, cost, and completion date.

Project	Owner	Owner Contact Information	Type (Prime or Sub)	% with own forces	Size in Dollars	Completion Date

Add additional sheets if necessary

**SECTION 01050
FIELD ENGINEERING**

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and pay for field engineering services required for project.
 - 1. Survey work required in execution of project.
 - 2. Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.
 - 3. Record drawings.

1.02 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified engineer or registered land surveyor, acceptable to Contractor and Owner.
- B. Registered professional engineer in the State of Oklahoma, of the discipline required for the specific service required.

1.03 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the project are those designated on drawings.
- B. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to Architect and Owner.
 - 2. Report to Architect or Owner's Representative when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.

1.04 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of one permanent bench mark on each site, referenced to data established by survey control points.
 - 1. Record locations with horizontal and vertical data on project record documents.
- B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means.

1. Site improvements:
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes for invert elevations.
 2. Batter boards for structures.
 3. Building foundation, column locations and floor levels.
 4. Controlling lines and levels required for Divisions 15 and 16.
- C. From time to time, verify layouts by same methods.

1.05 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.06 SUBMITTALS

- A. Submit name and address of surveyor and professional engineer to Owner's Representative.
- B. Submit certificates signed by registered surveyor certifying that elevations and locations of improvements are in conformance or non-conformance with contract documents.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

**SECTION 01152
APPLICATION FOR PAYMENT**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Comply with procedures described in this Section when applying for progress payment and final payment under the Contract.
- B. Related work:
 - 1. Proposal and contract documents.

1.02 QUALITY ASSURANCE

- A. Prior to start of construction, secure the Architect and Owner's Representative's approval of the schedule of values required to be submitted.
- B. During progress of the work, modify the schedule of values as approved by the Architect or Owner's Representative to reflect changes in the contract sum due to change orders or other modifications of the Contract.
- C. Base requests for payment on the approved schedule of values.

1.03 SUBMITTALS

- A. Informal submittal: If directed by the Architect:
 - 1. Make an informal submittal of request for payment by filling in, with erasable pencil, pertinent portions of AIA Document G702, "Application and Certificate for Payment", plus continuation sheet or sheets or other form as approved by the Owner.
 - 2. Make this preliminary submittal to the Architect at the last regular job meeting of each month.
 - 3. Revise the informal submittal of request for payment as agreed at the job meeting, initialing all copies.
- B. Formal submittal: Unless otherwise directed by the Architect:
 - 1. Make formal submittal of request for payment by filling in the agreed data, by typewriter or neat lettering in ink, on AIA Document G702, "Application and Certificate for Payment", plus continuation sheet or sheets, or other form as approved by Architect or Owner.
 - 2. Sign and notarize the Application and Certificate for Payment and the City "Uniform Voucher and Invoice for Construction Services".
 - 3. Submit the original of the Application and Certificate of Payment plus three (3) identical copies of the continuation sheet or sheets to the Architect.
 - 4. The Architect will compare the formal submittal with the approved

informal submittal and, when approved, will sign the Application and Certificate for Payment, make the required copies and distribute:

- a. One original and two copies to Owner;
- b. One copy to Owner's Representative.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

**SECTION 01200
PROJECT MEETINGS**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: To enable orderly review during progress of the work and to provide for systematic discussion of problems, the Owner's Representative will conduct project meetings throughout the construction period.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, Proposal and Contract Documents and Sections in Division 1 of these Specifications.
 - 2. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are not the Architect or Owner's Representative responsibility and normally are not part of project meetings content.

1.02 QUALITY ASSURANCE

- A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.03 SUBMITTALS

- A. Job notes:
 - 1. The Compiler will compile job notes of each project meeting and will furnish copies to the Architect and to the Owner.
 - 2. Recipients of copies may make and distribute such other copies as they wish.

PART 2 - PRODUCTS

No products are required in this Section.

PART 3 - EXECUTION

3.01 MEETING SCHEDULE

- A. Except as noted below for Pre-construction Meeting, project meetings will be held weekly.
- B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

3.02 MEETING LOCATION

- A. The Architect and Owner will establish meeting location. To the maximum extent practicable, meetings will be held at the job site.

3.03 PRECONSTRUCTION MEETING

- A. A Pre-construction meeting will be scheduled after issuing the Notice to Proceed.
 - 1. Provide attendance by authorized representatives of the Contractor and major subcontractors.
 - 2. The Owner will advise other interested parties, including the Owner's Representative, and request their attendance.
- B. Minimum agenda: Data will be distributed and discussed on at least the following items.
 - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers and Architect and Owner's Representative.
 - 2. Channels and procedures for communication.
 - 3. Construction schedule, including sequence of critical work and closing of any facilities.
 - 4. Contract documents, including distribution of required copies of original documents and revisions.
 - 5. Processing of shop drawings and other data submitted to Architect.
 - 6. Rules and regulations governing performance of the work.
 - 7. Procedures for safety and first aid, security, quality control, housekeeping and related matters.
 - 8. Location of underground utilities.
 - 9. Notification procedures for adjacent property owners.

3.04 PROJECT MEETINGS

- A. Attendance:
 - 1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the work.
 - 2. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the work is involved.
- B. Minimum agenda:
 - 1. Review, revise and approve job notes of previous meetings.
 - 2. Review progress of the work since last meeting, including status of submittals for approval.
 - 3. Identify problems which impede planned progress.
 - 4. Develop corrective measures and procedures to regain planned schedule.
 - 5. Complete other current business.

END OF SECTION

**SECTION 01340
SUBMITTALS**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Procedures:
 - 1. Wherever possible throughout the Contract Documents the minimum acceptable quality of workmanship and materials has been defined by manufacturer's name and catalog number, reference to recognized industry and government standards, or description of required attributes and performance.
 - 2. To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for their review by the Owner's Representative and Owner.
 - 3. Make all submittals required by the Contract Documents and revise and resubmit as necessary to establish compliance with the specified requirements.
- B. Construction progress schedules.
- C. Schedule of values.
- D. Shop drawings, product data and samples.
- E. Manufacturer's instructions and certificates.
- F. Submittal log.

1.02 RELATED REQUIREMENTS

- A. Individual requirements for submittals are described in pertinent sections of these Specifications.
- B. Related work:
 - Section 01410: Testing Laboratory Reports.
 - Section 01700: Contract Closeout: Project Record Documents, Operating and Maintenance Data, Warranties and Bonds.

1.03 QUALITY ASSURANCE/CONTRACTOR RESPONSIBILITIES

- A. Coordination of submittals: Before each submittal, carefully review and coordinate all aspects of each item being submitted and verify that each item, and the submittal for it, conforms in all respects with the requirements of the Contract

Documents. Coordinate with other trades as required. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

- B. Grouping of submittals: Unless otherwise specified, make all submittals in groups containing all associated items to ensure that information is available for checking each item when it is received. Partial submittals may be rejected as not complying with the provisions of the Contract Documents and the Contractor shall be strictly liable for all delays so occasioned.
- C. Timing: Make all submittals far enough in advance of scheduled dates for installation to provide all time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing deliveries.
- D. Notify Owner's Representative in writing with submittal of any deviations in submittals from Contract Document requirements.
- E. Do no fabrication or work which requires submittals until accepted by the Architect.

1.04 SUBMITTAL SCHEDULE

- A. Compile a complete and comprehensive schedule of all submittals anticipated to be made during progress of the work. Include a list of each type of item for which Contractor's drawings, shop drawings, certificates of compliance, material samples, guarantees or other types of submittals are required. Adhere to the schedule except when specifically otherwise permitted. Submittal log is for Owner's Representative and Owner to track review.
- B. Coordinate the schedule with all necessary subcontractors and materials suppliers to ensure their ability to adhere. Coordinate as required to ensure the grouping of submittals.
- C. Revise and update the schedule on a monthly basis to reflect conditions and sequences. Promptly submit revised schedules to Architect and Owner's Representative for review and comment.

1.05 SCHEDULE OF VALUES

- A. Refer to Section 01370: Schedule of Values.

1.06 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Shop Drawings:
 - 1. Present in clear and thorough manner, with details referenced to sheet, detail, schedule or room numbers shown on Contract Drawings. Provide quantity directed by Architect.

- B. Product Data:
 - 1. Preparation: Clearly mark each copy to identify pertinent products or models. Show performance characteristics and capacities, dimensions and clearances required, and wiring or piping diagrams and controls.
 - 2. Modify manufacturer's standard drawings, diagrams and literature to delete information not applicable to work and supplement information specifically applicable to the work.

- C. Samples:
 - 1. Office samples: Provide in quantity and size directed, complete with integrally related parts and attachment devices and illustrating functional characteristics of product and full range of color, texture and pattern.
 - 2. Field samples/mock-ups: Erect at project site at location acceptable to Owner's Representative in size or area specified in other specification sections. Fabricate to be complete and finished. Remove at conclusion of work or when directed.

- D. Make submittals promptly and in such sequence as to cause no delay in work.

- E. Submission Requirements:
 - 1. Quantity required:
 - a. Shop drawings: One (1) unfolded reproducible transparency and four (4) opaque reproductions.
 - b. Submit five (5) index brochures of mechanical and electrical submittals (manufacturer's literature and drawings) for final approval and distribution.
 - c. Product data: Submit five (5) copies each. Complete catalogs will not be acceptable. Manufacturer's regular catalog sheets will be acceptable if they indicate completely all specification requirements. When manufacturer's catalog sheets are submitted, material not directly connected with subject shall be completely lined out. Where drawings cover several sizes or types of construction they shall clearly indicate size or type of construction to be used including a schedule identifying each piece of equipment. Sheets of submittals containing more than five different items of equipment shall be assembled in an index brochure.
 - 2. Submittal contents:
 - a. Submission date and dates of any previous submissions.
 - b. Project title and number.
 - c. Names of Contractor, supplier and manufacturer.
 - d. Identification of product, with specification section number.

- e. Field dimensions, clearly identified as such.
 - f. Applicable standards, such as ASTM, Federal Spec numbers, etc.
 - g. Relation to adjacent or critical features of work or materials.
 - h. Identification of deviations from Contract Documents.
 - i. Identification of revisions on resubmittals.
 - j. Contractor certification of submittal review, to include product verification, field measurements, quantities, coordination with adjacent equipment structural members, or architectural features, and coordination of information within submittal with requirements of work and Contract Documents. Certification may be by stamp of approval or a letter of transmittal containing a statement to the effect that they have been reviewed. Uncertified submittals will be rejected.
- F. Resubmission Requirements:
- 1. Make corrections or changes required by Owner's Representative and resubmit until accepted.
 - 2. Shop drawings and product data: Revise and resubmit as specified for initial submittal; indicate any changes which have been made other than those requested by Owner's Representative.
 - 3. Samples: Submit new samples as required for initial submittal.
 - 4. Resubmission of structural shop drawings and product data: Resubmit finalized drawings and product data. File copy to Owner's Representative and Owner; field copy to field office. Resubmit all subsequent changes with changes and dates noted.
- G. Distribution:
- 1. Distribute reproductions of shop drawings and product data which carry Owner's Representative and Owner's stamp of approval to job site and record documents file, other affected contractors, subcontractors and supplier or fabricator.
 - 2. Distribute samples with Owner's Representative and Owner's stamp of approval as directed by Owner's Representative.

1.07 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Submit in accordance with Section 01350: Substitutions.

1.08 MANUFACTURER'S CERTIFICATES

- A. Submit certificates in accordance with requirements of each specification section.

1.09 PROJECT RECORD DOCUMENTS

- A. Submit in accordance with Section 01720 Project Record Documents.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.01 GENERAL PROCEDURES

- A. Deliver submittals to Owner's Representative.
- B. Transmit each item under Contractor's Standard Letter of Transmittal. Identify project, contractor, subcontractor, major supplier, pertinent drawing sheet and detail number and specification section number as appropriate. Identify deviations from Contract Documents.
- C. Submit initial progress and submittal schedules within 15 days after execution of Contract and schedule of values with first application for payment. Update with each Application for Payment reflecting changes since previous submittal.
- D. Comply with progress schedule for submittals related to work progress.
- E. After Owner's Representative and Owner's review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- F. Distribute copies of review submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

3.02 OWNER'S REPRESENTATIVE REVIEW

- A. Owner's Representative duties:
 - 1. Review submittals with reasonable promptness.
 - 2. Affix stamp and initials or signature and indicate re-submittal requirements or approval of submittal.
 - 3. Submit to Owner for approval.
 - 4. Return submittals to Contractor for distribution or for resubmission.
- B. Review by the Owner's Representative and the Owner shall not be construed as a complete check, but only that the general method of construction and detailing is in compliance with the intent of the contract documents. Review shall not relieve the Contractor from responsibility for errors which may exist in the submittal as submitted.
- C. Authority to Proceed: The notations "Approved" or "Approved as Corrected" authorizes the Contractor to proceed with fabrication, purchase, or both, of the items so noted, subject to the revisions, required by the Owner's Representative review comments.

- D. Revisions: Make only those revisions directed or approved by the Owner's Representative and Owner.
- E. Revisions after approval: When a submittal has been reviewed by the Owner, re-submittal for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary.

END OF SECTION

**SECTION 01380
PRE-CONSTRUCTION PHOTOGRAPHS**

PART 1 – GENERAL

1.01 DISTRIBUTION

- A. Work included: Provide pre-construction photographs taken at the job site prior to commencement of work.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limit to, Proposal and Contract Documents and Sections in division 1 of these Specifications.
 - 2. Section 01510: Site Access.

1.02 QUALITY ASSURANCE

- A. Digital camera or equal.

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Except as otherwise directed and paid for, submit one print of each photograph.

PART 2 - PRODUCTS

2.01 PRE-CONSTRUCTION PHOTOGRAPHS

- A. Provide High Resolution color images on flash drive to Landscape Architect.
- B. File should indicate:
 - 1. Job name.
 - 2. Location from which photographed.
 - 3. Date of photograph.
- C. Retain the images for at least two years following date of substantial completion.
- D. Do not allow images to be issued for any other purpose without specific written approval from the Owner.

PART 3 - EXECUTION

3.01 PRE-CONSTRUCTION PHOTOGRAPHY

- A. Except as otherwise specifically approved by the Owner's Representative make the photographs prior to the commencement of work.
- B. Any existing damage on the site to work that is scheduled to remain shall be documented or it will be the contractor's responsibility to repair the work in question.

END OF SECTION

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Provide temporary facilities and controls needed for the work including, but necessarily limited to:
 - 1. Temporary utilities such as heat, water, electricity and telephone;
 - 2. Field office for Contractor's personnel;
 - 3. Sanitary facilities;
 - 4. Enclosures such as tarpaulins, barricades and canopies;
 - 5. Temporary fencing of the construction site;
 - 6. Project sign.

- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, Proposal and Contract Documents and Sections in Division 1 of these Specifications.
 - 2. Except that equipment furnished by Subcontractors shall comply with requirements pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the work are not part of this Section.
 - 3. Permanent installation and hookup of the various utility lines shall be in accordance with local building codes.

1.02 PRODUCT HANDLING

- A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the work.

PART 2 - PRODUCTS

2.01 UTILITIES

- A. Water:
 - 1. Provide as necessary temporary piping and water supply and, upon completion of the work, remove such temporary facilities.

- B. Electricity:
 - 1. Provide necessary temporary wiring and, upon completion of the work, remove such temporary facility.
 - 2. Provide and pay for electricity used in construction.

- C. Heating: Provide and maintain heat necessary for proper conduct of operations needed in the work.

- D. Telephone and Fax:
 - 1. Contractor and superintendent to have cellular telephones accessible during normal business hours.
 - 2. Contractor to maintain telephone and fax service at the Contractor's primary office to receive job correspondence. On-site fax not required.

2.02 FIELD OFFICES AND SHEDS

- A. Contractor's facilities:
 - 1. Contractor shall provide a field office building and sheds adequate in size and accommodation for Contractor's offices, supply and storage.
 - 2. Within the Contractor's facilities, provide enclosed space, for holding project meetings. Furnish with table, chairs and utilities. This is required unless Owner agrees to have meeting in alternate location.
- B. Sanitary facilities:
 - 1. Provide temporary sanitary facilities in the quantity required for use by all personnel.
 - 2. Maintain in a sanitary condition at all times.

2.03 ENCLOSURES

- A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges and other temporary construction necessary for proper completion of the work in compliance with pertinent safety and other regulations.

2.04 TEMPORARY FENCING

- A. Provide and maintain for the duration of construction a temporary safety barricade of design and type needed to prevent entry onto the work by the public.

PART 3 - EXECUTION

3.01 MAINTENANCE AND REMOVAL

- A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the work.
- B. Remove such temporary facilities and controls as rapidly as progress of the work will permit, or as directed by the Architect or Owner's Representative.

END OF SECTION

**SECTION 01510
SITE ACCESS**

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Work included: this information applies to situations in which a Contractor or his representatives including, but not limited to, suppliers, subcontractors, employees and field engineers enter upon The Project property.
- B. Related work:
 - Section 02000: Site Work.
 - Section 02070: Selective Demolition.
 - Section 02100: Site Preparation.
 - Section 02220: Excavating, Backfilling & Compacting.

1.02 QUALITY ASSURANCE

- A. Upon approval by Owner for access, notify all pertinent personnel regarding requirements of this information.
- B. Require that all personnel who will enter upon property certify their awareness of and familiarity with the requirements of the Owner.
- C. Tree protection in accordance with Section 02100.

1.03 SUBMITTALS

- A. Maintain an accurate record of the names and identification of all persons entering upon Park property and permit periodic review of record by Owner and/or Owner's Representative.
- B. Pre-construction photographs per Paragraph 1.07.

1.04 TRANSPORTATION FACILITIES

- A. Vehicle and equipment access:
 - 1. Provide protection for curbs, sidewalks, roads, parking, utilities and amenities over which trucks and equipment pass to reach work areas.

Contractor's vehicles:

Limit the access of vehicles belonging to employees and all other vehicles entering upon Park property to use only the access route shown on the drawings. Do not permit vehicles to park on any other area of the property except in the areas so designated at the pre-construction meeting.

1.05 NOTIFICATION BY CONTRACTOR

- A. The Contractor shall notify the Owner, in writing, two weeks in advance of any proposed construction activity on Owner's property. Said notice does not constitute authority to proceed with work in the Park. Official notice of approval will be at the discretion of the Owner.

1.06 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

- A. The Contractor shall be responsible for the preservation of all property and shall protect carefully from disturbance or damage all said property witnessed or otherwise referenced their location and shall not move any item until directed.
- B. The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials.
- C. The Contractor shall consult with the Owner regarding his work activities and shall install any and all barriers, warning signs, fencing, property protection, access control or other devices to the satisfaction of the Owner and needed to provide for public safety and protection of Property.
- D. When or where any direct or indirect damage or injury is done to property by or on account of any act, omission, neglect, or misconduct in the execution of the work or in consequence of the non-execution thereof by the Contractor, he shall restore, at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding or otherwise restoring as may be directed by the Owner or he shall make good such damage or injury in an acceptable manner to the Owner.
- E. Tree protection in accordance with Section 02100.
- F. The contractor will work out a mutually acceptable plan with the Owner to provide access to the existing tennis courts and existing parking lot to accommodate league play.

1.07 PRE-CONSTRUCTION PHOTOGRAPHS OR VIDEO

- A. The Contractor shall provide digital photographs or video tapes of the specified work area one day prior to any work starting, but after appropriate construction staking and protection.

- B. Photographs shall be 3" x 5" color prints with information on the back of each print as follows: Show the job name, location of photograph, date of photograph and photographer's name, address and photograph number.
- C. Photographs shall be from a minimum of twenty-four (24) diversified overall views of the work area and of any pertinent Park property within construction limits. Additional photos may be required in unusual or extremely large sites.
- D. Each photograph shall be clear, in focus, with high resolution and sharpness and with minimum distortion.

1.08 CLEANING

- A. Progress cleaning:
 - 1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, packaging and shipping material. Remove such items from premises weekly.
 - 2. Weekly, and more often if necessary, inspect all materials stored on site, re-stack, tidy, or otherwise arrange in safe condition.
- B. Final cleaning:
 - 1. Completely remove resultant construction debris, particularly any loose rock or stone imported or uncovered during construction.
 - 2. Broom clean paved areas on site.
 - 3. Mow grass areas as directed which had not been under normal maintenance.
 - 4. Repair any areas of turfing that have been damaged by construction operations in accordance with Section 02934 Sodding.
 - 5. Alleviate compacted turf areas if access has been over turf, but no turf has to be placed. Compaction should be alleviated by a coring implement with 6" O.C. minimum coverage of 3" deep. Drag cores until leveled.
 - 6. Often when fences are erected for protection, holes are left when fence posts are pulled. Holes should be filled with appropriate top soil and settled with water to grade.

1.09 RECORD DOCUMENTS

- A. Submit to Owner a complete record drawing clearly indicating all work both concealed and visible.
- B. Information shall be tied to base line control data of the Owner and so noted on the Owner's field books.

1.10 FINAL APPROVAL

- A. Upon the completion of all work a final inspection must be made by the Owner to determine whether the work has been completed in accordance with the contract, plans and/or specifications.
- B. When the work has been so completed the Owner will provide certification of same and forward to appropriate contracting authorities.
- C. Acceptance by Owner shall not restrict or prohibit the rights provided for in regard to latent defects, frauds or such gross mistakes as may amount to fraud or as regards the rights under any warranty guarantee.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

**SECTION 01700
CONTRACT CLOSEOUT**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Provide an orderly and efficient transfer of the completed work to the Owner.
- B. Related work:
 - 1. Proposal and contract documents.

1.02 QUALITY ASSURANCE

- A. Prior to requesting inspection by the Owner's Representative, use adequate means to assure that the work is completed in accordance with the specified requirements and is ready for the requested inspection.

1.03 PROCEDURES

- A. Substantial Completion:
 - 1. Contractor:
 - a. Submit written certification through Owner's Representative to the Owner that project is substantially complete in accordance with the construction contract.
 - b. Submit list of major items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the contractor to complete all work in accordance with the contract documents.
 - 2. Owner's Representative will make an inspection within seven (7) days after receipt of certification together with the Owner.
 - 3. Should Owner's Representative consider that work is substantially complete in accordance with the construction contract:
 - a. Contractor shall prepare a punch list of items to be completed or corrected as determined by the inspection.
 - b. The Owner or the owner's Representative will prepare a Certificate of Substantial Completion and shall submit to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate. The Certificate of Substantial Completion shall contain the following:
 - (1) Date of Substantial Completion;
 - (2) Punch list of items to be completed or corrected.
 - (3) The time within which Contractor shall complete or correct work of listed items.

- (4) Date and time Owner will assume possession of work or designated portion thereof.
 - c. Contractor shall:
 - (1) Complete work listed for completion or correction within the designated time.
 - (2) Refer to Construction Contract for post substantial completion requirements.
 4. Should Owner's Representative consider that work is not substantially completed:
 - a. He shall immediately notify Contractor in writing stating reasons.
 - b. Contractor: Complete work and send second written notice through Owner's Representative to Owner certifying that the project is substantially complete.
 - c. Owner's Representative will re-inspect work.
- B. Final Completion:
 1. Contractor shall submit written certification that:
 - a. Contract documents have been reviewed;
 - b. Project has been inspected for compliance with contract documents.
 - c. Work has been completed in accordance with the construction contract.
 - d. Equipment and systems have been tested in presence of Owner and are operational.
 - (1) Equipment and systems shall be operated in a normal mode for a minimum period of three (3) weeks prior to final inspection.
 - e. Owner's personnel have been instructed in operation of all systems, mechanical, electrical and other equipment.
 - f. Project is completed, ready for final inspection.
 2. Owner's Representative will make final inspection within seven (7) days after receipt of certification.
 3. Should Owner's Representative consider that work is finally complete in accordance with contract documents, contractor shall submit final Application for Payment.
 4. Should Owner's Representative consider that work is not finally complete:
 - a. He shall notify contractor, in writing, stating reasons.
 - b. Contractor shall take immediate steps to remedy the stated deficiencies and send second written notice through Owner's Representative to Owner certifying that work is complete.
 - c. Owner's Representative will re-inspect work.

1.04 REINSPECTION COSTS

- A. Should Owner's Representative be required to perform more than two (2) inspections for project substantial completion and project final completion, respectively because of failure of work to comply with original certifications of contractor, the contractor will compensate Owner's Representative for additional services to include time and reimbursable expenses incurred by the Owner's Representative and his consultants. This amount will be deducted from final payment to the Contractor.

1.05 RETURN OF CONTRACT DOCUMENTS

- A. Return of Drawings: Drawings, details, sketches and specifications are property of Owner, and are issued to contractor as instruments of service only. If required, contractor shall return same to Owner.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

**SECTION 01720
PROJECT RECORD DOCUMENTS**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included:
 - 1. Throughout progress of the work, maintain an accurate record of changes in the Contract Documents as described in Article 3.01 below.
 - 2. Upon completion of the work, transfer the recorded changes to a set of Record Documents, as described in Article 3.02 below.

- B. Related work:
 - 1. Proposal and contract documents.
 - 2. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

1.02 QUALITY ASSURANCE

- A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff as approved by the Owner's Representative.

- B. Accuracy of records:
 - 1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.
 - 2. Accuracy of records shall be such that future search for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.

- C. Make entries within 24 hours after receipt of information that the change has occurred.

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.

- B. The Owner's Representative's approval of the current status of Project Record Documents may be a prerequisite to the Owner's Representative approval of requests for progress payment and request for final payment under the Contract.

- C. Prior to submitting each request for progress payment, secure the Owner's Representative's approval of the current status of the Project Record Documents.

- D. Prior to submitting request for final payment, submit the final Project Record Documents to the Owner's Representative and secure his approval.

1.04 PRODUCT HANDLING

- A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the work and transfer all recorded data to the final Project Record Documents.
- B. In the event of loss of recorded data, use means necessary to again secure the data to the Owner's Representative's approval.
 - 1. Such means shall include, if necessary in the opinion of the Owner's Representative, removal and replacement of concealing materials.
 - 2. In such case, provide replacements to the standards originally required by the Contract Documents.

PART 2 - PRODUCTS

2.01 RECORD DOCUMENTS

- A. Job set: Promptly following receipt of the Owner Notice to Proceed, secure from the Owner's Representative at no charge to the Contractor one complete set of all Documents comprising the Contract.
- B. Final Record Documents: At the time of completion of the work, deliver all job as-built plans to the Owner's Representative clearly marked and legible.

PART 3 - EXECUTION

3.01 MAINTENANCE OF JOB SET

- A. Immediately upon receipt of the job set described in Paragraph 2.01 above, identify each of the Documents with the title, "RECORD DOCUMENTS - JOB SET."
- B. Preservation:
 - 1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Owner's Representative.
 - 2. Do not use the job set for any purpose except entry of new data and for review by the Owner's Representative until start of transfer of data to final Project Record Documents.
 - 3. Maintain the job set at the site of work as that site is designated by the Owner's Representative.

- C. Making entries on Drawings:
 - 1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
 - 2. Date all entries.
 - 3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
 - 4. In the event of overlapping changes, use different colors for the overlapping changes.

- D. Make entries in the pertinent other Documents as approved by the Owner's Representative.

- E. Conversion of schematic layouts:
 - 1. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts and similar items is shown schematically and is not intended to portray precise physical layout.
 - a. Final physical arrangement is determined by the Contractor, subject to the Owner's Representative's approval.
 - b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
 - 2. Show on the job set of Record Drawings, by dimension accurate to within one inch, the centerline of each run of items such as are described in subparagraph 3.01 E. 1. above.
 - a. Clearly identify the item by accurate note such as "cast iron drain", "galv. water" and the like.
 - b. Show, by symbol note, the vertical location of the item ("under slab", "in ceiling plenum", "exposed" and the like).
 - c. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
 - 3. The Owner's Representative may, subject to Owner approval, waive the requirements for conversion of schematic layouts where, in the Owner's Representative's judgement, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Owner.

3.02 FINAL PROJECT RECORD DOCUMENTS

- A. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modification of the work to proceed without lengthy and expensive site measurement, investigation and examination.

- B. Approval of recorded data prior to transfer:

1. Secure the Owner's Representative's approval that all recorded data is clearly marked and legible.
 2. Make required revisions requested by the Owner's Representative.
- C. Transfer of data to other Documents:
1. If the Documents other than Drawings have been kept clean during progress of the work, and if entries thereon have been orderly to the approval of the Owner's Representative, the job set of those Documents other than Drawings will be accepted as final Record Documents.
 2. If any such Document is not so approved by the Owner's Representative, secure a new copy of that Document from the Owner's Representative at the Owner's Representative's usual charge for reproduction and handling and carefully transfer the change data to the new copy to the approval of the Owner's Representative.
- D. Review and submittal:
1. Submit the completed set of Project Record Documents to the Owner's Representative.
 2. Participate in review meetings as required.
- E. Final Record Documents: At the time of completion of the work, deliver all job as-built plans to the Owner's Representative clearly marked and legible. The Owner's Representative will transfer the contractor's information electronically to the original contract documents.
1. The Contractor is responsible for the accuracy of all information contained within the Record Documents. The Owner's Representative is not responsible for the accuracy of the information and is responsible only for entering the information into the original Construction Documents.
 2. The Owner's Representative will be responsible for delivering the final Record Documents to the Owner.

END OF SECTION

**SECTION 01730
OPERATION AND MAINTENANCE DATA**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: To aid the continued instruction of operating and maintenance personnel and to provide a positive source of information regarding the products incorporated into the work, furnish and deliver the data described in this Section and in pertinent other Sections of these Specifications.
- B. Related work:
 - 1. Proposal and construction documents.
 - 2. Required contents of submittals also may be amplified in pertinent other Sections of these Specifications.

1.02 QUALITY ASSURANCE

- A. In preparing data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section and skilled in technical writing to the extent needed for communicating the essential data.

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Submit two copies of a preliminary draft of the proposed Manual or Manuals to the Owner's Representative for review and comments.
- C. Unless otherwise directed in other Sections, or in writing by the Owner's Representative, submit four copies of the final Manual to the Owner's Representative prior to indoctrination of operation and maintenance personnel.

PART 2 - PRODUCTS

2.01 INSTRUCTION MANUALS

- A. Where instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.
- B. Format:
 - 1. Size: 8-1/2" x 11".
 - 2. Paper: White bond, at least 20 lb. Wt.
 - 3. Text: Neatly written or printed.

4. Drawings: 11' in height; bind in with text; foldout acceptable, not to exceed 11x17".
 5. Flysheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
 6. Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the Manual; 3-ring binders will be acceptable; all binding is subject to Owner's Representative's approval.
 7. Measurements: Provide all measurements in U.S. standard units such as feet and inches, lbs, and cfm.
- C. Provide front and back covers for each Manual, using durable material approved by the Owner's Representative and clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

Name and address of work

Name of Contractor

General Subject of this Manual

Owner's Representative

- D. Contents: Include at least the following:
1. Neatly typewritten index near the front of the Manual.
 2. For architectural products, applied materials and finishes:
 - a. Manufacturer's data, giving full information on finishes:
 - (1) Catalog number, size, composition.
 - (2) Color and texture designations.
 - (3) Information required for reordering special manufactured products.
 - b. Instructions for care and maintenance:
 - (1) Manufacturer's recommendations for types of cleaning agents and methods.
 - (2) Cautions against cleaning agents and method which are detrimental to product.
 - (3) Recommended schedule for cleaning and maintenance.
 - c. All approved submittals.
 3. For moisture protection and weather exposed products:
 - a. Manufacturer's data, giving full information on products:
 - (1) Applicable standards.
 - (2) Chemical composition.
 - (3) Details of installation.
 - b. Instructions for inspection, maintenance and repair.
 - c. All approved submittals.

4. For each electric and electronic system and mechanical system as appropriate:
 - a. Description of system and component parts. Function, normal operating characteristics and limiting conditions. Complete nomenclature and commercial number of replaceable parts.
 - b. Circuit directories of panel boards: Electrical service, controls and communications.
 - c. Operating procedures: Routine and normal operating instructions, sequences required and special operating instructions.
 - d. Maintenance procedures: Routine operations, guide to "trouble-shooting", disassembly, repair and re-assembly and adjustment and checking.
 - e. Manufacturer's printed operating and maintenance instructions.
 - f. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
 - g. Other data as required under pertinent sections of specifications.
 - h. All approved submittals.
5. Certificate of substantial completion.
6. Master list of extended warranty items.

PART 3 - EXECUTION

3.01 INSTRUCTION MANUALS

- A. Preliminary:
 1. Prepare a preliminary draft of each proposed Manual.
 2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
 3. Secure the Owner's Representative's approval prior to proceeding.
- B. Final:
 1. Complete the Manuals in strict accordance with the approved preliminary drafts and the Owner's Representative's review comments.
- C. Revisions:
 1. Following the indoctrination and instruction of operation and maintenance personnel, review all proposed revisions of the Manual with the Owner's Representative.

END OF SECTION

**SECTION 02000
SITE WORK**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. These general site work requirements apply to all site work operations. Refer to Division 2 specification sections for specific general, product and execution requirements.
- B. Related work:
 - Section 01510: Site Access.
 - Section 02070: Selective Demolition.
 - Section 02100: Site Preparation.
 - Section 02220: Excavating, Backfilling and Compacting.

1.02 QUALITY ASSURANCE

- A. Comply with all applicable local, state and federal requirements regarding materials, methods of work and disposal of excess and waste materials.

1.03 PROJECT CONDITIONS

- A. Locate and identify existing underground and overhead services and utilities within contract limit work areas. Provide adequate means of protection of utilities and services designated to remain. Repair utilities damaged during site work operations at Contractor's expense.
- B. Arrange for disconnection, disconnect and seal or cap all utilities and services designated to be removed before start of site work operations. Perform all work in accordance with the requirements of the applicable utility company or agency involved.
- C. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation. If the services are Owner maintained, notify Owner's Representative immediately.
- D. Locate, protect and maintain bench marks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Contractor's expense.
- E. Perform site work operations and the removal of debris and waste materials to assure minimum interference with streets, walks and other adjacent facilities.

- F. Give the owner 24 hour advanced notice to close or obstruct street, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways.
- G. Control dust caused by the work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.
- H. Protect existing buildings, paving and other services or facilities on site and adjacent to the site from damage caused by site work operations. Cost of repair and restoration of damaged items at Contractor's expense.
- I. Protect and maintain street lights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated for removal. Remove or coordinate the removal of traffic signs, parking meters and postal mail boxes with the applicable governmental agency. Provide for temporary relocation when required to maintain facilities and services in operation during construction work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Examine the areas and conditions under which site work is performed. Do not proceed with the work until unsatisfactory conditions are corrected.
- B. Consult the records and drawings of adjacent work and of existing services and utilities which may affect site work operations.

END OF SECTION

**SECTION 02070
SELECTIVE DEMOLITION**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Carefully demolish and remove from the site those items scheduled to be demolished and removed.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to Proposal and Contract Documents and Sections in Division 1 of these Specifications.
 - 2. Section 01510: Site Access.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed.
- B. Visit the site and verify the extent and location of selective demolition required.
 - 1. Carefully identify limits of selective demolition.
 - 2. Mark interface surfaces as required to enable workmen also to identify items to be removed and items to be left in place intact.
- C. Prepare and follow an organized plan for demolition and removal of items.
 - 1. Shut off, cap and otherwise protect existing public utility lines in accordance with the requirements of the public agency or utility having jurisdiction.
 - 2. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid and ready to receive new materials specified elsewhere.

3. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.
- D. Demolished material shall be considered to be property of the Contractor and shall be completely removed from the job site unless otherwise specified.
- E. Use means necessary to prevent dust becoming a nuisance to the public, to neighborhoods and to other work being performed on or near the site.

3.02 REPLACEMENTS

- A. In the event of demolition of items not so scheduled to be demolished, promptly replace such items to the approval of the Owner at no additional cost to the Owner.

END OF SECTION

**SECTION 02100
SITE PREPARATION**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Perform site preparation work as shown and specified. The work includes:
 - 1. Protecting existing trees to remain.
 - 2. Removing trees and other vegetation.
 - 3. Removing designated site improvements.

- B. Related work:
Section 01510: Site Access.

1.02 QUALITY ASSURANCE

- A. Comply with Section 02000 Site Work requirements.

- B. Notify all contractor employees and subcontractors of provisions of this Section.

- C. Council of Tree and Landscape Appraisers

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials and equipment: As selected by the contractor except as noted.

- B: Tree protection:
 - 1. Wood fencing, snow fencing.

PART 3 - EXECUTION

3.01 TREE PROTECTION

- A. Protect existing trees scheduled to remain against injury or damage, including cutting, breaking or skinning of roots, trunks or branches; smothering by stockpiled construction materials, excavated materials or vehicular traffic within branch spread.
 - 1. Protect designated trees with temporary wood or vinyl snow fence enclosure. Provide a minimum 12'-0" radius from center of tree trunk. Increase enclosure size as directed for large trees up to and including the drip line.

2. Erect temporary fencing before commencing site preparation work. Maintain fencing during full construction period. Remove temporary fencing when acceptable to Owner's Representative.
4. Repair trees scheduled to remain and damaged by construction operations in a manner acceptable to the Owner's Representative. Repair damaged trees promptly to prevent progressive deterioration caused by damage.
5. Replace trees scheduled to remain and damaged beyond repair by construction operations as determined by the Owner's Representative with trees of similar size and species of equal dollar value. Cost for tree replacement shall be determined in accordance with the "Guide for Establishing The Value of Trees and Other Plants", published by the Council of Tree and Landscape Appraisers.
6. Tree replacement as required by paragraph 5 shall be in accordance with Specification Section 02900 Trees, Plants and Ground Covers.
7. Replacement of trees scheduled to remain and damaged by construction operations during construction operations, and securing an opinion as to the tree or plant's health and its value, shall be at contractor's expense.
8. Tree loss appraisal shall be in accordance with the "Guide for Establishing the Values of Trees and Other Plants", by the Council of Tree and Landscape Appraisers.

3.02 CLEARING

- A. Locate and suitably identify trees and improvements indicated to remain.
- B. Clear and grub areas within contract limits as required for site and execution of the work.
- C. Remove trees as designated on the plans with the approval of the Owner's Representative.

3.03 STRIPPING TOPSOIL

- A. Strip topsoil to its full depth at all areas to be re-graded, resurfaced or paved within contract limit work area.
- B. Stockpile topsoil in a location acceptable to the Owner's Representative for use in finish grading and preparation of lawns and planting beds.
 1. Grade and slope stockpiles for proper drainage and to prevent erosion.
 2. No topsoil shall be removed from the site.
- C. Protect all areas which are not to be resurfaced or re-graded and adjacent areas outside of the contract limits from damage due to site preparation work.

3.04 SITE IMPROVEMENTS

- A. Existing Utilities
 - 1. Information on the drawings relating to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities.
 - 2. Call Okie for utility staking not County owned.
 - 3. Call Owner's Representative to coordinate County maintained utility staking.

3.05 DISPOSAL OF WASTE MATERIALS

- A. Stockpile, haul from site and legally dispose of waste materials and debris. Accumulation is not permitted.
- B. Maintain disposal routes clear, clean and free of debris.
- C. On-site burning of combustible cleared materials is allowed with proper permit and burn pit.

3.06 CLEANING

- A. Upon completion of site preparation work, clean area within contract limits, remove tools and equipment. Provide site clear, clean and free of materials and debris and suitable for site work operations.

END OF SECTION

**SECTION 02211
ROUGH GRADING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal and stockpiling of topsoil and subsoil.
- B. Cutting, grading, filling and rough contouring the site.

1.02 RELATED SECTIONS

- A. Section 01410 - Quality Control 01410 - Testing Laboratory Services: Testing fill compaction.
- B. Section 021010 - Site Preparation.
- C. Section 02220 - Excavating, Backfilling & Compaction.
- D. Section 02265 - Finish Grading: Finish grading with topsoil to contours.

1.03 REFERENCES

- A. Relations of soils and Soil-Aggregate Mixtures, Using 5.5 lb Rammer and 12 inch Drop.
- B. ANSI/ASTM D 1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- C. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of soils and Soil-Aggregate Mixtures Using 10 lb. Rammer and 18 inch Drop.

1.04 QUALITY ASSURANCE

- A. Grading Contractor: A firm which has at least five (5) years of experience in work of the type and size required by this Section and which is acceptable to the Owner, Owner's Representative, and Landscape Architect.
- B. References: The Grading Contractor must supply three references for work of this type and size with their bid including names, phone numbers and email addresses of contact person(s).
- C. All grading work must be done utilizing an electronic, automatic laser grading system.

1.05 PROJECT RECORDS DOCUMENTS

- A. Submit under provisions of section 01700.
- B. Accurately record actual locations of utilities remaining, by horizontal dimensions, elevations or inverts, and slops gradients.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

- A. Off-Site Fill: Off-site fill shall be material with plasticity index less than 18 and shall contain at least 15% fines (material passing #200 sieve.)

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify site conditions and all underground and above ground utilities.
- B. Verify that survey benchmark and intended elevations for the work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Identify known underground, above ground, and aerial utilities. Stake and flag locations.
- C. Notify utility company as necessary to remove and relocate utilities.
- D. Protect above and below grade utilities which are to remain.
- E. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- F. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

3.03 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, re-landscaped, or re-graded.
- B. Stockpile in area designated on site. Remove excess topsoil not being reused, from site.
- C. Do not excavate wet topsoil.
- D. Stockpile to depth not exceeding 8 feet. Cover to protect from erosion.

3.04 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.
- B. Stockpile in area designated on site. Remove excess subsoil not being reused, from site.
- C. Do not excavate wet subsoil.
- D. Stockpile subsoil to depth not exceeding 8 feet. Cover to protect from erosion.
- E. When excavation through roots is necessary, perform work by hand and cut roots with sharp axe.

3.05 FILLING

- A. Fill areas to contours and elevations with unfrozen materials
- B. Granular Fill: Place and compact materials in continuous layers not exceeding 8 inches compacted depth, compacted to 95 percent.
- C. Subsoil: Place and compact material in continuous layers not exceeding 9 inches compacted depth compacted to 95 percent.
- D. Top Soil: Place and compact material in a continuous layers not exceeding 8 inches compacted depth and do not exceed 85 percent compaction.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise.
- F. Make grade changes gradual. Blend slope into level areas.
- G. Remove surplus fill materials from site.

3.06 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1/10 foot.

3.07 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01410.
- B. Tests and analysis of fill materials will be performed in accordance with ANSI/ASTM D698 D1557 and with Section 01410.
- C. Compaction testing will be performed in accordance with ANSI/ASTM D968 and with Section 01410.
- D. If test indicate Work does not meet specified requirements, remove work, replace and retest at no cost to owner.

END OF SECTION

SECTION 02220 EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Excavate, backfill, compact and grade the site to the elevations shown on the drawings as specified herein and as needed to meet the requirements of the construction shown in the Contract Documents.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, Proposal and Contract Documents and Sections in Division 1 of these Specifications.
 - 2. Section 01510: Site Access.

1.02 QUALITY ASSURANCE

- A. Earthwork/Grading Contractor: A firm which has at least five (5) years of experience in work of the type and size required by this Section and which is acceptable to the Owner, Owner's Representative, and Landscape Architect.
- B. References: The Earthwork/Grading Contractor must supply three references for work of this type and size with their bid including names, phone numbers and email addresses of contact person(s).
- C. All earthwork/grading work must be done utilizing an electronic, automatic laser grading system.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. Fill and backfill materials:
 - 1. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension and with not more than 15% of the rocks or lumps larger than 2-1/2" in their greatest dimension.
 - 2. Fill material is subject to the approval of the Owner's Representative and is that material removed from excavations or imported from off-site borrow areas, predominantly granular, non-expansive soils free from roots and other deleterious matter.
 - 3. Do not permit rocks having a dimension greater than 1" in the upper 12" of fill or embankment.
 - 4. Where fill material is required to build up a building pad and/or under building slabs, provide select low PI material. Select fill material used

should be free of organic or other deleterious matters, have a maximum particle size of three (3) inches, and have a liquid limit less than thirty-five (35) and a plasticity index between six (6) and twelve (12) and consist of sandy clays or clayey sands.

5. Where granular base is called for under building slabs, provide aggregate complying with requirements of Section 03300 of these Specifications.

2.02 TOPSOIL

- A. Where shown on the drawings or otherwise required, provide topsoil consisting of friable fertile soil of loamy character containing a minimum of 2% decayed organic matter (humus) normal to the region, capable of sustaining healthy plant life and reasonably free from subsoil, roots, heavy or stiff clay, stones larger than 1" in greatest dimension, noxious weeds, sticks, brush, litter and other deleterious matter.
- B. Obtain topsoil from sources within the project limits or provide imported topsoil obtained from sources outside the project limits or from both sources. This is to be supplied at the contractors expense
- C. Topsoil is to installed to a depth of three (3) Inches across all areas.

2.03 OTHER MATERIALS

- A. Provide other materials not specifically described but required for complete and proper installation as selected by the Contractor subject to the approval of the Owner's Representative.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Utilities: Refer to Section 2000 Site Work.
- B. Protection of persons and property:
 1. Barricade open holes and depressions occurring as part of the work and post warning lights on property adjacent to or with public access.
 2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
 3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this Section.
- C. De-watering:
 1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains and other approved methods.
 2. Keep excavations and site construction area free from water.

- D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors and to other work being performed on or near the site.
- E. Maintain access to adjacent areas at all times.

3.02 EXCAVATING

- A. Perform unclassified excavating of every type of material encountered within the limits of the work to the lines, grades and elevations indicated and specified herein.
- B. Excavation of rock:
 - 1. Where rocks, boulders, or similar material is encountered and where such material cannot be removed or excavated by conventional earth moving or ripping equipment, take required steps to proceed with the general grading operations of the work and remove or excavate such material by means which will neither cause additional cost to the Owner nor endanger buildings or structures whether on or off the site.
 - 2. Do not use explosives without written permission from the Owner's Representative.
 - 3. The definition of "Rock Excavation" will apply as stated in the "Standard Specifications for Highway Construction", Oklahoma Department of Transportation, edition of 1988 or latest revision.
- C. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.
- D. Borrow:
 - 1. Obtain material required for fill or embankment in excess of that produced within the grading limits of the work from borrow areas selected and paid for by the Contractor and approved by the Owner's Representative.
 - 2. Grade borrow areas upon completion to provide complete surface drainage and to blend with surrounding contours.
 - 3. Contractor is required to excavate sufficient material to construct contours and features as per plans. Payment of all excavation will be paid as a lump sum.
- E. Surplus material:
 - 1. Owner's Representative will direct contractor in the placement of surplus excavated material.
 - 2. Surplus material will be used on the project or stored on site at a location approved by the Owner's Representative.
- F. Swales, ditches and gutters:
 - 1. Cut accurately to the cross sections, grades and elevations shown on the grading plans.
 - 2. Maintain excavations free from detrimental quantities of leaves, sticks, trash and other debris until completion of the work.
 - 3. Swales and ditches shall be smooth in nature to accommodate standard mowing practices and equipment.

- G. Unauthorized excavation:
1. Unauthorized excavation consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific instruction from the Owner's Representative.
 2. Under footings, foundations or retaining walls:
 - a. Fill unauthorized excavations by extending the indicated bottom elevation of the footing or base to the excavation bottom without altering the required top elevation.
 - b. When acceptable to the Owner's Representative, lean concrete fill may be used to bring the bottom elevation to proper position.
 3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the Owner's Representative.
- H. Stability of excavations:
1. Slope sides of excavations to 1:1 or flatter, unless otherwise directed by the Owner's Representative.
 2. Shore and brace where sloping is not possible because of space restrictions or stability of the materials being excavated.
 3. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- I. Excavating for structures:
1. Conform to elevations and dimensions shown within a tolerance of 0.10 ft and extending a sufficient distance from footings and foundations to permit placing and removing concrete formwork, installation of services, other construction required and for inspection.
 2. In excavating for footings and foundations, take care not to disturb bottom of excavation:
 - a. Excavate by hand tools to final grade just before concrete is placed.
 - b. Trim bottoms to required lines and grades to leave solid base to receive concrete.
 3. Excavate for footings and foundations only after general site excavating, filling and grading are complete.
- J. Cold weather protection:
1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.
- K. Excavating for detention ponds:
1. The exposed sub-grade of pond areas shall be scarified to a minimum depth of 8 inches. Before compaction, the scarified soils shall be adjusted to within a moisture content range of plus or minus 2 percent of optimum moisture content.

3.03 FILLING AND BACKFILLING

- A. General:
1. For each classification listed below, place acceptable soil material in layers to required sub-grade elevations.
 2. In excavations:
 - a. Use satisfactory excavated or borrow material.
 3. Building pads and/or under building slabs:
 - a. Provide Select low PI material to build up building pad and slab to elevations called out on the drawings. If the material on site is not suitable, the select material will need to be imported from off site.
 - b. Use granular fill, if so called for on the drawings or soils report, complying with aggregate acceptable under Section 03300 of these Specifications.
- B. Ground surface preparation:
1. Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious matter from ground surface prior to placement of fills.
 2. Plow, strip or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.
 3. When existing ground surface has a density less than that specified under “compacting” for the particular area, break up the ground surface, pulverize, moisture-condition to the optimum moisture content and compact to required depth and percentage of maximum density.
- C. Placing and compacting:
1. Place backfill and fill materials in layers not more than 8” in loose depth.
 2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
 3. Compact each layer to required percentage of maximum density for area. Compact per paragraph 3.05 A., B. and C. this Section.
 4. Do not place backfill or fill material on surfaces that are muddy, frozen or containing frost or ice.
 5. Place backfill and fill materials evenly adjacent to structure’s required elevations.
 6. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structure to approximately the same elevation in each lift.

3.04 GRADING

- A. General:
1. Uniformly grade the areas within limits of grading under this Section, including adjacent transition areas.
 2. Smooth the finished surface within specified tolerance.

3. Compact with uniform levels or slopes between points where elevations are shown on the drawings or between such points and existing grades.
 4. Where a change of slope is indicated on the drawings, construct a rolled transition section having a minimum radius of approximately 8'-0" unless adjacent construction will not permit such a transition or if such a transition defeats positive control of drainage.
- B. Grading outside building lines:
1. Grade adjacent to buildings to achieve drainage away from the structures and to prevent ponding.
 2. Finish the surfaces to be free from irregular surface changes, and:
 - a. Shape the surface of areas scheduled to be under walks to line, grade and cross-section with finished surface not more than 0.10 ft above or below the required sub-grade elevation.
 - b. Shape the surface of areas scheduled to be under pavement to line, grade and cross-section, with finished surface not more than 0.05 ft above or below the required sub-grade elevation.

3.05 COMPACTING

- A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D1557. All areas are to achieve a 95% proctor density minimum, and an 85% proctor density for the final lift in sod and planting areas only.
- B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place and/or as specified by the Soil Engineer's report.
1. Structures:
 - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 98% of maximum density unless otherwise called out in the plans or soils report.
 2. Lawn and unpaved areas:
 - a. Compact the top 8" of sub-grade at 85% of maximum density, all other layers of fill material or backfill material are to be 95% of maximum density. The top 8" of sub-grade in lawn areas is not to exceed 85% of maximum density.
 3. Walks
 - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 95% of maximum density unless otherwise called out in the plans or soils report.
 4. Pavements:
 - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 95% of maximum density unless otherwise called out in the plans or soils report.

- C. Moisture control:
 - 1. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the Owner's Representative.

3.06 TREATED SUBGRADE

- A. All parking lot pavement sub-grade shall be treated in accordance the plans and Engineers Soils Report.

3.07 FIELD QUALITY CONTROL

- A. Secure Owner's Representative's inspection and approval of sub-grades and fill layers before subsequent construction is permitted thereon.
- B. Provide at least the following tests to the approval of the Owner's Representative.
 - 1. At paved areas, a minimum of one field density test for every 7,500 square feet, but a minimum of three tests for all areas or as requested by the Owner's Representative. Testing to be paid for by the City.
 - 2. At lawn and unpaved areas, at least one field density test for every 20,000 square feet, but a minimum of three test for all areas or as requested by the Owner's Representative. Testing to be paid for by the City.
 - 3. Sub-grade shall be checked for stability even though it may meet the compaction requirements. The check for stability shall be proof rolling with a large roller or loaded dump truck and visual observation to insure that there is no pumping of the sub-grade.
- D. If, in the Owner's Representative's opinion based on reports of the testing laboratory, sub-grade or fills which have been placed are below specified density, provide additional compacting and testing under the provisions of Section 01410 of these Specifications. Re-testing of areas that failed and have to be re-tested to be paid for by the contractor.

3.08 MAINTENANCE

- A. Protection of newly graded areas:
 - 1. Protect newly graded areas from traffic and erosion and keep free from trash and weeds.
 - 2. Repair and reestablish grades in settled, eroded and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape and compact to the required density prior to further construction.

3.09 CERTIFICATION

- A. Upon completion of this portion of the work and as a condition of its acceptance, deliver to the Owner's Representative a written report certifying that the compaction requirements have been obtained. State in the report the area or fill or embankment, the compaction density obtained and the type or classification of fill material placed.

END OF SECTION

**SECTION 02265
FINISH GRADING**

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Finish grade subsoil.
- B. Place, level, and compact topsoil.

1.02 RELATED WORK

- A. Section 02211 - Rough grading subsoil to site contours.
- B. Section 02220 - Earthwork

1.03 PROTECTION

- A. Protect landscaping and other features remaining as final work.
- B. Protect existing structures, fences, sidewalks, paving and curbs.

1.02 QUALITY ASSURANCE

- A. Finish Grading Contractor: A firm which has at least five (5) years of experience in work of the type and size required by this Section and which is acceptable to the Owner, Owner's Representative, and Landscape Architect.
- B. References: The Finish Grading Contractor must supply three references for work of this type and size with their bid including names, phone numbers and email addresses of contact person(s).
- C. All finish grading work must be done utilizing an electronic, automatic laser grading system.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil: Imported, see Section 02220, Excavating, Backfilling and Compaction; Section 02939, Sprigging and 02934, Sodding.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify site conditions and note irregularities affecting work of this Section.
- B. Beginning work of this Section means acceptance of existing conditions.

3.02 SUBSOIL PREPARATION

- A. Eliminate uneven areas and low spots. Remove debris, roots, branches, and stones, in excess of ½ inch in size. Remove subsoil contaminated with petroleum products.

3.03 PLACING TOPSOIL

- A. Place topsoil in areas where earth or no other building or paving is scheduled on the drawings.
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.
- D. Remove stone, roots, grass, weeds, debris, and foreign material while spreading.
- E. Manually spread topsoil around trees, plants, building, and concrete curbs to prevent damage.
- F. Remove surplus subsoil and topsoil from site.
- G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.04 SOIL AMENDMENTS

- A. The contractor is to supply the sand and compost material as specified on the construction drawings. Materials will be submitted during the submittal process and approved by Owner and Landscape Architect.
- B. The is to spread ½” of compost and 1” of sand material over all areas to receive sprigs or sod.
- C. Contractor is to till sand and compost into the top six (6) inches of soil utilizing proper equipment for this application. Owner and Landscape Architect to provide approval before proceeding with additional construction operations.
- D. Field is to be laser graded and rolled to achieve Finish Grade.
- E. Once Irrigation system has been installed, the contractor is to flood the field by running the system for 2-3 days in order to water settle the field. Once the field has been flooded, all parties will walk the site in order to get final approval of the grade and work performed.

3.05 TOLERANCES

- A. Top of Topsoil: Plus or minus $\frac{1}{4}$ " to $\frac{1}{2}$ " in 20 feet.

END OF SECTION

**SECTION 02400
SITE DRAINAGE**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide site drainage as shown and specified. The work includes:
 - 1. Drainage structures and piping.
 - 2. Excavating and backfilling site drainage work.

- B. Related work:
 - Section 01510: Site Access.
 - Section 02200: Earthwork

1.02 QUALITY ASSURANCE

- A. Comply with Section 02000 Site Work requirements.

- B. Materials and methods of construction shall comply with the following:
 - 1. Oklahoma Department of Transportation Standards and Specifications.
 - 2. American Society for Testing and Materials ASTM).
 - 3. American Association of State Highway and Transportation Officials (AASHTO).
 - 4. American Concrete Pipe Association (ACPA).

- C. Excavating, backfilling and compacting operations: Comply with Section 02220 requirements and as specified.

- D. Obtain acceptance of Owner's Representative of installed and tested site drainage system prior to installing backfill materials.

- E. Identify all existing underground utilities and their location.

1.03 SUBMITTALS

- A. Comply with Provisions of Section 01340.

- B. Provide site drainage record drawings:
 - 1. Legibly mark drawings to record actual construction.
 - 2. Indicate horizontal and vertical locations, referenced to permanent surface improvements.
 - 3. Identify field changes of dimension and detail and changes made by Change Order.

- C. Provide manufacturer's product data for each type of pipe material.

1.04 PROJECT CONDITIONS

- A. Known underground and surface utility lines are indicated on the drawings.
- B. Protect existing trees, plants, lawns and other features designated to remain as part of the landscape work.
- C. Protect excavations by shoring, bracing, sheeting, underpinning or other methods as required to prevent cave-ins or loose dirt from entering excavations. Barricade open excavations and post warning lights at work adjacent to public streets and walks in accordance with OSHA requirements.
- D. Underpin adjacent structure(s) including utility service lines which may be damaged by excavation operations.
- E. Promptly repair damage to adjacent facilities caused by site drainage earthwork operations. Cost of repair at Contractor's expense.
- F. Promptly notify the Owner's Representative of unexpected subsurface conditions.

PART 2 - PRODUCT

2.01 MATERIALS

- A. Site drainage piping: Provide types and sizes indicated. Provide matching couplings, fittings and accessory components to ensure continuity of the site drainage system.
 - 1. Reinforced concrete pipe fittings: ASTM C76, Class IV pipe or of equal strength sufficient to attain D-load, 0.01" of 2,000 lbs. with ASTM C443 "O" ring seals or compression type rubber gasket joints. Sizes to 10" diameter may be non-reinforced with equivalent strength.
 - 2. Corrugated Polyethylene Tubing: ASTM F405 and F667. A product which meets this specification is ADS N-12 perforated corrugated polyethylene tubing by Advanced Drainage Systems, Inc., Columbus, Ohio or conform to AASHTO M252.
- B. Trench drains, manholes, catch basins, inlets: Provide type and sizes indicated.
 - 1. Frames, grates and covers: ASTM A48 grey cast iron, asphalt coated.
 - 2. Concrete masonry units: ASTM C139.
 - 3. Brick: ASTM C32, grade MS.
 - 4. Precast concrete manhole barrels and cones: ASTM C478, 5" wall thickness with ASTM C443 "O" ring gasket joints.
 - 5. Mortar:

- a. Mortar for jointing concrete pipe and for laying and parging concrete masonry:
1 part Portland cement and 2 parts sand.
 - b. Mortar for brickwork: 1 part Portland Cement, 1/2 part hydrated lime and 4-1/2 parts sand.
- C. Fine granular fill: Clean natural sand.
- D. Course granular fill: 3/4" crushed limestone.
- E. Concrete: 3,000 psi air entrained concrete complying with requirements of Section 03300 Cast-In-Place Concrete.
- F. Earth fill: Natural sandy-clay subsoil, soil-rock mixtures, or approved excavated materials, free of foreign matter, organic material and debris.
- 1. Excavated materials removed in site drainage trenching operation may be used as backfill when acceptable to the Owner's Representative.
- G. Soil separator: Rot resistant polypropylene filter fabric, permeable and unaffected by freezing and thawing.

PART 3 - EXECUTION

3.01 DESCRIPTION

- A. Lay out site drainage work and establish extent of excavation by area and elevation. Designate and identify datum elevation and project engineering reference points. Set required lines, levels and elevations.
- B. Do not cover or enclose work of this Section before obtaining required inspections, tests, approvals and location recording.
- C. Remove existing paving, including base material, as required to accommodate site drainage work. Saw cut existing paving to provide uniform straight transition at intersection of new to existing paving.

3.02 EXISTING UTILITIES

- A. Conform to Section 02000 Site Work.

3.03 INSTALLATION

- A. Perform excavating and backfilling as required to install site drainage work.

- B. Provide trench wall support and pumping of surface and ground water as required to provide suitable conditions.
- C. Excavate trenches to accommodate indicated bedding conditions and material. Trim and shape trench bottoms to proper line and grade, free of irregularities. Remove unstable material and replace with compacted fill.
- D. Install site drainage system true to grade and alignment indicated.
 - 1. Provide necessary equipment for lowering pipe safely into trenches. Handle pipe and accessories to prevent damage. Damaged materials replaced at Contractor's expense.
 - 2. Do not place pipe in water, nor when trench or weather is unsuitable for site drainage.
 - 3. Remove all dirt and foreign material from pipe before installation. Provide bulkheads as required to prevent entrance of dirt or water after installation.
 - 4. Lay and fit pipe sections to provide a smooth, uniform invert, with sealed joints and full bearing in bedding material. Provide continuous fall in flow direction.
 - 5. Excavate bell holes under each bell to ensure uniform bedding for all types of bell and spigot piping.
 - 6. Install pipe joint gaskets in accordance with manufacturer's instructions. Install concrete pipe in accordance with ACPA "Concrete Pipe Field Manual".
 - 7. Cut pipe ends entering structures flush with inner face of structures.
 - 8. Provide soil separator over granular backfill at perforated site drainage piping.
 - 9. Extend site drainage system to outfall indicated and make required connection.
 - 10. Obtain required inspections and perform testing prior to backfilling. Remove obstructions, replace damaged components and retest as required. Provide a satisfactory free flowing drainage system.
 - 11. Sub-drain pipe installation: Conform to AASHTO M252-851.
- E. Backfill trenches with an approved backfill material, free from large clods, stones and debris.
 - 1. Backfill trenches in 8" compacted layers until there is a cover of not less than 24" over piping. Place remaining backfill material in 12" compacted layers.
 - 2. Backfill evenly on both sides of piping for full depth. Provide thorough compaction of fill under pipe haunches.
 - 3. Provide granular backfill at all paved areas.
 - 4. Provide concrete encasement where indicated.
- F. Mechanically compact backfill. Water settling, puddling and jetting as a compaction method are not acceptable.

- G. Fill, compact and restore to original level and condition all settlement.
- H. Replace paving, lawns and finished surfaces removed to accommodate the site drainage system, except where new surfaces are provided as part of the work.
- I. Construct trench drains, catch basins, manholes, inlets and other drainage structures as indicated.
 - 1. Install drainage structures on a sound cast-in-place or pre-cast segmented concrete base.
 - 2. Lay radial and batter concrete masonry with full mortar joints completely filled with Portland cement mortar. Strike joints flush with surface of concrete masonry.
 - 3. Horizontal joints shall not exceed 1/2". Vertical joints shall not exceed 1/4" on their interior surface.
 - 4. Provide headers where required to adjust frames to grade, breaking joints between courses.
 - 5. Parge inside and outside face of masonry structure walls with 1/4" mortar.
 - 6. Construct flow channels with concrete or brick conforming to the inside diameter of connecting lines. Make changes in grade gradually and make changes in line with true curves.
 - 7. Set frames and covers to required grade and bed in place with mortar.
 - 8. Cold weather protection: Provide all necessary means for heating concrete, masonry materials and mortar to protect concrete and masonry work during and after installation from damaged by frost and freezing.
 - 9. Perform no work when the temperature is below 25 degrees F. (ambient).

3.04 DISPOSAL OF WASTE MATERIALS

- A. Transport excess excavated materials, including rock, to designated disposal area on Owner's property. Stockpile or spread as directed. Remove from site and legally dispose of trash and debris.

3.05 CLEANING

- A. Maintain site drainage piping and structures in workable condition during construction operations.
- B. Flush site drainage system with water in sufficient volume to obtain free flow through each line. Remove all silt, trash and debris just prior to acceptance of work.
- C. Upon completion of site drainage work, remove tools and equipment. Provide site clear, clean, free of debris and suitable for site work operations.

END OF SECTION

SECTION 02445
VINYL COATED CHAIN LINK FENCING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work included: Provide Vinyl coated chain link fence system where shown on the drawings and as needed for a complete and proper installation.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. ASTM A-120: Zinc Coating.
- C. ASTM A-123: Zinc Coated Forged Steel.
- D. ASTM F-567: Fence Installation.
- E. ASTM A-392: Class I PVC Coated Fabric.
- F. Polyester Powder:
 - 1. ASTM D-1734 - Flexibility Mandrel Test.
 - 2. ASTM D-2794 - Impact Resistance Test.
 - 3. ASTM B-117 - Salt Spray Resistance Test.
 - 4. ASTM D-2247 - Humidity Resistance Test.
 - 5. ASTM D-822 - Weatherability Test.
 - 6. ASTM D-3363 - Pencil Hardness Test.
 - 7. ASTM D-2454 - Overbake Resistance Test.
 - 8. ASTM D-3359B - Adhesion Crosshatching Test.
 - 9. Epoxy or hybrid paints are not acceptable due to poor weatherability characteristics.

1.03 SUBMITTALS

- A. Comply with pertinent provision of Section 01340 Submittals.
- B. Product data: After the Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3. Shop drawings in sufficient detail to show fabrication, installation, anchorage and interface of the work of this Section with the work of adjacent trades.
 - 4. Manufacturer's recommended installation procedures which, when approved by the Owner's Representative, will become the basis for accepting or rejecting

- actual installation procedures used on the work.
5. Sample of fabric, end, line, gate, frame posts (6' lengths marked as to size); fittings; hardware and accessories; one each.

1.04 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01640 Product Handling.

1.05 WARRANTY

- A. Record manufacturer's 10 year warranty against rust or corrosion for fabric.

PART 2 – PRODUCTS

2.01 DIMENSIONAL DATA

- A. General:
 1. Pipe sizes indicated are commercial pipe sizes.
 2. Roll-formed section sizes indicated are the nominal outside dimensions.

2.02 GALVANIZING

- A. On steel framework and appurtenances, provide galvanized finish with not less than the following weight of zinc per sq. ft.:
 1. Pipe: 1.8 oz., complying with ASTM A120.
 2. H-Sections and square tubing: 2.0 oz. complying with ASTM A123.
 3. Hardware and accessories: Comply with Table I of ASTM A153.
 4. Fabric: 1.2 oz. complying with Class I of ASTM A392.

2.03 FABRIC

- A. Provide number 6 gage (9 gage wire 0.148" O.D. with Vinyl equals 6 gage) wires, vinyl clad, in accordance with ASTM F668, Type 28, in 2" mesh where noted on drawings with top and bottom salvages knuckled.
- B. Provide fabric in one piece widths. Full height up to 12'-0".

2.04 POSTS, RAILS AND ASSOCIATED ITEMS

- A. End, corner, slope and pull posts: Provide at least the following minimum sizes and weights with powder coated finish:
 1. Up to and including 6'-0" fabric height: 2.375" (2-1/2") OD, Schedule 40 Type I round pipe, 3.65 lbs. per lineal foot.
 2. Above 6'-0" to 10'-0" fabric height: 2.875" (3") OD, Schedule 40 Type I round pipe, 5.79 lbs per lineal foot.
 3. Above 10'-0" fabric height: 4.000" (4") OD, Schedule 40 Type I round pipe, 9.10 lbs per lineal foot.

- B. Line posts: Provide minimum sizes and weights as follows:
1. Up to and including 6'-0" fabric height: 1.900" (2") OD, Schedule 40 Type I round pipe, 2.72 lbs. per lineal foot.
 2. Above 6'-0" to 10'-0" fabric height: 2.375" (2-1/2") OD, Schedule 40 Type I round pipe, 3.65 lbs per lineal foot.
 3. Above 10'-0" fabric height: 2.875" (3") OD, Schedule 40 Type I round pipe, 5.79 lbs. per lineal foot.
- C. Gate Posts: Provide gate posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
1. For 6' wide or less: Use 2.875" (3") OD, Schedule 40 Type I round pipe, 5.79 lbs. per lineal foot.
 2. Over 6 feet wide and up to 13 feet wide: Use 4.000" (4") OD, Schedule 40 Type I round pipe, 9.10 lbs. per lineal foot.
 3. Over 13 feet wide and up to 18 feet wide: Use 6.625" OD, Schedule 40 Type I round pipe, 8.92 lbs per lineal foot.
 4. Over 18 feet wide: Use 8.625" OD, Schedule 40 Type I round pipe, 28.55 lbs per lineal foot.
- D. Top Rails:
1. Use 1.660" OD, Schedule 40 Type I round pipe, 2.27 lbs. per lineal foot.
 2. Provide in manufacturer's longest lengths, with expansion type couplings approximately 6" long for each joint.
 3. Provide means for attaching top rail securely to each gate, pull, slope, line and endpost.
- E. Post Brace Assemblies:
1. Provide at end and gate posts, and at both sides of corner, slope and pull posts with the horizontal brace located at mid-height of the fabric.
 2. Use 1.660" OD pipe 2.27 lbs. per lineal ft. for horizontal brace.
 3. Use 3/8" diameter rod with turnbuckle for diagonal truss.
- F. Tension wire: Provide number 7 gage coiled spring wire at bottom of fabric.
- G. Post Tops:
1. Provide steel, wrought iron or malleable iron designed as weathertight closurecap.
 2. Provide one cap for each post.
 3. Provide caps with openings to permit through passage of top rail.
- H. Stretcher Bars:
1. Provide one-piece lengths equal to full height of fabric, with a minimum cross-section of 3/16" x 3/4".
 2. Provide one stretcher bar for each gate and end post and two for each corner, slope and pull post except where fabric is woven integrally into the post.
- I. Stretcher Bar Bands:
1. Provide steel, wrought iron or malleable iron, spaced not over 15" on centers, to secure stretcher bars to end, corner, pull, slope and gate posts.
 2. Bands may be used also with special fittings for secure end, corner, pull, slope and gate posts.

2.05 GATES

A. General:

1. Fabricate gate perimeter frames of tubular or pipe members.
2. Provide additional horizontal and vertical members to assure proper operation of the gate, and for attachment of fabric, hardware and accessories.
3. Space so frame members are not more than 8 feet apart.
4. Fabricate gate frames from:
 - a. 6' to 10' H x 8' W or less, 1.90" (2") OD, Schedule 40 Type I round pipe, 2.72 lbs. per linear foot.
5. All materials shall have powder coated finish.

B. Fabrication:

1. Assemble gate frames by welding with special malleable or pressed steel fittings and rivets for rigid connections.
2. Use same fabric as used in the fence.
3. Install fabric with stretcher bars at vertical edges as a minimum.
4. Attach stretchers to gate frame at not more than 15" on centers.
5. Attach hardware with rivets or by other means which will provide security against removal and breakage.
6. Provide diagonal cross-bracing consisting of 3/8" diameter adjustable length truss rods on gates where required to provide frame rigidity without sag or twist.

C. Gate Hardware:

1. Hinges:
 - a. Pressed or forged steel or malleable iron to suite the gate size; non-lift-off type, offset to permit 180 degree opening.
 - b. Provide 1-1/2 pair of hinges for each leaf over 6 feet in nominal height.
2. Latches:
 - a. Provide heavy duty commercial grade forked type or plunger-bar type to permit operation from either side of the gate.
 - b. Provide padlock eye as integral part of latch.
3. Keeper:
 - a. Provide keeper for vehicle gates, which automatically engages the gate leaf and holds it in the open position until manually released.
4. Double Gates:
 - a. Provide gate stops for double gates consisting of mushroom or flushplate, with anchors.
 - b. Set in concrete to engage the center drop rod or plunger bar.
 - c. Provide heavy duty commercial grade locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.

5. Rollers and Tracks:
 - a. Roller and assembly shall have a 250 lb. rating per assembly.
 - b. Three assemblies for overhead sliding gate.

2.06 MISCELLANEOUS MATERIALS

- A. Wire Ties:
 1. For tying fabric to line posts, use number 9 gage wire ties spaced 12” on centers.
 2. For tying fabric to rails and braces, use number 9 gage wire ties spaced 24” on centers.
 3. For tying fabric to tension wire, use number I I gage hog rings spaced 24” on centers.
 4. Manufacturer’s standard wire ties will be acceptable if of equal strength and durability.
- B. Concrete: Comply with provisions of Section 03300 for 3000 psi concrete footings.

2.07 ACCESSORIES

- A. Tubular post tops: Weather tight closure caps, I top for each post. Provide tops with openings to accommodate top rails. Finish matching framework finish.
- B. Sleeves, stretcher bars, stretcher bar bands, clips, ties, rail ends, fasteners, fittings and accessories: Provide manufacturer’s standard complying with CLMI specifications. Finish matching framework finish.

2.08 WIRE COATING

- A. Thermally fused and bonded plasticized polyvinyl chloride (PVC) with low temperature plasticizers. No filters, extenders or extraneous matter, other than the necessary stabilizers and pigments.

2.09 POWDER COATING

- A. All polyesters equal to topcoat PE50000 series by Armstrong Products Company.
 1. Coating electrostatically sprayed with a film thickness of one to five mils with average of two mils.
 2. All coated parts to be cured at a temperature of 400 degrees F for ten minutes.
 3. Owner shall approve coating company and inspect parts before shipping.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. General:
 - 1. Install posts at a maximum spacing of 10 feet on centers.
 - 2. Install corner or slope posts where changes in line or grade exceed a 30 degree deflection.
- B. Excavating:
 - 1. Drill holes for post footings in firm, undisturbed or compacted soil, strictly adhering to the dimensions and spacing shown.
 - 2. Post hole dimensions:
 - a. Provide 30" deep by 8" diameter foundations for line posts for 6 foot fabric height and less.
 - b. Provide 36" deep by 8" diameter foundations for line posts for fabric heights exceeding 6 feet.
 - c. Provide 36" deep by 12" diameter foundations for all other posts.
 - 3. Spread soil from excavations uniformly adjacent to the fence line, or on adjacent areas of the site if so directed.
 - 4. When solid rock is encountered near the surface, drill into rock at least 12" for line posts and at least 18" for end, pull, gate and corner posts. Drill hole at least 1" greater diameter than the largest dimension of the post to be placed.
 - 5. If solid rock is below soil overburden, drill to full depth required, except penetration into rock need not exceed minimum depths specified above.
- C. Setting Posts:
 - 1. Remove loose and foreign materials from sides and bottoms of holes and moisten soil prior to placing concrete.
 - 2. Center and align posts in holes.
 - 3. Place concrete around posts in a continuous pour and vibrate or tamp for consolidation.
 - 4. Check each post for vertical and top alignment and hold in position during placement and finishing operations.
 - 5. Trowel tops of footings and slope or dome to direct water away from posts.
 - 6. Extend footings for gate posts to the underside or bottom hinge.
 - 7. Set keeps, stops, sleeves and other accessories into concrete as required.
 - 8. Keep exposed concrete surfaces moist for at least seven days after placement, or cure with membrane curing material or other curing method approved by the Owner's Representative.
 - 9. Grout-in those posts which are set into sleeved holes, concrete constructions, or rock excavations, using non cement grout or other grouting material approved by the Owner's Representative.

- D. Concrete Strength:
1. Allow concrete to attain at least 75% of its minimum 28-day strength before rails, tension wires and/or fabric is installed.
 2. Do not, in any case, install such items in less than seven days after placement of concrete.
 3. Do not stretch and tension fabric and wire, and do not hang gates, until concrete has attained its full design strength.
- E. Rails and Bracing:
1. Install fence with a top rail and bottom tension wire.
 2. Install fence with a top rail and bottom on fence as specified on drawings.
 3. Install top rails continuously through post caps or extending to radius for curved runs.
 4. Provide expansion couplings as recommended by the fencing manufacturer.
 5. Provide bracing to the midpoint of the nearest line post or posts at all end, corner, slope, pull and gate posts.
 6. Install tension wires parallel to the line of fabric by weaving through the fabric, and tying to each post with not less than number 7 gage galvanized wire, or by securing the wire to the fabric.
 7. Weld all posts, rails and braces at heights over 10'-0".
- F. Installing Fabric:
1. Leave approximately ½" between finish grade and bottom selvage.
 2. Excavate high points in the ground to clear the bottom of the fence.
 3. Place and compact fill to within 1" of the bottom of the fabric in depressions.
 4. Pull fabric taut and tie to posts, rails and tension wires.
 5. Install fabric on the activity (court) side of fence and anchor to framework so that the fabric remains in tension after pulling force is removed.
 6. Install stretcher bars by threading through or clamping to fabric on 4" centers and secure to post with metal bands spaced 15" on centers.
 7. Note: All sports fields or courts fabric shall be installed on the activity side.
- G. Installing Gates:
1. Install gates plumb, level and secure for full opening without interference.
 2. Install ground-set items in concrete for anchorage in accordance with the fence manufacturer's recommendations as approved by the Owner's Representative.
 3. Lubricate and adjust the hardware for smooth operation.
 4. Provide stops for overhead track type gates.
 5. Maximum gate height of 7' in 10' and higher fencing.
- H. Miscellaneous:
1. Use U-shaped tie wires, conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least two full turns.
 2. Bend ends of wire to minimize hazards to persons and clothing.
 3. Fasteners:

- a. Install nuts for tension band and hardware bolts on side of fence opposite fabric side.
 - b. Peen the ends of bolts to prevent removal of nuts.
4. Repair coatings damaged in the shop or field erection, using a hot-applied repair compound applied in accordance with its manufacturer's recommendations as approved by Owner's Representative.

END OF SECTION

LANDSCAPE IRRIGATION

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.
- B. Coordinate work of this Section with other underground utilities and with trades responsible for their installation. Refer to respective Drawings pertaining to other work.
- C. All references in this Section to “Contractor” and/or “Irrigation Contractor” shall mean “Landscape Contractor or Irrigation Contractor”.
- D. Carefully examine all of the Contract Documents for requirements that affect the Work of this Section.

1.2 WORK DESCRIPTION

- A. The system shall automatically irrigate, using spray or rotary sprinklers as needed, on all turf areas as indicated on the landscape plan and as directed by the Owner. The system shall automatically irrigate, using spray sprinklers and/or drip irrigation, all landscape areas as indicated on the landscape plan and as directed by the Owner.
 - 1. The primary source of irrigation water is an adjacent lake with a submersible turbine pump station.
 - 2. Trench excavation, back filling and bedding materials, together with the testing and proper scheduling of the completed installation shall be included as part of this scope of work.
 - 3. The work shall be constructed and finished in every respect in a good, workmanlike and substantial manner, to the full intent and meaning of the Specifications. All parts necessary for the proper and complete execution of the work, whether the same may have been specifically mentioned or not, shall be done or furnished in a manner corresponding with the rest of the work as if the same were specifically herein described.
 - 4. Record Drawing (As-built) as well as generation of the Operating & Maintenance Manual in accordance to these specifications shall also be included in this work.
- B. At the completion of work, contractor shall perform and successfully complete the tests as outlined in Section 3.13 “SYSTEM TESTING, START-UP AND ADJUSTMENT”

1.3 PERMITS AND INSPECTIONS

- A. The work under this Section shall comply with all ordinances and regulations of authorities having jurisdiction.
- B. Obtain and pay for all permits to any agency having jurisdiction over the work required for the execution of this Section.
- C. Furnish copies of Permits and Approval Notices to the Owner's Representative before requesting final payment.
- D. The Contractor shall include in their bid any charges by the Water Department, Utility Company, or other authorities for work done by them and charged to the Contractor.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division Specification Sections.
- B. The Contractor shall provide copies of product specification sheets on all proposed equipment to be installed to the Owner's Representative for approval prior to the start of work, in accordance with the parameters of Division-1. Work on the irrigation system may not commence until product sheets are submitted and approved. Submittals shall be highlighted to show proper model, nozzles, sizes, flows, etc. Submittals not properly highlighted or marked up will be rejected. As a minimum, the following equipment shall be included in the submittal:
 - 1. Main Line and Lateral Line Pipe
 - 2. Schedule 40 and Schedule 80 Fittings and Nipples
 - 3. Swing Joints Assemblies
 - 4. Ductile Iron Mechanical Joint Fittings
 - 5. Ductile Iron Repair Coupling
 - 6. Manual Valves: Control Valve Isolation
 - 7. Freezeless Yard Hydrant
 - 8. Automatic Electric Control Valves
 - 9. Valve Boxes and Enclosures
 - 10. Irrigation Controller (N/A)
 - 11. Control Wire and Waterproof Connectors

12. Sprinkler Heads and Nozzles
13. Solvent Cements and Cleaner/Primers
14. Miscellaneous Materials

1.5 QUALITY ASSURANCE

- A. Irrigation Contractor: A firm which has at least five (5) years of experience in work of the type and size required by this Section and which is acceptable to the Owner's Representative.
- B. References: The Installation Contractor must supply three references for work of this type and size with their bid including names, phone numbers and email addresses of contact person(s).
- C. Applicable requirements of accepted Standards and Codes shall apply to the Work of this Section and shall be so labeled or listed:
 1. American Society for Testing & Materials (ASTM)
 2. National Plumbing Code (NPC)
 3. National Electric Code (NEC)
 4. National Sanitary Foundation (NSF)
 5. American Society of Agricultural Engineers (ASAE)
 6. Underwriters Laboratories, Inc. (UL)
 7. Occupational Safety and Health Regulations (OSHA)
 8. American Society of Irrigation Consultants (ASIC)

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store and handle all materials in compliance with manufacturer instructions and recommendations. Protect from all possible damage. Minimize on-site storage. Contractor is responsible for the security of all stored materials on site.

1.7 GUARANTEE

- A. The Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities that the Contractor may have by law.
- B. In addition to the manufacturers guarantees the Contractor shall warrant the entire irrigation system, both parts and labor for a period of one (1) year from the date of

acceptance by the Owner.

- C. As part of the one-year warranty the Contractor shall perform the first year-end winterization and spring start-up for the irrigation system.
- D. Should any problems develop within the warranty period because of inferior or faulty materials or workmanship, they shall be corrected to the satisfaction of the Owner's Representative at no additional expense to the Owner.
- E. A written warranty showing date of completion and period of warranty shall be supplied upon completion of each segment of the project.

1.8 COORDINATION

- A. The Contractor shall at all times coordinate his work closely with the Owner's Representative to avoid misunderstandings and to efficiently bring the project to completion. The Irrigation Contractor shall also coordinate their work with that of the electrical contractor, general contractor, plumbing contractor and landscape contractor. The Owner's Representative shall be notified as to the start of work, progression and completion, as well as any changes to the drawings before the change is made. The Contractor shall also coordinate his work with that of his sub-contractors.
- B. The Contractor shall be held responsible for and shall pay for all damage to other work caused by his work, workmen or sub-contractors. Repairing of such damage shall be done by the Contractor who installed the work as directed by the Owner's Representative.

1.9 MAINTENANCE AND OPERATING INSTRUCTIONS

- A. Contractor shall include in their Bid an allowance for two (2) hours of instruction of Owner and/or Owner's personnel upon completion of check/test/start-up/adjust operations by a competent operator (The Owner's Representative office shall be notified at least one (1) week in advance of system testing, start-up and adjustment.
- B. Upon completion of work and prior to application for acceptance and final payment, a three ring, hard cover binders titled MAINTENANCE AND OPERATING INSTRUCTIONS FOR THE CITY OF NORMAN GRIFFIN PARK SPORTS COMPLEX, shall be submitted to the Owner's Representative office. After review and approval, the copies will be forwarded to the Owner. Included in the Maintenance and Operating binder shall be:
 - 1. Table of Contents
 - 2. Written description of Irrigation System.

3. System drawings:
 - a. One (1) copy of the approved irrigation plan;
 - b. One (1) reproducible copy of the Record Drawing (As-Built); Measurements on record drawings shall be surveyed or triangulated from permanent objects and recorded on Autocad compatible digital format;
 - c. An Autocad compatible digital file (USB Flash Drive) of the record drawing;
4. A complete set of "APPROVED" submittals of all irrigation equipment;
5. A copy of the suggested "System Operating Schedule" which shall call out the controller program required (zone run time in minutes per day and days per week) in order to provide the desired amount of water to each area under "no-rain" conditions.
6. One (1) copy of the controller/valve/rain/moisture/flow sensor system wiring diagram.

1.10 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions on the site before submitting his bid, and shall be fully responsible for carrying out all work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the GENERAL CONDITIONS.

1.11 PROCEDURE

- A. Notify all city departments and/or public utility owners concerned, of the time and location of any work that may affect them. Cooperate and coordinate with them in the protection and/or repairs of any utilities.
- B. Provide and install temporary support, adequate protection and maintenance of all structures, drains, sewers, and other obstructions encountered. Where grade or alignment is obstructed, the obstruction shall be permanently supported, relocated, removed or reconstructed as directed by the Architect.

PART 2 – PRODUCTS

2.1 GENERAL

- A. All materials to be incorporated in this system shall be new and without flaws or defects and of quality and performance as specified and meeting the requirements of the system. All material overages at the completion of the installation are the property of the Contractor and shall be removed from the site.

- B. No material substitutions from the irrigation products described in these specifications and shown on the drawings shall be made without prior approval and written acceptance from the Owner's Representative.

2.2 PVC IRRIGATION PIPE AND FITTINGS

- A. All pipe shall bear the following markings: Manufacturer's name, nominal pipe size, schedule or class, pressure rating in psi, and date of extrusion.
- B. All lateral pipe 3/4" and larger shall be PVC, Class 200 Type 1120, SDR 21, solvent-weld PVC. Lateral pipe shall conform to ASTM No. D2241 as manufactured by PipeLife Jet Stream or approved equal. All 1/2" lateral pipe shall be PVC Class 315 Type 1120, SDR 13.5, solvent-weld PVC joints.
- C. Fittings for gasket-joint PVC pipe, for all directional changes, pipe reductions and plugs shall be, ductile iron fittings with mechanical joints meeting ANSI/AWWA C153/A21.53. Fittings shall include transition gaskets for PVC Class 200 pipe. All connections of main line piping to control valve shall be mechanical joint ductile iron tees with 2" threaded taps. All connections of main line piping to bury hydrant shall be mechanical joint ductile iron tees with 3/4" threaded taps. Fittings shall be manufactured of ductile iron in accordance with ASTM A536 and gaskets shall meet ANSI/AWWA C111/A21.4. Fittings shall be as manufactured by SIP Industries or approved equal.
- D. Bolted sleeve couplings shall be Model 040R manufactured by Skinner Brothers Company, Inc. or approved equal.
- E. Fittings for solvent weld PVC lateral line pipe shall be Schedule 40 solvent weld PVC fittings as manufactured by Spears or approved equal.
- F. Fittings shall bear manufacturer's name or trademark, material designation, size, and applicable I.P.S. schedule.
- G. PVC Schedule 80 fittings and nipples shall be used on all fittings required between the main line tap and the electric control valve as well as the threaded connection between the electric control valve and the lateral piping. Schedule 80 fittings shall be Spears Manufacturing or approved equal. Contractor shall use teflon tape or other sealing method according to valve, sprinkler and fitting manufacturer's recommended practice for the specific application. All Schedule 80 PVC nipples shall be supplied with machined threads.
- H. PVC solvent shall be NSF approved, for Type I and Type II PVC pipe, and Schedule 40 and 80 fittings. Cement is to meet ASTM D2564 and FF493 for potable water pipes. PVC solvent cement shall be Rectorseal Gold, IPS Weld-ON 711, Oatey Medium Cement or equal, and shall be used in conjunction with the appropriate primer. Primer shall be NSF approved, and formulated for PVC and CPVC pipe applications. Primer is to meet ASTM F 656. Primer shall be Rectorseal Jim PR-2, IPS Weld-ON P-68 Clear, Oatey Purple Primer for PVC and CPVC, or equal.

2.3 WIRE CONDUIT

- A. Conduit for wiring beneath non-soil areas shall be PVC, SCH-40 conduit with solvent-weld joints, as manufactured by Certainteed, Cresline or equal.
- B. Sweep ells shall be standard electrical type PVC schedule 40 long sweep elbows. Cap sweep ell with tri-plug with the ring for securing nylon pull rope.
- C. Conduit for above ground wiring to environmental sensors, weather stations or controllers shall be galvanized, rigid metallic conduit.

2.4 ROTARY SPRINKLERS

- A. Rotor Heads (1" Inlet): 4" Pop-up, top screwdriver adjust, rubber cover, water lubricated gear drive with radius reduction adjustment of at least 25 percent. Rotor shall incorporate nozzles with advanced water distribution assuring near-head water placement and uniformity ("Rain Curtain"). A check valve shall be provided to prevent low head drainage. Rotor shall have a 1" inlet, a pressure activated wiper seal and tapered riser to protect internal assembly from debris and ensure positive pop-up and retraction. Rotor shall have at least a 5 year trade warranty.
- B. Rotor shall be Rain Bird model F4-PC (part circle) or F4-FC (full circle) or approved equal.

2.5 ELECTRIC CONTROL VALVES

- A. Electric control valves shall be remote control diaphragm type glass-filled nylon body valves with flow control and 200-psi pressure rating. Valve shall have globe configuration, 24 volt electric.
- B. Valves shall be manufactured by Rain Bird model PESB or approved equal.

2.6 ISOLATION VALVES

- A. Electric Control Valve Isolation Valves: 2" and smaller shall be of the ball type, plastic construction, tru-union threaded ends and have a maximum pressure rating of 235 psi at 73 degrees F. The valves shall be equal to Spears Model 3629-XX size the same as the control valve.

2.7 VALVE BOXES

- A. All valve boxes and covers shall be injection molded of structural foam polyethylene with a melt index between 10 and 12 and shall be UV stabilized. All covers shall be green in color.
- B. Valve box extensions shall be provided and installed as required for proper box depth. Valve box extensions shall be made by the same manufacturer.
- C. Valve boxes for isolation valves, quick coupling valves and isolation valves and in-line check valve locations shall be 10-inch round valve boxes with bolt down covers equal to Carson Industries, Inc. model 910-12 or Rain Bird model VB10RNDH.

Provide manufacturer's stainless steel locking bolts and associated clips for each valve box supplied. Valve box extensions shall be constructed with 8" I.D. corrugated polyethylene pipe, as manufactured by Advanced Drainage Systems, Inc. (ADS), cut to length as required to achieve proper coverage over pipe and valves.

- D. Valve boxes for automatic electric control valves (non-drip zones), air/vacuum release valves and master control valves shall be 14"x19" ("standard") valve boxes with bolt down covers equal to Carson Industries Inc. model 1419-12 with model 1419E-1 6" extensions or Rain Bird VBSTDH with model VBSTD6EXTB 6" extension. Provide manufacturer's stainless steel locking bolts and associated clips for each valve box supplied.
- E. Valve boxes for wire splices shall be 10-inch round valve boxes with bolt down covers equal to Carson Industries, Inc. model 910-12 or Rain Bird model VB10RNDH. Provide manufacturer's stainless steel locking bolts and associated clips for each valve box supplied. Valve box extensions shall be constructed with 8" I.D. corrugated polyethylene pipe, as manufactured by Advanced Drainage Systems, Inc. (ADS), cut to length as required to achieve proper coverage over pipe and valves. All splices shall be in separate valve boxes and not included with isolation valves.

2.8 WIRE AND COMMUNICATION CABLE

- A. All control wiring to be used for connecting the remote control valves to the controller shall be 14 gauge and all common wire shall be 14 gauge. The wire shall be Type UF, 600 Volt, single conductor solid copper wire with PVC insulation and shall bear UL approval for direct underground burial feeder cable. Insulation shall be 4/64" thick minimum covering ICC-100 compound for positive waterproofing protection.
- B. Splicing Materials - All electrical connections shall be waterproof so that there is no chance for leakage of water and corrosion build-up in the joint. The type of connection to be used shall be UL 486D certified for direct burial and rated for 24 VAC to 600 VAC. Connectors shall be 3M DBY direct bury splice kits, King Innovation Silicone-Filled "DryConn" Safety Connectors or Rain Bird WC20 or approved equal suitable for the size and number of wire conductors being joined.
- C. All wire connections shall be made in specified valve boxes.
- D. Wire type and method of installation shall be in accordance with local codes for NEC Class II circuits of 30-volt A.C. or less.

2.9 SWING JOINTS

- A. All 1" inlet sprinkler heads shall be installed on prefabricated, manufactured swing joint assembly rated for 315 psi with prelubricated buttress threads and double O'ring seals equal to Spears Manufacturing Co. Series 5807-01012 or Rain Bird Model TSJ-12.

- B. All bury hydrants shall be installed on prefabricated, manufactured swing joint assembly rated for 315 psi with prelubricated buttress threads and double O'ring seals equal to Rain Bird Model TSJ-12075.

2.10 SAND

- A. Sand used for backfilling of trenches; under, around and over PVC lines shall be as specified in SECTION: EARTHWORK.

2.11 CONCRETE BASES AND THRUST BLOCKS

- A. Standard concrete mix shall be in accordance with ASTM C150, ASTM C-33, and ASTM C-94 with a compressive strength (28 days) of 3,500 psi.
- B. All bell and gasket mainline pipe and fittings shall have thrust blocks sized and placed in accordance with pipe manufacturer's recommendations for standard concrete mix. Thrust blocks shall be installed at all tees, elbows, crosses, reducers, plugs, caps and valves. Contractor shall be responsible to insure the stability of all thrust blocks. A minimum 4 mil "visqueen" plastic poly sheeting shall be used to protect fitting and pipe from concrete during thrust block installation.
- C. All concrete bases shall be standard concrete mix. Sizes shall be as indicated on the Drawings and sited in the Specifications.

2.12 SPARE PARTS

- A. Contractor shall supply the following tools and equipment to the Owner's Representative before final observation:
 - 1. Two (2) tools for disassembling and adjusting each type of sprinkler head provided.
 - 2. Two (2) of each type sprinkler head and pattern (PC & FC) used in the project.
 - 3. Two (2) of each type nozzle used in the project.
 - 4. Two (2) diaphragms and solenoids for each type and size of control valve used in the project.
- B. Before final observation can occur, written evidence that the Owner's Representative has received the tools and equipment must be shown to the Owner.

PART 3 – EXECUTION

3.1 GENERAL

- A. Before work is commenced, hold a conference with the Owner's Representative to discuss general details of the work.

- B. Examine all contract documents applying to this Section noting any discrepancies and bringing the same to the attention of the Owner's Representative for timely resolution.
- C. Verify dimensions and grades at job site before work is commenced. Do not proceed with installation of the landscape irrigation system when it is apparent that obstructions or grade differences exist or if conflicts in construction details, irrigation equipment legend or specific notes are discovered. All such obstructions, conflicts, or discrepancies shall be brought to the attention of the Owner's Representative.
- D. Make all field measurements necessary for the work noting the relationship of the irrigation work to the other trades. Coordinate with other trades (landscaping and other site work trades). Project shall be laid out essentially as indicated on the Irrigation Plans, making minor adjustments for variations in the planting arrangement. Major changes shall be reviewed with the Owner's Representative prior to proceeding.
- E. Coordinate installation of all sprinkler materials, including pipe, to avoid conflict with the trees, shrubs, or other plantings. Special attention shall be made to avoid damage to the root system of existing trees. Contractor shall contact Owner's Representative for guidance on trenching in this area.
- F. During progress of work, a competent superintendent and all assistants necessary shall be on site. All shall be satisfactory to the Owner's Representative. The superintendent shall not be changed, except with the consent of the Owner's Representative, unless that person proves unsatisfactory and ceases to be employed. The superintendent shall represent the Contractor in his absence and all directions given to the superintendent shall be as binding as if given to the Contractor.
- G. At all times, protect existing irrigation, landscaping, paving, structures, walls, footings, etc. from damage. Any inadvertent damage to the work of another trade shall be reported at once.
- H. Replace, or repair to the satisfaction of the Owner, all existing paving disturbed during course of work. New paving shall be the same type, strength, texture, finish, and be equal in every way to removed paving.

3.2 PIPE AND FITTINGS INSTALLATION

- A. Using proper width trencher chain, excavate trenches to a depth of minimum pipe coverage plus six inches. Trenches shall have sides as nearly vertical as possible. Remove all lumber, rubbish and rocks larger than 1 inch from the trenches. Provide a uniform bearing for the entire length of each pipe line to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Make the width of the trench a minimum of 1 1/2 times the diameter of the piping but not less than 4 inches.

- B. Loam or topsoil encountered within the limits of trench excavation for irrigation mains and branch lines shall be carefully removed to the lines and depths as shown on the Drawings and stockpiled for subsequent replacement in the upper 6 inches of the trench from which it is excavated. Such removal and replacement of the quantities of loam shall be considered incidental to the irrigation system and no additional compensation will be allowed therefore.
- C. Back filling shall be accomplished as follows: the first 10-inch of backfill material shall contain no foreign matter and no rock larger than 1-inch in diameter. Carefully place material around pipe and wire and tamp in place. Remainder of backfill shall be laid-up in 6-inch (maximum) lifts and tamped to compaction with mechanical equipment. Compaction in paved areas shall be to 98% standard proctor. Compact backfill in trenches to dry density equal to the adjacent undisturbed soil, and conform to adjacent grades without dips, sunken area, humps, or other irregularities. Frozen material shall not be used for backfill.
- D. Do backfilling when pipe is cool. During hot weather keep pipe cool by backfilling in the early part of the morning before the heat of the day.
- E. Do not, under any circumstances, use truck wheels or flooding for compacting soil.
- F. Restore grades and repair damage where settling occurs.
- G. All solvent-weld joints shall be made in strict accordance with manufacturer's recommendations and ASTM D2855 Standard Practice. Make solvent welds with a non-synthetic bristle brush in the following sequence: Apply an even coat of solvent to the outside of the pipe. Then apply solvent to the inside of the fittings and then re-apply a light coat of solvent to the outside of the pipe, making sure that coated area on the pipe is equal to the depth of the fitting socket. Insert pipe quickly into the fitting and turn the pipe approximately 1/4 turn to distribute the solvent and remove air bubbles. Check all tees and ells for correct position, then hold joint for approximately 15 seconds so that pipe does not push out from the fitting. Wipe off any excess of primer or solvent from each connection. Allow at least 15 minute drying time for each weld joint before moving. When the temperature is above 80° F, allow connections to set minimum 24 hours before pulling or pressure is applied to the system. When temperature is below 80° F, follow manufacturer's recommendations. Provide and install for expansion and contraction as recommended. Wire shall be laid in same trench as mainline and at pipe invert (see WIRING INSTALLATION).
- H. The minimum cover over the pipe shall be as follows:
 - 1. Main line pipe - 20 inches of cover over pipe
 - 2. Lateral pipe – 15 inches of cover over pipe
- I. Cut plastic pipe with handsaw or pipe-cutting tool, removing all burrs at cut ends. All pipe cuts are to be square and true. Bevel cut end as required to conform to Manufacturer's Specifications.
- J. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. At times, when installation of the piping is not in progress, the open end(s) of the pipe shall be closed by a watertight plug or

other means. All piping, which cannot temporarily be joined, shall be sealed to make as watertight as possible. This provision shall apply during the lunch hour as well as overnight. Pipe not to be installed that day shall not be laid out. Should water enter the trench during or after installation of the piping, no additional piping may be installed or back filled until all water is removed from the trench. Pipe shall not be installed when water is in the trench, when precipitation is occurring, or when the ambient temperature is at 40° F or below. Pipe installed at temperatures below 40° F shall be removed and replaced at no cost to the Owner. PVC pipe shall be snaked in the trench to accommodate for expansion and contraction due to changes in temperature.

- K. Carefully install system in areas of existing vegetation designated to remain to provide minimal disturbance feasible. When trenching under the drip-line of existing trees, extreme care must be given to avoid root damage. If at all possible avoid trenching inside the drip-line by going around the tree rather than under it. If trenching must occur under the drip-line, use either tunneling or hand-digging methods rather than a mechanical trencher. Minimize the impact of root severing by avoiding construction during hot, dry weather, keeping trees well watered before and after digging and covering roots with soil or mulch as soon as possible. Contractor shall contact Owner's Representative for guidance on trenching in this area. Where excavation must occur near trees, the Contractor shall provide proper root pruning and sealing methods shown in the landscape plans and specifications and approved by Owner's Representative.
- L. Maintain 6-inch minimum clearance between sprinkler lines and lines of other trades. Do not install sprinkler lines directly above another line of any kind.
- M. Maintain 1-inch minimum clearance between lines which cross at angles of 45 to 90 degrees.
- N. Exercise care when excavating, trenching and working near existing utilities.
- O. Throughout the guarantee period it will be the responsibility of the Contractor to refill any trenches that have settled due to incomplete compaction.
- P. Pulling of pipe will be allowed provided soil is suitable and specified depth of bury can be maintained.

3.3 THRUST BLOCKING

- A. All gasket joint bell-end fittings shall be blocked with an adequately sized thrust block as per ASAE Standard S376.1 and as depicted in the details. Blocking shall be in accordance with pipe and fitting manufacturer's recommendations. Thrust blocks shall be required at all changes in size and direction of bends, reducers, plugs and tees. Thrust blocks shall be installed against undisturbed soil in all cases. Concrete thrust blocks shall utilize 3,500-psi standard concrete mixture. Bricks, stones, boulders, etc. will not be accepted as thrust blocks or thrust block material. Premixed cement, sand and gravel packages "Sackcrete" will not be permitted as a thrust blocking material. Contractor to supply all material needed for thrust blocking.

- B. Size of thrust block shall be determined by working pressure, size and type of fitting, and soil conditions. Calculate area required for concrete thrust block in contact with soil. Refer to ASAE 376.2 for thrust block sizing information to determine size of thrust block for each condition.
- C. A minimum 4 mil "visqueen" plastic poly sheeting shall be used to protect fitting and pipe from concrete during thrust block installation.
- D. Under no circumstances will concrete block be approved for thrust blocks.

3.4 ELECTRICAL WIRE CONDUIT INSTALLATION

- A. Electrical conduit shall be installed in all non-soil areas, as well as for all above ground wiring where wire passes under or through walls, walks and paving to controllers and other sensors.
- B. Conduit shall extend 18 inches beyond edges of walls and pavement.

3.5 PIPE SLEEVING INSTALLATION

- A. Contractor is responsible for the supply and installation of sleeves whether shown on the drawings or not. Install sleeves under paving and other improvements prior to construction. Install where required to accommodate piping at proper depth to prevent damage by other construction activities and to provide specified burial depth for irrigation pipe. Location of sleeves to be recorded and marked.
- B. Sleeving shall be installed wherever piping is going under a non-soil area, generally where indicated on the Drawings. Cover over all sleeving pipe shall be appropriate for the specified depth of the pipe passing through the sleeve. Minimum coverage shall be 20 inches.
- C. Sleeving shall extend 24 inches beyond edges of walls and pavement.
- D. If finished pavement is in place, the Contractor shall bore under the pavement for sleeving installation using personnel experienced in the procedure. Contractor shall be responsible for all damage to finished paving due to improper boring.

3.6 VALVE AND VALVE BOX INSTALLATION

- A. Furnish and install a valve access box for each electric valve, quick coupling valve, isolation valve, wire splice, flushing valve, air/vacuum relief valve, in-line check valves, etc.
- B. Valves and valve boxes shall be installed where shown or directed, and shall be set plumb. Valve boxes shall be centered on the valves. Where feasible, valves shall be located outside the area of natural walkways or paths. Earth fill shall be carefully tamped around each valve box. Valve boxes should be supported by concrete blocks to ensure that any surface loads on the valve boxes will not be transmitted below to the pipe or valves and to minimize box settlement. All boxes shall have at least 6" depth of clean washed round river rock under the valve boxes for drainage.

- C. Electric control valves shall be connected to the main line in a plumb position with adjusting handle and all bolts, screws and wiring accessible through the valve box opening. Sufficient clearance shall be provided for service and operation. Valve manifolds shall be installed in such a manner that it will not be necessary to remove more than one valve when a valve is removed or replaced. The valves shall be adjusted for proper operation as required by the manufacturer for the specified performance. Adjust zone valve operation after installation using flow control device on valve.

3.7 WIRING INSTALLATION

- A. Wiring shall be installed along with the main distribution line. Multiple wire bundles shall be cinched together at maximum 12-foot centers using plastic cable cinches and shall be laid beside, and at the same invert as, the irrigation lines. Sufficient slack for expansion and contraction shall be maintained and wiring shall at no point be installed tightly. Provide and install an additional 8 inches to 12 inches slack at all changes of direction. Wiring in valve boxes shall be a sufficient length to allow valve solenoid, splice, and all connections to be brought above grade for servicing. This additional slack shall be coiled for neatness in the valve box.
- B. All wire shall be laid in trenches and shall be carefully back-filled to avoid any damage to the wire insulation or wire conductors themselves. In areas of unsuitable material, the trench shall have a 3 inch layer of sand or stone dust on the bottom before the wires are laid into the trench and back-filled. The wires shall have a minimum of 15 inches of cover. Wire not to be installed that day shall not be laid out.
- C. An expansion curl shall be provided and installed within 6 inches of each wire connection to a solenoid. Expansion curls can be formed by wrapping five (5) turns of wire around a 1-inch diameter or larger pipe and then withdrawing the pipe.
- D. Service wiring in connection with Drawings and local codes for 24-volt service. All in-ground wire connections shall be waterproofed with materials specified in PART 2 - PRODUCTS. All splices shall be made in valve boxes (wire runs requiring splices between valve locations shall be provided and installed in splice box-valve box shall be used). Splice locations shall be shown on the Record Drawings.
- E. Contractor shall provide a complete wiring diagram showing wire routing for the connections between the controllers, control valves and environmental sensors and flow sensor. See PART 1 - GENERAL for the inclusion of wiring diagram in operation and maintenance manuals.

3.8 SPRINKLER INSTALLATION

- A. Spray sprinklers and rotary sprinklers shall be installed on flexible connections or swing joints as specified in PART 2 - PRODUCTS and shall be set plumb and level with the final grade and in accordance with manufacturer's recommendations. Locate part circle sprinklers to maintain a minimum of 4 inches from walls and 2 inches from other boundaries and borders.

- B. In turf areas where grass has not yet been established, sprinklers shall be initially installed on risers above grade level. When grass is established, the contractor shall lower sprinkler heads to their permanent position flush with the finish grade. This elevation is critical and care shall be taken to set them exactly at or slightly above finished grade, never below grade except as recommended by the manufacture.

3.9 SYSTEM TESTING, START-UP AND ADJUSTMENT

A. Flushing:

1. After all piping, valves, sprinkler bodies, pipe lines and risers are in place and connected, but prior to installation of sprinkler internals, open the control valves and flush out the system under a full head of water.
2. INITIAL FLUSHING OF LINES SHALL NEVER BE THROUGH SPRINKLER HEADS OR DRIP ZONES. Sprinkler internals, flush caps and riser nozzles shall be installed only after flushing of the system has been accomplished to the full satisfaction of the Owner's Representative.
3. Contractor shall be responsible for flushing the entire system after installation is complete and will be responsible for any clogged nozzles during the warranty period.

B. Testing:

1. Leakage test: With zone valves closed, pressure test mainlines by supplying and maintaining full static pressure continuously for one full hour. Observe for evidence of leakage by monitoring flow meter and by visual inspection of the exposed lines. Repair all leaks and retest until no water flow is observed. Owner's Representative must be contacted to inspect and witness the leak testing procedures.
2. Coverage test: perform a coverage test in the presence of the Owner's Representative (notify Landscape Architect at least three (3) days in advance of scheduled coverage test). Owner's representative will determine if the water coverage and dispersion is complete and adequate. Readjust heads and/or head locations as necessary or directed to achieve proper coverage. After landscape finish grading is accomplished, install heads to finished grade in lawn and shrub areas and backfill with clean topsoil so head is stabilized and no lateral motion is exhibited during operation. Heads shall be set so the tip of the heads are 1/2" above the top of the mulch in planting beds. Heads in the turf areas shall be set flush with the finished grade and not a hazard to pedestrians and/or maintenance machinery. Set sprinkler heads to plumb within 1/16" and a minimum of 4 inches and a maximum of 6 inches from walls, walks and curbs.
3. Sprinkler heads to be spaced so as not to throw water on the buildings, walks or driveways. Heads shall be adjusted as required so that foliage of plants will not obstruct the spray and that the system has 100% coverage.

4. Contractor shall conduct a performance test of the complete system to ensure that all components are functioning properly. Performance test shall consist of operating the system through a complete irrigation cycle per day for two (2) consecutive days. Contractor shall be at the site to monitor the performance test and make any adjustments and corrections as needed during the testing period.
5. All testing shall be at the expense of the Contractor.

3.10 CLEANING AND ADJUSTING

- A. At the completion of the work, all parts of the installation shall be thoroughly cleaned. All equipment, pipe, valves and fittings shall be cleaned of grease, metal cuttings and sludge which may have accumulated by the operation of the system for testing.
- B. Adjust sprinkler heads, valve boxes, and quick coupling valves to grade as required, so that they will not be damaged by mowing operations.
- C. Continue sprinkler coverage adjustment as required by settlement, etc., throughout the guarantee period.
- D. Each control zone shall be operated for a minimum of 5 minutes and all heads checked for consistency of delivering water. Adjustments shall be made to sprinklers that are not consistent to the point that they match the manufacturer's standards. All sprinklers, valves, timing devices or other mechanical or electrical components, which fail to meet these standards, shall be rejected, replaced and tested until they meet the manufacturer's standards.

3.11 ACCEPTANCE AND OPERATION BY OWNER

- A. Upon completion of the work and acceptance by the Owner, the Contractor shall be responsible for the training of the Owner's Representative in the operation of the system (provide minimum 72 hours written notice in advance of test). The Contractor shall furnish, in addition to the Record Drawings and operational manuals, copies of all available specification sheets and catalog sheets to the Owner's personnel responsible for the operation of the irrigation system. The Contractor shall guarantee all parts and labor for a minimum period of one (1) year from date of acceptance.
- B. Conditions for acceptability of work for start of maintenance by Owner issued by Owner or Owner's Representative shall include but not be limited to:
 1. Punch list items complete and approved by Owner or Owner's Representative.
 2. Landscape irrigation system complete and in place.
 3. Record drawings complete.
 4. Maintain installation and watering schedules until all conditions noted above have been completed.

3.12 CLEAN UP

- A. Upon completion of all installation work, Contractor shall remove all leftover materials and equipment from the site in a safe and legal manner.
- B. Contractor shall remove all debris resulting from work of this section.
- C. Contractor shall regrade, lightly compact, and replant around sprinkler heads where necessary to maintain proper vertical positioning in relation to established grade.
- D. Contractor shall fill all depressions and eroded channels with sufficient soil mix to adjust grade to ensure proper drainage. Compact lightly, and replant filled areas in accord with Owner's Representative's requirements.

END OF SECTION

**SECTION 02934
SODDING**

PART 1 - GENERAL

1.01 SCOPE:

- A. Provide and install sodded lawns as indicated on drawings and specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. General Requirements

1.03 QUALITY ASSURANCE:

- A. Comply with American Sod Producers Association (ASPA) guideline specifications to sodding.
- B. Sodding Contractor: A firm which has at least five (5) years of experience in work of the type and size required by this Section and which is acceptable to the Owner, Owner's Representative, and Landscape Architect.
- C. References: The Sodding Contractor must supply three references for work of this type and size with their bid including names, phone numbers and email addresses of contact person(s).
- D. All finish grading work must be done utilizing an electronic, automatic laser grading system.

1.04 DELIVERY, STORAGE AND HANDLING:

- A. Deliver sod on pallets and protect from sun, wind and dehydration prior to installation.
- B. Do not cut or deliver more sod than can be laid within 24 hours.

1.05 SUBMITTALS:

- A. Submit name, address and phone number of sod supplier.
- B. Manufacturer's label with analysis data on lawn fertilizer.

PART 2 - PRODUCTS

2.01 MATERIAL:

- A. Sod shall be Astro Sod or of type as indicated on drawings and shall be well rooted, healthy, free of weeds, disease, nematodes, and soil borne insects. Sod shall also be uniform in color, leaf texture, and density.
- B. Fertilizer shall be granular or pellet as determined by soil testing.
- C. Water shall be free of substances harmful to sod growth.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine finish surfaces, grades, topsoil quality and depth. Do not start sodding work until unsatisfactory conditions are corrected. Beginning of installation indicates acceptance of existing site conditions.

3.02 PREPARATION:

- A. Loosen topsoil of lawn areas to be planted. Remove existing vegetation, sticks, roots, rubbish, foreign matter and stones over one inch (1") in any dimension from the top two inches (2") of the sod bed. Areas where the finish grade has sat for extended periods of time will need to be tilled or disked to remove vegetation and to loosen compacted soil to 85% maximum density.
- B. Fine grade lawn areas to smooth, even surface with a loose, uniformly fine texture. Float smooth to remove ridges and fill depressions as required to drain.
- C. Finish grade shall be smooth and approximately one inch (1") below curbs, walks and other paved surfaces.
- D. Apply fertilizer on finish grade prior to sod installation at a rate of one (1) pound of actual nitrogen per 1000 square feet.
- E. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to sodding.

3.03 SOD INSTALLATION:

- A. Work within seasonal limitations of the sod type specified. Install sod between April 15 and August 30. Deviation from these dates shall be submitted by the contractor for approval by the owner or the owner's representative before installation.
- B. Large roll sod will be allowed. All netting is to be removed during the installation of the sod.
- C. Lay sod to form a solid mass tightly-fitted joints. Do not overlay edges. Stagger strips to offset joints in adjacent courses.
- D. Sod shall be placed so that top of sod is flush with adjoining grass areas if any, curbs, walks, and other paved surfaces.
- E. Do not install sod on saturated or frozen soil.
- F. Water sod lightly then roll with a water filled commercial lawn roller to ensure contact with subgrade and to insure a smooth surface free of lumps and depressions.

- G. Immediately following rolling, water sod thoroughly and continue to water after installation to achieve a well rooted and vigorous growing lawn or until final acceptance, whichever is longer. Contractor to provide watering equipment as required for areas not covered by an irrigation system.
- H. Repeat sod rolling as needed after one week to achieve a smooth level surface.
- I. On 3:1 slopes or greater sod shall be secured with sod staples as needed to prevent sod from sloughing off slopes.
- J. If there are areas that were sodded that were thin or not growing, the contractor is responsible for replacing those areas, and top dressing with the same sod variety and top dressing material. This applies to all areas that are 12"x12" or larger.
- J. Replace dead sod as required prior to final acceptance.

3.04 CLEANING:

- A. During the work, the premises are to be kept neat and orderly at all times. Storage areas for materials shall be organized so that they are neat and orderly. All trash, including debris from removing weeds or rocks from sodded areas, shall be removed from the site daily as the work progresses. All walk and driveway areas shall be kept clean by sweeping or hosing.

3.05 MAINTENANCE:

- A. The contractor is to maintain the newly sodded areas for a period of 6 weeks from the date of completion of sprigging and sodding operations.
- B. The contractor is to fertilize the area (1) time per week for six (6) weeks at a rate of one (1) pound of Nitrogen per 1,000 sq. ft.
- C. The contractor must monitor sodded areas to ensure adequate irrigation occurs during the first month of grow-in.
- D. Once the turf is established, the contractor is to top dress the entire area per sprigging maintenance

END OF SECTION

**SECTION 02939
SPRIGGING**

PART I - GENERAL

1.01 SCOPE

- A. Provide and install sprigs as indicated on drawings and specified herein.

1.02 RELATED WORK: SPECIFIED ELSEWHERE

- A. Earthwork - Section 02200
- B. Sodding - Section 02938

1.03 QUALITY ASSURANCE

- A. Comply with American Sod Producers Association (ASPA) guideline specifications for sprigging.
- B. Sodding Contractor: A firm which has at least five (5) years of experience in work of the type and size required by this Section and which is acceptable to the Owner, Owner's Representative, and Landscape Architect.
- C. References: The Sodding Contractor must supply three references for work of this type and size with their bid including names, phone numbers and email addresses of contact person(s).

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver stolons to the site in bags or containers and protect from sun, wind and dehydration prior to installation.
- B. Do not cut or deliver more stolons than can be installed within 24 hours. Stolons cut and not planted within twenty-four hours will not be installed unless approved by the Owner and/or Architect.

1.05 SUBMITTALS

- A. Submit name, address and phone number of stolon supplier and/or installer.

PART II - PRODUCTS

2.01 MATERIAL

- A. Stolons shall be certified material of type as indicated on drawings and shall be well rooted, healthy, free of weeds, disease, nematodes, and soil borne insects. Stolons whose bushel weight includes more than ten (10) percent dirt or foreign matter shall be rejected.

- B. Stolons shall be measured by the bushel. A bushel shall be defined by eight (8) pounds of plant material per bushel and harvested from a minimum area of one square yard of mature turf.
- C. Water shall be free of substance harmful to grass growth.

PART III - EXECUTION

3.01 INSPECTION

- A. The Owner and Landscape Architect will examine finish surfaces, grades, topsoil quality and depth. Do not start sprigging work until unsatisfactory conditions are corrected and approved by Owner and Landscape Architect.

3.02 PREPARATION

- A. Loosen topsoil of grassed areas to be planted to a depth of six (6) inches by disking or tilling. Remove sticks, roots, rubbish, foreign matter and stones over one inch (1") in any dimension from the top two inches (2") of the sprig bed area.
- B. Fine grade sprigged and sodded areas to smooth, even surface with a loose, uniformly fine texture. Float smooth to remove ridges and fill depressions as required to drain.
- C. Finish grade shall be smooth and approximately one inch (1") below adjacent paved surfaces.
- D. Contractor is to place solid sod at a minimum width of 18" around all adjacent paved surfaces, valve boxes, electrical boxes, manholes, light poles, and all other in-grade or above grade structures within the limits of sprigging.
- E. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to acceptance of completed work.

3.03 STOLON INSTALLATION

- A. All planting operations shall commence immediately after site preparation and start no earlier than May 15th, and be completed no later than June 15th, unless approved by the Landscape Architect.
- B. Planting operations shall stop for reasons of high winds, excessive moisture, irrigation system problems, or other factors, that satisfactory results are not likely to be obtained. All work stoppage should be documented in writing with date and reason that work was stopped.
- C. Stolons shall be installed using approved sprigging equipment as per industry standards. This equipment is to have turf tires.

- D. Stolons shall be installed at a rate of 600 hundred (600) bushels per acre and verified by delivery tickets.
- E. The contractor is to till the sprigs into the topsoil to a depth not to exceed three (3) inches within two (2) hours of application.
- F. The contractor is to apply 41-0-0 Polyon Coated Fertilizer with 1% Ronstar G at a rate of 100 pounds per acre (product).
- G. Upon Completion of sprigging, the contractor will roll each field using a vibratory roller.
- H. Immediately after completion of rolling, the Contractor shall start the initial watering program.
- I. Erosion damage or any other damage to the planted surfaces subsequent to completion of grow-in/maintenance period will be repaired by the Contractor.
- J. The base bid shall be U-3 Bermudagrass Sprigs.

3.04 CLEANING

- A. During the work, the premises are to be kept neat and orderly at all times. Storage areas for materials shall be organized so that they are neat and orderly. All trash, including debris from removing weeds or rocks from sodded areas, shall be removed from the site daily as the work progresses. All walk and driveway areas shall be kept clean by sweeping or hosing.

3.05 SPRIGGING MAINTENANCE

- A. The contractor is to maintain the newly sprigged and sodded areas for a period of 60 Days from the date of completion of sprigging operations.
- B. The contractor must monitor sprigged fields to ensure sprig growth and that the area has adequate irrigation during the grow-in period. This includes having staff visit the site a minimum of 3 days a week minimum, or as deemed necessary by all parties.
- C. The contractor is to fertilize the area (1) time per week for 60 Days at a rate of one (1) pound of Nitrogen per 1,000 sq. ft.
- D. The contractor is to mow and trim the sprigged area once the sprigs are established.
- E. Once the turf is established, the contractor is to top dress the entire area.
 - a. Top Dressing material is to consist of 75% masonry or top dressing sand and 25% dark forest compost (+/- 5%), as was utilized in the top soil mixture prior to sprigging. These materials should be blended evenly to create the top dressing material.

- b. The contractor is to apply the top dressing material utilizing industry standard top dressing equipment with turf tires.
- c. The contractor is to smooth out top dressing material with equipment having turf tires, using a smooth and fill method.
- d. The contractor is to roll the entire surface with a vibratory roller.
- e. The contractor is to spread approved fertilizer to finish the top dressing process.
- f. If there are areas that were sprigged that are not growing, the contractor is responsible for plugging, and top dressing these areas with the same sod variety and top dressing material. This applies to all areas that are 24"x24" or larger.

END OF SECTION

**SECTION 03100
CONCRETE FORMWORK**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Provide formwork in accordance with provisions of this Section for cast-in-place concrete shown on the drawings or required by other Sections of these Specifications.
- B. Related work:
 - Section 03210: Steel Reinforcement
 - Section 03300: Cast-in-place Concrete

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Design of formwork is the Contractor's responsibility.
- C. Standards: in addition to complying with pertinent regulations of governmental agencies having jurisdiction, comply with pertinent provisions of ACI 347.

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: After the Contractor has received the Owner's Notice to Proceed, submit manufacturer's data and installation instructions for proprietary materials including form coatings, ties, and accessories, and manufactured form systems if used.

PART 2 PRODUCTS

2.01 FORM MATERIALS

- A. Except for metal forms, use new materials. Materials may be reused during progress of the work, provided they are completely cleaned and reconditioned, re-coated for each use, and capable of producing formwork of the required quality.
- B. For footings and foundations, use boards or planks secured to wood or steel stakes, substantially constructed to shapes indicated and to support the required loads.

2.02 FORM TIES

- A. Hold inner and outer forms for vertical concrete together with combination steel ties and spreaders approved by the Owner's Representative:
 - 1. Space ties symmetrically in tiers and rows, each tier plumb from top to bottom and each row level.
 - 2. At horizontal pour lines, locate ties not more than 6" below the pour lines. Tighten after concrete has set and before the next pour is made.
 - 3. For exposed concrete surfaces, provide form ties of removable type with the bolts equipped with permanent plugs and a system approved by the Owner's Representative for fixing the plugs in place.

2.03 DESIGN OF FORMWORK

- A. General:
 - 1. Design, erect, support, brace, and maintain formwork so it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure.
 - 2. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose.
 - 3. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position.
 - 4. Design forms and formwork to include assumed values of live load, dead load, weight of moving equipment operated on the formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of the structure during construction.
 - 5. Provide trussed supports when adequate foundations for shores and struts cannot be secured.
 - 6. Support form materials by structural members spaced sufficiently close to prevent objectionable deflection.
 - 7. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities, and within the allowable tolerances.
 - 8. Provide 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 prevent fins.
 - 9. Provide camber in formwork as required for anticipated deflections due to weight and pressure of fresh concrete and construction loads.

2.04 EARTH FORMS

- A. Side forms for footings may be omitted, and concrete may be placed directly against excavation only when requested by the Contractor and approved by the Owner's Representative.
- B. When omission of forms is accepted, provide additional concrete 1" on each side of the minimum design profiles and dimensions shown on the drawings.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 FORM CONSTRUCTION

- A. General:
 - 1. Construct forms complying with ACI 347 to the exact sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades and level and plumb work in the finished structure.
 - 2. Provide for openings, offsets, keyways, recesses, moldings, reglets, chambers, blocking, screens, bulkheads, anchorages, inserts, and other features as required.
- B. Fabrication:
 - 1. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
 - 2. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
 - 3. Kerf wood inserts for forming keyways, reglets, recesses, and the like to prevent swelling and assure ease of removal.
 - 4. Provide top forms for inclined surfaces where so directed by the Owner's Representative.
- C. Forms for exposed concrete:
 - 1. Drill forms to suit ties being used, and to prevent leakage of cement paste around tie holes. Do not splinter forms by driving ties through improperly prepared holes.
 - 2. Provide sharp, clean corners at intersection planes, without visible edges or offsets. Back the joints with extra studs or girts to maintain true, square intersections.
 - 3. Use extra studs, walls and bracing to prevent objectionable bowing of forms between studs, and to avoid bowed appearance in concrete. Do not use narrow strips of form material which will produce bow.
- D. Corner treatments:
 - 1. Unless shown otherwise, form chamfers with 3/4" x 3/4" strips, accurately formed and surfaced to produce uniformly straight lines and tight edges.
 - 2. Extend terminal edges to required limit, and miter the chamfer strips at changes in direction.
- E. Locate control joints as indicated on the drawings and as approved by the Owner's Representative.
- F. Provisions for other trades:
 - 1. Provide openings in concrete formwork to accommodate work of other trades.
 - 2. Verify size and location of openings, recesses, and chases with the trade

requiring such items.

3. Accurately place and securely support items to be built into the concrete.

3.03 REMOVAL OF FORMS

A. General:

1. Do not disturb or remove forms until the concrete has hardened sufficiently to permit form removal with complete safety.
2. Do not remove shoring until the member has acquired sufficient strength to support its own weight, the load upon it, and the added load of construction.
3. Do not strip floor slabs in less than two days.
4. Do not strip vertical concrete in less than seven days.

B. Finished surfaces:

1. Exercise care in removing forms from finished concrete surfaces so that surfaces are not marred or gouged, and that corners are true, sharp, and unbroken.
2. Release sleeve nuts or clamps, and pull the form ties neatly.
3. Do not permit steel spreaders, form ties, or other metal to project from, or be visible on, any concrete surface except where so shown on the drawings.
4. Solidly pack form tie holes, rod holes, and similar holes in the concrete. For packing, use the cement grout specified in Section 03300, flushing the holes with water before packing, screeding off flush, and grinding to match adjacent surfaces.

END OF SECTION

**SECTION 03210
STEEL REINFORCEMENT**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Provide concrete reinforcement where shown on the drawings specified herein, and as needed for a complete and proper installation.
- B. Related Work:
 - Section 03100: Concrete Formwork.
 - Section 03210: Steel Reinforcement.
 - Section 03300: Cast-in-place Concrete.
 - Section 03345: Concrete Finishing.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Comply with pertinent provisions of the following, except as may be modified herein:
 - 1. ACI 318.
 - 2. CRSI "Manual of Standard Practice."

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: After the Contractor has received the Owner's Notice to proceed, submit:
 - 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3. Shop Drawings showing details of bars, anchors, and other items, if any, provided under this Section.

1.04 PRODUCT HANDLING

- A. Delivery and Storage:
 - 1. Use necessary precautions to maintain identification.
 - 2. Store in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond-breaking coatings.

PART 2 - PRODUCTS

2.01 REINFORCEMENT MATERIALS AND ACCESSORIES

- A. Bars:
 - 1. Provide deformed billet steel bars complying with ASTM A615. Using grades shown on the Drawings.

- B. Steel Wire:
 - 1. Comply with ASTM A82.
 - 2. For tie wire, comply with Fed Spec QQ-W-461, annealed steel, black, 16 gage minimum.

- C. Welded Wire Fabric:
 - 1. Provide welded steel, complying with ASTM A185, 6" x 6" x 10" x 10".

- D. Bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcement in place:
 - 1. Use wire bar type supports complying with CRSI recommendations, unless otherwise shown on the Drawings.
 - 2. Do not use wood, brick, or other non-complying material.
 - 3. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.02 FABRICATION

- A. General:
 - 1. Fabricate reinforcing bars to conform to the required shapes and dimensions, with fabrication tolerances complying with the CRSI Manual.
 - 2. In case of fabricating errors, do not straighten or re-bend reinforcement in a manner that will weaken or injure the material.
 - 3. Reinforcement with any of the following defects will not be acceptable:
 - a. Bar lengths, depths, and/or bends exceeding the specified fabrication tolerances.
 - b. Bends and/or kinks not shown on the Drawings.
 - c. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. General:
1. Comply with the specified standards for detail and method of placing reinforcement and supports, except as may be modified herein.
 2. Clean reinforcement to remove loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.
 3. Position, support, and secure reinforcement against displacement by formwork, construction, and concrete placing operations.
 4. Locate and support reinforcement by metal chairs, runners, bolsters, spacers, and hangers, as required.
 5. Place reinforcement to obtain minimum coverage's for concrete protection.
 6. Arrange, space, and securely tie bars and bar supports together with the specified tie wire.
 7. Set wire ties so twisted ends are directed away from exposed concrete surfaces.
- B. Install welded wire fabric in as long lengths as practicable, lapping adjoining pieces at least one full mesh.
- C. Provide sufficient numbers of supports, and of strength to carry the reinforcement.
- D. Do not place reinforcing bars more than 2" beyond last leg of any continuous bar support.
- E. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

3.03 SPLICES

- A. Lap Splices:
1. Tie securely with the specified wire to prevent displacement of splices during placement of concrete.
- B. Splice Devices:
1. Obtain the Owner's Representative approval prior to using splice devices.
 2. Install in accordance with manufacturer's written instructions.
 3. Splice in a manner developing at least 125% of the yielding strength of the bar.
- C. Welding:
1. Perform in accordance with AWS D1.4-79.
- D. Do not splice bars except at locations shown on the drawings, or as otherwise specifically approved by the Owner's Representative.

3.04 TESTING

- A. Samples:
1. Materials to be sampled at the building site shall have been delivered thereto at least 72 hours before it is needed.

END OF SECTION

**SECTION 03300
CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The extent of cast-in-place concrete is shown on drawings.
- B. Related work specified elsewhere:
 - Section 03100: Concrete Formwork.
 - Section 03210: Steel Reinforcement.
 - Section 03345: Concrete Finishing.

1.02 TESTING

- A. Owner to employ and pay for an independent testing laboratory, to perform specified testing.
- B. Tests required for aggregate:
 - 1. Test for conformance to ASTM C-33.
 - 2. Make one test for each 100 cubic yards of fine aggregate.
 - 3. Make one test for each 250 cubic yards of coarse aggregate.
- C. Tests required for concrete:
 - 1. Make and store test specimens in conformance with ASTM C-31.
 - 2. Compressive strength tests: ASTM C-39:
 - a. Make four (4) cylinders for each test.
 - b. Break two cylinders at seven days and two at 28 days unless otherwise directed by Owner's Representative.
 - 3. Make one compressive strength test for each day's placement or each 50 cubic yards of concrete of each specified strength.
 - 4. If test strength of concrete does not comply with strength requirements of these specifications and is sufficiently low that, in opinion of Owner's Representative, performance of structure is jeopardized, the Owner's Representative may require that drilled core test specimens be cut from structure at location at which the questionable concrete was placed. Cores shall be secured and tested in accordance with ASTM C-42. If results of these tests show that actual strength of concrete is sufficiently low as to jeopardize performance of structure, the Owner's Representative may require that concrete be removed from structure, and replaced at no additional cost to Owner.
 - 5. Perform slump test at point of placement immediately prior to placing concrete. Test in accordance with ASTM C-143.
 - 6. Test for percentage of entrained air in accordance with ASTM C-231 at time of slump testing.
- D. Inspection of batch plant:

1. Batch plant operation will be inspected as required to insure that concrete delivered to the job complies with specifications. Testing laboratory engaged by Contractor will provide this service as directed by Owner's Representative.
2. Plant inspection reports shall include:
 - a. Location of plant.
 - b. Job location.
 - c. Concrete design mix number and strength.
 - d. Concrete design proportion, source, type and amount of cement, aggregates and admixtures used, surface water added and total water used.
 - e. Slump.
 - f. Air content.
 - g. Temperature of heated concrete.
 - h. Capacity and condition of mixing truck.
 - i. Percent of capacity loaded.
 - j. Condition of batching installation.
 - k. Condition of heating installation.
 - l. Period of inspection.
 - m. Number and sizes of batches delivered.

1.04 REFERENCE STANDARDS

- A. The following codes and manuals form a part of this specification:
 1. Standard Specifications for Structural Concrete for Buildings (ACI 301-72; Rev 81).
 2. Recommended Practice for Selecting Proportions for Concrete (ACI 211-77).
 3. Concrete production facilities shall have a current "National Ready Mixed Concrete Association Certificate of Conformance for Concrete Production Facilities".
 4. Building Code Requirements for Reinforced Concrete (ACI 318-77).

1.05 SUBMITTALS

- A. Submit proposed mix design to Owner's Representative for review. Include certification required in admixture specification.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement: Portland Cement (ASTM C-150, Type I). Use high early strength Portland Cement (Serial designation C-150, Type III) where specified and elsewhere at Contractor's option and at no additional cost to Owner.
- B. Fine aggregate: Sand particles shall be coarse, sharp, clean and conforming to ASTM C-33.
- C. Coarse aggregate:

1. Crushed limestone conforming to ASTM C-33 for normal weight concrete.
 2. Light weight conforming to ASTM C-330 for semi-light weight concrete. Minimum Fsp (splitting ratio) of 6.0.
- D. Water: Clean and free from injurious amounts of oil, acids, alkalines, organic materials or other deleterious substances.
- E. Admixtures:
1. Water reducing admixture: ASTM C-494, Type A, containing no more chloride ions than are present in municipal drinking water.
 - a. Acceptable products:
 - (1) Eucone WR-75; The Euclid Chemical Co.
 - (2) Pozzolith ZOOM: Master Builders.
 - (3) Plastocrete 160; Sika Chemical Corp.
 2. Water reducing, retarding admixture: ASTM C 494, Type D, containing no more chloride ions than are present in municipal drinking water.
 - a. Acceptable products:
 - (1) Eucone Retarder-75: Euclid Chemical Co.
 - (2) Pozzolith 100XR: Master Builders.
 - (3) Plastiment: Sika Chemical Co.
 3. High range water reducing admixture (Superplasticizer): ASTM C-494, Type F or G, containing no more chloride ions than are present in municipal drinking water.
 - a. Acceptable products:
 - (1) Eucon 37; The Euclid Chemical Co.
 - (2) Sikament; Sika Chemical Corp.
 4. Non-chloride accelerator: ASTM C-494, Type C or E, containing no more chloride ions than are present in municipal drinking water.
 - a. Acceptable products:
 - (1) Accelguard 80; The Euclid Chemical Co.
 - (2) Darex Set Accelerator; W. R. Grace.
 5. Air entraining admixture: ASTM C-260.
 6. No calcium chloride or admixtures containing more than 0.1% chloride ions will be permitted.
 7. Written certification of conformance to specified requirements and the chloride ion content will be required from admixture manufacturer prior to mix design review.
- F. Curing compound: ASTM C-309 for cast-in-place slabs, except those receiving concrete staining products cementitious topping, or tennis court surfacing. No concrete treatment shall be used without Owner's Representative's approval.
1. Acceptable products:
 - a. West Concrete Floor Treatment.
 - b. Guardian Clear Bond.
 - c. TRI-KOTE Concrete Treatment.
 - d. Horn Clear Seal.
 - e. Master Builders Master Seal.
 - f. Conspec No. 1" by Conspec Marketing & Mfg. Co.

- G. Furnish concrete in accordance with ASTM C-94, Alternate No. 3, Specification for Ready Mixed Concrete. Design concrete in accordance with ACI Standard Recommended Practice for the Design of Concrete Mixes (ACI 211-77) to produce strength of concrete with slumps and maximum sizes of coarse aggregate specified. Design concrete so the concrete materials will not segregate and excessive bleeding will not occur.
- H. Reinforcing: As specified in Division 3.
- I. Floor underlayment: Ardex K-15; Ardex, Inc., 630 Stoops Ferry Road, Corapolis, Pa. 15108, (412) 264-4240.

Note: Curing agents or hardeners are not allowed for tennis courts, sport courts, playground or spraygrounds surfaces to receive color finish.

2.02 CONCRETE MIX REQUIREMENTS

- A. Meet City of Broken Arrow Standard Construction Specifications – Section 601 – Concrete dated 08/19/1999, mix design 601.02-a & 601.02-b-1, Class BA-1.
- B. Use a testing laboratory acceptable to Owner's Representative for preparing and reporting proposed mix designs. Submit written reports to Owner's Representative of each proposed mix at least 28 days prior to start of work. Do not place concrete until mixes have been reviewed and approved by Owner's Representative.

2.03 WATER STOP

- A. Acceptable manufacturers: Williams Products, Inc.
- B. Flat, natural rubber, dumbbell type, 5" wide, 1/4" minimum center thickness, 3500 psi minimum tensile strength, 525% minimum elongation to break.

2.04 COLORING

- A. NOT USED

PART 3 - EXECUTION

3.01 PLACING

- A. Notify Owner's Representative of intent to pour at least twenty-four (24) hours prior to placing concrete.
- B. Before placing concrete, clean equipment for mixing and transporting concrete. Remove debris and ice from spaces to be occupied by concrete. Forms to be removed shall be thoroughly wetted or oiled. Sprinkle sub-grade sufficiently to

prevent suction, where waterproof membrane is not required. Remove excess water from place of deposit. Reinforcement, forms, membrane, fillers and ground with which concrete is to come in contact shall be free from frost. Do not deposit concrete during rain unless it is adequately protected. In that case, be prepared to protect newly placed concrete from rain until it has hardened sufficiently so that it will not be damaged. Minimum of 2 hours between placing columns and floors.

- C. Before placing concrete, verify installation of all reinforcements, sleeves, waterproof membrane, forms for openings, fill materials, anchors and items related to mechanical, plumbing and electrical trades.
- D. Convey from mixer to place of final deposit by methods which will prevent separation or loss of materials. Do not permit concrete to drop freely any distance greater than 4 feet. Where longer drops are necessary, use a chute, tremie or other approved conveyance to assist concrete into place without separation. Chutes shall be metal and have maximum slope of 1 vertical to 2 horizontal; minimum of 1 vertical to 3 horizontal. Chutes greater than 20 feet long will not be permitted.
- E. Place concrete at a rate to keep concrete plastic and flowing readily into spaces between bars. Concrete temperature shall be 60-80°F. No concrete that is partially hardened or has been contaminated by foreign materials shall be deposited, nor shall re-tempered concrete be used.
- F. Thoroughly compact concrete by suitable means during placing and work around reinforcement and into corners and recesses of forms. Use vibrators under competent supervision to aid in placement of concrete. Insert vibrators and withdraw vertically at 18" to 30" spacing for 5 to 15 seconds duration.

3.02 HOT WEATHER CONCRETING

- A. Conform to ACI 305 when concreting during hot weather.

3.03 COLD WEATHER CONCRETING

- A. Conform to ACI 306 when concreting during cold weather.

3.04 FINISH FOR FORMED CONCRETE

- A. After removal of forms, if any honeycomb places or rock pockets exist, notify Owner's Representative and repair in accordance with his instructions. In general, remove all loose material, wet surface thoroughly, and fill all voids with a stiff mixture of one part cement to two parts sand. In exposed construction, mix white Portland Cement with standard to blend patch with surrounding surface.
- B. On exposed concrete, smooth off joint marks and fins and leave surface smooth, dense and free from honeycomb, prominent grain markings and bulges or depressions more than 3/16" in 4'.

- C. Cork floated finish (on exposed concrete, except omit at round columns):
 - 1. Remove forms at an early stage, within 2 to 3 days of placement where possible. Remove ties. Remove all burrs and fins.
 - 2. Mix one part Portland Cement and one part fine sand with sufficient water to produce a stiff mortar. Dampen wall surface. Apply mortar with firm rubber float or with trowel, filling all surface voids. Compress mortar into voids using a slow-speed grinder or stone. If the mortar surface dries too rapidly to permit proper compaction and finishing, apply a small amount of water with a fog-sprayer. Produce the final texture with a cork float.

3.05 FINISH FOR SLABS

- A. After suitable bulkheads, screens and, if specified, jointing materials have been positioned, concrete shall be placed continuously between construction joints, beginning at a bulkhead edge form or corner. Place each batch into the edge of previously placed concrete to avoid stone pockets and segregations. If there is a delay in casting, thoroughly spade concrete placed after the delay and consolidate at edge of that previously placed to avoid cold joints. Distribute concrete by shovels and consolidate by other suitable means. Bring concrete to correct level with a wood straightedge and strike off. Do not use wood bullfloats or darbies to smooth the surface.
- B. Roughen slabs to receive toppings with stiff brushes or rakes before the final set.
- C. After concrete has been properly placed, struck off and darbied or bullfloated, it shall not be worked until ready for floating. The off time between darbying and power floating may vary from 2 to 8 hours or more depending on the weather conditions, concrete temperature and concrete mixture. Begin power floating when water sheen has disappeared and mix has stiffened sufficiently that weight of a man standing on it leaves only a slight imprint on surface. If two power floating operations are necessary to bring surface to desired state, allow concrete to stiffen or become harder before beginning second floating operation.
- D. Float finish: After power floating is complete, use wood float by hand to tighten the surface and achieve a medium coarse finish. Hand wood float in a circular motion. Float sufficiently to remove cement paste from surface.
- E. Trowel finish: Both power and hand troweling shall be required. Begin power troweling as soon as little or no cement paste clings to blades. Continue troweling until surface is dense, smooth and free of all minor blemishes, such as trowel marks.
 - 1. Final hand troweling shall be required to remove slight imperfections left by troweling machines and to bring surface to a dense, smooth polished finish. Final hand troweling shall be continued until a ringing sound is heard as trowel passes over surface.

- F. Give platforms and steps a light broom finish following sufficient troweling to seal the surface and remove all minor blemishes such as trowel marks.
- G. Pitch all slabs to drain as indicated on drawings; finish exposed slab edges; stair nosings with 1/2" round radius.
- H. Finishes shall be true to planes to match requirements of Section 02514-3.01-C. If variations greater than this exist, the Owner's Representative may direct contractor to grind floor to bring surface within the requirements. Grind as soon as possible, preferably within three (3) days, but not without Owner's Representative's direction and not until concrete is sufficiently strong to prevent dislodging coarse aggregate particles. Grinding will be considered only where slabs will be covered by finish materials. Patching of low spots will not be permitted.
 - 1. Sprinkling of dry cement or a mixture of dry cement and sand on the surface of fresh concrete to absorb water or to stiffen the mix will not be permitted during any stage of floor construction. If bleeding is excessive, remove by dragging hose just ahead of floating operation.

3.06 CURING

- A. Protect freshly deposited concrete from premature drying and excessively hot or cold temperatures. Maintain without drying at a relatively constant temperature for the period of time necessary for hydration of cement and proper hardening of concrete.
- B. Initial curing shall immediately follow finishing operation. Keep concrete continuously moist at least overnight.
 - 1. On slabs, use one of the following:
 - a. Ponding or continuous sprinkling.
 - b. Absorptive mat or fabric kept continuously wet.
 - c. Sand or other covering kept continuously wet.
- C. Immediately following initial curing and before concrete has dried, additional curing shall be accomplished by one of the following materials or methods:
 - 1. Continuing the method used in initial curing.
 - 2. Waterproof paper conforming to "Specifications for Waterproof Paper for Curing Concrete" (ASTM C-171).
 - 3. Other moisture-retaining coverings approved.
- D. Continue final curing until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of air in contact with concrete is above 50°F has totaled seven (7) days. Prevent rapid drying at end of curing period.
- E. Excessive temperature changes: Changes in temperature of concrete shall be as uniform as possible and shall not exceed 5 Deg. F in any one (1) hour or 50 Deg. F in any twenty-four (24) hour period.

- F. Steel forms heated by sun and all wood forms in contact with concrete during final curing period shall be kept wet. If forms are to be removed during curing period, immediately employ one of above curing materials or methods. Continue such curing for remainder of curing period.
- G. On completion of construction, clean all exposed slabs and apply a coat of curing compound at rate of 600 sq. ft. per gallon.

3.07 LEVELING EXISTING SLABS

- A. Mix floor underlayment with water and apply to existing slab in accordance with manufacturer's instructions. Level floor to a tolerance of 1/8" in ten feet in any direction.

END OF SECTION

**SECTION 03345
CONCRETE FINISHING**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: provide finishes on cast-in-place concrete as called for on the drawings, specified herein, and needed for a complete and proper installation.
- B. Related work:
Section 03300: Cast-in-place Concrete

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: After the Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Materials list of items proposed to be provided under this section.
 - 2. Manufacturer's recommended installation procedures which, when approved by the Owner's Representative, will become the basis for accepting or rejecting actual installation procedures used on the work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until conditions are correct.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until conditions are correct.

3.02 FINISHING SLABS

- A. Definition of Finishing Tolerances:
 - 1. Class “B”: True plane within tolerances described in Section 02514-3.01-C as determined by a ten foot straightedge placed anywhere on the slab in any direction.
 - 2. Unless otherwise directed by the Owner's Representative, provide the texturing in one direction only.
 - 3. Provide “medium” texturing as directed by the Owner's Representative or otherwise called for on the drawings.

3.03 CURING AND PROTECTION

- A. Beginning immediately after placement, protect concrete from premature drying, excessively hot and cold temperatures, and mechanical injury.
- B. Temperature, Wind, and Humidity:
 - 1. Cold Weather:
 - a. When the mean daily temperature outdoors is less than 40 degrees F, maintain the temperature of the concrete between 50 degrees F and 70 degrees F for the required curing period.
 - b. When necessary, provide proper and adequate heating system capable of maintaining the required heat without injury due to concentration of heat.
 - c. Do not use combustion heaters during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases which contain carbon dioxide.
 - 2. Hot Weather: When necessary, provide wind breaks, fog spraying, shading, sprinkling, ponding, or wet covering with a light colored material, applying as quickly as concrete hardening and finishing operations will allow.
 - 3. Rate of temperature change: Keep the temperature of the air immediately adjacent to the concrete during and immediately following the curing period as uniform as possible and not exceeding a change of 5 degrees F in any one hour period, or 50 degrees F in any 24 hour period.
- C. Protection From Mechanical Injury:
 - 1. During the curing period, protect the concrete from damaging mechanical disturbances such as heavy shock, load stresses, and excessive vibration.
 - 2. Protect finished concrete surfaces from damage from construction equipment, materials, and methods, by application of curing procedures, and by rain and running water.
 - 3. Do not load self-supporting structures in such a way as to over stress the concrete.

END OF SECTION

**SECTION 05500
METAL FABRICATION**

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Provide metal fabrications as shown.

1.02 QUALITY ASSURANCE

- A. Materials and methods of construction shall comply with the following standards:
 - 1. City of Oklahoma City Standards and Specifications.
 - 2. American Institute of Steel Construction, (AISC).
 - 3. American Welding Society, (AWS).
 - 4. American Society for Testing and Materials, (ASTM).
 - 5. National Association of Architectural Metal Manufacturers, (NAAMM)
- B. Structural steel: Design, details, fabrication, and erection shall comply with American Institute of Steel Construction (AISC) standards:
 - 1. Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
 - 2. Code of Standard Practice for Steel Buildings and Bridges.
- C. Welding: Comply with American Welding Society (AWS) Structural Welding Code D1.1. Qualify welding procedures, welders, and welding operations in accordance with AWS Standard Qualification Procedure.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle metal fabrication items to prevent damage and deterioration.
- B. Stack assembled items off the ground.

1.04 PROJECT CONDITIONS

- A. Coordinate metal fabrications work with trades furnishing items which will attach to members for proper positioning.
- B. Provide sleeves, anchors, inserts, clips and other items furnished under this section and built-in with work of other trades.
- C. No work shall be fabricated until shop drawings for the work have been reviewed and accepted.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Metal surfaces: Provide materials exposed to view smooth and free of pitting, seam marks, roller marks, rolled trade names and roughness.
- B. Steel pipe: ASTM A 53, Grade A, Schedule 40, standard finish.
- C. Fasteners: Provided hot-dip galvanized or stainless steel fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.
- D. Paint :
 - 1. Metal primer paint: Standard rust inhibitive primer to be approved by Owner's Representative.

2.02 FABRICATION

- A. Fabricate work in accordance with reviewed and accepted shop drawings and referenced standards.
- B. Weld shop connections, except as otherwise indicated. Grind exposed welds smooth.
- C. Provide joints and intersections tight fitting and securely fastened.
- D. Provide metal fabrications work square, plumb, straight, and within allowable tolerances.
- E. Drill or punch holes required for attachment of other work and bolted connections. Burned holes not acceptable.
- F. Bend or form pipe and other members to continuous and true curves, with joints neatly fastened and assembled.
- G. Provide for anchorage of type required, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- H. Preassemble items in shop to greatest extent possible to minimize field fitting and assembly.
- I. Shop painting:
 - 1. Thoroughly clean ferrous metals. Remove all rust, dirt, and other substances that would impair adherence of paint.
 - 2. Prime ferrous metals. Apply 2 shop coats to parts of items which will be inaccessible after assembly. Provide minimum 2.0 mil dry film thickness for each coat.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect substrate, field measure, and verify installation conditions.

3.02 PREPARATION

- A. Provide sleeves and anchorages which are built into concrete or masonry construction. Furnish templates, setting drawings, and instructions for installation of sleeves and anchorages.
- B. Set hardware that is shop installed.

3.03 INSTALLATION

- A. Assemble and install metal fabrications in accordance with final shop drawings.
- B. Perform fitting required for installation. Set the work accurately in location, alignment, and elevation free of rack, measured from established lines and levels. Assembled metal fabrications shall be firm, rigid, free of rattle, and provide maximum protection against tampering and vandalism.
- C. Fit exposed connections accurately together to provide flush, tight, hairline joints.
- D. Adjust handrails and railings before securing in place to ensure proper matching at butting joints and proper alignment throughout their length. Space posts as indicated. Plumb posts in each direction.

3.04 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from metal fabrications work.
- B. Upon completion of installation, clean factory finished metal fabrication items in accordance with manufacturer's cleaning instructions. Exercise care to avoid damage to the finish coating.

3.05 METAL FABRICATIONS SCHEDULE

- A. Refer to plans.

END OF SECTION

**SECTION 07900
SEALANTS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including Standard Requirements for Contract Work, Special Provisions and General Requirements, apply to the work specified in this Section.

1.02 SCOPE

- A. Work under this Section consists of furnishing everything necessary for and incidental to the execution and completion of all sealant work, as indicated on the Drawings and specified herein.

1.03 DESCRIPTION OF WORK

- A. The extent of sealant work is indicated on the Drawings.
- B. The required applications of sealants includes, but are not necessarily limited to the following general locations:
 - 1. New Sidewalk Expansion Joints.
 - 2. Between Courts and Fence Bands.

1.04 QUALITY ASSURANCE

- A. Obtain sealant materials only from manufacturers who will, if required, send a qualified technical representative to the project site, for the purpose of advising the installer of proper procedures and precautions for the use of the materials.
- B. Installer: A firm with a minimum of five (5) years successful experience in the application of the types of materials required.

1.05 SUBMITTALS

- A. Comply with Section 01340.
- B. Samples, Sealants and Caulking: Submit three (3), 12" long samples of each color required (except black) for each type of sealant or caulking compound exposed to view. Install sample between 2 strips of material similar to or representative of typical surfaces where sealant or compound will be used, held apart to represent typical joint widths. Samples will be reviewed by Owner's Representative for color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

- C. Guarantee, Sealants: Submit four (4) copies of written guarantee agreeing to repair or replace sealants which fail to perform as air-tight and water-tight joints; or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability; or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data, as an inherent quality of the material for the exposure indicated. Provide guarantee signed by the Installer and Contractor.
 - 1. Guarantee period of one (1) year from and after acceptance of the project by the Owner.

1.06 JOB CONDITIONS

- A. Pre-Installation Meeting: At the Contractor's direction, the Installer, Owner and/or the Owner's Representative, sealant manufacturer's technical representative, and other trades involved in coordination with sealant work shall meet with the Contractor at the project site to review the procedures and time schedule proposed for installation of sealants in coordination with other work. Review each major sealant application required on the project.
- B. Condition of Other Work: The Installer must examine the joint surfaces, backing, and anchorage of units forming sealant rabbet, and the conditions under which the sealant work is to be performed, and notify the Contractor and the Owner's Representative in writing of conditions detrimental to the proper and timely completion of the work and performance of the sealants. Do not proceed with the sealant work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- C. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitation 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 so that sealant will not be subjected to excessive elongation and bond stress at subsequent low temperatures. Coordinate time schedule with Contractor to avoid delay of project.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Colors: Provide manufacturer's standard colors plus thirty (30) additional Fastpak, as selected by Owner's Representative.
- B. Compatibility: Before purchase of each specified sealant, investigate its compatibility with the joint surfaces, joint fillers, sealers and other materials in the system. Provide only materials (manufacturer's recommended variation of the specified materials) which are known to be fully compatible with the actual installation condition, as shown by

manufacturer's published data or certification.

- C. Provide size and shape of preformed sealant units as shown or, if not shown, as recommended by the manufacturer, either in the published data or upon consultation with technical representative.

2.02 SELF-LEVELING JOINT SEALANT

- A. Materials shall be Tremco THC-900 multi-component, chemically curing, self-leveling polyurethane joint sealant as manufactured by Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104, or approved equal.

2.03 GENERAL PURPOSE SEALANT

- A. Materials shall be Tremco Dymeric, epoxidized polyurethane terpolymer general purpose sealant as manufactured by Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104, or approved equal.

2.04 MISCELLANEOUS MATERIALS

- 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 of 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 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.

2.05 APPLICATIONS

- A. Tremco THC-900 Sealant: Provide at all exterior horizontal slab or paving joints.
- B. Tremco Dymeric Sealant: Provide at all other joints noted on the Drawings and around steel handrail base plates where handrail has been raised.

PART 3 - EXECUTION

3.01 JOINT SURFACE PREPARATION

- A. Clean joint surfaces immediately before installation of sealants. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond of sealants. All joint surface preparation shall be in accordance with sealant manufacturer's printed instructions.

3.02 INSTALLATION

- A. 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.
- B. 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.
- C. Install sealant backer rod for liquid elastomeric sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for the application shown.
- D. Install bond breaker tape wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly.
- E. 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 joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbit 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.
- F. Install sealants to depths as shown or, if not shown, as recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead.
- G. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces including rough textures such as exposed aggregate panels. Use masking tape or other precautionary devices to prevent staining of adjoining surfaces, by either the primer/sealer or the sealant/caulking compound.
- H. 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.

3.03 CURE AND PROTECTION

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendation, to obtain high early bond strength, internal cohesive strength and surface durability.
- B. The Installer shall advise the Contractor of procedures required for the curing and 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 Owner's acceptance.

END OF SECTION