

**CONTRACT DOCUMENTS
AND
SPECIFICATIONS
FOR
PROJECT NO. 147520-3 WHITESIDE PARK**

ATTENDANCE AT PRE-BID CONFERENCE IS MANDATORY

PREPARED BY:
Landplan Consultants, Inc.
1110 W. 23rd Street
Tulsa, OK 74107
918-584-6464 PH
Barbara Peterson



**CITY OF
Tulsa**
A New Kind of Energy™

PAUL D. ZACHARY, P.E., DIRECTOR
ENGINEERING SERVICES DEPARTMENT

Account Numbers: 147520.LandImp.5455301.6014.4054111-541101

Engineering Services Department
2317 South Jackson Avenue
Tulsa, Oklahoma 74107
(918) 596-9565

CONTRACT DOCUMENTS

PROJECT NO. 147520-3
WHITESIDE PARK

ENGINEERING SERVICES DEPARTMENT

INDEX TO BIDDING DOCUMENTSPAGE

NOTICE TO BIDDERS	NTB-1-2
INSTRUCTION TO BIDDERS	IB-1-6
RESOLUTION 18145 PROVIDING FOR THE EMPLOYMENT OF RESIDENTS OF THE METROPOLITAN STATISTICAL AREA	R-1-3
SBE UTILIZATION INSTRUCTIONS	UI-1-11
AFFIDAVIT FOR SBE UTILIZATION GOALS	SBE-1-5
RESOLUTION NO. 7404 AFFIDAVIT OF COMPLIANCE	RAC-1
AFFIDAVIT FOR 50% RESIDENT RESOLUTION	RRA-1
NONCOLLUSION AFFIDAVIT	NA-1
BUSINESS RELATIONSHIP AFFIDAVIT	BR-1
INTEREST AFFIDAVIT	IA-1
PROPOSAL	P-1-4
CERTIFICATE OF SECRETARY	CS-1
CONSENT OF MEMBERS	CM-1
SALES TAX EXEMPTION DOCUMENT	STED-1
EXTENSION OF TIME REQUEST	ETR-1
CONTRACT	C-1-4
PERFORMANCE BOND	PB-1-2
STATUTORY BOND	SB-1-2
MAINTENANCE BOND	MB-1-2
AFFIDAVIT FOR CONTRACT/CLAIM	AC-1
GENERAL CONDITIONS	GC- 1-15

SPECIAL PROVISIONS

SUPPLEMENTAL CONTRACT REQUIREMENTS	SCR-1
INSURANCE REQUIREMENTS	IR-1
ENVIRONMENTAL ISSUES	1
REMOVAL OF CASTINGS	RC-1
UTILITY RELOCATIONS AND DESIGN ISSUES	URDI-1
COT PROJECT SIGN	PS-1

TECHNICAL SPECIFICATIONS

WHITESIDE PARK

1-138

Published in the Tulsa World and The Oklahoma Eagle:
March 10, 13, 14, 15, 16 and 17, 2023

**NOTICE TO BIDDERS
SEALED BIDS FOR
PROJECT NO. 147520-3**

Notice is hereby given that pursuant to an order by the Mayor of the City of Tulsa, Oklahoma, sealed bids will be received in Room 260 of the Office of the City Clerk, City of Tulsa, 175 E. 2nd Street, Tulsa, Oklahoma 74103 until **8:30 a.m. the 14th day of April, 2023** for furnishing all tools, materials and labor and performing the work necessary to be done in the construction of the following:

PROJECT NO. 147520-3 WHITESIDE PARK

The entire cost of the improvement shall be paid from
Account No.

147520.LandImp.5455301.6014.4054111-541101

A **MANDATORY** Pre-Bid Conference is scheduled for **Monday, March 20, 2023 at 9:00 a.m.** and will be held through video conferencing with Microsoft Teams, invitation presented on the City of Tulsa's website at this link:

<https://www.cityoftulsa.org/government/departments/engineering-services/construction-bids/>

Attendance at the Pre-Bid Conference is MANDATORY. Bids will not be received from contractors who did not attend the Pre-Bid Conference.

Bids will be accepted by the City Clerk from the holders of valid pre-qualifications certificates from the City of Tulsa in one or more of the following classifications: **A, B or S.**

Drawings, specifications and contract documents for construction of said public improvements of the said project have been adopted by the Mayor of said City. Copies of same may be obtained at the Office of the Director of Engineering Services at the City of Tulsa Engineering Services, 2317 South Jackson, Room 103, North Building, for a non-refundable fee in the amount of **\$50.00** made payable to the City of Tulsa by check or money order.

Contract requirements shall include compliance as required by law pertaining to the practice of non-discrimination in employment.

The overall aspirational Small Business Enterprise utilization goal for this project is **ten (10)** percent.

Attention is called to Resolution No. 18145 of August 23, 1988, requiring bidders to commit to the goal of employing on the project at least fifty percent bona fide residents of the City of Tulsa and/or MSA in each employment classification.

Attention is called to Resolution 7404 of November 8, 2006, requiring bidders, their subcontractors and their lower-tier subcontractors to hire only citizens of the United States.

The City of Tulsa itself is exempt from the payment of any sales or use taxes, and pursuant to Title 68 O.S. Section 1356(10), direct vendors to the City are also exempt from those taxes. A bidder may exclude from his bid appropriate sales taxes, which he will not have to pay while acting for and on behalf of the City of Tulsa.

A Certified or Cashier's Check or Bidders Surety Bond, in the sum of 5% of the amount of the bid will be required from each bidder to be retained as liquidated damages in the event the successful bidder fails, neglects or refuses to enter into said contract for the construction of said public improvements for said project and furnish the necessary bonds within thirty days from and after the date the award is made.

The bidder to whom a contract is awarded will be required to furnish public liability and workmen's compensation insurance; Performance, Statutory, and Maintenance bonds acceptable to the City of Tulsa, in conformity with the requirements of the proposed contract documents. The Performance, Statutory, and Maintenance bonds shall be for one hundred percent (100%) of the contract price.

All bids will be opened and considered by the Bid Committee of said City at a meeting of said Committee to be held in the City Council Room of City Hall in said City at 9:00 a.m. on the 14th day of April 2023.

Dated at Tulsa, Oklahoma, this 10th day of March 2023.

(SEAL)

Christina Chappell
City Clerk

INSTRUCTIONS TO BIDDERS

B-1. BIDS

Each bid Proposal shall be completed electronically on the electronic media provided, then printed, signed and submitted along with the electronic media and the complete bound copy of the contract documents. In the event of a discrepancy between the pricing on the electronic media and hard copy of a Proposal, the hard copy pricing will govern. If electronic media is not provided and the bid Proposal is manual, the bid Proposal shall be submitted in ink. The written words shall govern over the figures if there is a difference between the two. No alterations, additions, or erasures shall be made on the Proposal. Erroneous entries shall be lined out, initialed by the bidder, and the correct entry inserted. The unit price bid must cover all expense for furnishing the labor, materials, tools, equipment, and apparatus of every description to construct, erect, and furnish all work required by and in conformance with the Drawings and Specifications.

Each bid shall be enclosed in a sealed envelope addressed to the City of Tulsa, 175 E. 2nd Street, Room 260, City Hall, Tulsa, Oklahoma, identified on the outside with the words:

PROJECT NO. 147520-3 WHITESIDE PARK

Pre-qualification Certificate Number _____,

And shall be filed with the City Clerk in Room 260, City Hall.

All addenda to the contract documents, properly signed by the bidder, shall accompany the bid when submitted.

B-2. BID SECURITY

Each bid shall be accompanied by a cashier's check, a certified check, or bidder's bond, in the amount of five percent (5%) of the total amount bid.

The bid security shall be made payable, without condition, to the City of Tulsa, Oklahoma. The bid security may be retained by and shall be forfeited to the City as liquidated damages if the bid is accepted, a contract based thereon is awarded, and the bidder fails to enter into a contract in the form prescribed, with legally responsible sureties, within thirty (30) days after such award is made by the City.

B-3 RETURN OF BID SECURITY

The bid security of each unsuccessful bidder will be returned when his bid is rejected. The bid security of the bidder to whom the contract is awarded will be returned when he executes a contract and files satisfactory bonds. The bid

security of the second lowest responsible bidder may be retained for a period of time not to exceed sixty (60) days pending the execution of the contract and bonds by the successful bidder.

B-4 WITHDRAWAL OF BIDS

No bidder may withdraw his bid for sixty (60) days after the date and hour set for the opening. A bidder may withdraw his bid any time prior to expiration of the period during which bids may be submitted by making a written request signed in the same manner and by the same person who signed the Proposal.

B-5 REJECTION OF BIDS

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

The City of Tulsa reserves the right to reject any and all bids when such rejection is in the best interest of the City of Tulsa. All bids are received subject to this stipulation and the City reserves the right to decide which bidder shall be deemed lowest responsible bidder.

A violation of any of the following provisions by the bidder shall be sufficient reason for rejecting his bid, or shall make any contract between the City of Tulsa and the Contractor that is based on his bid, null and void: divulging the information in said bid before the bids have been opened; submission of a bid which is incomplete, unbalanced, obscure, incorrect, or which has conditional clauses, additions, or irregularities of any kind not in the original proposal form, or which is not in compliance with the Instruction to Bidders and published Notice to Bidders, or which is made in collusion with another bidder. The City shall have the right to waive any immaterial defects or irregularities in any bid received.

B-6 DISQUALIFICATION OF BIDDERS

No contract will be awarded to any person or persons, firm, partnership, company, or corporation which is in arrears to the City upon any debt of contract, or in default as surety or otherwise upon any obligation to the City.

B-7 SIGNATURE OF BIDDERS

Each bid shall be properly signed with the full name of the company or individual submitting the bid, the bidder's address, and the name and title of all persons signing printed below their signature lines. Bids by partnerships shall be signed with the partnership name followed by the signature and title of one of the partners. Bids by corporations shall be signed with the name of the corporation followed by the signature and title of the president, vice president, chairman, or vice chairman of the Board of Directors with attestation by the corporate secretary or assistant corporate secretary. **Resolution must be dated no more than 30 days prior to date of signature of the contract/ bond etc.** Bids by

joint ventures shall be signed by each participant in the joint venture. Bids by limited liability companies shall be signed with the name of the limited liability company followed by the signature and title of the Manager or Managing Member. Bid by limited partnerships shall be signed with the name of the limited partnership followed by the signature of the general partner. Note: The signature requirements listed above are for Oklahoma entities; entities organized in other states must follow the law of the state in which they are organized.

A bid by a person who affixes to his signature the word "President", "Manager", "General Partner", "Agent", or other title, without disclosing the name of the company for which he is signing, may be held to be the bid of the individual signing.

B-8 INTERPRETATION OF CONTRACT DOCUMENTS

If any person who contemplates submitting a bid is in doubt as to the true meaning of any part of the drawing, specifications, or other proposed contract documents, he may submit to the Engineer a written request for interpretation thereof. The person submitting the request shall be responsible for its prompt delivery. Interpretation of the proposed contract documents will be made only by addendum. A copy of each addendum will be mailed or delivered to each person obtaining a set of contract documents from the Engineer. The City will not be responsible for any other explanations or interpretations of the proposed contract documents.

B-9 LOCAL CONDITIONS AFFECTING WORK

Each bidder shall visit the site of the work and shall completely inform himself relative to construction hazards and procedure, labor, and all other conditions and factors, local and otherwise, which would affect prosecution and completion of the work and its cost. Such considerations shall include the arrangement and condition of existing structures and facilities, the procedure necessary for maintenance of uninterrupted operation of existing structures and facilities, the availability and cost for labor, and facilities for transportation, handling, and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the bid. There will be no subsequent financial adjustment for lack of such prior information.

B-10 TIME OF COMPLETION

The time of completion is an essential part of the contract and it will be necessary for each bidder to satisfy the City of his ability to complete the work within the allowable time set forth in the Bid Form. In this connection, attention is directed to the provisions of the General Conditions and Special Conditions relative to delays, extension of time, and liquidated damages.

B-11 QUALIFICATION OF BIDDERS

No bid will be received and filed by the City Clerk of the City of Tulsa unless the person submitting the bid has been pre-qualified as provided by ordinance, and is the holder of a current certificate of Pre-qualification in force and effect on the date such bid is to be submitted and filed.

B-12 TAXES AND PERMITS

Attention is directed to the requirements of the General Conditions regarding payment of taxes and obtaining permits. Contractor shall comply with all zoning ordinances of the City, as provided in the Tulsa Zoning Code, Title 42 Tulsa Revised Ordinances and conform with all zoning requirements established by the Tulsa Metropolitan Area Planning Commission and the Board of Adjustment. Contractor can call the Indian Nations Council of Governments (INCOG) at (918) 584-7526, to determine if any zoning requirements must be met.

B-13 OKLAHOMA LEGAL REQUIREMENTS

The Contractor must comply with the Oklahoma Scaffolding Law, 40 Oklahoma Statutes, Sections 174 - 177, which cover erection and use of scaffolds, hoists, cranes, stays, ladders, supports, or other mechanical contrivances.

In accordance with Oklahoma Statutes, Title 68, Section 1701-1707, before commencing any work pursuant to this contract, any nonresident contractor shall give written notice by certified mail, return receipt requested, to the Oklahoma Tax Commission, the Oklahoma Employment Security Commission, the Workers Compensation Court, and the county assessor of each county in which work will be performed. The notices shall comply with the requirements set forth in said statute.

B-14 BONDS

The bidder to whom a contract is awarded will be required to furnish bonds as follows:

- a. Performance Bond – A Performance Bond to the City in an amount equal to one hundred percent (100%) of the Contract price.
- b. Statutory Bond – A Statutory Bond to the State of Oklahoma in an amount equal to one hundred percent (100%) of the contract price.
- c. Maintenance Bond – A Maintenance Bond to the City in an amount equal to one hundred percent (100%) of the contract price.

The bonds shall be executed on the forms included in the contract documents by a surety company authorized to do business in the State of Oklahoma and acceptable as Surety to the City of Tulsa.

Accompanying the bonds shall be a "Power-of-Attorney" authorizing the attorney-in-fact to bind the Surety Company and certified to include the dates of the bonds.

B-15 BOUND COPY OF CONTRACT DOCUMENTS

The Bid Form or other pages shall not be removed from the bound copy of contract documents. The copy of contract documents filed with each bid shall be complete and shall include all items in the Table of Contents and all addenda.

B-16 EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

Each bidder agrees to comply with the terms of Title 5, Chapter 1, Section 111, of the Tulsa Revised Ordinances relating to Non-Discrimination.

B-17 BASIS FOR AWARD OF CONTRACT

The basis for award of a contract shall be the total base bid submitted by the lowest responsible bidder unless otherwise directed in the form of proposal. The City of Tulsa reserves the right to withhold the awarding of a contract for a reasonable period of time from the date of opening of bids. The awarding of a contract upon a successful bid shall give the bidder no right or action or claim against the City of Tulsa upon such contract until the same shall have been reduced to writing and duly signed by the contracting parties. The award of a contract will not be completed until the contract is duly executed and the necessary bonds and insurance approved.

B-18 TIME FOR AWARDING OF CONTRACT

The awarding of a contract to the lowest responsible bidder will be made within thirty (30) days after the opening of bids unless the City of Tulsa by formal recorded action and for good cause shown, provides for a reasonable extension to that period, which extension period shall not in any event exceed fifteen (15) days where only state or local funds are involved, or not to exceed ninety (90) days on any award of contract for the construction of public improvements where funds are utilized which are furnished by an agency of the federal government.

B-19 SAFETY AND HEALTH REGULATIONS

Bidders should note that they are subject to "Safety and Health Regulations for Construction", Chapter XVII of Title 29, CFR, Part 1926 and that compliance, review and enforcement are the responsibility of the U.S. Department of Labor.

The Contractor is fully responsible for the safety of the work site and is expected to train their employees in all applicable safety issues. This should include but not be limited to: trench safety, confined space entry, head protection, etc. In accordance with construction contracts with the City, Authority, Board, or Commission, all applicable Labor and OSHA safety regulations must be followed.

Work sites must be monitored by the Contractor and safety provisions enforced. Contractors are asked to ensure that all employees are properly informed and trained in construction, work site safety.

B-20 VENDORS AND SUBCONTRACTOR IDENTIFICATION

Where Vendor and Subcontractor Identification Questionnaires are included in the bid documents, each bidder shall submit the Questionnaire directly to the Engineer no later than 5:00 p.m. on the first working day following the bid opening. Failure to submit the questionnaire may render the bid unresponsive and not eligible for award. The award of the Contract will be subject to the acceptability of the vendors and subcontractors listed. If an award is made, the vendors and subcontractors listed on the questionnaire shall be used on the project. No changes in the vendor and subcontractor list will be permitted unless prior consent is obtained from the Engineer.

B-21 U.S. ENVIRONMENTAL PROTECTION AGENCY NPDES REQUIREMENTS FOR STORMWATER DISCHARGES

The bidder's attention is directed to U.S. Environmental Protection Agency (EPA) NPDES requirements for stormwater discharges. The Contractor shall be responsible for filing a Notice of Intent and development and implementation of a Stormwater Pollution Prevention Plan (PPP).

B-22 AMERICANS WITH DISABILITIES ACT

The Contractor shall take the necessary actions to ensure its facilities are in compliance with the requirements of the Americans with Disabilities Act (ADA). It is understood that the program of the Contractor is not a program or activity of the City of Tulsa. The Contractor agrees that its program or activity will comply with the requirements of the ADA. Any costs of such compliance will be the responsibility of the Contractor. Under no circumstances will the Contractor conduct any activity, which it deems non-compliant with the ADA.

RESOLUTION NO. 18145

A RESOLUTION REQUIRING THE INCLUSION IN PLANS AND SPECIFICATIONS FOR PUBLIC IMPROVEMENT CONTRACTS OF PROVISIONS PROVIDING FOR THE EMPLOYMENT OF BONA FIDE RESIDENTS OF THE CITY OF TULSA; AND/OR THE MSA; ALSO PROVIDING THAT AT LEAST OF FIFTY PERCENT (50%) OF EACH CLASS OF EMPLOYEES USED ON A PROJECT BE BONA FIDE RESIDENTS OF THE CITY OF TULSA AND/OR THE MSA; THAT THE DIRECTOR OF THE DEPARTMENT OF HUMAN RIGHTS IS CHARGED WITH ENSURING THAT ALL BIDS FOR PUBLIC CONSTRUCTION CONTRACTS COMPLY WITH THIS RESOLUTION; AND DECLARING AN EMERGENCY.

WHEREAS, City of Tulsa, Oklahoma, desires to achieve a goal of full employment.

WHEREAS, it is necessary for the protection of the health, safety and welfare of all residents of the City of Tulsa, Oklahoma, to accomplish this goal.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE CITY OF TULSA, OKLAHOMA:

SECTION 1. The City of Tulsa is committed to the policy of achieving full employment of its citizens by encouraging the employment of bona fide Tulsa and MSA residents in public improvement contracts.

SECTION 2. Definitions. The definitions of certain terms used in this resolution are as follows:

- a. "Bidding Documents" or "Bid" means the bid notice, plans and specifications, bidding form, bidding instructions, special provisions and all other written instruments prepared by or on behalf of an awarding public agency for use by prospective bidders on a public construction contract.
- b. (i) "Bona Fide Residents" shall include only those persons who are either registered to vote in the City of Tulsa or who have resided within the city limits for at least six months, or who have purchased a permanent residence within the city limits or who have leased a residence for at least a six month term. Residency may be further determined by a valid Oklahoma driver's license, a current Oklahoma license tag, and a valid Oklahoma automobile inspection sticker. (ii) Bona fide residents of MSA shall include only those persons who are registered to vote in outlying MSA areas or who have resided within the outlying MSA area for at least six months, or who have purchased a permanent residence within the outlying MSA areas or who have leased a residence for at least a six month term. Residency may be further determined by a valid Oklahoma driver's license, a current Oklahoma license tag, and a valid Oklahoma automobile inspection sticker.
- c. "Public Construction Contract" or "Contract" means any contract exceeding Seven Thousand Five Hundred Dollars (\$7,500.00) in amount, awarded by the City of Tulsa for the purpose of making any public improvements or constructing any public building or making repairs to the same.
- d. "Public Improvement" means any beneficial or valuable change or addition, betterment, enhancement or amelioration of or upon any real property, or interest therein, belonging to the City of Tulsa, intended to enhance its value, beauty or utility or to adapt it to new or further purposes. The term does not include the direct purchase of materials, equipment or supplies by the City of Tulsa.

CITY OF TULSA
FILED

AUG 23 1988

J.M. P.H.
Office of City Auditor

e. "MSA". All of the land areas composed of Creek County, Osage County, Rogers County, Tulsa County and Wagoner County.

SECTION 3. Residency Requirements of Contractor's Employees. Every employee and/or agent of the City of Tulsa, Oklahoma, charged or involved with the preparation of plans and specifications for any public improvement funded in whole or in part with funds of the City of Tulsa, is hereby charged to include in said plans and specifications the following provisions which shall be binding upon the successful bidders:

a. Each bid shall be accompanied by a sworn statement that the bidder is committed to the goal of employing at least 50% bona fide residents of the City of Tulsa and/or the MSA in each classification as determined by the Oklahoma Commissioner of Labor.

b. The successful bidder will be responsible for having like requirements placed upon any subcontractor.

c. The successful bidder will submit to the Director or his designated representative of the Department of Human Rights any compliance reports involving the bidder and its subcontractors required by Title 31, Chapter 1, Section 9, of the Tulsa Revised Ordinances. The reports shall include information about the residence of each employee in each laboring and trade class applicable to any City project.

SECTION 4. Unresponsive Bids. The failure to submit the documents required by Section 3 shall render a bid unresponsive. Said documents must be submitted prior to the opening of the bids. The Director of the Department of Human Rights Section of City Development is charged with ensuring that all bids comply with Section 3 prior to the bid opening date.

SECTION 5. Duty of Employees and/or Agents of the City of Tulsa. Any employee and/or agent of the City of Tulsa who fails to include the goals for residency requirements found in Section 3 in the plans and specifications for any public improvement may be subject to disciplinary action, including dismissal.

SECTION 6. Severability. The invalidity of any section, subsection, provision or clause or portion of this chapter, or the invalidity of the application thereof to any person or circumstance shall not affect the validity of the remainder of this chapter or the validity of its application to other persons or circumstances.

SECTION 7. Effect Date. This resolution shall take effect as of July 1, 1988.

SECTION 8. Emergency Clause. That an emergency exists for the preservation of the public peace, health and safety, by reason whereof this resolution shall take effect immediately upon its passage, approval and publication.

PASSED, with the emergency clause ruled upon separately and approved this 23rd day of August, 1988.

APPROVED, this 23rd day of August, 1988.

Rodger Randle



Mayor

ATTEST: Philip W. Wood



City Auditor

APPROVED: Neal E. McNeil



City Attorney

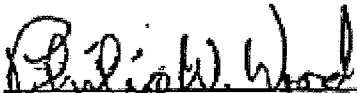
PASSED, with the emergency clause ruled upon
separately and approved this 23 day of August, 1988.

- APPROVED, this 23 day of August, 1988.



Mayor

ATTEST:



City Auditor

APPROVED:



City Attorney

CITY OF YOLAK
FILED

AUG 23 1988

A.M. P.M.
Office Of City Auditor
By _____

CITY OF TULSA, OKLAHOMA SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS BID OPENING AND AWARD SYSTEM

02.21.22

POLICY STATEMENT

The City of Tulsa (hereinafter City) is committed to implementing the City of Tulsa Small Business Enterprise (SBE) Program of the City of Tulsa, hereinafter referred to as SBE Program. The stated objectives of the programs are:

- To ensure the employment of SBE(s) in the award and administration of City agreements and contracts;
- To create a level playing field on which SBE firms can compete fairly for City contracts;
- To ensure that only firms that fully meet the eligibility standards are permitted to participate as SBE participants;
- To help remove barriers to participation in City contracts;
- To assist in the development of SBE firms so that they may graduate from the SBE Program and ultimately compete successfully in the marketplace.

GOALS BY BUSINESS CATEGORY – SBE

There are seven (7) Business Categories for the City of Tulsa: Construction Contractors (Prime and Subcontractor), Architecture / Engineering (Consultant and Subconsultant), Professional Services, Other Services, and Goods and Supplies. A general description of each category follows:

Construction

- General building contractors engaged primarily in the construction of commercial buildings.
- Heavy construction such as airport runways, bridges, plants, grading and drainage, roadways, and other municipal infrastructure.
- Light maintenance construction services such as carpentry work; electrical work; installation of carpeting; air-conditioning repair, maintenance, and installation; plumbing; and renovation.
- Other related services such as water and sewer lines and maintenance, asbestos abatement, drainage, dredging, grading, hauling, landscaping (for large construction projects such as boulevards and highways), paving, roofing, and toxic waste clean-up.

Architecture and Engineering

- Licensed Architect
- Landscape Architect
- Professional Engineer
- Professional Land Surveyor
- Construction observation
- Other professional design / construction related services

CITY OF TULSA, OKLAHOMA

SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS

BID OPENING AND AWARD SYSTEM

Professional Services

- Financial Services
- Legal services
- Medical services
- Educational services
- Real Estate services
- Planning services.
- Other professional services

Other Services

- Janitorial and maintenance services
- Uniformed guard services
- Computer services
- Certain job shop services
- Graphics, photographic services
- Landscaping
- Other non-technical professional services

Good and Supplies

- Office goods
- Medical supplies
- Miscellaneous building materials
- Computers

The goals are to reflect resource availability and capability. The City of Tulsa's goal is to mitigate and close the disparity between the availability/capability versus actual utilization of SBE firms in Creek, Okmulgee, Osage, Pawnee, Rogers, Tulsa, and Wagoner counties in Oklahoma.

The City enters various agreements and contracts with the private sector for services, goods and supplies, and construction activities. The agreements or contracts may have a specific or primary deliverable associated with one of the Business Categories. However, supplementary efforts may exist to fulfill the agreement or contract. Therefore, the table below is provided to show goals for all Business Categories. Good faith efforts shall first be focused on the Business Category or Categories that relate directly to the deliverables. Additional good faith efforts shall be in supplementary efforts from other categories to assist in meeting the overall project goal.

The project goals will be monitored and periodically adjusted to address the disparity between the available / capable / willing SBE firms versus actual utilization of SBE firms. The **overall project goal is 10%.**

SBE firms identified for utilization in an agreement or contract must be paid from the proceeds from that agreement or contract.

**CITY OF TULSA, OKLAHOMA
SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS
BID OPENING AND AWARD SYSTEM**

<i>Business Category</i>	<i>SBE Goal (%)</i>
Construction (Prime Contractors)	10
Construction (Subcontractors)	10
Architecture / Engineering (Consultant)	10
Architecture / Engineering (Subconsultant)	10
Professional Services	10
Other Services	10
Goods and Supplies	10

BIDDER'S ACTIONS

For a:

- A. **GENERAL / PRIME CONTRACTOR Contract:** When the City has established SBE contract goals (hereinafter referred to as "goals"), the City will award a contract only to a bidder who makes good faith efforts to meet the goals.
- B. **CONSTRUCTION MANAGEMENT AT-RISK (CMAR) Contract:** When the City has established SBE contract goals (hereinafter referred to as "goals"), the City will recommend award to the Construction Management (CM) firm the bidder who makes good faith efforts to meet the goals. **However, Bidder(s) who are SBE(s) are not required to solicit other SBE firms but are encouraged.**

The following summary outlines the procedures

Summary:

- 1. **RECORD OF SOLICITATION FOR SBE form:**
These forms **MUST** be submitted with the bid documents. These documents establish the initial good faith, outreach efforts. In the event the bidder submitted the lowest bid, the SBE firms identified on these forms submitted with the bid are the only SBE firms that will be considered for establishing the bidder's projected utilization percentages for consideration of the award of bid.
- 2. **LETTER OF INTENT TO CONTRACT WITH SBE form:**
The bidder that submits the apparent lowest bid will be notified by City staff no later than the Monday following bid opening. The apparent low bidder **MUST** submit these forms and the associated attachments by close of business on Thursday following bid opening. Only SBE firms documented on the **RECORD(s) OF SOLICITATION FOR SBE** forms submitted with the bid will be considered for establishing the bidder's projected utilization percentages for consideration of the award of bid. If Letters of Intent are not submitted, the projected utilization will be 0% and the apparent lowest bidder is subject to being deemed non-responsive.

CITY OF TULSA, OKLAHOMA

SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS

BID OPENING AND AWARD SYSTEM

3. ADMINISTRATIVE RECONSIDERATION:

If the City determines that a bidder failed to meet the requirements above, City staff will contact the bidder by phone to define the issue and clarify any miscommunications and/or inadvertent actions. If issue was not due to miscommunication and/or inadvertent actions, the bidder will be notified per the Administrative Reconsideration process defined below. If the apparent low bidder is deemed non-responsive, City staff will notify the next lowest bidder to submit their LETTERS OF INTENT TO CONTRACT WITH SBE by close of business of the 6th day following notification or may exercise its right to reject any and all bids.

4. CITY OF TULSA SBE UTILIZATION form:

This form is completed by the contractor (successful bidder) and submitted as part of the contract to perform the project. This form documents the “projected” utilization for the project. At the end of the project, this form is submitted with the final pay request documenting the “actual” utilization. The “actual” utilization must meet or exceed the “projected” utilization. Any change in the “projected” utilization must be documented, submitted to the City on the CHANGE REQUEST FOR SBE PARTICIPATION form, and approved by the City. Approval of the change must occur at the time of the change. If the change is a reduction and not submitted and approved per the instructions, the amount will be deducted from the contractor’s final pay request.

5. CHANGE REQUEST FOR SBE PARTICIPATION form:

This form documents any change to the “projected” utilization for the project. Change in utilization includes reduction, substitution, and/or increase. Utilization shall be checked with the submission of partial pay requests, but not longer than 30 day intervals throughout the project. The contractor’s acknowledgement that they have verified changes in his/her utilization is required as part of partial pay request documents. Reductions in utilization not approved prior to the final pay request will result in pay reduction to the contractor. If, at the completion of the project, the contractor has failed to meet the SBE contract goals, does not have an approved change request, and has not demonstrated good faith efforts to meet the contract goal, the contractor will be assessed liquidated damages for the difference between the contract goal and the actual SBE participation achieved.

Record of Solicitation

All bidders shall, **with the submissions of their bids**, show their RECORD(s) OF SOLICITATION FOR SBE that demonstrates the good faith outreach effort to meet or exceed the SBE goals established for the project.

If bidders cannot meet the established SBE goals, the bidders shall document and submit with their bid proposal, justification stating why they could not meet the established SBE goals. To demonstrate good faith efforts to meet the SBE goals, the bidders shall document their efforts to obtain SBE participation. City will review and determine that the information is complete, accurate and adequately documents the bidder’s good faith efforts before committing to the award of the contract to the bidder. In the event that the City awards a contract to a bidder who cannot meet the established SBE goals,

CITY OF TULSA, OKLAHOMA

SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS

BID OPENING AND AWARD SYSTEM

the findings of the City's review shall be in written form and shall be incorporated into and become part of the contract documents.

If the bidder to whom City proposes to award the contract is able to demonstrate good faith efforts, City may accept the bidder's proposed goal. Acceptance by the City of the bidder's proposed goal does not release the bidder from its contractual obligation to continue to make efforts throughout the duration of the project to utilize SBE firms on the project.

All bidders shall submit with their bid the completed and signed RECORD OF SOLICITATION FOR SBE form.

Letter of Intent

The bidder must submit to the Engineering Contract Coordinator written confirmation from the SBE firms on the form LETTER OF INTENT TO CONTRACT WITH SBE that it is participating in the contract as provided in the contractor's bid commitment. This may be submitted with the bid, but not later than the City's close of business of the Thursday following the bid opening. The signed forms will define the contractor's final proposed utilization and will be the basis of a final evaluation. If inadequate utilization is proposed, the bid shall be considered non-responsive.

The SBE firms submitted on the LETTER OF INTENT TO CONTRACT WITH SBE forms shall be considered binding and changes of committed SBE firms may only be made after the contract is fully executed, and may only be changed through the submission, review and approval of form CHANGE REQUEST FOR SBE PARTICIPATION.

Failure to make the written assurance (City form LETTER OF INTENT TO CONTRACT WITH SBE), which includes the names of the SBE firms to be used, the work they will perform, and the price for the work, or failure to demonstrate good faith efforts that is deemed acceptable to the City to meet or exceed the SBE goals, shall render a bid non-responsive.

It is the contractor's responsibility to submit the information necessary for the City to ascertain compliance with the good faith efforts requirement. Extra cost involved in finding and utilizing SBE firms shall not be deemed adequate reason for the bidder's failure to meet the project SBE goals unless such costs are grossly excessive.

In instances where a successful bidder's SBE commitment exceeds the actual SBE contract goals, the submitted goals of the bidder become the contractual obligation.

In instances where a successful bidder's SBE commitment is below the SBE contract goals, the submitted utilization goals become the contractual obligation.

Good Faith Efforts

The steps taken by the bidder to obtain SBE participation shall be documented in writing and shall include, but are not limited to, the following good faith efforts:

CITY OF TULSA, OKLAHOMA

SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS

BID OPENING AND AWARD SYSTEM

- A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) in the interest of all certified SBE firms capable to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the SBE firms to respond to the solicitation. The bidder must determine with certainty if the SBE firms are interested by taking appropriate steps to follow-up on the initial solicitation.
- B. Selecting portions of the work to be performed by SBE firms in order to increase the likelihood that the SBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate SBE participation, even when the contractor might otherwise prefer to perform these work items with its own forces.
- C. Providing interested SBE firms with adequate information about the plans, specifications and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- D. Negotiating in good faith with interested SBE firms:

(1) It is the bidder's responsibility to make a portion of the work available to SBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available SBE subcontractors and suppliers, to facilitate SBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of SBE firms that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for SBE firms to perform the work. RECORD OF SOLICITATION FOR SBE form will be submitted.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including available SBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using SBE firms is not sufficient justification for a bidder's failure to meet the contract SBE goals, as long as such costs are reasonable. Also, the ability or desire of a contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Contractors are not, however, required to accept higher quotes from SBE firms to fulfill the SBE contract requirements if the price difference is excessive or unreasonable. Documentation of quotes shall be submitted to the City with the bid as part of the bidder's record of solicitation.

E. Thoroughly analyzing the capabilities of SBE firms before determining a firm's qualification for a project. The following shall not be legitimate causes for the rejection or non-solicitation of SBE quotes in the efforts of the contractor to meet the project goal: (1) the subcontractor's standing, unrelated to job performance, within the industry; (2) membership in specific groups or organizations; or, (3) association with certain political and/or social organizations.

Administrative Reconsideration

CITY OF TULSA, OKLAHOMA SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS BID OPENING AND AWARD SYSTEM

If City determines that a bidder fails to meet the requirements stated above, the bidder will be provided an opportunity for administrative reconsideration. City staff will contact the bidder by phone to define the issue and clarify any miscommunications or inadvertent actions. If issue was not due to miscommunication and/or inadvertent actions, the following process will be followed:

1. The bidder will be notified by fax/email within ten working days following the bid opening.
2. The bidder will have 2 working days from time of notification to schedule a meeting for the purpose of administrative reconsideration with a City of Tulsa Attorney. Reconsideration meetings will generally be held within 7 days of notification of a bidder being determined non-responsive.

As part of this administrative reconsideration, the bidder will have the opportunity to meet in person with a City of Tulsa Attorney to present arguments concerning whether it met the goal or made adequate good faith efforts to do so. Submittal of additional information documenting solicitation, which was due with the original bid submission, will not be accepted or considered.

3. The decision on reconsideration will be made by a City of Tulsa Attorney who did not take part in the original determination that the bidder failed to meet the goal or make adequate good faith efforts to do so.
4. No awards will be made until all administrative reconsiderations as outlined herein are complete. A City of Tulsa Attorney will provide a written decision on reconsideration to the bidder. This decision will explain the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The determination is copied to the Contract Administrator, City Engineer, and the Director of Human Rights.

CONTRACTOR ACTIONS AFTER AWARD OF THE CONTRACT:

Counting SBE Participation Toward the Goal

When a SBE participates in a contract, only the value of the work actually performed by the SBE is counted toward the contract goal.

The entire amount of that portion of a contract that is performed by the SBE firm's own forces is counted, including the cost of supplies and materials obtained by the SBE for the work on the contract, including supplies purchased or equipment leased by the SBE (except supplies and equipment the SBE purchases or leases from their Prime Contractor).

When a SBE performs as a participant in a joint venture, the portion of the total dollar value of the contract equal to the clearly defined portion of the work that the SBE performs with its own forces may be counted toward the goal.

CITY OF TULSA, OKLAHOMA

SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS

BID OPENING AND AWARD SYSTEM

Only expenditures to a SBE contractor who performs a commercially useful function may be counted toward a SBE goal.

Commercially Useful Function

A SBE performs a commercially useful function when it is responsible for the execution of the work of its contract and is carrying out its responsibilities by actually performing, managing and supervising the work involved. The SBE must be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

To determine whether a SBE is performing a commercially useful function, City will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid is commensurate with the work it is actually performing and the SBE credit claimed, and other relevant factors.

A SBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction through which funds are passed in order to obtain the appearance of SBE participation. In determining whether a SBE is acting as a pass-through, City will examine similar transactions, particularly those in which SBE firms do not participate.

Manufacturers and Material Suppliers

If the materials or supplies are obtained from a certified SBE manufacturer, 100 percent of the cost of the materials or supplies will be counted toward the SBE goals. A manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials required under the contract as described by the specifications.

If the materials or supplies are purchased from a certified SBE regular dealer, 100 percent of the cost of the materials or supplies will be counted toward the SBE goals. A regular dealer is a firm that owns, operates or maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment described by the specification and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business as provided for in the above paragraph if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad-hoc or contract-by-contract basis.

In order for a firm to qualify as a SBE supplier of metal and/or concrete pipe, the firm must also fabricate the pipe. Metal or concrete pipe is specialty pipe which is project specific and is inspected

CITY OF TULSA, OKLAHOMA SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS BID OPENING AND AWARD SYSTEM

during the manufacturing process. This arrangement provides for no warehousing of metal or concrete pipe and essentially requires the manufacturer to be the supplier. Merely ordering pipe from the fabricator and in turn selling it to contractors is not consistent with normal industry practice. Contractors normally purchase pipe directly from the manufacturer, thus eliminating the middleman. Supplying metal or concrete pipe is viewed as brokering and is considered inconsistent with SBE program requirements.

Change Request for SBE Participation

Substitution or replacement of a SBE firms will only be permitted or allowed after award and execution of the City contract.

A contractor may not terminate for convenience a SBE listed in their contract (or an approved substitute SBE firm) and then perform the work of the terminated subcontract with its own forces or those of an affiliate, without City's prior written consent.

When a SBE is terminated, or fails to complete the work of the contract for any reason, the contractor must make good faith efforts to find another SBE to substitute for the original SBE. These good faith efforts shall be directed at finding another SBE to perform at least the same amount of work (not necessarily the same work) under the contract as the SBE that was terminated, to the extent needed to meet the SBE goals established in the contract.

When the contractor obtains a substitute SBE, the contractor shall provide the Engineering Contract Coordinator with copies of the CHANGE REQUEST FOR SBE PARTICIPATION form and supporting documentation.

If the contractor is unable to replace the SBE with another SBE, then the contractor must provide City with evidence in writing that they have made a good faith effort. The contractor must submit to the Engineering Contract Coordinator a CHANGE REQUEST FOR SBE PARTICIPATION form along with documentation to support they have made a good faith effort. City may adjust the goal as appropriate.

In the case where a contractor cannot meet the SBE goals of a contract, he or she should request a change of that portion of the SBE goal, which cannot be met. The request will be subject to the following:

- A written request for change will be initiated by the contractor at the time he or she reasonably knows that despite good faith efforts the contract goal cannot be achieved. The request will be included on the CHANGE REQUEST FOR SBE PARTICIPATION form and will contain written document all good faith efforts made to meet the goal as well as the reason for the change.
- The request for change, CHANGE REQUEST FOR SBE PARTICIPATION form, will be submitted for review to the Engineering Contract Coordinator. The City will make the decision on the approval or denial of the change request and inform the contractor.

CITY OF TULSA, OKLAHOMA SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS BID OPENING AND AWARD SYSTEM

- If, at the completion of the project, the contractor has failed to meet the SBE contract goals, does not have an approved change request, and has not demonstrated good faith efforts to meet the contract goal, the contractor will be assessed liquidated damages for the difference between the contract goal and the actual SBE participation achieved. The City shall deduct the liquidated damages from the final payment. In the event insufficient earnings remain for the reduction of liquidated damages, the City may claim against the contractor's bond, suspend the contractor under performance suspension, withhold further proposals, suspend prequalification and/or other remedies available under the law.
- In those instances when the goal is not met due to a change in quantity, which occurs through no fault of the contractor, but due to City and/or changed site conditions, a change request will be recommended by Field Engineering at the time the change becomes known, but not later than the next progressive payment application from the contractor which covers the work identified for the SBE firm. The change request will include the statement of quantity change(s). The contractor shall endeavor, with good faith efforts, to mitigate underruns by utilizing other SBE firms.

Change in utilization includes reduction, substitution, and/or increase. Utilization shall be checked with the submission of each partial pay request, but not longer than 30 day intervals throughout the project. The contractor's acknowledgement that they have verified changes in his/her utilization is required as part of partial pay request documents. Reductions in utilization not approved prior to the final pay request, will result in pay reduction to the contractor.

If a contractor fails to comply with this section, appropriate administrative remedies may be taken including, but not limited to:

- No additional progressive payments may be processed
- Refusal to issue proposals
- Liquidated damages
- Suspension of work on the project
- Suspension of prequalification
- Termination of the contract

Prompt Payments

To ensure that contractors' obligations under City contracts are met, the contractor shall endeavor to pay all subcontractors for satisfactory performance of their contracts no later than fifteen (15) calendar days after receipt of each progressive payment from City. The contractor must further endeavor to make prompt release of retainage held to the SBE within thirty days after the work is satisfactorily completed, whether the contractor's work is complete or not. The term "satisfactorily completed" is defined as when; 1) City finds the work completed in accordance with the Plans and Specifications; 2) any required paperwork, including material certification, payrolls, etc., have been received and approved by City; 3) Field Engineering has determined the final quantities on the subcontractor's portion of the work; and 4) Contractor has received progressive payments from City which includes subcontractors' work.

CITY OF TULSA, OKLAHOMA

SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS

BID OPENING AND AWARD SYSTEM

In an effort to accelerate payments to subcontractors, the City may pay the Contractor for acceptable material stockpiled or delivered to the project, at other approved or designated locations, or at a plant site required for Contractor's operations as approved by the City. This is governed by Oklahoma Department of Transportation Standard Specifications for Highway Construction 2009 or latest edition.

Contractor shall endeavor to include invoices from SBE for materials on hand, partially completed work, or complete work on the earliest partial payment request submitted to the City. It is incumbent on the SBE to submit invoices to the Contractor in a timely manner.

Failure to comply with the prompt payment and return of retainage provisions of the contract may result in sanctions under the contract, as listed below:

- Refusal to issue proposals
- Liquidated damages
- Suspension of work on the project
- No additional progressive payments may be processed
- Suspension of prequalification

Any delay or postponement of payment among the parties may take place only for good cause, with City written approval. The explanation from the contractor must be made in writing to the City.

Record Keeping Requirements

The contractor shall keep such records as are necessary to determine compliance with the SBE contract obligations. The records kept by the contractor will indicate:

1. The name(s) of SBE firms or other subcontractors, the type of work being performed, and payment for work, services and business.
2. Documentation of correspondence, verbal contracts, telephone calls, etc., to obtain services of SBE firms on the project.

Upon request, the contractor shall submit all subcontracts, purchase orders, contracts, agreements, and financial transactions, including canceled checks, executed with SBE firms with the reference to records referred to in this provision, in such form, manner, content prescribed by City.

The contractor should list all SBE firms in the contract and summarize total amounts paid to SBE firms and the project goal amount for each SBE firm.

Reciprocity

The City will grant reciprocity of membership in the SBE program to certified Oklahoma Department of Transportation Disadvantaged Business Enterprises which are located in the Tulsa Metropolitan Statistical Area.

(Must be submitted with Bid)

**CITY OF TULSA
BIDDER'S AFFIDAVIT FOR
SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION GOALS**

STATE OF)
) ss:
COUNTY OF)

_____, of lawful age, being first duly sworn, says that s(he) is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder agrees to fully comply with the City of Tulsa's Resolution requiring that a good faith effort be made to utilize small business enterprises as subcontractors.

Affiant further states that s(he) will document on pages SBE-2BID, -3BID, -4BID, and -5BID for public record, his/her good faith efforts in solicitation.

Affiant further states that s(he) is responsible for having like requirements placed upon any subcontractor of said bidder.

Affiant further states that s(he) has read and agrees to the current CITY OF TULSA, OKLAHOMA SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION INSTRUCTIONS FOR BID OPENING AND AWARD SYSTEMS.

BIDDER (Company Name)

SIGNED

TITLE

SUBSCRIBED and SWORN to before me this _____ day of _____, 20_____.

NOTARY PUBLIC

MY COMMISSION EXPIRES:

SBE-1BID

RECORD OF SOLICITATION FOR SMALL BUSINESS ENTERPRISE (SBE)
(MUST BE SUBMITTED WITH BID)

- Project Name:
- Project Number:
- Prime Contractor:
- Prime Contractor Representative:
Consultants, Subcontractors, Service, Regular Dealers, Material Suppliers, & Fabricators:
- Contact Date(s):
- Name of Company:
- Address (Street, City, County, State):
- City of Tulsa SBE: <input type="checkbox"/> Yes <input type="checkbox"/> No
- City of Tulsa SBE Certificate Number:
- Other SBE Certificate Number(s):
- Company Contact Person:
- Phone No.: Email:
- Description of Work:
- Contract Documents provided to and/or reviewed by Company: <input type="checkbox"/> Yes <input type="checkbox"/> No
- Will City of Tulsa SBE be utilized? <input type="checkbox"/> Yes <input type="checkbox"/> No
- If Yes, Estimated Agreement Amount: \$
- If No, description of reasons why agreement could not be reached for City of Tulsa SBE to perform work:



**CITY OF
Tulsa**
A New Kind of Energy™

LETTER OF INTENT
TO CONTRACT WITH SMALL BUSINESS ENTERPRISE (SBE)
(Must be submitted by close of business on Thursday following bid opening)

Engineering Services Department, Attn: Contract Administration

CITY OF TULSA

2317 South Jackson, N-103

Tulsa, Oklahoma 74107

Ph.: 918.596.9637

Fax: 918.596.1299

Project Name: _____

Project Number: _____

Submittal Date: _____

Prime Contractor

HEREBY, intends to subcontract items of work generally described as

to:

SMALL BUSINESS ENTERPRISE

Total amount of participation by City of Tulsa SBE: \$ _____
(City of Tulsa SBE, quote must be attached)

City of Tulsa SBE: ☐ Yes ☐ No

City of Tulsa SBE Certificate Number: _____

Other SBE Certificate Number(s): _____

SMALL BUSINESS ENTERPRISE

Signature: _____

Title: _____

Date: _____

PRIME CONTRACTOR

Signature: _____

Title: _____

Date: _____

Signatures of Authorized representatives of the Prime Contractor and the City of Tulsa SBE firm above represent the written commitment by the Prime Contractor to subcontract with the City of Tulsa SBE firm and a written commitment by the City of Tulsa SBE firm to subcontract for work as described in the attached quote.

This form, along with the City of Tulsa SBE firm's quote must be submitted to the City with the executed Contract documents. If this form is not received, the proposed utilization will NOT be counted as part of the Prime Contractor's agreement. This may cause the agreement to be considered non-compliant and be rejected by the City of Tulsa.

SBE – 3BID



CHANGE REQUEST
FOR SMALL BUSINESS ENTERPRISE (SBE) PARTICIPATION

Project Name: _____

Project Number: _____

Prime Contractor: _____

CHANGE: From / To (fill in both sides)
FROM:

OR

ADD: To (fill in this side only)
TO:

Name: _____

Name: _____

City of Tulsa SBE: ☐ Yes ☐ No

City of Tulsa SBE: ☐ Yes ☐ No

City of Tulsa SBE Certificate Number: _____

City of Tulsa SBE Certificate Number: _____

Other SBE Certificate Number(s): _____

Other SBE Certificate Number(s): _____

Change in service to be performed: _____

Change in amount of participation by City of Tulsa SBE: \$ _____

Reason for Change: _____

NOTE: Attach a copy of the Letter of Intent for the original City of Tulsa SBE and a new Letter of Intent for the proposed City of Tulsa SBE.

PRIME CONTRACTOR

SBE SUBCONTRACTOR

Signature: _____

Signature: _____

Date: _____

Date: _____

Title: _____

Title: _____

Approved / Disapproved: _____ Date: _____

Engineering Services, Manager
(Planning, Design, or Field)

Approved / Disapproved: _____ Date: _____

Engineering Services / Contract Admin.

Distribution: Tulsa Authority for Economic Opportunity
Engineering Services Department Division (Planning, Design, or Field)



CITY OF TULSA
SMALL BUSINESS ENTERPRISE (SBE) UTILIZATION

Project No.	Contractor	
Project Name		

Name	Business Category	Projected Dollars	Actual Dollars

Projected Contract % Actual Contract % Total

PROJECTED: ACTUAL (Update and Submit with Final Payment):

Contractor Representative

Date

NOTE: REFER TO UTILIZATION INSTRUCTIONS

(Must be submitted at time of Bid)
CITY OF TULSA
RESOLUTION NO. 7404
AFFIDAVIT OF COMPLIANCE

_____, of lawful age, being first duly sworn, states that s(he) is the authorized agent of the Company set forth below.

Affiant further states that the Company, in compliance with City of Tulsa Resolution No. 7404, shall not hire or knowingly allow any of its subcontractors or lower tier subcontractors to hire anyone who is not a United States citizen or legal immigrant or anyone who does not have legal status as a temporary worker to perform work on any project which is the subject of a contract between the Company and the City of Tulsa.

Affiant further states that the Company shall not fail to comply with and shall not knowingly allow any of its subcontractors or lower tier subcontractors to fail to comply with all applicable laws including, but not limited to, labor, employment and taxation laws, in the performance of any work on any project which is the subject of a contract between the Company and the City of Tulsa.

Affiant further states that the Company shall make available to the City of Tulsa, at the City's request, sufficient information and/or affirmations to allow the City to confirm Company's compliance with Resolution No. 7404 relating to the performance of any contract between the Company and the City of Tulsa.

Company: _____

Signed: _____

Title

SUBSCRIBED and SWORN to before me, this ____ day of _____, 20__.

NOTARY PUBLIC

MY COMMISSION EXPIRES:

COMMISSION NO.:

Resolution No. 7404
RAC-1

(Must be submitted at time of Bid)
CITY OF TULSA
50% RESIDENT RESOLUTION
AFFIDAVIT FOR BID

STATE OF)
) ss:
COUNTY OF)

_____, of lawful age, being first duly sworn, states that s(he) is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder, in compliance with City of Tulsa Resolution No. 18145, is committed to the goal of employing at least 50% bona fide residents of the City of Tulsa and/or the Metropolitan Statistical Area (composed of Creek, Okmulgee, Osage, Pawnee, Rogers, Tulsa, and Wagoner counties).

Affiant further states that bidder is responsible for having like requirements placed upon any of its subcontractors.

BIDDER (Company Name)

SIGNED

Title

SUBSCRIBED and SWORN to before me this ____ day of _____, 20____.

NOTARY PUBLIC

MY COMISSION EXPIRES:

COMMISSION NO.:

(Must be submitted at time of bid)
NON-COLLUSION AFFIDAVIT

STATE OF _____)
) ss:
COUNTY OF _____)

_____, of lawful age, being first duly sworn, says that:

1. I am the duly authorized agent of the bidder submitting the competitive bid associated with this sworn statement for the purpose of certifying facts pertaining to the existence of collusion among bidders and between bidders and municipal officers or employees, as well as facts pertaining to the giving or offering of things of value to governmental personnel in return for special consideration in the letting of any contract pursuant to the bid;
2. I am fully aware of the facts and circumstances surrounding the making of the bid and have been personally and directly involved in the proceedings leading to the submission of such bid;
3. Neither the bidder nor anyone subject to the bidder's direction or control has been a party:
 - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding;
 - b. to any collusion with any municipal official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract; nor
 - c. in any discussions between bidders and any municipal official concerning exchange of money or other things of value for special consideration in the letting of a contract.
4. If awarded the contract, neither the bidder nor anyone subject to the bidder's direction or control has paid, given or donated or agreed to pay, give or donate to any officer or employee of the City of Tulsa or of any public trust where the City of Tulsa is a beneficiary, any money or other thing of value, either directly or indirectly, in procuring the contract for which the bid is submitted.

BIDDER (Company Name)

Signed

Title

SUBSCRIBED and SWORN to before me this _____ day of _____, 20____.

NOTARY PUBLIC

MY COMMISSION EXPIRES:

_____, ____ .
COMMISSION NO.:

(Must be submitted at time of bid)
BUSINESS RELATIONSHIP AFFIDAVIT

STATE OF)
) ss:
 COUNTY OF)

_____, of lawful age, being first duly sworn, 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.)

Signed: _____

 BIDDER (Company Name)

 Title:

SUBSCRIBED and SWORN to before me this _____ day of _____, 20____.

 NOTARY PUBLIC

MY COMMISSION EXPIRES:

_____, _____
 COMMISSION NO.:

INTEREST AFFIDAVIT

STATE OF _____)
)ss.
COUNTY OF _____)

I, _____, of lawful age, being first duly sworn, state that I am the agent authorized by Contractor, Engineer, Architect or provider of professional service ["Services Provider"] to submit the attached Agreement. Affiant further states that no officer or employee of the City of Tulsa either directly or indirectly owns a five percent (5%) interest or more in the Services Provider's business or such a percentage that constitutes a controlling interest. Affiant further states that the following officers and/or employees of the City of Tulsa own an interest in the Services Provider's business which is less than a controlling interest, either direct or indirect.

By _____
Signature

Title _____

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

Notary Public

My Commission Expires: _____

Notary Commission Number: _____

County & State Where Notarized: _____

The Affidavit must be signed by an authorized agent and notarized.

ELECTRONIC BID PROPOSAL INSTRUCTIONS - EXCEL SPREADSHEET
PROJECT NO. 147520-3

Please read the following instructions carefully.

1. After opening this file re-save it as your company's name.
2. Open the BID FORM Sheet from the tabs below.
3. Input the unit price of the appropriate pay item in the cells highlighted in blue.
4. Review all data input and check calculations to ensure accuracy of Bid.
5. Print 1hardcopy of the "PROPOSAL" tab, BID FORM and the "SIGNATURE PAGE" tab.
6. Complete and sign the "Signature Page" document.
6. Submit hardcopy and electronic disk with Contract Documents and Specifications for Bid opening date.

NOTES:

1. The sheet named "FOR CONTRACTOR USE" shall be used by the contractor to export data to estimating software.

AGREEMENT FOR USING ELECTRONIC BID PROPOSAL

By and Between: LandPlan Consultants, (ENGINEER) and RECIPIENT. The enclosed electronic media is provided pursuant to your request and is for your limited use in connection with your submittal of Bid Proposal for Project No. 147520-3. In no event shall the information be used for any other purpose or be released to third parties without the written consent of the ENGINEER. In the event of a discrepancy between the hard copy and this electronic media at delivery or in the future, the hard copy shall govern. ENGINEER hereby disclaims any and all liability for the consequences from use of the electronic media and makes no warranty or guarantee of accuracy. RECIPIENT shall assume full responsibility for the uses and consequences of the electronic media. It is agreed that ENGINEER has and retains ownership of the electronic media. ENGINEER does not warrant or guarantee that the electronic data is compatible with RECIPIENT'S computer hardware or software, and ENGINEER'S responsibility for the electronic media is limited to replacement of defective media for a period of thirty (30) days after delivery to RECIPIENT. !!! By opening and using this FILE, You AGREE to these TERMS AND CONDITIONS!!!

**PROPOSAL
PROJECT NO. 147520-3**

TO: HONORABLE MAYOR
CITY OF TULSA, OKLAHOMA

THE UNDERSIGNED BIDDER, having carefully examined the drawings, specifications, and other Contract Documents of the above project presently on file in the City Clerk, City of Tulsa Oklahoma:

CERTIFIES THAT he has inspected the site of the proposed work and has full knowledge of the extent and character of the work involved, construction difficulties that may be encountered, and materials necessary for construction, class and type of excavation, and all other factors affecting or which may be affected by the specified work; and

CERTIFIES THAT he has not entered into collusion with any other bidder or prospective bidder relative to the project and/or bid: and

HEREBY PROPOSES: to enter into a contract to provide all necessary labor, materials, equipment and tools to completely construct and finish all the work required by the Contract Documents referred to therein; to complete said work within **90 calendar days** after the work order is issued; and to accept in full payment therefore the amount set forth below for all work actually performed as computed by the Engineers as set forth in the Contract.

Basis of Award

IT SHOULD BE NOTED THAT THE LOWEST RESPONSIBLE BID SHALL BE DETERMINED BY THE TOTAL BASE BID PLUS ADDITIVE ALTERNATES NO. 1, 2, & 3. THE ITEMS IN ADDITIVE ALTERNATES NO. 1, 2, & 3 MAY OR MAY NOT BE INCLUDED IN THE CONTRACT AWARD AT THE SOLE DISCRETION OF THE CITY OF TULSA. ANY PROPOSAL SUBMITTED WITH THE ADDITIVE ALTERNATES NO. 1, 2, & 3 INCOMPLETE SHALL BE CONSIDERED NON-RESPONSIVE.

Note: - Item numbers omitted are not a part of the Contract.

**PROPOSAL FOR
Whiteside Park
PROJECT NO. 147520-3**

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	DATA INPUT UNIT PRICE	AMOUNT
1	CONSTRUCTION STAKING LEVEL II / SURVEY	LOT	1		
2	SALVAGE OF BALL FIELD BACKSTOP	LOT	1		
3	SALVAGE OF (2) WOOD BENCHES WITH CONCRETE FOOTINGS	LOT	1		
4	REMOVAL OF ASPHALT PAINT	LF	616		
5	REMOVAL OF CONCRETE CURB AND GUTTER AT EXISTING PARKING	LF	175		
6	REMOVAL OF CONCRETE WALK	SY	9		
7	REMOVAL OF SOFT-SURFACE TRAIL	SY	89		
8	ASPHALT PATCH	TON	1		
9	CONCRETE WHEEL STOP	EA	6		
10	TRAFFIC STRIPE (MULTIPOLYMER, 4" WIDE, WHITE) - PARKING	LF	1251		
11	TRAFFIC STRIPE (MULTIPOLYMER) (SYMBOLS) - HANDICAP	LF	1107		
12	4" THICK COMPACTED GRAVEL TRAIL	CY	41		
13	SHEET ALUMINUM SIGNS	SF	21		
14	2 1/4" SQUARE TUBE POST	LF	96		
15	SALVAGE AND RE-INSTALLATION OF 'RESERVED PARKING' SIGN AND SQUARE POST	EA	1		
16	AGGREGATE BASE TYPE A (4" THICK)	CY	118		
17	6" CLASS 'A' CONCRETE CURB	LF	123		
18	CLASS 'A' CONCRETE FLUSH CURB AND GUTTER	LF	160		
19	8" WIDTH CLASS 'A' CONCRETE FLUSH CURB AT PLANTING & PLAY	LF	86		
20	4" CLASS 'A' CONCRETE RAMP TYPE 'D'	EA	1		
21	4" CLASS 'A' CONCRETE PAVING	SY	940		
22	6" WIDTH CLASS 'A' CONCRETE LOW RETAINING WALL - CHEEKWALL	LF	77		
23	12" WIDTH X 8" LENGTH CAST IRON TRENCH DRAIN	LF	16		
24	SITE AMENITIES - DRINKING FOUNTAIN (MOST DEPENDABLE FOUNTAINS)	EA	1		
25	1-1/2" PEX WATERLINE TRENCHED	LF	267		
26	4" NON PERFORATED SANITARY SEWER DRAIN LINE SDR 26, TRENCHED (DRINKING FOUNTAIN)	LF	125		
27	NOT USED				
28	SITE AMENITIES (BICYCLE RACK)	EA	2		
29	SITE AMENITIES (TRASH RECEPTACLE)	EA	6		
30	SITE AMENITIES - SALVAGE AND RE-INSTALLATION OF (2) SALVAGED METAL SOCCER GOALS	LOT	1		
31	TREE - JAPANESE FLOWERING CHERRY, 30 GAL.	EA	5		
32	TREE - SHORT-LEAF PINE, 2 1/2"-3" CALIPER	EA	4		
33	TREE - SHUMARD RED OAK, 3" CALIPER	EA	6		
34	PERENNIAL - FULL, 1 GALLON	EA	201		
35	ORNAMENTAL GRASS - FULL, 1 GALLON	EA	17		
36	SOLID SLAB SODDING - U3 BERMUDA GRASS	SY	2488		
37	COTTON BURR (3 CF / BAG)	EA	32		
38	CYPRESS MULCH (3 CF / BAG)	EA	64		
39	BONDED RUBBER MULCH	SF	110		
40	UNCLASSIFIED BORROW	CY	100		
41	UNCLASSIFIED EXCAVATION	CY	359		
42	SALVAGED TOPSOIL	CY	139		
43	OWNERS ALLOWANCE	ALLOW	1		\$10,000.00
44	GENERAL CONDITIONS	LOT	1		
TOTAL BASE BID					\$10,000.00

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	DATA INPUT UNIT PRICE	AMOUNT
45	ADDITIVE ALTERNATE #1: SPECIAL CONCRETE FINISH COLORED, TEXTURED FINISH AT CONCRETE PAVING	CY	8		
TOTAL ADD ALT #1					

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	DATA INPUT UNIT PRICE	AMOUNT
46	ADDITIVE ALTERNATE #2: METAL FENCE AMERISTAR MONTAGE PLUS 4' METAL FENCE	LF	646		
TOTAL ADD ALT #2					

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	DATA INPUT UNIT PRICE	AMOUNT
47	ADDITIVE ALTERNATE #3: LIGHTING SOLAR LIGHTING WITH POST & SINGLE LUMINAIRE COMPLETE (GREENSHIRE NEW ENERGY)	EA	11		
48	SOLAR LIGHTING WITH POST & DOUBLE LUMINAIRE COMPLETE (GREENSHIRE NEW ENERGY)	EA	1		
TOTAL ADD ALT #3					

TOTAL BID (BASE BID + ADD ALTERNATE #1 + #2 + #3)					\$10,000.00
---	--	--	--	--	-------------

TOTAL BASE BID	<u>\$10,000.00</u>
TOTAL ADD ALT #1	<u>Figures</u>
TOTAL ADD ALT #2	<u>Figures</u>
TOTAL ADD ALT #3	<u>Figures</u>
TOTAL BID (BASE BID + ADD ALTS #1, #2, & #3)	<u>Figures</u>
	<u>\$10,000.00</u>
	<u>Figures</u>

Enclosed is a () Bidder's Surety Bond, () Certified Check, () Cashier's Check for

_____ Dollars (\$ _____)
Figures

which the City of Tulsa may retain or recover as liquidated damages in the event that the undersigned fails to enter into contract for the work covered by this proposal, provided the Contract is awarded to the undersigned within thirty (30) days, or within ninety (90) days if Federal funds are utilized, from the date fixed for opening of bids and the undersigned fails to execute said Contract and furnish the required bonds and other requirements as called for in these Contract Documents within thirty (30) days after award of Contract.

Dated at Tulsa, Oklahoma, this _____ day of _____, 20__.

Respectfully submitted,

(Complete legal name of company)

(State of Organization)

By:

ATTEST:

Title:

Title: Corporate Secretary

Printed Name:

Printed Name:

(SEAL)

Address: _____

Telephone Number: _____

Fax Number: _____

By signing above bidder acknowledges receipt of the following Addenda (give number and date of each):

This form is made available for example purposes only and is not intended to be legal advice nor intended to be relied upon in lieu of consultation with an attorney.

Certificate of Secretary

The undersigned _____ (Assistant) Secretary of _____, a _____ corporation, (the "Corporation") hereby certifies that the following is a true and correct copy of a Resolution duly adopted by the Board of Directors of the Corporation on the _____ day of _____, 20____.

RESOLVED, that _____ is authorized to execute and enter into bids, contracts, bonds, affidavits and any ancillary documents, on behalf of the Corporation.

The undersigned further certifies that this Resolution is in full force and effect as of the date of this Certificate and has not been amended, modified, revoked or rescinded.

IN WITNESS WHEREOF, I have executed this Certificate this _____ day of _____, 20____.

(Signature)

Printed Name

(Assistant) Secretary

[SAMPLE CONSENT OF MEMBERS]

[NAME OF COMPANY], LLC

Consent of Members

The undersigned, being all of the Members of [Name of Company], LLC, an Oklahoma Limited Liability Company, hereby authorize, consent to, approve and ratify the execution by _____ on behalf of [Name of Company], LLC of bid proposals, contracts, affidavits and related documents in connection with [Name of Project] of the City of Tulsa.

DATED, this _____ day of _____, 20____.

Name printed: _____

Name Printed: _____

[ADD ADDITIONAL LINES FOR ADDITIONAL MEMBERS]

Disclaimer Statement: This form is made available for example purposes only and is not intended to be legal advice nor intended to be relied upon in lieu of consultation with an attorney."



Date

Contractor

RE: City of Tulsa Project No. 147520-3 Whiteside Park

TO WHOM IT MAY CONCERN:

Please be advised that the City of Tulsa, Oklahoma, a municipal corporation, has contracted for the construction of a public improvement project as referenced above, and that pursuant to Title 68 § Section 1356 (10), sales on tangible personal property or services to be wholly consumed in the performance of such projects are exempt from Oklahoma and City of Tulsa Sales Tax when:

“...Any person making purchases on behalf of such subdivision or agency of the state shall certify, in writing, on the copy of the invoice or sales ticket to be retained by the vendor that the purchases are made for and on behalf of such subdivision or agency of this state and set out the name of such public subdivision or agency.”

This letter of authorization expires.

A photostatic copy of this letter may be considered as the original.

CITY OF TULSA

Paul D. Zachary, P.E.
City Engineer

cc: Ryan McKaskle

HAS:KT:

EXTENSION OF TIME REQUEST
(to be submitted with each partial payment application)

DATE: _____

CONTRACTOR: _____

ADDRESS: _____

CONTRACT NO.: _____

PROJECT NO.: _____

DESCRIPTION: _____

ARE THERE ANY CHANGES TO YOUR SBE UTILIZATION? _____ YES _____ NO

IF YES, GIVE REASON AND ATTACH CHANGE REQUEST FORM (SBE-4): _____

EXTENSION OF CONTRACT TIME REQUIRED: _____ YES _____ NO

TOTAL OF EXTENSION TIME REQUESTED: _____

IF YES GIVE REASON: _____

SIGNATURE - CONTRACTOR

CONSULTING ENGINEER OR DEPARTMENT OF PUBLIC WORKS STAFF RECOMMENDATIONS

APPROVED: _____ REJECTED: _____

REASON: _____

SIGNATURE

DATE

ACTION WILL BE TAKEN WITHIN 30 DAYS FROM RECEIPT OF REQUEST

ETR-1

**CONTRACT FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS
TULSA, OKLAHOMA**

THIS CONTRACT made and entered into the ____ day of _____, 2023, by and between ____ an (list state) _____ (Corporation or Limited Liability Company) of _____, Oklahoma, hereinafter called the "CONTRACTOR", and the CITY OF TULSA - TULSA, OKLAHOMA, a Municipal Corporation, herein called the "CITY."

WITNESSETH:

WHEREAS, the City has caused to be prepared the necessary Drawings, Specifications, and other Contract Documents for the public improvements herein described, and has invited bids for the construction thereof in accordance with the terms of this Contract, all of which is hereby designated as:

PROJECT NO. 147520-3 WHITESIDE PARK

WHEREAS, the Contractor, in response to the Advertisement, has submitted to the City, in the manner and at the time specified, a sealed bid in accordance with the terms of this Contract; and,

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the above named Contractor to be the lowest responsible bidder for the work and has duly awarded to the said Contractor therefore, for the sum or sums named in the Contractor's bid, a copy of the Bid Form being attached to and made a part of this Contract;

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

ARTICLE I. That the Contractor shall (a) furnish all tools, equipment, supplies, superintendent, transportation, and other construction accessories, services, and facilities; (b) furnish all materials, supplies, and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good, substantial, and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract as defined in the attached General Provisions, sometimes referred to as General Conditions in the Contract Documents, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct, and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid, or part thereof, as follows:

PRODUCT NO. 147520-3 WHITESIDE PARK

ARTICLE II. That the City shall pay to the Contractor for performance of the work embraced in this Contract, and the Contractor will accept as full compensation therefor, the sum (subject to adjustment as provided by the Contract) of _____ AND /100 Dollars (\$_____) for all work covered by and included in the Contract award and designated in the foregoing Article I; payments therefore to be made in cash or its equivalent, in the manner provided in the General Provisions.

ARTICLE III. That the Contractor shall start work within ten (10) days following the date stipulated in a written order from the City to proceed with the work to be performed hereunder, and shall complete the work within the number of consecutive calendar days after the authorized starting date, as stipulated below:

All Work Completed: 90 calendar days

ARTICLE IV. The sworn, notarized statement below shall be signed and notarized before this Contract will become effective.

ARTICLE V. Prior to submitting a final payment request, the Contractor shall furnish a lien waiver certifying that all subcontractors and suppliers have been paid.

IN WITNESS WHEREOF, the parties have hereto set their hands and seals,

this _____ day of _____, 2023.

CITY OF TULSA, OKLAHOMA
a municipal corporation

By: _____

ATTEST: (SEAL)

Mayor

Date: _____

City Clerk

Date: _____

APPROVED:

APPROVED:

City Attorney

Date: _____

City Engineer

Date: _____

CONTRACTOR

By: _____

Printed Name _____

Title

Date: _____

Title

Date: _____

ATTEST:

Corporate Secretary

(SEAL)

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 Contractor to submit the above Contract to the CITY OF TULSA, Tulsa, Oklahoma.

Signature

Subscribed and sworn to before me this _____ day of _____, 2023.

NOTARY PUBLIC

My Commission Expires:

_____, _____.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned,
_____, (hereinafter called the Contractor"),
duly authorized by law to do business as a construction contractor in the State of
Oklahoma, and _____
(hereinafter called the "Surety"), a corporation organized under the laws of the
State of _____, and authorized to transact business in the State of
Oklahoma, as Surety, are hereby held and firmly bound unto the City of Tulsa,
Tulsa, Oklahoma (hereinafter called the "City"), in the penal sum of

Dollars (full amount of the Contract), (\$_____) lawful money of the
United States, for the payment of which, well and truly to be made unto the said
City, we bind ourselves, our heirs, executors, administrators, successors, and
assigns, jointly and severally, firmly by these presents, as follows:

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT,
WHEREAS, the Contractor has on the _____ day of _____,
entered into a written contract with the City of Tulsa, Tulsa, Oklahoma, for
furnishing all materials, labor, tools, equipment, and transportation necessary for:

PROJECT NO. 147520-3 WHITESIDE PARK

NOW, THEREFORE, if said Contractor shall well and truly perform and complete
said project in accordance with said Contract, Advertisement for Bids, General
Conditions, Instructions to Bidders, Bid Form, Plans and Specifications, and
related documents, shall comply with all the requirements of the laws of the State
of Oklahoma; shall pay as they become due all just claims for work or labor
performed and materials furnished in connection with said contract, and shall
defend, indemnify and save harmless said City against any and all liens,
encumbrances, damages, claims, demands, expenses, costs and charges of
every kind, including patent infringement claims except as otherwise provided in
said specifications and other contract documents, arising out of or in relation to the
performance of said work and the provisions of said Contract, then these presents
shall be void; otherwise, they shall remain in full force and effect.

This obligation is made for the use of said City and also for the use and benefit of
all persons who may perform work or labor, or furnish any material in the
execution of said Contract, and may be sued on thereby in the name of the City.

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

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

CONTRACTOR (Principal)

BY:

ATTEST: (S E A L)

Date: _____ Title: _____

Date: _____ Attorney In Fact ** _____
Date: _____ Surety (S E A L)

**This date shall match the notarized certificate on the Power-of-Attorney

(Accompany this Bond with Power Of Attorney)

APPROVED AS TO FORM:

Date: _____
City Attorney

Date: _____
City Clerk

STATUTORY BOND

WHEREAS, the undersigned _____
has entered into a certain contract dated the _____ day of _____, _____, designated
as **Project No. 147520-3**, for the construction of certain public improvements Consisting of
Whiteside Park to be situated and constructed on and through the property described in
said Contract, including all of the work mentioned and described in said Contract, and to be
performed by the undersigned strictly and punctually in accordance with the terms,
conditions, drawings and specifications thereof, on file in the office of the office of the City
Clerk.

NOW, THEREFORE, 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 unto the State of Oklahoma in the penal sum of _____

Dollars (Full Amount of Contract) (\$_____), lawful money of the United States, for
the payment of which sum well and truly to be made, we bind ourselves, our successors, and
assigns, jointly and severally firmly by these presents.

NOW, THEREFORE, if the said Principal shall fail or neglect to pay all indebtedness incurred
by Principal or sub-contractors of said principal who perform work in the performance of such
contract, for labor and materials and repairs to and parts for equipment used and consumed in
the performance of said contract within thirty (30) days after the 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.

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

5/30/06

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

CONTRACTOR (Principal)

BY:

ATTEST: (S E A L)

Date: _____

Title:

Date: _____

Title:

Date: _____

Attorney-In-Fact

**

Date: _____

Surety (S E A L)

**This date shall match the date of the notarized certificate on the Power-of- Attorney.

(Accompany this Bond with Power-Of-Attorney)

APPROVED AS TO FORM:

Date: _____
City Attorney

Date: _____
City Clerk

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 unto the City of Tulsa in the Penal sum of _____

Dollars (full amount of Contract) (\$_____) in lawful money of the United States of America for the payment of which, well and truly to be made, we bind ourselves and each of us, our heirs executors, administrators, trustees, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that:

WHEREAS, said Principal entered into a written contract with the City of Tulsa, Oklahoma dated _____, _____, for

Project No. 147520-3 Whiteside Park

all in compliance with the drawings and specifications therefore, made a part of said Contract and on file in the office of the City Clerk, Tulsa, Oklahoma.

NOW, THEREFORE, if said Principal shall pay or cause to be paid to the City of Tulsa, Oklahoma, all damage, loss, and expense which may result by reason of defective materials and/or workmanship in connection with said work, occurring within a period of one (1) year for all projects, from and after acceptance of said project by the City of Tulsa, Oklahoma; and if Principal shall pay or cause to be paid all labor and materials, including the prime contractor and all subcontractors; and if principal shall save and hold the City of Tulsa, Oklahoma, harmless from all damages, loss, and expense occasioned by or resulting from any failure whatsoever of said Principal, 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 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 obligation of this Bond.

06/13/06

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

CONTRACTOR (Principal)

BY:

ATTEST: (S E A L)

Date: _____

Title:

Date: _____

Title:

Date: _____

Attorney-In-Fact

**

Date: _____

Surety (S E A L)

** This date shall match the date of the notarized certificate on the Power of Attorney

(Accompany this Bond with Power-Of-Attorney)

APPROVED AS TO FORM:

Date: _____
City Attorney

Date: _____
City Clerk

AFFIDAVIT OF CLAIMANT

STATE OF _____

COUNTY OF _____

The undersigned, of lawful age, being first duly sworn, on oath says that this contract is true and correct. Affiant further states that the work, services or materials will be completed or supplied in accordance with the contract, plans, specifications, orders or requests furnished the affiant. Affiant further states that (s)he has made no payment directly or indirectly of money or any other thing of value to any elected official, officer or employee of the City of Tulsa or any public trust of which the City is a beneficiary to obtain or procure the contract or purchase order.

By: _____

Signature

Name: _____

Company: _____

Title: _____

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

Notary Public

My Commission Expires: _____

Notary Commission Number: _____

GENERAL
CONDITIONS

GENERAL CONDITIONS OF CONTRACT

GC-1. SCOPE:

The Contract stipulations, which follow, are general in scope and may refer to conditions that will not be encountered in the performance of the work included in this Contract, and which are not applicable thereto. Any requirements, provisions, or other stipulations of these General Conditions, which pertain to a nonexistent condition, and are not applicable to the work to be performed hereunder, shall have no meaning in the Contract.

The specifications and drawings are intended to supplement, but not necessarily duplicate each other. Together they constitute one (1) complete set of specifications and drawings, so that any work exhibited in the one and not in the other shall be executed just as if it had been set forth in both, in order that the work shall be completed according to the complete design or designs as decided and determined by the Engineer.

Should anything be omitted from the specifications and drawings which is necessary to a clear understanding of the work, or should it appear various instructions are in conflict, then the Contractor shall request written clarification from the Engineer before proceeding with the construction affected by such omissions or discrepancies.

GC-2. CONTRACT DOCUMENTS:

It is understood and agreed that the Notice to Bidders, Instructions to Bidders, Proposal, Contract, Statutory Bond, Performance Bond, Maintenance Bond, Power of Attorney, Certificates of Insurance, General Conditions, Specifications, Drawings, Addenda, and duly authorized Change Orders, together with any and all supplementary drawings furnished by the Engineer as and when required to make clear and to define in greater detail the intent of the contract, drawings, and specifications, other drawings, specifications, and engineering data furnished by the Contractor (when accepted by the Engineer), and instructions furnished by manufacturers of equipment for the installation thereof, are each and all included in this Contract, and the work shall be done in full compliance and accord therewith.

GC-3. DEFINITIONS:

Any word, phrase, or other expression defined in this paragraph and used in these Contract Documents shall have the meaning herein given:

1. "Contract" or "Contract Documents" shall include all of the documents and drawings mentioned in Paragraph GC-2.
2. "City" shall mean the City of Tulsa, Tulsa County, Oklahoma.
3. "Contractor" shall mean the entity named and designated in the Contract who has entered into this Contract to perform the work covered thereby, and its, his, or their duly authorized agents and other legal representatives.
4. "Engineer" shall mean the Director of Engineering Services, or the Architect or Engineers who have been designated, appointed, or employed by the City for this project, or their duly authorized agents; such agents acting within the scope of the particular duties entrusted to them in each case.
5. "Inspector" shall mean the engineering or technical inspector or inspectors duly authorized by the Engineer, limited in each case to the particular duties entrusted to him or them.
6. "Surety" shall mean any entity that executes, as surety, the Contractor's performance bond, maintenance bond, and statutory bond securing the performance of this Contract.

7. "Drawings" shall mean and include all drawings prepared by the City as a basis for proposals; all drawings submitted by the successful bidder with his proposal and by the Contractor to the City, when and as accepted by the Engineer, and all drawings submitted by the City to the Contractor during the progress of the work as provided herein.

8. "Subcontractor" shall mean a person, firm or corporation to whom any portion of this work has been sublet by the Contractor.

9. "Work" shall mean the task to be performed, necessary for the fulfillment of this Contract.

10. "Unit Price" shall mean the cost per specified unit of measurement of work and/or material.

11. "Lump Sum" shall mean the price of an item of work including all things necessary to complete the item as shown on the drawings and specifications. Such an item is not measured in units but is defined by description.

GC-4. MODIFICATIONS AND ALTERATIONS:

In executing the Contract, the Contractor agrees that the City shall have the right to make such modifications, changes, and alterations as the City may see fit, in the extent, or plan of the Work agreed to be done or any part thereof, or in the materials to be used therein, either before or after the beginning of construction thereof, without affecting the validity of the Contract or the liability of the Sureties upon the performance of this Contract or the Statutory Bond.

Where any modification, change, or alteration increases the quantity of Work to be performed, and is within the scope of a fair interpretation thereof, such increase shall be paid for according to the quantity of work actually done, either at Unit Prices included in the Contract, or in the absence of such unit, as extra Work. Modifications and alterations, which reduce the quantity of Work to be done, shall not constitute a claim for damages or for anticipated profits on Work involved in such reduction.

The Engineer shall determine, on an equitable basis, the amount of credit due the City for Work not performed as a result of modifications or alterations authorized hereunder; where the value of the omitted Work is not fixed by Unit Prices in the Contract; allowance to the Contractor for any actual loss incurred in connection with the purchase, delivery, and subsequent disposal of materials and equipment required for use on the Work as actually built; and any other adjustment of the Contract amount where the method to be used in making such adjustment is not clearly defined in the Contract Documents. In this respect, such determination shall be final and binding only when approved by the Director of Public Works.

GC-5. DRAWINGS TO BE FURNISHED BY CONTRACTOR:

The Contractor shall furnish all shop, fabrication, assembly, foundation, and other drawings required by the specifications; drawings of equipment and devices, offered by the Contractor for review by the Engineer, shall be in sufficient detail to show adequately the construction and operation thereof; drawings of essential details of any change in design or construction proposed for consideration of the Engineer, by the Contractor in lieu of the design or arrangement required by the Contract or any item of extra work thereunder. The Contractor shall submit to the Engineer, the required number, of each copy of such drawing for the Engineer's review. After review by the Engineer, all such drawings shall become a part of the Contract Documents and the work or equipment shown thereby shall be in conformity therewith unless otherwise required by the City.

The Engineer's check and acceptance of drawings submitted by the Contractor will be for, and will cover, only general conformity to the plans and specifications and will not constitute a blanket acceptance of all dimensions, quantities, and details of the material or equipment shown; nor shall

such acceptance relieve the Contractor of his responsibility for errors contained in such drawings.

GC-6. CONTRACTOR'S BUSINESS ADDRESS:

The business address of the Contractor given in the bid or proposal upon which this Contract is founded is hereby designated as the place to which all notices, letters, and other communications to the Contractor may be mailed or delivered. The delivery at the above named address, or depositing in any mailbox regularly maintained by the Post Office, of any notice, letter, or other communication to the Contractor, shall be deemed sufficient service thereof upon the Contractor and the date of said service shall be the date of such delivery or mailing. Such address may be changed at any time by a written instrument, executed by the Contractor and delivered to the Engineer. Nothing contained herein shall be deemed to preclude or render inoperative the service of any notice, letter, or communication upon the Contractor personally.

GC-7. CONTRACTOR'S RISK AND RESPONSIBILITY:

The performance of the Contract and the Work is at the risk of the Contractor until the final acceptance thereof and payment therefor. The Contractor shall take all responsibility of the Work, and shall bear all losses resulting because of the amount or character of the Work, or because the nature of the land in or on which the Work is done is different from what is assumed or expected, or on account of the weather, floods, fire, windstorm, or other actions of the elements, or any cause or causes, whatsoever, for which the City is not responsible. If the Work or any part or parts thereof is destroyed or damaged from any of the aforesaid causes, the Contractor, at his own cost or expense, shall restore the same or remedy the damage.

The Contractor shall, in a good and workmanlike manner, perform all Work and furnish all supplies and materials, machinery, equipment, facilities, and means, except as otherwise expressly specified, necessary or proper to perform and complete all Work required by the Contract within the time herein specified, in accordance with the provisions of these Contract Documents and Drawings of the Work covered by this Contract, and any and all supplemental Drawings. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of the Contract, and shall complete the entire Work to the satisfaction of the Engineer and of the City.

GC-8. ASSIGNMENT AND SUBLETTING OF CONTRACT:

The Contractor shall give his personal attention to the fulfillment of this Contract, and shall not let, assign or transfer it or his right, title, or interest in any part thereof, by attorney or otherwise, or sublet any part of the Work to any other person without the prior consent of the City in writing.

Should any Subcontractor fail to perform his work in a satisfactory manner the Contractor upon notice from the City shall immediately terminate his subcontract. The Contractor shall be fully responsible to the City for the acts and omissions of his Subcontractor, and of persons either directly or indirectly employed by his Subcontractor. Nothing contained in these Contract Documents shall create any contractual relation between any Subcontractor and the City.

GC-9. CONTRACTOR'S REPRESENTATIVES:

The Contractor shall designate a person on the Work site to represent him when absent from the Work site.

GC-10. CONTRACTOR AND HIS EMPLOYEES:

The Contractor shall employ competent foremen, experienced mechanics, and others skilled in the Work in this Contract; and shall promptly discharge any and all incompetent or otherwise unsatisfactory employees. Contractor's employees directly employed to perform the Work shall not be paid less than the prevailing minimum wage scale.

Necessary sanitary conveniences for the use of employees on the job site, properly secluded from public observation, shall be provided and maintained by the Contractor. The construction and

location of the facility and disposal of the contents shall comply with all laws of the City and State, relating to health and sanitation regulations.

GC-11. CONTRACTOR'S RIGHT OF PROTEST:

If the Contractor considers any work demanded of him to be outside the requirements of the Contract, or considers any record or ruling of the Engineers to be unfair, he shall, immediately upon such Work being demanded or such record or ruling being made, ask for written instructions or decisions, whereupon he shall proceed without delay to perform the Work or to conform to the record or ruling; and within ten (10) days after the date of receipt of written instructions or decision, he shall file a written protest with the Engineer, stating clearly and in detail the basis of his objections. Except for such protests and objections made of record in the manner herein specified and within the time stated, the records, rulings, or decisions of the Engineer shall be final and conclusive.

GC-12. INSURANCE AND BONDS:

The CONTRACTOR (and any subcontractors) shall carry and keep in force during this Contract, policies of insurance issued by an insurer authorized to transact business in Oklahoma in minimum amounts as set forth below or as required by the laws of the State of Oklahoma. The Contractor shall also furnish an Owner's Protective Policy in the same amounts naming the City of Tulsa as the assured, issued by the same insurance company as the Contractor's liability coverage and indemnifying the City of Tulsa against any and all actions, claims, judgments or demands arising from injuries of any kind and character sustained by any person or persons because of work performed by the Contractor.

General Liability Insurance with a bodily injury and property damage combined single limit of not less than \$1,000,000.00 for each occurrence.

Employer's Liability and Workmen's Compensation in the amounts as required by law.

The Contractor shall provide proof of such coverage:

- (a) By providing Certificate(s) of Insurance prior to the execution of this contract; and
- (b) By submitting updated Certificate(s) of Insurance with each and every subsequent request for payment. The Certificate(s) should show that the policies are current and should be dated within 30 days of the payment request.

The Contractor shall not cause any required insurance policy to be cancelled or permit it to lapse. If the Contractor cancels, allows to lapse, fails to renew or in any way fails to keep any required insurance policy in effect, the City will suspend all progress and/or final payments for the project until the required insurance is obtained. Further, a Contractor who fails to keep required insurance policies in effect may be deemed by the City to be in breach of contract, ineligible to bid on future projects, and/or ineligible to engage in any new contracts.

The Contractor shall execute and furnish a Statutory Bond for the protection of laborers, mechanics, and material men in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Performance Bond in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Maintenance Bond in a sum equal to one hundred percent (100%) of the contract price.

Prior to doing blasting, the Contractor shall furnish a Certificate of Insurance, which shall certify that any damage caused by blasting is within the coverage of the Contractor's liability insurance to the full limits thereof.

All bonds and insurance must be executed by a company licensed to do business in the State of Oklahoma, and must be acceptable to the Authority.

GC-13. TIME FOR COMPLETION:

The Work shall commence within ten days from and after the date of a written work order from the City. The Contractor agrees that the Work shall be performed regularly, diligently and uninterruptedly at a uniform rate of progress so as to ensure completion within the number of days after the day on which the work order is issued. If the Contractor fails to complete all Work within the time specified, then the Contractor agrees to pay the City, not as a penalty, but as liquidated damages for breach of contract, the Sum of **Two Thousand Five Hundred Dollars (\$2,500.00)** for each and every calendar day beyond the date on which the work was to be completed. The said amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would sustain in such event. It is expressly understood and agreed that the said time for completion of the work described herein is a reasonable time for the completion of same.

The Contractor shall commence work within twenty-four (24) hours of traffic control devices being established at the project location. If the Contractor fails to commence work within twenty-four (24) hours of traffic control devices being established at the project location, then the Contractor agrees to pay the City, not as a penalty, but as liquidated damages the sum of **One Thousand Dollars (\$1000.00)** per lane for each day of failure to commence work after the specified time set forth. The amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damage the City would sustain in such event.

Within 14 days after Bid Opening and prior to Award of Bid the successful Contractor will be required to furnish the Engineer with a progress schedule, in a format approved by the Engineer, setting forth in detail the procedure he proposes to follow, and giving the dates on which he expects to start and to complete separate portions of the Work. If at any time, in the opinion of the Engineer, proper progress is not being maintained, such changes shall be made in the schedule of operations, which will satisfy the Engineer that the Work will be completed within the period stated in the Proposal. Monthly progress meetings will be conducted to maintain coordination between all project entities.

The Contractor will be required to provide a full-time, onsite English speaking superintendent for this Work for direct contact with City and coordination of Subcontractors. A working foreman is not acceptable as a project superintendent. The superintendent shall be required to be present at the Work site whenever the Contractor or Subcontractors are performing Work. The superintendent shall be a representative of the Contractor with the authority to make decisions. If the Contractor fails to provide a non-working superintendent on a day when Work is being performed, the Contractor agrees to pay the City, not as a penalty, but as liquidated damages for such breach of contract, the sum of **One Thousand Dollars (\$1000.00)** for each and every calendar day it fails to provide a non-working superintendent at the Work site. This amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would sustain in such an event.

It is further agreed that time is of the essence as to each and every portion of this Contract and the specifications wherein a definite and certain time is fixed for the performance of any act whatsoever; and where under the Contract an allowance of additional time for completion of any Work is made, the new time fixed by such extension shall be of the essence of this Contract.

Failure to complete the Work within the specified time, as set forth in the Contract, may be grounds for disqualification for future consideration for contracts with the City of Tulsa.

Final acceptance of the Work is defined as the completion of the Work and the Contractor moving off the project site. No defined or additional Work is needed.

Contract Evaluation forms will be compiled by City staff upon completion of Work to provide a record of the Contractor's performance for use in subsequent projects.

GC-14. EXTENSIONS OF TIME:

Should the Contractor be delayed in the final completion of the Work by any act or neglect of the City or Engineer, or any employee of either, or strikes, injunctions, fire, or other causes outside of and beyond the control of the Contractor and which, in the opinion of the Engineer, could have been neither anticipated nor avoided, then an extension of time sufficient to compensate for the delay, as determined by the Engineer, shall be granted by the City, provided, however, that the Contractor shall give the City and the Engineer notice in writing of the cause of each delay on the "Extension of Time Request" form enclosed in these documents, and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the Work.

The Contractor shall submit the "Extension of Time Request" form with each partial payment application. Failure to submit the Extension of Time Request with a partial payment application shall constitute a complete waiver of any claim for time extension for the period covered by the partial payment.

Extensions of time will not be granted for delays caused by unsuitable ground conditions, inadequate construction force, or the failure of the Contractor to place orders for the equipment or materials a sufficient time in advance to insure delivery when needed. Any extension of time granted by the City shall not release the Contractor and Surety herein from the payment of liquidated damages as provided in the General Conditions of this Contract, for a period of time not included in the original Contract or the time extension, as herein provided.

In no event shall the City be liable or responsible to the Contractor, Surety, or any person for or on account of any stoppage or delay of Work herein provided for by injunction or any other kind of legal, equitable proceedings, or from or by or on account of any delay from any other cause whatsoever.

GC-15. ENGINEER'S POWERS AND DUTIES:

The Engineer will provide general administration of the Contract, including performance of the functions hereinafter described.

The Engineer will be the City's representative during construction and until final payment. The Engineer will have authority to act on behalf of the City to the extent provided herein unless otherwise modified by written instrument, which will be shown to the Contractor. The Engineer will advise and consult with the City, and all of the City's instructions to the Contractor shall be issued through the Engineer. Nothing contained in the Contract documents shall create any contractual relationship between the Engineer and the Contractor.

The Engineer shall at all times have access to the Work as provided elsewhere herein. The Engineer will make periodic visits to the Work site to familiarize himself generally with the progress and quality of the Work and to determine in general whether the Work is proceeding in accordance with the Contract. On the basis of his on-site observations as Engineer, he will keep the City informed of the progress of the Work and will endeavor to guard the City against defects and deficiencies in the Work caused by the Contractor. The Engineer will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract. Based on such observations and the

Contractor's applications for payment, the Engineer will determine the amounts owing to the Contractor and will issue certificates for payment in amounts as provided elsewhere herein.

The Engineer may provide one or more full-time project representatives to assist the Engineer in carrying out his responsibilities at the Work site. The duties, responsibilities and limitations of authority of the Engineer as the City's representative during construction as set forth herein will not be modified or extended without written consent of the City, the Contractor and the Engineer.

The Engineer will not be responsible for the acts or omissions of the Contractor, any Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

The Engineer shall decide the meaning and intent of any portion of the specifications, and of any plans or Drawings, where the same are found to be obscure or be in dispute; he shall have the right to correct any errors or omissions therein when such corrections are necessary to further the intent of said specifications, plans or Drawings; the action of such correction shall be effective from the date that the Engineer gives due notice thereof.

Any differences or conflicts, which may arise between the Contractor and other contractors with the City in regard to their work, shall be adjusted as determined by the Engineer.

Neither the Engineer's authority to act under this article or elsewhere in the Contract nor any decision made by the Engineer in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any manufacturer, fabricator, supplier or distributor, or any of their agents or employees or any other person performing any of the Work.

Whenever in the Contract the terms "as ordered", "as directed", "as required", "as allowed", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives of like effect or import are used, to describe requirements, direction, review or judgement of the Engineer as to the Work, it is intended that such requirement, direction, review, or judgement will be solely to evaluate the Work for compliance with the Contract (unless there is a specific statement indicating otherwise). The use of any such term or adjective never indicates that the Engineer shall have authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of this General Condition.

GC-16. CITY'S RIGHT OF INSPECTION:

The City shall appoint or employ such engineers or inspectors as the City may deem proper to inspect the materials furnished and the work performed, and to determine whether said materials are furnished and work is performed in accordance with the Drawings and specifications therefor. The Contractor shall furnish all reasonable aid and assistance required by the Engineer, or by the Inspectors, for the proper inspection and examination of the Work and all parts thereof, even to the extent of uncovering or taking out portions of finished Work. Should the Work thus exposed or examined prove satisfactory, the uncovering or removing and the replacing of the covering or the making good of the parts removed shall be paid for by the City; however, should the Work exposed or examined prove unsatisfactory, the uncovering, taking out, replacing, and making good shall be at the expense of the Contractor.

Such inspection shall not relieve the Contractor of any obligation to perform said Work strictly in accordance with the Drawings and specifications or any modifications thereto as herein provided; and the Work not so constructed shall be removed and made good by the Contractor at his own expense; and free of all expense to the City, whenever so ordered by the Engineer, without reference to any previous oversight or error in inspection.

GC-17. SUSPENSION OF WORK ON NOTICE:

The Contractor shall delay or suspend the progress of the Work or any part thereof whenever he

shall be so required by written order of the City or Engineer, and for such period of time as it or he shall require. Any such order of the City or Engineer shall not modify or invalidate in any way the provisions of this Contract.

GC-18. QUALITY OF WORKMANSHIP:

All workmanship shall be the best possible, both as to material and labor that could be demanded by these Contract Documents or if no specific description is given, it is understood that the best quality is required.

GC-19. SATURDAY, SUNDAY, HOLIDAY, AND NIGHT WORK:

No work shall be done between the hours of 67:00 p.m. and 86:00 a.m., nor on Saturday, Sunday, or legal holidays without the written approval or permission of the Engineer in each case, except such work as may be necessary for the proper care, maintenance, and protection of work already done, or of equipment, or in the case of an emergency.

GC-20. LAWS AND ORDINANCES:

The Contractor shall keep himself fully informed of all existing and current regulations of the City, county, state and national laws which in any way limit or control the actions or operations of those engaged upon the Work, or affecting the materials supplied to or by them. The Contractor shall at all times observe and comply with all applicable ordinances, laws, and regulations; and shall protect and indemnify the City and the City's employees and agents against any claims or liability arising from or based on any violations of the same.

The contractor certifies that it and all of its Subcontractors to be used in the performance of the Contract are in compliance with 25 O.S. Sec. 1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O. S. Sec. 1312 and includes but is not limited to the free Employee Verification Program (E-Verify) available at www.dhs.gov/E-Verify.

The Contractor shall take the necessary actions to ensure its facilities are in compliance with the requirements of the Americans with Disabilities Act (ADA). It is understood that the program of the Contractor is not a program or activity of the City. The Contractor agrees that its program or activity will comply with the requirements of the ADA. Any costs of such compliance will be the responsibility of the Contractor. Under no circumstances will Contractor conduct any activity which it deems to not be in compliance with the ADA.

GC-21. TAXES AND PERMITS:

Unless otherwise specified in these Contract Documents, the Contractor shall pay all sales, use, and other taxes that are lawfully assessed against the City or Contractor in connection with the Work included in this Contract and shall obtain all licenses, permits, and inspections required for the Work. Contractor shall comply with all zoning ordinances of the City, as provided in the Tulsa Zoning Code, Title 42 Tulsa Revised Ordinances and conform with all zoning requirements established by the Tulsa Metropolitan Area Planning Commission and the Board of Adjustment. Contractor can call the Indian Nations Council of Governments (INCOG) at (918) 584-7526, to determine if any zoning requirements must be met.

GC-22. PROTECTION OF PROPERTY:

The protection of City, state, and government monuments, street signs, and other City property is of prime importance, and if the same be damaged, destroyed, or removed, they shall be repaired, replaced, or paid for by the Contractor.

GC-23. PATENT RIGHTS:

All fees for any patented invention, article, or arrangement that is based upon, or in any manner connected with the construction, erection, or maintenance of the Work or any part thereof embraced in the Contract and these specifications, shall be included in the price stipulated in the Contract for said Work. The Contractor shall protect and hold harmless the City against any and all demands of

such fees or claims.

GC-24. DEFENSE OF SUITS:

In case any action at law or suit in equity is brought against the City or any employer, officer, or agent thereof, for or on account of the failure, omission or neglect of the Contractor to do and perform any of the covenants, acts, matters, or things required by this Contract to be done or performed, or for injury or damage caused by negligence or willful act of the Contractor or his Subcontractors or his or their agents, or in connection with any claim or claims based on the lawful demands of Subcontractors, workmen, material men, or suppliers of machinery and parts thereof, equipment, power tools, and supplies incurred in the fulfillment of this Contract, the Contractor shall indemnify and save harmless the City and its employees, officers, and agents, and the Engineer and any employees, officers and agents thereof, of and from all losses, damages, costs, expenses, judgements, or decrees whatsoever arising out of such action or suit that may be brought without requiring said parties to give any notice thereof.

The City may suspend payments of any sum due or to become due for work done on this Contract until such claims, suits, actions, or proceedings are final and liability has been determined. The amount of such damages or liability shall be deducted from sums due or to become due on this Contract. The City will retain the sums mentioned above until the Contractor furnishes evidence that satisfactory settlement has been made. Any action taken by the City shall not excuse the Contractor for failure to perform this Contract or bar the City from legal action to recover from the Contractor the amount of damages or liability suffered in excess of the amount retained.

The Contractor shall furnish the City with satisfactory evidence upon demand that all persons who have done work on the Contract or furnished materials for the Contract have been paid in full. If such evidence is not furnished, the amount necessary to pay the lawful claims may be retained until such evidence is furnished, or if such evidence is not furnished, the City may apply any sums retained to valid claims and charge the amounts disbursed, including the costs of any action that may be necessary to prove or disprove the claims against the Contractor.

GC-25. REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES:

The Contractor shall remove from the site of the Work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the Work, and upon his failure to do so, or to make satisfactory progress in so doing, within forty-eight (48) hours after the service of a written notice from the Engineer ordering such removal, the condemned material or structures may be removed by the City and the cost of such removal be taken out of the money that may be due or may become due the Contractor by virtue of this Contract. No such rejected or condemned material shall again be offered for use by the Contractor under this or any other Contract under this project.

GC-26. EXTRA WORK:

If a modification increases the amount of the Work, and the added Work or any part thereof is of a type and character which can properly and fairly be classified under one or more Unit Price items of the Bid Form, then the added Work or part thereof shall be paid for according to the amount actually done and at the applicable Unit Price. Otherwise, such work shall be paid for as hereafter provided.

Claims for extra work will not be paid unless the City authorized the work covered by such claims in writing. The Contractor shall not have the right to take action in court to recover for extra work unless the claim is based upon a written order from the City. Payments for extra Work will be based on agreed lump sums or on agreed Unit Prices whenever the City and the Contractor agree upon such prices before the extra Work is started.

For the purpose of determining whether proposed extra work will be authorized, or for determining the payment method for extra work, the Contractor shall submit to the Engineer, upon request, a detailed cost estimate for proposed extra work. The estimate shall show itemized quantities and charges for all elements of direct cost. The cost shall include only those extra costs for labor and materials expended in direct performance of the extra work and may include:

- (a) **Labor.** For all labor and foremen in direct charge of the specific operations, the Contractor shall receive the rate of wage (or scale) agreed upon in writing before beginning work for each and every hour that said labor and foremen are actually engaged in such work. An amount equal to fifteen (15) percent of the sum of the above items will also be paid the Contractor.
- (b) **Bond, Insurance, and Tax.** For property damage, liability, and workmen's compensation insurance premiums, unemployment insurance contributions and social security taxes on the force account work, the Contractor shall receive the actual cost, to which cost no percentage will be added. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance, and tax.
- (c) **Materials.** For materials accepted by the Engineer and used, the Contractor shall receive the actual cost of such materials delivered on the Work site, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost ten (10) percent will be added.
- (d) **Equipment.** For any machinery or special equipment (other than small tools), including fuel, lubricants and transportation costs, the use of which has been authorized by the Engineer, the Contractor shall receive the rental rates agreed upon in writing before such work is begun for the actual time that such equipment is in operations on the Work, as provided in the ODOT Subsection 109.04 (b3), to which rental sum no percentage will be added.
- (e) **Miscellaneous.** No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

The form on which field cost records are kept, the construction methods and the type and quantity of equipment used shall be submitted to the Engineer for approval.

Construction equipment which the Contractor has on the Work site and which is of a type and size suitable for use in performing the extra Work shall be used. The hourly rental charges for equipment, including all insurance, taxes, fuel, and operating costs, shall not exceed twelve (12) percent of the latest applicable Associated Equipment Distributors published monthly rental rates and shall apply to only the actual time the equipment is used in performing the extra Work.

When extra Work requires the use of equipment which the Contractor does not have on the Work site, the Contractor shall obtain the approval of the Engineer before renting or otherwise acquiring additional equipment. The rental charges for the additional equipment shall not exceed the latest applicable Associated Equipment Distributors published rental rates.

The Contractor shall file with the Engineer, certified lists in duplicate, of any equipment and the schedule of pay rates for common and semi-skilled labor and operators of various classes which are intended to be used in performing the Work covered by this Contract. These rates shall be subject to the review of the Engineer. This information will be used by the Engineer for computation of extra work as mentioned above; however, if the Contractor fails to file these lists with the Engineer prior to starting any Work covered by this Contract, then the Engineer's computation shall be based on average wages and rates paid on City work.

GC-27. PAYMENT FOR CONTRACTOR'S PLANT AND MISCELLANEOUS TEMPORARY WORK:

For providing plant, tools, and equipment, and for furnishing, erecting, maintaining, and removing scaffolding and construction plant, construction roads, camps, sanitary conveniences, temporary water supply, trestles, dewatering and other temporary works, the Contractor shall receive no direct payment, but compensation for them shall be considered as having been included in the prices stipulated for the appropriate items.

GC-28. BASIS OF PAYMENT FOR ITEMS OF WORK:

The Contractor shall be paid for all Work performed under the Contract based on the Engineer's computations of as-built quantities and the Contractor's Unit Price or Lump Sum bid per item. This payment shall be full compensation for furnishing all supplies, materials, tools, equipment, transportation, and labor required to do the Work; for all loss or damage, because of the nature of the work, the action of the elements or any unforeseen obstruction or difficulty which may be encountered in the performance of the Work, and for which payment is not specifically provided; for all expense incurred by or because of any suspension or discontinuance of all or any part of the Work; and for faithfully completing the Contract according to the Drawings and specifications and requirements of the Engineer.

GC-29. PAYMENTS:

(1) Partial: If the work is progressing in good and workmanlike manner and if the Contractor is faithfully carrying out the terms of this Contract, approximate estimates of the work done shall be made by the Engineers between the first and fifteenth of each calendar month, including labor actually performed and supplies or materials actually used or incorporated in the Work, and an allowance will be made for acceptable materials satisfactorily delivered, stored and secured on the site of the Work in such amount as can be incorporated in the Work within a reasonable time. The City shall have a lien as owner on any materials stored on the site of the Work.

Each partial estimate for payment shall contain or have attached an affidavit in the form found in this book of specifications, as required by law.

The Contractor shall submit with each partial pay estimate a complete list of vendors and suppliers with itemized purchases and invoices from each vendor. Each list shall contain the name of the contractor or Subcontractor ordering the materials or supplies, and the specific use or placement of each of the materials purchased by the City of Tulsa for this project in accordance with Article IIB of the Contract. At the direction of the Contractor, the City of Tulsa will withhold retainage in the amount of 5% on materials and supplies to be purchased under the terms of this Contract.

Each month that work is performed for which payment is due, the Contractor shall submit to the Engineer an application for such payment, provided said payment is not less than \$1,000.00, and, if required, receipts or other vouchers from Subcontractors showing his payments to them shall be submitted.

Each estimate shall be of the approximate value of all work performed and materials in place or delivered to the Work site, determined as aforesaid from the beginning of this contract to the date fixed for the current estimate, from which shall be deducted five percent (5%) or a lesser amount approved by the City, and, in addition thereto, all previous payments and all other sums withheld under the foregoing provisions of this Contract, the remainder to become due and payable; after the estimate has been reviewed and signed by the Engineer the City shall pay the estimate in the regular manner in the amount determined as due unless it shall be known by the City that there is good reason under the terms of this Contract for withholding same.

When the Contractor has completed Work constituting more than fifty percent (50%) of the total Contract amount, the retainage will continue at five percent (5%) of the amount earned to date; provided, however, that the City or its duly authorized representative has determined that satisfactory progress is being made and upon approval by the Surety.

The Contractor may withdraw any part or the whole of the amount which has been retained from partial payment to the Contractor pursuant to the terms of Contract, upon depositing with or delivery to the City:

- (1) United States Treasury Bonds, United States Treasury Notes, United States Treasury bills, or
- (2) General Obligation Bonds of the State of Oklahoma, or
- (3) Certificates of Deposit from a state or national bank having its principal office in the State of Oklahoma.

No retained amount shall be withdrawn which would represent an amount in excess of the market value of the securities at the time of deposit or of the par value of such securities, whichever is lower.

All partial estimates are subject to correction in the final estimate.

(2) Final Payment:

When this contract, in the opinion of the Engineer, shall be completely performed on the part of the Contractor, the Engineer shall proceed with all reasonable diligence to measure up the Work and shall make out the final estimate for the same, and shall, except for cause herein specified, give to the Contractor, within thirty (30) days after receiving said certificate, an order on the City for the balance found to be due, excepting therefrom such sum or sums as may be lawfully retained under any of the provisions of the Contract; PROVIDED, that nothing herein contained shall be construed to affect the rights of the City hereby reserved to reject the whole or any portion of the aforesaid Work should the said estimate and certificate be found or known to be inconsistent with the terms of this Contract or otherwise improperly given; PROVIDED, that if, in case after the work hereunder has been accepted and final payment made, it shall be discovered that any part of the Contract has not been fully performed or has been done in an improper or faulty manner, the Contractor shall immediately remedy such defect, or, in case of neglect to do so within a reasonable time after notice thereof, shall be liable for and shall pay to the City the cost of remedying such defect or a sum equal to the damages sustained thereby, as the City shall elect, and the acceptance of and final payment for the Work shall be no bar to suit on any bond against any principal or principals, or Surety or Sureties, or both, given for the due performance of the Contract, or for the recovery of such cost or the equivalent of such damage.

The City will pay to the Contractor interest at the rate of three-fourths percent (3/4%) per month on the final payment due the Contractor. For lump sum contracts, the interest shall commence thirty (30) days after the Work under the Contract has been completed and accepted and all required material certifications and other documentation required by the Contract have been furnished the City by the Contractor, and shall run until the date when the final payment or estimate is tendered to the Contractor. For contracts bid by Unit Prices, the interest will commence sixty (60) days after the above conditions are satisfied. When contract quantities or the final payment amount is in dispute, the interest-bearing period will be suspended until the conclusion and settlement of the dispute.

GC-30. CONTRACTOR REIMBURSEMENT FOR SURETY BOND:

For contracts of \$1,000,000.00 or more, the Contractor may receive reimbursement for the cost of the surety bonds after issuance of a work order. To receive reimbursement, the Contractor shall submit a standard partial payment form and affidavit, and a copy of the surety bond invoice. The final partial pay estimate will be reduced by the amount paid for surety bond reimbursement.

GC-31. RELEASE OF LIABILITY AND ACCEPTANCE:

The acceptance by the Contractor of the final payment shall operate as, and shall be a release to the City and every employee, officer and agent thereof, from all claims and liability to the Contractor for anything done or furnished for or relating to the Work, or for any act or neglect of the City or of any person relating to or affecting the Work, and, following such acceptance, no person, firm, or corporation other than the signer of this Contract as Contractor, will have any interest hereunder, and no claim shall be made or be valid, and neither the City nor any employees, officers, or agents thereof shall be liable or be held to pay any money, except as herein provided.

It shall be the duty of the Engineer to determine when the Work is completed and the Contract fulfilled, and to recommend its acceptance by the City. The Work herein specified to be performed shall not be considered finally accepted until the City has accepted all the Work.

GC-32. RIGHT OF CITY TO TERMINATE CONTRACT:

If the Work to be done under this Contract shall be abandoned by the Contractor, or if this Contract shall be assigned by him otherwise than as herein provided, or if the Contractor should be adjudged bankrupt, or if a general assignment of his assets be made for the benefit of his creditors, or if a receiver should be appointed for the Contractor or any of his property; or if at any time the Engineer shall certify in writing to the City that the performance of the Work under this Contract is being unnecessarily delayed, or that the Contractor is executing the same in bad faith or otherwise not in accordance with the terms of the Contract; or if the work be not substantially completed within the time named for its completion, or within the time to which such completion date may be extended, then the City may serve written notice upon the Contractor and his Surety of said City's intention to terminate this Contract, and unless within five (5) days after service of such notice upon the Contractor, a satisfactory arrangement is made for the continuance of the Contract, this Contract shall cease and terminate. In the event of such termination, the City shall immediately serve notice upon the Surety and Contractor, and the Surety shall have the right to take over and complete the Work, provided, however, that if the Surety does not commence performance thereof within fifteen (15) days from the date of said notice of termination, the City may take over the Work and perform same to completion, by Contract or otherwise, for the account and at the expense of the Contractor, and the Contractor and his Surety shall be liable to the City for any and all excess cost sustained by the City by reason of such performance and completion. In such event the City may take possession of and utilize in completing the Work, all such materials, equipment, tools, and plants as may be on the site of the Work and necessary therefor. The Contractor shall not receive any other payment under the Contract until said Work is wholly finished, at which time, if the unpaid balance of the amount to be paid under the Contract shall exceed the expense incurred by the City in finishing the Work as aforesaid, the amount of the excess shall be paid to the Contractor, but if such expense shall exceed the unpaid balance, the Contractor shall pay the difference to the City.

GC-33. ADMINISTRATIVE COSTS AND FEES:

Cash Improvements - In the event the improvements are to be paid for in cash, the costs and fees for publication, engineering, filing, recording, abstracting, acquisition of easements, flushing, and pipe testing, shall be paid by the City unless otherwise provided for in these Contract Documents.

Assessment Improvements: In the event the improvements are to be paid for by the issuance of special assessment bonds, the costs and fees for publication, engineering, filing, recording, abstracting, acquisition of easements, flushing, pipe testing, and other authorized costs shall be added to the contract price and paid for in the same manner as the other Work included in this Contract. The Contractor shall pay the City the amount of said charges before the execution and delivery of the special assessment bonds or other payments. If the Contractor fails, neglects, or refuses to pay said charges within thirty (30) days after the bonds are ready for delivery, he shall pay the City interest at the rate of seven percent (7%) per annum and shall be liable for same in a civil suit. The Contractor shall pay the pipe testing fees directly to the testing laboratory.

GC-34. PAYMENT OR ACCEPTANCE NOT A WAIVER BY CITY:

Neither acceptance by the City or the Engineer or any employee of either nor any order by City for the payment of money, or the payment thereof, nor any taking of possession by City, nor the granting of any extension of time, shall operate as a waiver of any rights or powers of the City hereunder, and in the event that after the Work hereunder has been accepted and final payment made, it should be discovered that any part of this Contract has not been fully performed, or has been done in a faulty or improper manner, the Contractor shall immediately remedy such defect, or in the event of neglect to do so within a reasonable time after notice thereof, shall be liable for and shall pay to City the cost of remedying such defect, or a sum equal to the damage caused thereby, as City may elect. The acceptance of the Work or final payment therefor shall be no bar to suit against the Contractor or Surety, or both.

GC-35. CONTRACTOR'S OBLIGATION AFTER ACCEPTANCE:

Contractor further agrees, without cost other than is specially provided for in this Contract, at any and all times during one (1) year next following the completion and final acceptance of the Work embraced in this Contract, without notice from City, to repair or rework any work that fails to function properly due to defective material or workmanship and to indemnify, save harmless and defend the City from any and all suits and actions of every description brought against City for, or on account of injuries or damages alleged to have been received or sustained by any party or parties by reasons of, or arising out of the failure of Contractor to repair or rework any work where such failures have occurred, which said injuries or damages are alleged to have been received or incurred within one (1) year from the final acceptance of the Work hereunder, and to pay any and all judgements that might be rendered against City in any suits and actions, together with such expenses or attorney fees expended or incurred by City in the defense thereof, and Contractor hereby expressly waives any notice that might by law be required to be given to them by City of any defect, break, settling, or failure or of any other condition that might be the cause of injury or damage to any person on account of which a claim or suit might be made or filed against City, or a judgement taken for damages against City. It is expressly agreed that the acceptance of the Work by City shall constitute no bar against any person injured or damaged by the failure of the Contractor to perform all of his covenants and agreements hereunder from maintaining an action against the Contractor, or against City from enforcing its rights against the Contractor hereunder.

GC-36. NOTICES:

Any notices or other communications hereunder may be given to Contractor at the address listed in the Proposal, to the Surety at the office of the Attorney-in-Fact signing the bond or at Surety's home office address on file with the Insurance Commissioner of the State of Oklahoma, and to City in care of the Deputy Director of Public Works, or at such other place as may be designated in writing. The delivery to such address, or depositing in any mailbox regularly maintained by the Post Office, of any notice, letter, or other communication to the Contractor, shall be deemed sufficient service thereof, and the date of said service shall be the date of such delivery or mailing.

GC-37. RELATION TO OTHER CONTRACTORS:

Nothing herein contained and nothing marked upon the Drawings shall be interpreted as giving the Contractor exclusive occupancy of the territory or right-of-way provided. The City and its employees, officers, and agents for any just purpose, and other contractors of the City for any purpose required by their respective contracts, may enter upon or cross this territory or occupy portions of it or take materials therefrom as directed or permitted. When two or more contracts are being executed at one time on the same or adjacent land in such manner that the work on one contract may interfere with the work on another, the Engineers shall decide which contractor shall cease work and which shall continue, or whether the work on both contracts shall progress at the same time and in what manner. When the territory of one contract is the necessary or convenient means of access for the transportation or movement of men, machines, or appliances for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the Engineers to the contractor desiring it, to the extent, amount, in the manner and at the time permitted. Any decision regarding the method or time of conducting the work or the use of the territory shall not be made the basis of claims for delay or damage except as otherwise stipulated. The Contractor shall not cause any unnecessary hindrance or delay to any other contractors on the premises, and shall bear all damages done to the work of such other contractors by him or by his employees.

GC-38. PARTIAL OCCUPANCY AND USE:

The City, upon advance written notification to the Contractor, shall have the right to occupy and use any completed or partially completed portions of the Work site when such occupancy and use are in the City's best interest, notwithstanding completion of the entire project.

Such partial occupancy and use shall be upon the following terms:

- a. The Engineer shall make an inspection of the portion or portions of the Work concerned, and report to the City his findings as to the acceptability and completeness of the Work. The Engineer's report shall include a list of items to be completed or corrected before final payment.
- b. The City, upon acceptance of the Engineer's report, shall give written notice to the Contractor of the City's intention to occupy and use said portions of the Work site. The City's notice shall include a copy of the Engineer's report, shall clearly identify the portions of the Work site to be occupied and used, and shall establish the date of said occupancy and use.
- c. From the date thus established, the City shall assume all responsibilities for operation, maintenance, and the furnishing of water, gas, and electrical power for the portions of the Work site thus occupied and used. The City shall have the right to exclude the Contractor from those portions of the Work site but shall provide the Contractor reasonable access to complete or correct necessary items of Work.
- d. The one year guarantee required by the General Conditions shall not begin until completion and final acceptance of the entire project, except as to any items of mechanical or electrical equipment such as pumps, blowers, process equipment, instrumentation, controls, metering equipment, heating, and ventilating equipment and similar items having movable or operable components, and any of which are thus used by the City. For said equipment, the one-year warranty shall start from the date established in the written notice from the City.
- e. Occupancy or use of any space in the Work site shall not constitute acceptance of Work not performed in accordance with the Contract, nor relieve the Contractor of liability to perform any Work required by the Contract but not completed at the time of said occupancy and use.
- f. The Contractor shall not be held responsible for normal wear and tear or damage resulting from said occupancy, except to the extent that such damage is covered by the one-year guarantee.
- g. The partial occupancy and use of any portions of the Work site by the City shall not constitute grounds for claims by the Contractor for release of any amounts retained from payments under the provisions of the Contract. The retained amounts will not be due until completion of the entire project for final acceptance and final payment, as set forth in the General Conditions.

SPECIAL
PROVISIONS

SPECIAL PROVISION
SUPPLEMENTAL CONTRACT REQUIREMENTS
PROJECT NO. 147520-3 WHITESIDE PARK

1. Successful Contractor shall return fully executed contract documents (including bonds and insurance) to the City of Tulsa, Contract Administration Section, Room N-103, 2317 South Jackson Avenue within two (2) weeks after bid opening.
2. If the successful Contractor can provide proper bonds and insurance and the contract is executed, the Pre-Construction Conference for this project will be held within eight (8) weeks after bid opening.

SPECIAL PROVISIONS

INSURANCE REQUIREMENTS

In reference to Ordinance No. 24616 Adoption of State Specification for Highway Construction, Section 107.12 shall be modified as follows:

The CONTRACTOR (and any subcontractors) shall carry and keep in force during this Contract, policies of insurance issued by an insurer authorized to transact business in Oklahoma in minimum amounts as set forth below or as required by the laws of the State of Oklahoma. The CONTRACTOR shall also furnish an Owner's Protective Policy in the same amounts naming the City of Tulsa as the assured, issued by the same insurance company as the CONTRACTOR'S liability coverage and indemnifying the City of Tulsa against any and all actions, claims, judgments or demands arising from injuries of any kind and character sustained by any person or persons because of work performed by the CONTRACTOR.

General Liability Insurance with a bodily injury and property damage combined single limit of not less than \$1,000,000.00 for each occurrence.

Employer's Liability and Workmen's Compensation in the amounts as required by law.

The CONTRACTOR shall provide proof of such coverage:

- (a) By providing Certificate(s) of Insurance prior to the execution of this contract; and
- (b) By submitting updated Certificate(s) of Insurance with each and every subsequent request for payment. The Certificate(s) should show that the policies are current and should be dated within 30 days of payment request.

The CONTRACTOR shall not cause any required insurance policy to be cancelled or permit it to lapse. If the CONTRACTOR cancels, allows to lapse, fails to renew or in any way fails to keep any required insurance policy in effect, the City will suspend all progress and/or final payments for the project until the required insurance is obtained. Further, a CONTRACTOR who fails to keep required insurance policies in effect may be deemed by the City to be in breach of contract, ineligible to bid on future projects, and/or ineligible to engage in any new contracts.

The Contractor shall execute and furnish a Statutory Bond for the protection of laborers, mechanics, and material men in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Performance Bond in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Maintenance Bond in a sum equal to one hundred percent (100%) of the contract price.

Prior to doing blasting, the Contractor shall furnish a Certificate of Insurance, which shall certify that any damage caused by blasting is within the coverage of the Contractor's liability insurance to the full limits thereof.

All bonds and insurance must be executed by a company licensed to do business in the State of Oklahoma and must be acceptable to the City.

Special Provisions
For
Environmental Issues

Contractor shall immediately report to Owner (City of Tulsa):

- Any environmental issue, whether observed, uncovered, exposed, caused or created;
- Any activity, action or failure to act, which may be causative of increased environmental liability, degradation of the environment, or that could adversely affect or impact human health and/or safety.

No action by Owner shall be deemed to relieve Contractor of these requirements.

All work performed and all work subcontracted shall comply with all Local, State and Federal laws and regulations.

Disposal of any material, including but not limited to waste, excess, spoil, or overburden, shall be done in a manner to comply with any and all Local, State and Federal laws and regulations.

SPECIAL PROVISIONS
REMOVAL OF CASTINGS

All water, sanitary sewer, and storm sewer manhole castings, lids, frames, curb hoods, grates, hydrants, valves, and other fittings removed as part of any construction project are property of the City of Tulsa. Contractor will not take ownership.

All storm sewer and sanitary sewer castings shall be salvaged and delivered by the contractor to the Underground Collections North Sewer Base Stockyard at 9319 East 42nd Street North. Contractor will coordinate the return of such items with the Stockyard personnel at 918-669-6130.

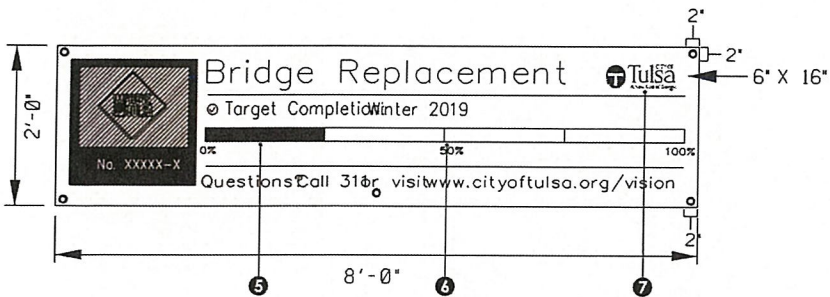
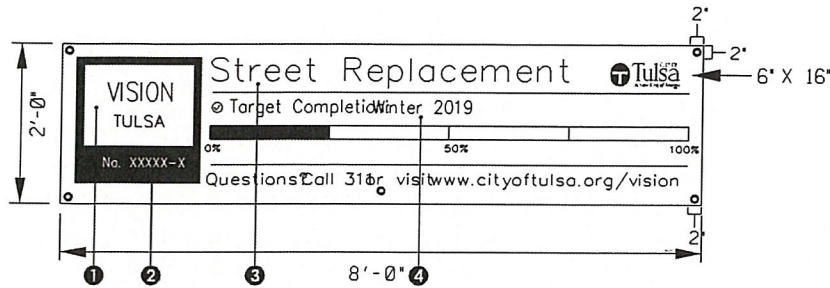
All hydrants, valves, and other fittings from abandoned water mains shall be salvaged and delivered by the contractor to the South Yard at 2317 South Jackson Avenue. Contractor will coordinate the return of such items with the South Yard personnel at 918-596-9401.

RC-1

Special Provision
For Utility Relocations
And Design Issues

It is the intent of this specification to provide no more than twenty-one (21) calendar days due to delays caused by required utility relocations and required design clarifications. Should the Contractor be delayed in the final completion of work by any utility relocation or design issue, additional days as determined by the Engineer shall be granted by the City. However, the Contractor shall give the Engineer notice in writing of the cause of the delay in each case on the Extension of Time Request Form enclosed in these documents, and agrees that any claim shall be fully compensated for by the provisions of this specification to complete performance of the work. An adjustment will not be made to the contract time bid for incentive purposes.

Any time granted for utility relocations or design issues up to (21) calendar days will be in addition to the number of days shown in the proposal for computation of disincentive and liquidated damages.



NOTE:

1. CAPITAL PROGRAM LOGO
 - VISION TULSA
 - IMPROVE OUT TULSA

2. PROJECT NUMBER
 - FONT: HELVETICA BOLD
 - SIZE: 2.5 INCHES
 - ALIGNMENT: CENTER
 - COLOR: WHITE

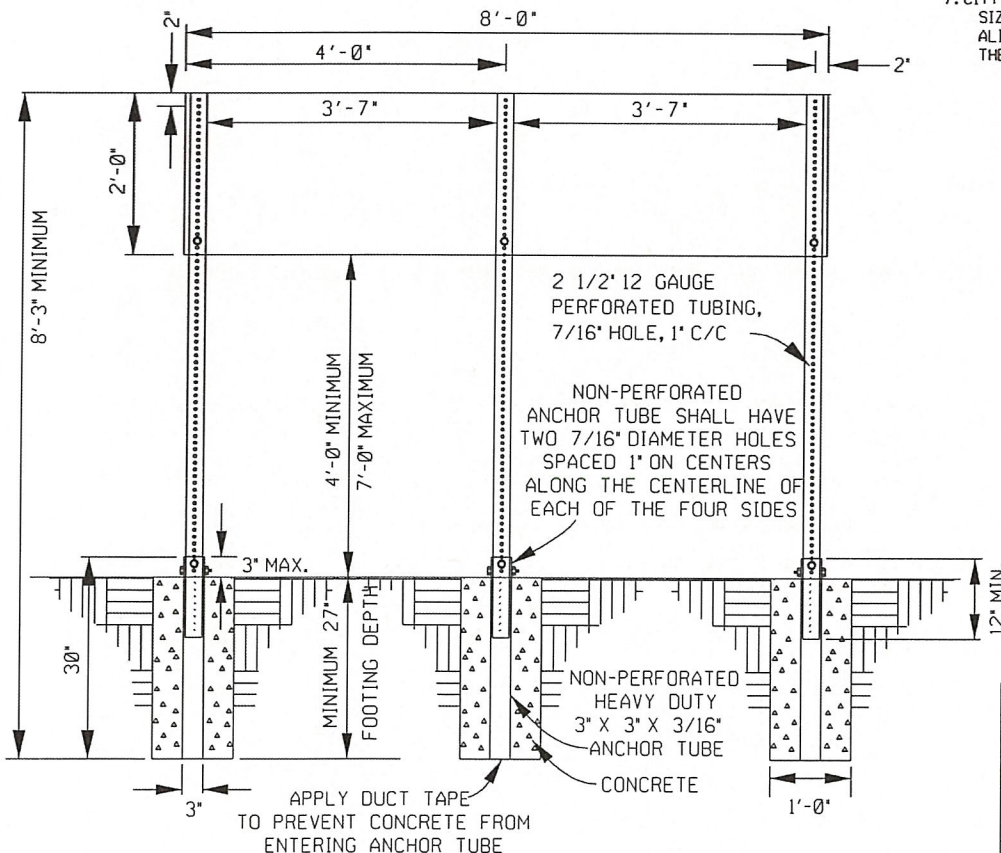
3. GENERAL PROJECT TITLE
 - FONT: HELVETICA BOLD
 - SIZE: 4.72 INCHES
 - ALIGNMENT: LEFT
 - COLOR: CITY BLUE
 - GENERALIZED
 - STREET REPLACEMENT
 - STREET REHABILITATION
 - STREET WIDENING
 - STREET RESURFACING
 - BRIDGE REPLACEMENT
 - BRIDGE REHABILITATION

4. TARGET COMPLETION
 - FONT: HELVETICA REGULAR AND BOLD
 - SIZE: 2.5 INCHES
 - ALIGNMENT: LEFT
 - COLOR: CITY BLUE AND BLACK

5. PROJECT PROGRESS BAR
 - SIZE: 2" TALL X 66" WIDE
 - COLOR: GREEN
 - MATERIAL: 2" GREEN, INDUSTRIAL DUCT TAPE CUT AT 1/4 SEGMENTS SHOULD BE USED TO INDICATE PROJECT PROGRESS/ADVANCEMENTS IN THE PROGRESS BAR. PAINT SHOULD ONLY BE USED IN THE EVENT THAT TAPE IS NOT AVAILABLE OR UNABLE TO REMAIN AFFIXED OVER A LONGER CONSTRUCTION PERIOD.

6. CONTACT INFORMATION
 - OPTIONS: 311 AND CORRESPONDING URL
 - FONT: HELVETICA REGULAR AND BOLD
 - SIZE: 2.5 INCHES
 - ALIGNMENT: LEFT
 - COLOR: CITY BLUE AND BLACK

7. CITY OF TULSA LOGO
 - SIZE: 10" WIDE
 - ALIGNMENT: OUTER RIGHT MARGIN EDGE AND TO THE BASELINE OF THE GENERAL PROJECT TITLE.



ASSEMBLY OF PLYWOOD SIGN

PROJECT SIGN	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
DRAWN BY:	APPROVED
CHECKED BY: HAS	
DATE: MARCH 2022	
NOT TO SCALE	STANDARD NO. 102

TECHNICAL SPECIFICATIONS

PROJECT MANUAL FOR
Whiteside Park

PROJECT NO. 1475~~20~~-3
ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA

LANDSCAPE ARCHITECT:
LANDPLAN CONSULTANTS, INC
1110 West 23rd Street
TULSA, OK 74107
918.584.6464

SURVEYOR:
Fritz Land Surveying, LLC
2017 West 91st Street
TULSA, OK 74132
918.231.0575

TABLE OF CONTENTS

Division 1– General

01100 Summary
01140 Work Restrictions
01152 Applications for Payment
01153 Change Order Procedures
01200 Project Meetings
01260 Allowances
01270 Unit Costs
01310 Construction Schedule, Time of Completion and Liquidated Damages
01340 Submittals
01350 Substitutions
01370 Schedule of Values
01380 Construction Photographs
01410 Testing Laboratory Services
01500 Temporary Facilities and Controls
01510 Site Access
01640 Product Handling
01700 Contract Closeout
01720 Project Record Documents
01730 Operation and Maintenance Data
01731 Cutting and Patching
01732 Selective Demolition

Division 2 – Sitework

02000 Site Work
02100 Site Preparation
02210 Site Grading
02220 Excavating, Backfilling, and Compacting
02265 Finish Grading
02276 Silt Fence
02400 Storm Drainage Utility Piping
02513 Asphaltic Concrete Paving
02516 Pavement Markings Paint
02751 Site Concrete
02830 Ornamental Iron Fence
02870 Site Furnishings and Equipment

Division 3 - Concrete

03350 Concrete Finishing

Division 4 – Masonry

NOT USED

Division 5 - Metals

NOT USED

TABLE OF CONTENTS

Division 6 – Wood and Plastics

NOT USED

Division 7 – Thermal and Moisture Control

07900 Joint Sealants

Division 8 – Doors and Windows

NOT USED

Division 9 – Finishes

NOT USED

Division 10 - Specialties

Division 11 - Equipment

NOT USED

Division 12 - Furnishings

NOT USED

Division 13 – Special Construction

13169 Splashpad

Division 14 – Conveying Systems

NOT USED

Division 15 – Mechanical

NOT USED

Division 16 – Electrical

NOT USED

SECTION 01100 SUMMARY

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. **Project Identification: Whiteside Park.**
Work consists of demolition of pavement sports equipment; removal and salvage of sports equipment; installation of new paving surfaces, drain system, lighting, site furniture, a drinking fountain, plant material; asphalt parking lot mill and overlay. Reference drawings and specifications for detailed scope of work.
Work does not include excavation within the playground perimeter walk with the exception of the planting curbs and planting installation shown on the Drawings, or installation of play equipment or playground drainage structures.
 - 1. Project Location: **Whiteside Park – 11534 E 25th St. Tulsa, OK 74129**
 - 2. Owner: **City of Tulsa**
 - 3. Owner's Representative: **LandPlan Consultants, Inc.**
- B. **Landscape Architect Identification:** The Contract Documents were prepared for Project by LandPlan Consultants Inc., 1110 West 23rd Street Tulsa, OK 74107 (Phone) 918.584.6464

1.03 CONTRACT

- A. Project will be constructed under a general construction contract.

1.04 SPECIFICATION FORMATS AND CONVENTIONS

- A. **Specification Format:** The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC "MasterFormat" numbering system.
 - 1. **Section Identification:** The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. **Specification Content:** The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. **Abbreviated Language:** Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. **Imperative mood and streamlined language** are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

- a. The words "shall," "shall be," or "shall comply with," depending on the context", are implied where a colon (:) is used within a sentence or phrase.

1.05 MISCELLANEOUS PROVISIONS

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01140
WORK RESTRICTIONS**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy of site and use by the public.
 - 2. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Floodplain: No storage of materials including excavated soil or items to be relocated or parking shall occur within the Tulsa Regulatory Floodplain.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01152
APPLICATIONS FOR PAYMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work included: Comply with procedures described in this Section and the General Conditions when applying for progress payment and final payment under the Contract.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
 - 2. The Contract sum and the schedule for payments are described in the Form of Agreement.
 - 3. Payments upon substantial completion and completion of the Work are described in the General Conditions and in Section 01700 Contract Closeout of these Specifications.
 - 4. The Owner's Representative's approval of applications for progress payment and final payment may be contingent upon the Owner's Representative's approval of status of Project Record Documents as described in Section 01720 Project Record Documents, of these Specifications.
 - 5. Schedule of Values - Section 01370.
 - 6. Final Payment check list.

1.02 QUALITY ASSURANCE

- A. Prior to start of construction, secure the 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 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

- B. Formal submittal: Unless otherwise directed by the Owner's Representative.
 - 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 Owner.
 - 2. Sign and notarize the Application and Certificate for Payment and City of Tulsa's "Affidavit of Claimant".
 - 3. Submit the original of the Application and Certificate of Payment plus two (2) identical copies of the continuation sheet or sheets to the Owner.
 - 4. Owner will, upon approval, disburse directly to the Contractor. Normal billings to the City are approved within 30 calendar days.
- C. First Payment Request Check list:
 - 1. The following documents or tasks are required to be approved prior to the first payment.

2. If the contract is anticipated to have only one payment, these items or tasks should be completed prior to any work activity.

<u>Item</u>	<u>Reference</u>
Construction Schedule	Section 01310
Submittal Log	Section 01340
Substitutions Request (30 days)	Section 01350
Schedule of Values	Section 01370
Construction Photographs	Section 01380
Project Sign Installation	Section 01500
Pre-Construction Photo or Video	Section 01510
Site Protection Installation	Section 01510

D. Final Payment Request Check List:

1. The following documents or tasks are required to be approved prior to Final Payment.

<u>Item</u>	<u>Reference</u>
City of Tulsa Affidavit for Payment	TUL-373-G
Application marked "Final"	Project Manual
Consent of Surety to Final Payment	Project Manual
Affidavit of Payment of Debts & Claims.	Project Manual
(Subcontract & General Contract)	
Affidavit of Release of Liens	Project Manual
Owner's Representative	Project Manual
MFBE Actual Usage	Project Manual
Record Documents	Section 01720
Operation & Maintenance Data	Section 01730

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

END OF SECTION

**SECTION 01153
CHANGE ORDER PROCEDURES**

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work included: Make such changes in the work, in the contract sum, in the contract time of completion or any combination thereof as are described in written Change Orders signed by the Owner and the Owner's Representative and issued after execution of the Contract, in accordance with the provisions of this Section.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

1.02 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

1.03 SUBMITTALS

- A. Make submittals directly to the Owner's Representative at the address indicated in Section 01100, Summary and send City of Tulsa - Field Engineering transmittal notice.
- B. Submit the number of copies called for under the various items listed in this Section.

1.04 PRODUCT HANDLING

- A. Maintain a "Register of Field Orders and Change Orders" at the job site, accurately reflecting current status of all pertinent data.
- B. Make the Register available to the Owner and his Representative for review at his request.

1.05 PROCESSING CHANGES INITIATED BY THE OWNER

- A. Should the Owner contemplate making a change in the work or a change in the contract time of completion the work, or a change in the contract time of completion, the Owner will issue a "Request for Proposal (RFP)" to the Contractor.
 - 1. RFP's will be dated and will be numbered in sequence.
 - 2. The RFP will describe the contemplated change and will carry one of the following instructions to the Contractor:
 - a. Make the described change in the work at no change in the contract sum and no change in the contract time of completion.
 - b. Promptly advise the Owner as to credit or cost proposed for the described change. This is not an authorization to proceed with the change.
- B. If the Contractor has been directed by the Owner to promptly advise him as to credit or cost proposed for the described change, the Contractor shall:

1. Analyze the described change and its impact on costs and time.
2. Secure the required information and forward it to the Owner for review.
3. Meet with Owner as required to explain costs and, when appropriate, determine other acceptable ways to achieve the desired objective. Alert pertinent personnel and subcontractors as to the impending change and, to the maximum extent possible, avoid such work as would increase the Owner's cost for making the change, advising the Owner in writing when such avoidance no longer is practicable.

1.06 PROCESSING CHANGES INITIATED BY THE CONTRACTOR

- A. Should the Contractor discover a discrepancy among the Contract Documents, a concealed condition or other cause for suggesting a change in the work, a change in the contract sum or a change in the contract time of completion, he shall notify the Owner as required by pertinent provisions of the Contract Documents.

1.07 PROCESSING CHANGE ORDERS AND PERFORMING INCLUDED IN CHANGE ORDERS

- A. Change Orders will be dated and will be numbered in sequence.
- B. The Change Order will describe the change or changes, will refer to the Request(s) for Proposal involved and will be prepared by the Owner.
- C. Should the Contractor disagree with the stipulated change in contract sum or change in contract time of completion, or both:
 1. The Contractor shall issue a letter signed by the Contractor and stating the reason or reasons for the Contractor's disagreement.
 2. The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.
- D. No work associated with a Change Order is to be performed prior to receipt of a signed and approved Change Order from the Owner. Any Change Order work performed by the Contractor without a signed and approved Change Order will be at the Contractor's expense.

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 issues, the Owner will conduct project meetings throughout the construction period. The Contractor shall be present at such meetings.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions 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 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.
- B. The Owner shall be notified of all such meetings one week in advance.

1.03 SUBMITTALS

- A. Agenda items: To the maximum extent practicable, advise the Owner's Representative at least 24 hours in advance of project meetings regarding items to be added to the agenda.
- B. Job notes:
 - 1. The Owner will compile job notes of each project meeting and will furnish copies to the Contractor and to the Owner.
 - 2. Recipients of copies may make and distribute such other copies as they wish.

PART 2 - PRODUCTS (Not used.)

PART 3 - EXECUTION

3.01 MEETING SCHEDULE

- A. Except as noted below for Pre-construction Meeting, project meetings will be held semimonthly.
- B. Coordinate as necessary with the Owner and Owner's Representatives to establish mutually acceptable schedule for meetings.

3.02 MEETING LOCATION

- A. The Owner will establish meeting location.

3.03 PRE-CONSTRUCTION MEETING

- A. A Pre-construction meeting will be scheduled prior to work commencing.
 - 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 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. Human Rights discussion of hiring practices.
 - 6. Processing of shop drawings and other data submitted to Owner's Representative for review.
 - 7. Rules and regulations governing performance of the work.
 - 8. Procedures for safety and first aid, security, quality control, housekeeping and related matters.
 - 9. Location of underground utilities.
 - 10. 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. Identify issues that may impact the Contract amount.
 - 6. Review progress: look ahead for next two (2) weeks and next thirty (30) days.
 - 7. Complete other current business.
- C. Revisions to job notes:
 - 1. Unless published job notes are in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting.
 - 2. Persons questioning published job notes shall reproduce and distribute copies of the question to all indicated recipients of the particular set of job notes.
 - 3. Questions to job notes shall be settled as priority portion of "old business" at the next regularly scheduled meeting

END OF SECTION

**SECTION 01260
ALLOWANCES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Refer to bid proposal form for additional information.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for Allowances.

1.03 WORK COVERED BY ALLOWANCES

- A. An Allowance as listed on the Bid Proposal Form has been provided in the contract for unforeseen conditions.
- B. The Allowance shall be used for the cost of materials, labor, installation, and overhead and profit for additional work required or requested by the Owner, that is not identified in the Construction Documents, and not included in the Base Bid.
- C. The Allowance shall be used only at the discretion of the City of Tulsa.
- D. The Contractor shall provide, to the City of Tulsa Representative, a written request for the use of the allowances, with a schedule of values, and associated backup information.
- E. The Contractor shall proceed with Work included in the allowances only after receiving a written order, from the City of Tulsa Representative, authorizing such work. Proceeding with Work in the allowance without a written order from the City of Tulsa Representative will be at the Contractor's cost.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01270
UNIT COSTS**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Refer to bid proposal form for additional information.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for unit costs.

1.03 DEFINITIONS

- A. Unit cost is an amount proposed by bidders, stated on the Bid Proposal Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.04 PROCEDURES

- A. Unit costs include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to Bid Proposal Form for description of Work that requires establishment of unit costs. Methods of measurement and payment for unit costs are specified on the Bid Proposal Form.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit costs and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Costs: A list of unit costs is included on the Bid Proposal. Specification Sections included in the Project Manual contain requirements for materials and systems described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 LIST OF UNIT COSTS

- A. Refer to Bid Proposal Form.

END OF SECTION

SECTION 01310
CONSTRUCTION SCHEDULE, TIME OF COMPLETION AND LIQUIDATED DAMAGES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: To assure adequate planning and execution of the work so that the work is completed within the number of calendar days allowed in the Contract and to assist the Owner's Representative in appraising the reasonableness of the proposed schedule in evaluating progress of the work and assessing liquidated damages for breach of contract. Prepare and maintain the schedules and reports described in this Section.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
 - 2. Construction period: Form of Agreement.

1.02 QUALITY ASSURANCE

- A. Time for completion: The work shall be commenced within ten (10) calendar days from the date of the Notice to Proceed from the City. The Contractor agrees that the work shall be prosecuted regularly, diligently and uninterruptedly at a uniform rate of progress so as to ensure completion within the contracted calendar days as stated in the Bid Proposal. It is expressly understood and agreed that the said time for completion of the work described herein is a reasonable time for the completion of same. If the Contractor fails to substantially complete the work of the contract as indicated within the time specified, then the Contractor agrees to pay to the City, not as a penalty, but as liquidated damages for such breach of contract, the sum as noted in the General Conditions for each and every calendar day of failure to complete the work after the specified time set forth in the Bid Proposal. The said amount is fixed and agreed upon because of the impracticality and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain. A Certificate of Substantial Completion must be executed by the Owner's Representative and Contractor stating the contract status. At Substantial Completion, a project must be available for Owner's intended purpose.
- B. Perform data preparation, analysis, charting and updating in accordance with standards approved by the Owner's Representative.

1.03 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340 (Submittals).
- B. Preliminary analysis: Within ten calendar days after the Contractor has received the notice for execution of Contract, submit one reproducible copy and four prints of a preliminary construction schedule prepared in accordance with Part 3 of this Section.
- C. Construction schedule: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit one reproducible copy and four prints of a construction schedule prepared in accordance with Part 3 of this Section.
- D. Periodic reports: On the first working day of each month following the submittal described in Paragraph 1.03C (Construction Schedule), above, submit four prints of the construction schedule updated as described in Part 3 of this Section.

PART 2 - PRODUCTS

2.01 CONSTRUCTION ANALYSIS

- A. Graphically show by bar-chart the order and interdependence of all activities necessary to complete the work and the sequence in which each activity is to be accomplished, as planned by the Contractor and his project field superintendent in coordination with all subcontractors whose work is shown on the diagram. Clearly document the critical path for the Project.
- B. Include, but do not necessarily limit indicated activities to:
 - 1. Project mobilization.
 - 2. Submittal and approval of Shop Drawings and Samples.
 - 3. Procurement of equipment and critical materials.
 - 4. Fabrication of special material and equipment, and its installation and testing.
 - 5. Final cleanup.
 - 6. Final inspecting and testing.
 - 7. All activities by the Owner's Representative that effect progress, required dates for completion, or both, for all and each part of the work.

PART 3 - EXECUTION

3.01 PRELIMINARY ANALYSIS

- A. Contents:
 - 1. Show all activities of the Contractor under this work for the period between receipt of Notice to Proceed and submittal of construction schedule required under Paragraph 1.03 C. above.
 - 2. Show the Contractor's general approach to remainder of the work.
- B. Submit in accordance with Paragraph 1.03 B. above.

3.02 CONSTRUCTION SCHEDULE

- A. As soon as practicable after receipt of Notice to Proceed, complete the construction analysis in preliminary form, meet with the Owner's Representative, review contents of the proposed construction schedule and make all revisions agreed upon.
- B. Submit in accordance with Paragraph 1.03 C. above.

3.03 PERIODIC REPORTS

- A. As required under Paragraph 1.03 D. above, update the approved Construction Schedule.
 - 1. Indicate "actual" progress in percent completion for each activity.
 - 2. Provide written narrative summary of revisions causing delay in the program and an explanation of corrective actions taken or proposed.

3.04 REVISIONS

- A. Make only those revisions to approved construction schedule as are approved in advance by the Owner.

END OF SECTION

SECTION 01340 SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS

- 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 01350: Substitutions.
 - Section 01410: Testing Laboratory Services.
 - Section 01700: Contract Closeout.

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 re-submittals, 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 Owner's Representative.

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 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

- F. 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 Owner's Representative.
- G. 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.
- H. 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 seven (7) opaque reproductions.

- b. Submit seven (7) index brochures of mechanical and electrical submittals (manufacturer's literature and drawings) for final approval and distribution.
 - c. Product data: Submit seven (7) 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 ten (10) days after execution of Contract and schedule of values prior to the 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 Representation 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 resubmittal requirements or approval of submittal.
 - 3. Submit to Owner for approval.
 - 4. Return submittals to Contractor for distribution or for resubmission.
- B. Fourteen calendar days shall be allotted to the Owner's Representative for review unless coordination with other submittals is required. Review by the Owner's Representative shall not be construed as a complete check, but only that the general method of construction and detailing is satisfactory. Review shall not relieve the Contractor from responsibility for errors which may exist.
- 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, resubmittal 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 01350 SUBSTITUTIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Product options and substitutions.

1.02 QUALITY ASSURANCE

- A. To the greatest extent possible, provide products, materials and equipment of a singular generic kind and from a single source.
- B. Where more than one choice is available as options for Contractor's selection of a product or material, select an option which is compatible with other products and materials already selected. Total compatibility among options is not assured by limitations within contract documents but must be provided by Contractor. Compatibility is a basic general requirement of product/material selection.

1.03 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Requirements included:
 - 1. The Contract is based on the standards of quality established in the Contract Documents.
 - 2. All products proposed for use, including those specified by required attributes and performance, shall require approval by the Owner's Representative before being incorporated into the work.
 - 3. Do not substitute materials, equipment or methods unless substitution has been specifically approved for this work by the Owner's Representative and Owner.
- B. Products List:
 - 1. At the time of execution of the Contract, submit to the Owner's Representative five copies of complete list of major products which are proposed for installation and require submittals.
 - 2. Tabulate products by specification section number and title.
- C. Contractor's Options:
 - A. For products specified only by reference standard, select product meeting that standard by any manufacturer.
 - B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with specifications.
 - C. For products specified by naming one or more products or manufacturers and stating "or equal", "or equal as approved by the Owner's Representative" or "approved substitute", etc., in the Contract Documents do not assume that materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the Owner's Representative and Owner. Submit a request for substitutions for any product or manufacturer which is not specifically named. The decision of the Owner's Representative and Owner shall be final.
- D. Substitutions:
 - 1. Within a period prior to 10 calendar days before the bids are due, the Owner's Representative will review considerations for substitutions. Within the 10 calendar day window before the bids are due, no substitution requests will be

- accepted. After the end of that period, requests will be considered only in case of product unavailability or other conditions beyond the control of Contractor.
2. Submit separate request for each substitution on form provided by the Owner.
 3. The Contractor shall support each request with;
 - a. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents, product identification, including manufacturer's name and address, manufacturer's literature, product description, reference standards, performance and test data, samples as applicable, name and address of similar projects on which product has been used, and date of each installation.
 - b. Itemized comparison of the propose substitution with product specified; list significant variations.
 - c. Data relating to changes in construction schedule.
 - d. Any effect of substitution on separate contracts.
 - e. List of changes required in other work or products.
 - f. Accurate cost data comparing proposed substitution with product specified.
 - g. Amount of net change to Contract Sum.
 - h. Designation of availability of maintenance services, sources of replacement materials.
 4. Substitutions will not be considered for acceptance when:
 - a. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
 - b. They are requested directly by a subcontractor or supplier.
 - c. Acceptance will require substantial revision of Contract Documents.
 5. Substitute products shall not be ordered or installed without written acceptance of Owner's Representative and Owner.
 6. Owner's Representative will recommend acceptability of proposed substitutions.
 7. Contractor shall bear any additional cost due to the substitution and shall be responsible for the coordination of any work affected by said substitution.

E. Owner's Representative Duties:

1. Review Contractor's requests for substitutions with reasonable promptness.
2. Recommend to Owner acceptance or rejection of request.
3. Notify Contractor, in writing, of decision to accept or reject requested substitution.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

END OF SECTION

**SECTION 01370
SCHEDULE OF VALUES**

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work included: Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the work as specified herein and in other provisions of the Contract Documents.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
 - 2. Schedule of values is required to be compatible with the "Continuation Sheet" accompanying applications for payment as described in Section 01152 (Applications for Payment).

1.02 QUALITY ASSURANCE

- A. Use required means to assure arithmetical accuracy of the sums described.
- B. When so required by the Owner's Representative provide copies of the subcontracts or other data acceptable to the Owner's Representative substantiating the sums described.

1.03 SUBMITTALS

- A. Prior to first application for payment, submit a proposed schedule of values to the Owner and Owner's Representative for coordination and approval.
 - 1. The following should appear as a line item where applicable:
 - a. Work shall be broken down by site when multiple sites are involved.
 - b. Description of work shall include, but not limited to, the following as applicable:
 - 1) Bonds and Insurance.
 - 2) General Conditions (Layout, temporary facilities, mobilization).
 - 3) Site Preparation.
 - 4) Demolition.
 - 5) Erosion Control.
 - 6) Site Grading.
 - 7) Asphalt: Mill and overlay.
 - 8) Concrete: All paving surfacing.
 - 9) Site Furnishings.
 - 10) Site Lighting.
 - 11) Sodding.
 - 12) Planting.
 - 2. Meet with Owner's Representative and determine additional data, if any, required to be submitted
 - 3. Secure the Owner's and Owner's Representative's approval of the schedule of values prior to submitting first application for payment.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

END OF SECTION

**SECTION 01380
CONSTRUCTION PHOTOGRAPHY**

PART 1 - GENERAL

1.01 DISTRIBUTION

- A. Work included: Provide photographs taken at the specified stages during construction.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limit to, General Conditions, Supplementary Conditions 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 (Submittals).

PART 2 - PRODUCTS

2.01 CONSTRUCTION PHOTOGRAPHS

- A. Provide JPEG formatted pictures in hard copy and on CD ROM media:
 - 1. A minimum of 12 views per site per month during construction.
- B. Provide the following on each picture:
 - 1. Job name.
 - 2. Location from which photographed.
 - 3. Date of photograph.
 - 4. Photographer's name, address and photograph number.
- C. Retain the file for at least two years following date of substantial completion and provide additional pictures to the Owner during that period at the prevailing commercial rates for such prints.
- D. Do not permit pictures to be issued for any other purpose without specific written approval from the Owner.

PART 3 - EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHY

- A. Except as otherwise specifically approved by the Owner's Representative make the pictures within two calendar days of the date of the Contractor's application for progress payment.
 - 1. To the maximum extent practicable, make pictures at approximately the same time of day throughout progress of the work.
 - 2. When inclement weather is anticipated, consult with the Owner's Representative, and determine acceptable alternative arrangements.

- B. Except as otherwise specifically approved by the Owner's Representative, take the pictures from three separate locations around the work.
1. Select the locations to provide diversified overall views of the work from positions which are expected to remain accessible throughout progress of the work.
 2. Identify each location by word description, by marked drawing, or by such other means as acceptable the Owner's Representative to enable future pictures to be taken from the same position.
 3. When so directed by the Owner's Representative because of the stage of construction, change one or more of the locations to new locations inside or outside the buildings the Owner's Representative directs.
- C. Make each picture clear, in focus, with high resolution and sharpness, and with minimum distortion.
- D. Submit photographs monthly with Application for Payment.

END OF SECTION

**SECTION 01410
TESTING LABORATORY SERVICES**

PART 1 - GENERAL

1.01 SELECTION AND PAYMENT

- A. Owner shall employ and pay for the services of an independent engineering and testing laboratory to perform specified services and testing.

1.02 EXTENT OF LABORATORY TESTS AND INSPECTIONS

- A. Inspections, engineering and testing required by law, ordinance, rules, regulations, orders or approvals required by public authorities having jurisdiction at project site.
- B. Inspections and testing required in various sections of specifications.
- C. Additional inspections and testing requested by Owner.

1.03 LABORATORY DUTIES AND TEST METHODS

- B. Cooperate with Owner and Contractor to provide qualified personnel after due notice.
- C. Perform specified inspections, sampling and testing of materials and methods of construction.
 - 1. Comply with latest standards of ASTM and other recognized authorities, and pertinent sections of specifications.
 - 2. Ascertain compliance with requirements of contract documents.
- D. Promptly notify Owner's Representative and Contractor of irregularities or deficiencies of work or products being tested.
- E. Promptly submit written report of each test and inspection with one copy each to the Owner, contractor and project record documents file. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and type of inspection or test.
 - 6. Results of tests or inspections and compliance with contract documents.
 - 7. Interpretation of tests or inspection results when requested by Owner's Representative.
- F. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of contract documents.
 - 2. Approve or accept any portion of the work.
 - 3. Perform any duties of the Contractor.

1.04 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory and:
 - 1. Make available, without cost, samples of all materials to be used and which require testing.
 - 2. Furnish such nominal labor and sheltered working space as is necessary to obtain samples at project.

3. Advise laboratory of identity of materials sources and instruct suppliers to allow tests or inspections.
 4. Notify laboratory sufficiently in advance of operations to allow for completion of initial tests and assignment of inspection personnel.
 5. Notify laboratory sufficiently in advance of cancellation of required testing operations. Contractor shall be responsible to laboratory for changes due to failure to notify if requirements for testing are canceled.
- B. Furnish copies of product test reports as required.
- C. Contractor shall be responsible for the subsequent testing costs following a failed test for any material.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

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 not 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.
 - 7. Tree Fencing, per Section 02100 – Site Preparation.
 - 8. Construction entrance.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions 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 are described in other Sections of these Specifications.

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. Use existing water service on site, as available. Owner will pay utility costs if existing service is utilized. Take all reasonable measures to conserve usage.
 - 2. Provide necessary temporary piping and water supply and, upon completion of the work, remove such temporary facilities.
- B. Electricity:
 - 1. Use existing electrical service on site, as available. Owner will pay utility costs if existing service is utilized. Take all reasonable measures to conserve usage.
 - 2. Provide necessary temporary wiring and, upon completion of the work, remove such temporary facility.
 - 3. Provide area distribution boxes so located that the individual trades may furnish and use 100 ft. maximum length extension cords to obtain power and lighting at points where needed for work, inspection and safety.
- C. Telephone:
 - 1. Contractor shall provide a dedicated telephone and facsimile service at the field office.

2.02 FIELD OFFICES AND SHEDS

- A. Contractor's facilities:
 - 1. Provide a single field office building and sheds adequate in size and accommodation for Contractor's offices, supply, and storage. Locate field office at location to be determined by Owner.
- 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 chain link fence barricade to prevent entry onto the work by the public.

2.05 PROJECT SIGNS

- A. Prior to start of construction, furnish and install one standard City of Tulsa project sign, as required by city standards. Mount at the job site were directed by the Owner's Representative.
- B. Upon completion of the work, demount signs.
- C. Except as otherwise specifically approved by the Owner's Representative, do not permit other signs or advertising on the job site. Backs of signs may be utilized for permits and other notices as may be required on site.

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 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 City of Tulsa property.

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 City property certify their awareness of and familiarity with the requirements of the Owner.
- C. Tree protection in accordance with Section 02100 (Site Preparation).

1.03 SUBMITTALS

- A. Pre-construction pictures in accordance with Paragraph 1.07.

1.04 TRANSPORTATION FACILITIES

- A. Truck and equipment access:
 - 1. Limit the access of trucks and equipment to the route shown on the drawings as "Access Route" or pre-determined route identified by Owner.
 - 2. Provide protection for curbs, sidewalks, roads, parking, utilities and amenities over which trucks and equipment pass to reach work areas.
- B. Contractor's vehicles:
 - 1. Limit the access of vehicles belonging to employees and all other vehicles entering upon City property to use only the access route.
 - 2. Do not permit vehicles to park on any other area of City property except in the areas so designated as parking areas.

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 City property and shall protect carefully from disturbance or damage all said property until the City has 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 City Property.
- D. When or where any direct or indirect damage or injury is done to City 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 (Site Preparation).

1.07 PRE-CONSTRUCTION PICTURES OR VIDEO

- A. The Contractor shall provide pictures or video of the specified work area one day prior to any work starting, but after appropriate construction staking and protection.
- B. Pictures shall have the following information: Job name, location of picture, date of picture and photographer's name, address and picture number.
- C. Pictures shall be from a minimum of twenty-four (24) diversified overall views of the work area and of any pertinent City property within construction limits. Additional photos may be required in unusual or extremely large sites.
- D. Each picture 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, restack, tidy, or otherwise arrange in safe condition, mow and weed trimming.
- 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 park maintenance.
 - 4. Repair any areas of turf that have been damaged by construction operations in accordance with Section 02935 Sodding.
 - 5. Alleviate compacted turf areas if access has been over turf, but no turf has to be placed. A coring implement with 6" O.C. minimum coverage of 3" deep should alleviate compaction. 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 topsoil and settled with water to grade.

1.09 RECORD DOCUMENTS

- A. Submit to Owner a complete record drawing in accordance with Section 01720 (Project Record Drawings).

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 it 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 01640
PRODUCT HANDLING**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Protect products scheduled for use in the work by means including, but not necessarily limited to, those described in this Section.
- B. Related work:
 - 1. Additional procedures also may be prescribed in other sections of these Specifications.

1.02 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work materials.

1.03 MANUFACTURER'S RECOMMENDATIONS

- A. Except as otherwise approved by the Owner, determine and comply with manufacturer's recommendations on product handling, storage and protection.

1.04 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container with labels intact and legible.
 - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. Promptly remove damaged material and unsuitable items from the job site and promptly replace with material meeting the specified requirements.
- B. The Owner's Representative may reject as non-complying such material and products that do not bear identification satisfactory to the Owner's Representative as to the manufacturer, grade, quality and other pertinent information.

1.05 PROTECTION

- A. Protect finished surfaces through which equipment and materials are handled.
- B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.
- C. Maintain finished surfaces clean, unmarred and suitably protected until accepted by the Owner.

1.06 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the Owner's Representative and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Owner to justify an extension in the contract time of completion.

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. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.

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. Substantial Completion is the stage in the progress of Work when the Work or designated portion thereof is sufficiently complete in general accordance with Contract Documents to Owner can occupy or utilize Work for its intended use.
 - 2. Work will not be considered for Substantial completion until all systems and equipment are operational; all designated or required governing agency inspections and certifications have been made and posted, including the Certificate of Occupancy; instruction of designated Owner's personnel in operation of systems and equipment has been completed; operation and maintenance data has been satisfactorily turned over to Owner; and finishes are in place. In general, the only remaining portion of Work shall be minor in nature, such that Owner may occupy or utilize Work or designated portion thereof, and completion or correction of Work by Contractor would not materially interfere or hamper Owner's intended business use or operation.
 - 3. Contractor shall certify that all remaining Work will be completed within 10 consecutive calendar days following date of identified Substantial Completion, or as agreed to in writing, and failure to do so shall automatically reinstate provisions for damages due Owner as contained elsewhere in Contract Documents, or as provided by law for such period of time as may be required by Contractor to fully complete Work whether Owner has occupied Work or not.
 - 4. Owner's Representative will make an inspection within seven (7) days after receipt of certification together with the Owner.
 - 5. 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. 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.
 - 6. 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 reinspect 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 and Owner's Representative will make final inspection within seven (7) days after receipt of certification.
 - 3. Should Owner and Owner's Representative consider that work is finally complete in accordance with contract documents, contractor shall submit final Application for Payment as set forth in the General Conditions, Paragraph GC-29.
 - 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 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. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of the Specifications.
 - 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 relay 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.
- D. Information shall be tied to base line control data of the Owner and so noted on the Owner's field books.

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 and secure approval for the final Project Record Documents by the Owner and Owner's Representative.

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.

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. Provide digital locations (GIS) for these items.
 - 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 judgment, 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. When Substantial Completion of work has been granted, secure the Owner's Representative's approval of all recorded data.
 - 2. Make required revisions.
- C. Review and submittal:
 - 1. Submit the completed set of Project Record Documents to the Owner as described in Paragraph 1.03/D above.
 - 2. Participate in review meetings as required.
 - 3. Make required changes and promptly deliver the final Project Record Documents to the Owner's Representative.

3.03 CHANGES SUBSEQUENT TO ACCEPTANCE

- A. The Contractor has no responsibility for recording changes in the work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

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. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
 - 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. At 30 calendar days prior to the scheduled project completion, 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 two (2) hardcopies and one (1) digital copy on compact disk or thumb drive 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.
 - 4) 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.
 - c. Instructions for inspection, maintenance and repair.
 - d. 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 reassembly 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 01731 CUTTING AND PATCHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Division 1 Section "Selective Demolition" for demolition of selected portions of the building for alterations.
 - 2. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.03 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.04 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Landscape Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.05 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.03 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION

**SECTION 01732
SELECTIVE DEMOLITION**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of the project site, or external elements such as pavement, equipment, furnishings, and footings.
 - 2. Repair procedures for selective demolition operations.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for use of the premises and phasing requirements.
 - 2. Division 1 Section "Work Restrictions" for restrictions on use of the premises due to Owner or tenant occupancy.
 - 3. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
 - 4. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.

1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.04 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
 - 1. Owner shall have first right of refusal for items to be removed from the site, such as playground equipment, benches, picnic tables, barbeque grills, sports equipment.
- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.05 SUBMITTALS

- A. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- B. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.

1.06 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Predemolition Conference: Conduct conference at Project site with the Owner and Owner's Representative to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

1.07 PROJECT CONDITIONS

- A. Owner will occupy portions of site immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. 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.
 - 3. Contractor to field verify remaining items for demolition.
- D. Prepare and follow organized plan for demolition and removal of items.
 - 1. Shut off, cap and otherwise protect existing public and private 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.
- E. Owner assumes no responsibility for condition of areas to be selectively demolished.
1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- F. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. Hazardous materials will be removed by Owner before start of the Work.
 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Landscape Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- G. Storage or sale of removed items or materials on-site will not be permitted.
- H. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.08 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Landscape Architect.

3.02 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - 1. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies. Coordinate with Owner.
 - 2. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.03 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - 3. Protect existing site improvements, appurtenances, and landscaping to remain.
- C. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- D. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

3.04 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
 - 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
 - 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.05 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - 5. Maintain adequate ventilation when using cutting torches.
 - 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 9. Dispose of demolished items and materials promptly.
 - 10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with Owner's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
 - 1. Clean salvaged items.
 - 2. Store items in a secure area until delivery to Owner.

- D. Removed and Reinstalled Items: Comply with the following:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Landscape Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.06 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section 01731 (Cutting and Patching).
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

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.
- B. Related work:
 - Section 01510: Site Access.
 - Section 01732: Selective Demolition.
 - Section 02100: Site Preparation.
 - Section 02210: Site Grading.
 - Section 02220: Excavating, Backfilling, and Compacting.
 - Section 02265: Finish Grading.
 - Section 02276: Silt Fence.
 - Section 02400: Site Drainage.
 - Section 02516: Pavement Markings Paint.
 - Section 02751: Site Concrete.
 - Section 02870: Site Furnishings.
 - Section 02935: Sodding.
 - Section 02950: Planting.
 - Section 03300: Cast-In-Place Concrete.
 - Section 03353: Architectural Concrete Paving.
 - Section 05213: Pipe and Tube Railings.
 - Section 07900: Joint Sealants.

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.
- B. Obtain and pay for all required inspections, permits and fees. Provide notices required by governmental authorities.

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, and as required for demolition work. Perform all work in accordance with the requirements of the applicable utility company or agency involved.
- C. Contractor shall be responsible to locate all existing utilities. 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 benchmarks, 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. Obtain governing authorities written permission when required to close or obstruct street, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.
- G. Control dust caused by the work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.
- H. Protect existing buildings, utilities, 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. Provide for temporary relocation when required to maintain facilities and services in operation during construction work.
- J. The Owner will occupy the premises and adjacent facilities during the entire period of construction. Perform site work operations to minimize conflicts and to facilitate Owner's use of the premises and conduct of his normal operations.

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 that may affect site work operations.

PART 4 - Prior to beginning work, carefully document existing site conditions with photographs and / or video, per Specification 01510.

END OF SECTION

**SECTION 02100
SITE PREPARATION**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Perform site preparation work as shown on Drawings and as specified. The work includes:
 - 1. Protecting existing trees to remain.
 - 2. Removing designated site items. Refer to Drawings for demolition work.
 - 3. Install safety fencing and silt fencing as needed to provide safety, protection, and erosion control.
- B. Related work:
 - Section 01510: Site Access.
 - Section 01732: Selective Demolition.
 - Section 02000: Site Work.
 - Section 02210: Site Grading.
 - Section 02220: Excavating, Backfilling, and Compacting.
 - Section 02265: Finish Grading.
 - Section 02276: Silt Fence.
 - Section 02400: Site Drainage.
 - Section 02516: Pavement Markings Paint.
 - Section 02751: Site Concrete.
 - Section 02870: Site Furnishings.
 - Section 02935: Sodding.
 - Section 02950: Planting.
 - Section 03300: Cast-In-Place Concrete.
 - Section 03353: Architectural Concrete Paving.
 - Section 05213: Pipe and Tube Railings.
 - Section 07900: Joint Sealants.

1.02 QUALITY ASSURANCE

- A. Comply with Section 02000 Site Work requirements.
- B. Notify all contractor employees and subcontractors of provisions of this Section.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials and equipment: As selected by the contractor except as noted.
- B. Tree protection / safety fencing:
 - 1. Fence shall be 4' high orange safety type, Exxon High Density Polyethylene (or approved equal).
 - 2. Fence posts shall be 6' steel 'T' posts, 8' on-center maximum.
 - 3. Where safety fence is adjacent to play areas, provide wood stakes—do not use steel 'T' posts.

PART 3 - EXECUTION

3.01 TREE PROTECTION

- A. Do not park vehicles or store materials under the dripline of existing trees. Protect existing trees scheduled to remain against injury or damage, including cutting, breaking or skinning of roots, trunks or branches; or smothering by stockpiled construction materials, excavated materials or vehicular traffic within branch spread.
 - 1. Provide safety fencing for trees within project work area, as indicated on Drawings at minimum.
 - 2. Tree protection fence shall surround perimeter of tree at the dripline.
 - 3. Erect temporary fencing before commencing site preparation work. Maintain fencing during full construction period. Remove temporary fencing at conclusion of work.
 - 4. Repair trees scheduled to remain but 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 but damaged beyond repair by construction operations as determined by the Owner's Representative with trees of similar size and species of equal dollar value.
 - 6. Replacement of trees scheduled to remain but damaged by construction operations during construction operations, shall be at contractor's expense, and in accordance with Parks Department Specifications.
 - 7. Contractor to review tree protection measures on-site with city and follow city requirements.

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.

3.03 STRIPPING TOPSOIL

- A. Strip topsoil to depths required for new pavement, and to achieve grading shown on Drawings, 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. Do not stockpile topsoil within Tulsa Regulatory Floodplain.
 - 1. Grade and slope stockpiles for proper drainage and to prevent erosion.
 - 2. No topsoil shall be removed from the site unless approved by Owner and Owner's Representative.
- C. Protect all areas which are not to be resurfaced or regraded 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 a City of Tulsa topographic survey. DRAWINGS DO NOT SHOW LOCATIONS OF ALL UNDERGROUND UTILITIES. Contractor shall be responsible for locating all existing utilities. 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 City owned.
3. Call Owner's Representative to coordinate City maintained utility staking lines.

3.05 DISPOSAL OF WASTE MATERIALS

- A. Stockpile, haul from site and legally dispose of waste materials and debris. Accumulation is not permitted. Maintain disposal routes clear, clean and free of debris. On-site burning of combustible cleared materials is not permitted.

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. Regrade any damaged areas and resod per plans and specifications.

END OF SECTION

SECTION 02210 SITE GRADING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work includes: 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. Import specified materials to achieve grading / elevations per plans. Refer to Drawings and this specification section for specific materials and procedures.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these specifications.
 - 02000 Site Work
 - 02100 Site Preparation
 - 02210 Site Grading
 - 02220 Excavating, Backfilling, and Compacting
 - 02265 Finish Grading
 - 02276 Silt Fence
 - 02400 Storm Drainage Utility Piping
 - 02513 Asphaltic Concrete Paving
 - 02516 Pavement Markings Paint
 - 02751 Site Concrete
 - 02870 Site Furnishings and Equipment
 - 02935 Sodding

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. Use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner.
- C. Do not proceed until utility locations are identified.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. See Section 02220 (Excavating, Backfilling, and Compacting).

PART 3 - EXECUTION

3.01 PROJECT 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 PROCEDURES

- A. Utilities:
 - 1. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Owner's Representative and secure his instructions. Field verify location of all existing utilities.
 - 2. Perform new utility work per Drawings.
- B. Protection of persons and property:
 - 1. Barricade open holes and depressions occurring as part of this 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. Dewatering:
 - 1. Remove all water, including rainwater, encountered during trench and substructure work to an approved location by pumps, drains and other approved methods.
 - 2. Keep excavations and site construction 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.

3.03 GRADING

- A. General:
 - 1. Uniformly grade the areas within limits of grading under this Section including adjacent transition areas.
 - 2. Smooth the finished surfaces 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. Finish the surfaces to be free from irregular surface changes, and:
 - a. Shape the surface of areas scheduled to be under pavement to line, grade, and cross-section, with finished surface not more than 0.04 ft. above or below the required subgrade elevation.

3.04 COMPACTING

- A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D1557.
- 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:
 - 1. Lawn and unpaved areas:
 - a. Compact the subgrade and each layer of fill material or backfill material at 85% of maximum density.
 - 2. Site paving and playground slabs:
 - a. Compact the subgrade and each layer of fill material or backfill material at 95% of maximum density (maximum laboratory dry density, in accordance with ASTM D-698).

- C. Moisture control:
1. Where subgrade or layer of soil material must be moisture-conditioned before compacting uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
 2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.
 3. 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 discing, 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.

3.05 FIELD QUALITY CONTROL

- A. Provide tests to the Owner, performed by an independent testing laboratory in accordance with Specification 01410 (Testing Laboratory Services).
- B. If, in the opinion of the Owner's Representative based on reports of the testing laboratory, subgrade or fills which have been placed are below specified density, provide additional compacting and testing under the provisions of Section 01410 (Testing Laboratory Services) of these Specifications. Receive approval of corrective measures prior to paving operations.

3.06 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 re-establish 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.

END OF SECTION

SECTION 02220
EXCAVATING, BACKFILLING, AND COMPACTING

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, General Conditions, Supplementary Conditions and Sections in Division 1 of these specifications.
 - 2. Section 01510: Site Access.
Section 01732: Selective Demolition.
Section 02000: Site Work.
Section 02100: Site Preparation.
Section 02210: Site Grading.
Section 02265: Finish Grading.
Section 02276: Silt Fence.
Section 02400: Site Drainage.
Section 02751: Site Concrete.
Section 02935: Sodding.
Section 02950: Planting.

1.02 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2001 (2004).
- B. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2006.
- C. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2007.
- D. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- E. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2007.

1.03 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. Use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner.

1.04 SUBMITTALS

- A. Comply with provisions of Section 01340.
- B. Materials Sources: Submit name of imported materials source.
- C. Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- D. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. Transport material in accordance with Oklahoma State laws and regulations.
- C. When fill/ backfill materials need to be stored on site, locate stockpiles as directed by Owner's Representative.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 - PRODUCTS

2.01 SANDY LOAM TOPSOIL

- A. For general fill / grading of areas not specified for Select Fill, provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life and reasonably free from subsoils, roots, heavy or stiff clay, stones larger than 1" in greatest dimension, noxious weeds, sticks, brush, litter and other deleterious matter. The top 12" layer of topsoil in lawn areas shall have no inorganic materials larger than ½" diameter.
 - B. The sandy loam topsoil is to be placed in conjunction with the slab sodding or seeding in the top 12 inches of finish grade, as shown on the drawings. The topsoil shall be placed in layers of six inches or less in pre-rolled thickness. Each layer shall be rolled in accordance with the requirements of this Section.
 - C. The soil will be sandy topsoil meeting the following requirements:
 - 1. Graduation:
 - Passing No. 4 (4.75 mm) sieve 100%
 - Passing No. 40 (.43 mm) sieve 95-100%
 - Passing No. 40 (.20 mm) sieve 60-70%
 - Passing No. 100 (.15 mm) sieve 15-30%
 - Passing No. 200 (.08 mm) sieve 5-20%
- Atterberg Limits: Using a constant head hydraulic conductivity (permeability) measurement, the infiltration rate shall not be in excess of five inches per hour (4 x 10 cm/s). The testing procedure shall consist of compacting a cylindrical laboratory sample of drained sandy loam consist of Standard Proctor density and then measuring the water infiltration rate of the sample.
- D. 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.
 - E. Do not permit rocks having a dimension greater than 1" in the upper 12" of fill or embankment.

2.02 SELECT FILL

- A. Select or Stabilized Fill: Imported soil or subsoil excavated on-site having a plasticity index not greater than 15 and a liquid limit of not greater than 45.
- B. Graded, containing at least 15 percent fines (materials passing the #200 sieve, based upon dry weight)
- C. Free of organic matter, lumps larger than 3 inches, rocks larger than 2 inches, and debris.
- D. Provide Owner's Representative composition test reports demonstrating suitability of material.

2.03 AGGREGATE

- A. Where aggregate base is called for under concrete paving, provide Type 'A', washed aggregate complying with requirements of this Section.
- B. Crushed Aggregate Base: Course aggregate, Pit run crushed stone; free of shale, clay, friable material, dirt, vegetation, and debris. Crushed rock shall have a maximum size between 3/4 inch and 1 inch, and with a minimum size number 4.
- C. Clean No. 57 Aggregate: angular drain rock; washed; free of silt, clay, loam, friable or soluble materials, dirt, vegetation, and organic matter. Tested in accordance with ASTM C131 and ASTM C535.

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. Dewatering:
 - 1. Remove all water, including rainwater, encountered during trench and substructure 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 area at all times.

3.02 EXCAVATING

- A. Perform excavating of every type of material encountered within the limits of the work to the lines, grades and elevations indicated and specified herein.
- B. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.
- C. Satisfactory excavated materials:
 - 1. Transport to, and place fill or embankment areas within the limits of the work.
- D. Unsatisfactory excavated materials:
 - 1. Excavate to a distance below grade as directed by the Owner's Representative and replace with satisfactory materials.
 - 2. Include excavation of unsatisfactory materials and replacement by satisfactory materials as parts of the work of this Section.
- E. Surplus materials:
 - 1. Dispose of unsatisfactory excavated materials and surplus satisfactory excavated material offsite.
- F. Borrow:
 - 1. Obtain material required for fill or embankment in excess of that produced within the grading limits of the work from borrow area selected and paid for by the Contractor and approved by the Owner's Representative.
- G. Ditches and gutters:
 - 1. Cut accurately to the cross sections, grades and elevations shown.
 - 2. Maintain excavations free from detrimental quantities of leaves, sticks, trash and other debris until completion of the work.
- H. Unauthorized excavation:
 - 1. Unauthorized excavation consists of removal of materials beyond indicated subgrade 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.
- I. Stability of excavations:
 - 1. Slope sides of excavations to 1:1 or flatter, unless otherwise directed by the Owner's Representative.
 - a. Shore and brace where sloping is not possible because of space restrictions or stability of the materials being excavated.

- b. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- J. 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 form work, 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.
 - c. Excavate for footings and foundations only after general site excavating, filling and grading are complete.
- K. Cold weather protection:
 - 1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

3.03 FILLING AND BACKFILLING

- A. General:
 - 1. For each classification listed below, place acceptable soil material in layers to required subgrade elevations.
 - 2. In excavations:
 - a. Use satisfactory excavated or borrow material.
 - 3. Under slabs:
 - a. Use aggregate fill.
- B. Backfill excavations as promptly as progress of the work permits, but not until:
 - 1. Acceptance of construction below finish grade
 - 2. Inspecting, testing, approving and recording locations of underground utilities.
 - 3. Concrete formwork is removed.
 - 4. Shoring and bracing are removed and voids have been backfilled with satisfactory materials.
 - 5. Trash and debris have been removed.
- C. 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.
 - 4. At exposed soils in areas for sidewalks, scarify to a minimum depth of 6" and recompact at a moisture content that will permit proper compaction as specified for fill.
- D. Placing and compacting:
 - 1. Compact subgrade to 95% standard proctor density.
 - 2. Place backfill and fill materials not more than 8" in loose depth.
 - 3. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.

4. Compact each layer to required percentage of maximum density for area.
 - a. 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 structures to required elevations.
 - a. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structure to approximately the same elevation each lift.
6. Refer to grading plan on Drawings for specific elevations to achieve.

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.
 5. Place and spread coarse aggregate uniformly to a total compacted thickness as indicated in drawings.
 6. Level and contour surfaces to elevations and gradients indicated.
- B. Grading outside structure lines:
 1. Grade adjacent to structures to achieve drainage away from the structures and to prevent pounding.
 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 0.04 ft above or below the required subgrade elevation.
 - b. Shape the surface of areas scheduled to be under pavement to line, grade and cross-section, with finished surface not more than 0.04 ft above or below the required subgrade 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. 85% proctor density in lawn area and 95% proctor density in building area.
- 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 as approved by the Owner's Representative.
 1. Structures:
 - a. Compact the top 8" of subgrade and each 8" lift (maximum) layer of fill material or backfill material at 95% of maximum density.
 2. Lawn and unpaved areas:
 - a. Compact the top 8" of subgrade and each 8" lift (maximum) layer of fill material or backfill material at 85% of maximum density.
 - b. Compact the upper 12" of filled areas, or natural soils exposed by excavating, at 85% of maximum density.
 3. Pavements:

- a. Place all aggregate in maximum 8" lifts, and roller compact to specified density. Compact aggregate with roller using a 50 ton compression type roller or approved equal.
 - b. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
 - c. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
 - d. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
 - e. Compact the top 8" of subgrade and each 8" lift (maximum) layer of fill material or backfill material at 95% of maximum density.
- 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 discing, 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.
 - 2. Where subgrade or layer of soil material must be moisture-conditioned before compacting uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
 - 3. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.

3.06 FIELD QUALITY CONTROL

- A. Secure Owner's Representative's inspection and approval of subgrades 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, at least one field density test for every 2000 sq. ft. of paved area, but not less than three tests.
 - 2. In each compacted fill layer, one field density test for every 2000 sq. ft. of overlaying paved area, but not less than three tests.
- C. If, in the Owner's Representative's opinion based on reports of the testing laboratory, subgrade or fills which have been placed are below specified density, provide additional compacting and testing under the provisions of Section 01410 of these Specifications.

3.07 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.

3.08 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.

3.09 CLEANING

- A. Remove all unused materials from site.

END OF SECTION

**SECTION 02265
FINISH GRADING**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Place, level, and compact topsoil to finish grade all areas per Drawings.
- B. Related work:
 - Section 01510: Site Access.
 - Section 01732: Selective Demolition.
 - Section 02000: Site Work.
 - Section 02100: Site Preparation.
 - Section 02210: Site Grading.
 - Section 02220: Excavating, Backfilling, and Compacting.
 - Section 02276: Silt Fence.
 - Section 02400: Site Drainage.
 - Section 02751: Site Concrete.
 - Section 02870: Site Furnishings.
 - Section 02935: Sodding.
 - Section 02950: Planting.

1.02 PROTECTION

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

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil: See Section 02220 (Excavating, Backfilling, and Compacting).

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify site conditions and note irregularities affecting work of this Section. Do not finish grade until drainage, utilities, and paving work have been completed.
- 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. Verify that subsoil grades are correct to achieve finished elevations per Drawings.

3.03 PLACING TOPSOIL

- A. Place topsoil to achieve grading and elevations per Drawings.
- B. Use topsoil in relatively dry state. Place during dry weather.

- C. Fine grade topsoil, eliminating rough or low areas, to achieve elevations per plans, smoothly blended to meet existing grades. Maintain levels, profiles, and contours of subgrade. All areas are to have a smooth, even finished surface; free of depressions and uneven areas. Provide for positive drainage in all areas. Drag or rake to achieve a smooth surface.
- 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. Where topsoil for lawns is adjacent to paving edges, bring finished grade to 1" below top of pavement (after compaction).
- F. Remove surplus subsoil and topsoil from site.
- G. Leave stockpile area and site clean and raked, ready to receive sod.
- H. In all areas, provide a smooth transition to existing grades in surrounding areas. Add topsoil as required.

3.04 TOLERANCES

- A. Top of Topsoil: Plus or minus 1" for lawn areas.

3.05 ACCEPTANCE

- A. Receive approval from Owner's Representative that finished grading complies with Drawings and Specifications. Correct any problems identified by Owner's Representative, at Contractor's expense, prior to sodding operations.

END OF SECTION

SECTION 02276 SILT FENCE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section covers the requirements for a temporary barrier of siltation screen to trap sediment and debris in areas as needed to protect site from erosion. Contractor may use either a geotextile silt fence or hay bales, at his option.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these specifications.
Section 02000: Site Work.
Section 02100: Site Preparation.
Section 02210: Site Grading.
Section 02220: Excavating, Backfilling, and Compacting.
Section 02265: Finish Grading.
Section 02400: Site Drainage.

PART 2 - PRODUCTS

2.01 SILT FENCE FABRIC

- A. The fabric shall be geotextile filter cloth fabric and meet the following criteria.
Minimum Acceptable Fabric Properties Value Test Method
Grab Tensile Strength (lbs) 90 ASTM D1682
Elongation at Failure (%) 50 ASTM D1682
Mullen Burst Strength (PSI) 190 ASTM D3786
Puncture Strength (lbs) 40 ASTM D751
Equivalent Opening Size 40 - 80 US STD Sieve CW - 02215
Ultraviolet Radiation Stability % 90 ASTM - G - 26

2.02 FENCE POSTS

- A. Steel T posts shall be 6' - 0" in length and painted green.

2.03 WIRE FENCE

- A. Wire fence shall be a maximum of 14- gauge with a maximum 6-inch mesh opening.

PART 3 - EXECUTION

3.01 IMPLEMENTATION

- A. Construct the silt fence in locations susceptible to erosion. Securely attach wire fence to the fence posts with wire ties. Filter cloth shall be secured to wire fence every 24 inches at top and mid section.
- B. Siltation fences shall be kept free of debris that would damage the filtering material or impede the flow of water.

- C. During construction, maintain silt fence to be in good condition and to effectively collect silt. Repair fencing as needed to keep fence upright and fully functional. Remove silt throughout construction to maintain full height of fence.
- D. Remove all silt fences / dikes at conclusion of project.

END OF SECTION

SECTION 02400
STORM DRAINAGE UTILITY PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes gravity-flow, non-pressure storm drainage outside the building, with the following components:
 - 1. Drains.
 - 2. Precast concrete manholes.

1.03 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene-monomer rubber.
- B. HDPE: High density polyethylene.
- C. LLPE: Linear low-density, polyethylene plastic.
- D. PE: Polyethylene plastic.
- E. PVC: Polyvinyl chloride plastic.
- F. RCP: Reinforced concrete pipe.
- G. TPE: Thermoplastic elastomer.

1.04 PERFORMANCE REQUIREMENTS

- A. Gravity-Flow, Nonpressure, Drainage-Piping Pressure Rating: 10-foot head of water. Joints shall be at least silt tight, unless otherwise indicated.

1.05 SUBMITTALS

- A. Product Data: For the following:
 - 1. Drains
 - 2. Pipe
 - 3. Junction Boxes and Inlets
- B. Shop Drawings: For the following:
 - 1. Catch Basins and Stormwater Inlets. Include plans, elevations, sections, details, and frames, covers, and grates.
- C. Field quality-control test reports.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

- B. Protect pipe, pipe fittings, and seals from dirt and damage.
- C. Handle junction boxes, catch basins, and stormwater inlets according to manufacturer's written rigging instructions.

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, fitting, and joining materials.

2.02 PE PIPE AND FITTINGS

- A. Corrugated PE Drainage Pipe and Fittings NPS 10 and Smaller: AASHTO M 252M, Type S, with smooth waterway for coupling joints.
 - 1. Silt tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with tube and fittings.
- B. Corrugated PE Pipe and Fittings NPS 12 to NPS 48: AASHTO M 294M, Type S, with smooth waterway for coupling joints.
 - 1. Silt tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.
- C. Corrugated PE Pipe and Fittings NPS 56 and NPS 60: AASHTO MP7, Type S, with smooth waterway for coupling joints.
 - 1. Silt tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.

2.03 PVC PIPE AND FITTINGS

- A. PVC Water-Service Pipe and Fittings: ASTM D 1785, Schedule 40 pipe, with plain ends for solvent-cemented joints with ASTM D 2466, Schedule 40, socket-type fittings.
- B. PVC Sewer Pipe and Fittings, NPS 15 (DN 375) and Smaller: ASTM D 3034, SDR 35 with bell and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.
- C. PVC Sewer Pipe and Fittings, NPS 18 (DN 450) and Larger: ASTM F 679, T-[1] [2] wall thickness, with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.
- D. PVC Profile Gravity Sewer Pipe and Fittings: ASTM F 794 pipe, with bell-and-spigot ends; ASTM D 3034 fittings, with bell ends; and ASTM F 477, elastomeric seals.

2.04 CONCRETE PIPE AND FITTINGS

- A. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76, with bell-and-spigot or groove and tongue ends. Wall B.
- B. ASTM C 76, with groove and tongue ends and gasketed joints with ASTM C 443, rubber gaskets, "Omni-flex" or equal. Class III, Wall A

2.05 NONPRESSURE-TYPE PIPE COUPLINGS

- A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground non-pressure piping. Include ends of same sizes as piping to be

joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

2.06 CLEANOUTS

- A. Gray-Iron Cleanouts: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.
 - 1. Top-Loading Classification(s): Extra-heavy duty.
 - 2. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

2.07 CONCRETE

- A. General: Cast-in-place concrete according to ACI 318/318R, ACI 350R, and the following:
 - 1. Cement: ASTM C 150, Type II.
 - 2. Fine Aggregate: ASTM C 33, sand.
 - 3. Coarse Aggregate: ASTM C 33, crushed gravel.
 - 4. Water: Potable.
- B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water-cementitious materials ratio.
 - 1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
 - 2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

2.08 CATCH BASINS

- A. Standard Precast Concrete Catch Basins: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
 - 1. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section and having separate base slab or base section with integral floor.
 - 2. Riser Sections: 4-inch minimum thickness, 48-inch diameter, and lengths to provide depth indicated.
 - 3. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
 - 4. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
 - 5. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.
 - 6. Grade Rings: Include 2 or 3 reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch-diameter frame and grate.
 - 7. Steps: Individual FRP steps, wide enough to allow worker to place both feet on 1 step and designed to prevent lateral slippage off of step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of catch basin to finished grade is less than 60 inches.
 - 8. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section.

2.09 PIPE OUTLETS

- A. Head Walls: Cast-in-place reinforced concrete, with apron and tapered sides.

2.10 EARTHWORK

- A. Excavation, trenching, and backfilling are specified in Section 02220.

2.11 PIPING INSTALLATION

- A. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

2.12 PIPE JOINT CONSTRUCTION

- A. Where specific joint construction is not indicated, follow piping manufacturer's written instructions.

2.13 CATCH BASIN INSTALLATION

- A. Construct catch basins to sizes and shapes indicated.
- B. Set frames and grates to elevations indicated.

2.14 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318/318R.

2.15 DRAINAGE SYSTEM INSTALLATION

- A. Assemble and install components according to manufacturer's written instructions.
- B. Install with top surfaces of components, except piping, flush with finished surface.
- C. Assemble channel sections to form slope down toward drain outlets. Use sealants, adhesives, fasteners, and other materials recommended by system manufacturer.
- D. Embed channel sections and drainage specialties in 4-inch (102-mm) minimum concrete around bottom and sides.
- E. Fasten grates to channel sections if indicated.
- F. Assemble channel sections with flanged or interlocking joints.
- G. Embed channel sections in 4-inch (102-mm) minimum concrete around bottom and sides.

2.16 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate reports for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.

- d. Infiltration: Water leakage into piping.
- e. Exfiltration: Water leakage from or around piping.
- 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
- 4. Re-inspect and repeat procedure until results are satisfactory.

2.17 CLEANING

- A. Clean interior of piping of dirt and superfluous materials.

PART 3 - EXECUTION

3.01 EARTHWORK

- A. Excavation, trenching, and backfilling are specified in Section 02220.

3.02 PIPING APPLICATIONS

- A. Pipe couplings and special pipe fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
 - 1. Use non-pressure-type flexible couplings where required to join gravity-flow, non-pressure sewer piping, unless otherwise indicated.
 - a. Shielded flexible couplings for same or minor difference OD pipes.
 - b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
 - c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.
 - 2. Use pressure-type pipe couplings for force-main joints.
- B. Special Pipe Fittings: Use for pipe expansion and deflection. Pipe couplings and special pipe fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
- C. Gravity-Flow, Non-pressure Sewer Piping: Use any of the following pipe materials for each size range:
 - 1. NPS 3: Corrugated PE drainage pipe and fittings, silt tight couplings, and coupled joints.
 - 2. NPS 3: NPS 4 PVC sewer pipe and fittings; gaskets; and gasketed joints.
 - 3. NPS 4 and NPS 6: Corrugated PE drainage pipe and fittings, silt tight couplings, and coupled joints.
 - 4. NPS 4 and NPS 6: PVC sewer pipe and fittings, gaskets, and gasketed joints.
 - 5. NPS 8 to NPS 12: Corrugated PE drainage pipe and fittings in NPS 8 and NPS 10 and corrugated PE pipe and fittings in NPS 12 couplings, and coupled joints.
 - 6. NPS 8 to NPS 12: PVC sewer pipe and fittings, gaskets, and gasketed joints.
 - 7. NPS 8 to NPS 12: PVC profile gravity sewer pipe and fittings, gaskets, and gasketed joints.
 - 8. NPS 8 to NPS 12: NPS 12 reinforced-concrete sewer pipe and fittings, gaskets, and gasketed joints.
 - 9. NPS 15: Corrugated PE pipe and fittings, silt tight couplings, and coupled joints.
 - 10. NPS 15: PVC sewer pipe and fittings, gaskets, and gasketed joints.
 - 11. NPS 15: PVC profile gravity sewer pipe and fittings, gaskets, and gasketed joints.

12. NPS 15: Reinforced-concrete sewer pipe and fittings, gaskets, and gasketed joints.
13. NPS 18 to NPS 36: Corrugated PE pipe and fittings, silt tight couplings, and coupled joints.
14. NPS 18 to NPS 36: Reinforced-concrete sewer pipe and fittings, gaskets, and gasketed joints.
15. NPS 42 to NPS 60: Corrugated PE pipe and fittings, silt tight couplings, and coupled joints.
16. NPS 42 to NPS 60: Reinforced-concrete sewer pipe and fittings, gaskets, and gasketed joints.

3.03 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. Tunneling: Install pipe under streets or other obstructions that cannot be disturbed by tunneling, jacking, or a combination of both.
- F. Install gravity-flow, nonpressure drainage piping according to the following:
 1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.
 2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
 3. Install piping with 36-inch minimum cover.
 4. Install piping below frost line.
 5. Install PE corrugated sewer piping according to CPPA's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."
 6. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.
 7. Install reinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."

3.04 PIPE JOINT CONSTRUCTION

- A. Where specific joint construction is not indicated, follow piping manufacturer's written instructions.
- B. Join gravity-flow, nonpressure drainage piping according to the following:

1. Join corrugated PE piping according to CPPA 100 and the following:
 - a. Use silt tight couplings for Type 1, silt tight joints.
 2. Join PVC sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric gasket joints.
 3. Join PVC profile gravity sewer piping according to ASTM D 2321 for elastomeric-seal joints or ASTM F 794 for gasketed joints.
 4. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints and proper tolerances for the Omni-flex gaskets.
 5. Join dissimilar pipe materials with nonpressure-type flexible couplings.
- C. Join dissimilar pipe materials with pressure-type couplings.

3.05 CLEANOUT INSTALLATION

- A. Install cleanouts and riser extension from sewer pipe to cleanout at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
1. Use light-duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
 2. Use medium-duty, top-loading classification cleanouts in paved foot-traffic areas.
 3. Use heavy-duty, top-loading classification cleanouts in vehicle-traffic service areas.
 4. Use extra-heavy-duty, top-loading classification cleanouts in roads areas.
- B. Set cleanout frames and covers in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding earth grade.
- C. Set cleanout frames and covers in concrete pavement with tops flush with pavement surface.

3.06 DRAIN INSTALLATION

- A. Install type of drains in locations indicated.
1. Use light-duty, top-loading classification drains in earth or unpaved foot-traffic areas.
 2. Use medium-duty, top-loading classification drains in paved foot-traffic areas.
 3. Use heavy-duty, top-loading classification drains in vehicle-traffic service areas.
 4. Use extra-heavy-duty, top-loading classification drains in roads areas.
- B. Embed drains in 4-inch minimum depth of concrete around bottom and sides.
- C. Fasten grates to drains if indicated.
- D. Set drain frames and covers with tops flush with pavement surface.

3.07 CATCH BASIN INSTALLATION

- A. Construct catch basins to sizes and shapes indicated.
- B. Set frames and grates to elevations indicated.

3.08 STORMWATER INLET AND OUTLET INSTALLATION

- A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.
- B. Construct riprap of broken stone, as indicated.
- C. Install outlets that spill onto grade, anchored with concrete, where indicated.
- D. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.
- E. Construct energy dissipaters at outlets, as indicated.

3.09 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318/318R.

3.10 STORMWATER DISPOSAL SYSTEM INSTALLATION

- A. Piping Systems: Excavate trenches of width and depth, and install piping system, filter fabric, and backfill according to piping manufacturer's written instructions and City of Tulsa standards.

3.11 CONNECTIONS

- A. Connect nonpressure, gravity-flow drainage piping in building's storm building drains as required.
 - 1. Protect existing piping, manholes, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
- B. Connect to sediment interceptors as required.

3.12 IDENTIFICATION

- A. Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.
 - 1. Use warning tape over piping and over edges of underground structures.

3.13 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate reports for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.

4. Re-inspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
1. Do not enclose, cover, or put into service before inspection and approval.
 2. Test completed piping systems according to authorities having jurisdiction.
 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 4. Submit separate report for each test.
 5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
 - b. Option: Test plastic piping according to ASTM F 1417.
 - c. Option: Test concrete piping according to ASTM C 924.
 - d. Ductile-Iron Piping: Test according to AWWA C600, "Hydraulic Testing" Section.
 - e. PVC Piping: Test according to AWWA M23, "Testing and Maintenance" Chapter.
- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.14 CLEANING

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water as required.

END OF SECTION

SECTION 02513
ASPHALTIC CONCRETE PAVING

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section covers the requirements for asphalt prime coat and tack coat for asphalt and asphalt concrete paving.

1.02 STANDARD SPECIFICATIONS

- A. Asphaltic concrete paving equipment, mixing, construction, and protection shall conform to the requirements of the enumerated sections of the STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, OKLAHOMA STATE HIGHWAY COMMISSION, dated 1988 (abbreviated in this specification as SSHC).
- B. References to the Engineer and Department in the SSHC shall be changed to refer to the City.
- C. References to the Materials Division and Materials Engineer in the SSHC shall be changed to refer To Testing Lab and Testing Engineer.
- D. Delete subsections titled Method of Measurement and Basis of Payment.
- E. Reference City of Tulsa standards.

1.03 SUBMITTALS

- A. See Section 01340 – for administrative requirements for submittal procedures.

PART 2 PRODUCTS

2.01 PRIME COAT

- A. Asphalt for prime coat shall be one of the following:
 - 1. Emulsified asphalt SS-1 conforming to AASHTO M 140, diluted one-part water to one-part emulsified asphalt.
- B. Sand for blotting shall be fine graded clean sand reasonably free from silt, loam or other foreign materials.

2.02 TACK COAT

- A. Asphalt for tack coat shall be emulsified asphalt SS-1 conforming to AASHTO M 140, diluted one-part water to one-part emulsified asphalt

2.03 FOG SEAL

- A. A fog seal is a light application of a diluted slow-setting asphalt emulsion to the surface of an aged (oxidized) pavement surface.

PART 3 EXECUTION

3.01 EQUIPMENT

- A. Distributors shall conform to SSHC Subsection 401.03 (a).
- B. Compactors shall conform to SSHC Subsection 401.03 (b).
- C. Mixing Plants.
 - 1. All plants shall conform to SSHC Subsection 411.03
- D. Bituminous pavers shall conform to SSHC Subsection 411.03 (d).

3.02 PREPARING MIXTURE

- A. Delivering and stockpiling of aggregates shall conform to SSHC Subsection 106.07.
- B. The bituminous material and aggregate shall be heated to the temperature specified in Section: Asphaltic Concrete Proportioning and Quality Control and in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at uniform temperature at all times.
- C. Drying and bin storage of aggregate shall conform to SSHC Paragraph 411.04 (d).

3.03 PLACING ASPHALT MIXTURE

- A. Weather limitations shall be in accordance with SSHC Subsection 411.04 (f).
- B. Spreading and finishing shall conform to SSHC Subsection 411.04 (g).
- C. Joints shall conform to SSHC Subsection 411.04 (h).
- D. Compaction shall conform to SSHC Subsection 411.04 (i) except as follow:
 - 1. Delete all references to unit prices.
 - 2. Delete subsection 411.04 (i) entirely.
 - 3. Compaction shall continue until the densities specified in Section: Asphaltic Concrete Proportioning and Quality Control have been obtained.
- E. Surface tolerances shall conform to SSHC Subsection 401.04 (a).
- F. Width and thickness shall conform to SSHC paragraph 411.04 (j) 2.
- G. Traffic shall not be permitted on the asphalt concrete pavement until it has received its final rolling.

3.04 PRIME COAT

- A. Weather limitations shall be in accordance with SSHC Subsection 408.04 (a).
- B. Preparation of surface shall conform to SSHC Subsection 408.04 (b).
- C. Application of bituminous material shall conform to SSHC Subsection 408.04 (d).
- D. Application Temperature
 - 1. Emulsified asphalt SS-1 shall be sprayed at 50-140 degrees f.

- E. Application of blotter material shall conform to SSHC Subsection 408.04 (e).

3.05 TACK COAT

- A. Tack coat application shall conform to SSHC Subsection 407.04.
- B. Emulsified asphalt SS-1 shall be applied by spraying at a temperature of 50-140 degrees.

END OF SECTION

**SECTION 02516
PAVEMENT MARKINGS PAINT**

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section covers the requirements for traffic stripe, pavement lettering paint, and handicap symbol paint, the placing of traffic paint by the drop-on method.

1.02 QUALITY ASSURANCE

- A. This traffic paint shall conform on a weight basis to the composition of the standard formula as closely as accepted good paint practice will permit. No variation from standard formula will be permitted except for replacement of volatile lost in processing or those approved by the City.

1.03 SUBMITTALS

- A. See Section 01340 – for administrative requirements for submittal procedures.

PART 2 PRODUCTS

2.01 PAINT

- A. Traffic Stripe Paint - Type III (Drop-on)
1. Substitutions: The exact brands and types of raw materials are listed for the purpose of facilitating the selection of parallel materials equal not only in quality and composition, but also in physical and chemical behavior after aging in the finished product. Since evaluation of questionable materials may require sixty days after receipt of request from a paint manufacturer and since meeting delivery schedules is a responsibility of the paint manufacturer, he is reminded that he should schedule material procurement to permit him to meet delivery commitments. The City shall make the final decision as to quality of materials. After the City has approved the brand names of raw materials proposed by the Contractor, no substitution will be allowed during manufacture without prior approval of the City.
 2. Pigments:
 - a. Pure Titanium Dioxide Rutile, Type II; shall meet ASTM Specification D476-73.
 - b. Lead-Free Zinc Oxide: American Process, Articular; shall meet Federal Specification TT-P-463a, Type I.
 - c. Talc, Paint Grade Magnesium Silicates; shall meet Federal Specification MIL-M15173, Type B
 - d. Calcium Carbonate:
CaCO₃ Min. 97 percent
H₂O (MAX) 0.4 percent
Specific Gravity 2.63 - 2.73
Fineness Requirements 80 percent less than 5 (microns).
Color: Equal to material listed in Standard Formula. Substitution in a Standard
Formula shall not result in a viscosity greater than 5KU.
 - 1) Feldspar, water washed alkali aluminum silicate, Lawson-United LV-340.
 3. Resins:

a. Traffic Paint Alkyd Resin Solution:

- 1) General:
 Type: Pure drying alkyd
 Length: Medium
 Type Oil: Soya, linseed or tall. No mixture of two or more oils will be permitted.
 Solvent: Toluol, ASTM Specification D 362.
 Compatibility: A solution of one part 75 percent traffic alkyd and five parts toluol shall be clear.

A solution containing the equivalent of 120 grams of 20 cps chlorinated rubber, 130 grams of 75% traffic alkyd, 200 grams of methyl ethyl ketone shall be clear, and show no separation after 24 hours of storage in a 3/4 full test tube at 80 degrees + 5 degrees Fahrenheit. This rubberalkyd solvent solution shall produce a clear film upon drying.

- 2) Solid Resin Basis:
 Percent Phthalic Anhydrides 33 to 37
 Percent Oil Acids 48 to 55
 Acid Numbers, Max. 8
 Ash Residue, Max. 0.10 percent
 Unsaponifiable, Max. 2.0 percent
 Iodine Number of fatty acids, Min 115
 Refractive Index of Fatty acids, Min 1.4660
 Percent Resin based on Fatty Acids (Tall Oil Alkyds) Max. 1.0
- 3) 45 Percent slides Basis: *
 Color, Gardener 1953 Std. 9 max
 Viscosity, Gardener D to G
 Drying Time: A Wet film 3 mils (0.08 mm) thick shall set to touch in not more than 90 minutes.
 Dries: Based on the resin solids present, add the equivalent of 0.06 percent Cobalt (metal) and 1.0 percent Lead (metal). Toluol shall be used to reduce the resin solution to 45 percent Solids, and shall meet ASTM Specification D362.

b. Chlorinated Paraffin: Shall meet Federal Specification MIL-C-429A, Type I.

- c. Chlorinated Rubber:
 Appearance Free flowing white powder
 Viscosity (20 percent W/W in Toluene) (ASTM D 115) 0.018 - 0.22 pa's @ 25 degrees C
 Chlorine, percent by weight Maximum 0.20
 Solubility Soluble in aromatic hydrocarbons, e.g., Toluene xylene, and alkylated benzenes

4. Thinners:

- a. Methyl Ethyl Ketone: Shall meet Federal Specification.

5. Composition Requirements: Proportioning. The various components shall be proportioned by weight as set forth below:

Paint, Traffic: White	lbs	(kg)
Titanium Dioxide, Rutile, Type II	100	(45.4)
Talc	250	(113.4)
Lead Free Zinc Oxide, AZO 33	25	(11.3)
Calcium Carbonate	275	(124.7)

Feldspar		
Methyl Alcohol	5	(2.3)
Traffic Alkyd, 75 percent solids	130	(59.0)
Anteceding Agent	5	(2.3)
Chlorinated Rubber, 20 cps	105	(47.6)
Chlorinated Paraffin,	85	(38.5)
36 percent Lead Drier	1.5	(0.7)
12 percent Cobalt Drier	0.5	(0.2)
Anti-Skinning Agent	2	(0.9)
Thermolite 813	0.5	(0.2)
Xylene	10	(4.5)
Toluene	53	(24.0)
Methyl Ethyl Ketone	207	(94.0)
TOTAL	1254.5	(569.0)
Total Gallons	99.272	
Weight Per Gallon	12.637	

6. Properties of Finished Paint:

The finished paint shall be free of skins, pigment agglomerates, and foreign material. The paint at the time of packaging shall meet the following requirements:

- 1) Weight Per Gallon 0.25 lbs. of theoretical gallon weight.
- 2) Consistency @ 25°C 75-85 KU
(Krebs-Stomer)
- 3) Drying Time: ASTM Maximum 5 min. D 711
- 4) Bleeding Time: ASTM Bleeding Ratio 0.95 min.
TT-P 85 D 4.3.11
- 5) Dry Opacity: Fed. Test 0.91 Minimum
St. No. 141a, Method
4121 ng wet film of approx. 4 mil.
- 6) Daylight Reflectance: 80 percent White
Fed, Test Std. No. 50 percent Yellow
141 Method 6121
- 7) Fineness of grind 3 Minimum
(Hegman)
- 8) Skinning: The paint shall show no skinning after 48 hours in a three-quarters filled tightly closed container.
- 9) Percent Composition Requirements: White
Percent Total Solids 75.0+2%
Percent Pigment 52.2+2%
Percent Vehicle 47.8+2%
Percent Non. Vol. 45.5% Min.
(Veh./Veh.)

Upon chemical analysis of pigments and vehicle solids, the percentages must be within reasonable manufacturing tolerances as determined by the city.

7. Containers; Paint furnished under these specifications shall be package shall be marked with the manufacturer's name; the type of paint contained therein, his formula number and the date of manufacture.
8. Equipment: The paint machine shall be capable of applying an even clean-cut line without excessive drifting of paint. The cut-off mechanism on the paint machine shall be capable of making a clean-cut end-section without dripping or stringing fine lines of paint.
9. The bead dispenser shall be equipped with an automatic cut-off control synchronized with the cut-off of the striping material.

PART 3 EXECUTION

3.01 CONSTRUCTION IN GENERAL

- A. The contractor shall clean all dirt, glaze and grease, road film, curing compound and all other foreign materials from pavement area to be striped.
- B. The materials shall be applied to the pavement at a wet film thickness of approximately 0.015 inch (0.38 mm).
- C. The completed line shall be uniform cross section. The paint traffic stripe shall not be applied when there is moisture on the pavement that would cause a poor bond between the paint and the pavement.
- D. Application shall not be permitted when atmospheric temperature is below 40 degrees F (4.4 degrees C) and falling.
- E. Location of traffic stripes and handicap symbols shall be as shown on the drawings; stripes shall be 4" wide unless otherwise noted on drawings.

3.02 SURFACES

- A. Inspect paving before starting painting work to make sure that it conforms to details on drawings.

3.03 SEQUENCE OF WORK

- A. Painting work shall not begin until paving work. Curb and gutters are completed and surfaces are clean and dry.

END OF SECTION

**SECTION 02751
SITE CONCRETE**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Concrete paving, curbs, and footings.
- C. Concrete reinforcement.
- D. Expansion and control joint devices and sealant associated with concrete work.
- E. Concrete curing.

1.02 REFERENCES

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2006.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1999.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- E. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1999.
- F. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).
- G. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001.
- H. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute International; 2004.
- I. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2007.
- J. ASTM C 33 - Standard Specification for Concrete Aggregates; 2003.
- K. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2003.
- L. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2003a.
- M. ASTM C 150 - Standard Specification for Portland Cement; 2002a.
- N. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2001.

- O. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 2008.
- P. ASTM C 881/C 881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2002.
- Q. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete; 2005.
- R. ASTM D 994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type); 1998 (Reapproved 2003).
- S. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (non-extruding and Resilient Bituminous Types); 1999.
- T. ASTM D 1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004.

1.03 SUBMITTALS

- A. Comply with provisions of Section 01340 (Submittals).
- B. Product Data: submit manufacturer's data in accordance with specifications indicating product compliance to these specifications.
- C. Material Certifications: submit certifications showing compliance for each material to these specifications.
- D. Submit shop drawings with construction joint locations and configurations—note if requirements are different than what is indicated in the drawings.
- E. Concrete Mix: Submit plant concrete mix design for each concrete class. Indicate the following:
 - 1. Proportions of cement, fine and coarse aggregates, and water.
 - 2. Water-cement ratio, design strength, slump, and air content.
 - 3. Type of cement and aggregates.
 - 4. Type of dosage of admixtures.
- F. Joints: Submit manufacturer's joint material and sealant. Provide manufacturer's standard colors for selection by Architect.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.
- D. Obtain cementitious materials from same source throughout.

PART 2 - PRODUCTS

2.01 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines of ACI 347 to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
 - 2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
 - 3. Form Ties: Taper removable bolt type that will leave no metal within 1-1/2 inches of concrete surface.
 - 4. 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.
 - 5. 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. When omission of forms is accepted, provide additional concrete 1" on each side of the minimum design profiles and dimensions shown on the drawings.

2.02 STEEL REINFORCEMENT

- A. Reinforcing Steel: ASTM A 615/A 615M Grade 60.
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Unfinished.
- B. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gage.
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
 - 3. Do not use wood, brick, or other non-complying material.
 - 4. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C 150, Type I - Normal portland type.
 - 1. Acquire all cement for entire project from same source.
- B. Coarse Aggregates: ASTM C 33, washed and screened, consisting of hard, durable particles without adherent coating.
 - 1. Acquire all aggregates for entire project from same source.
- C. Fine Aggregate: ASTM C 330, natural bank or river sand, washed and screened, consisting of hard durable, uncoated particles free of deleterious matter. Graded from coarse to fine to produce a minimum percentage of voids.
- D. Fly Ash: not permitted.
- E. Water: Clean, potable, and not detrimental to concrete.

2.04 CHEMICAL ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

- B. Calcium chloride shall not be permitted in concrete mixtures.
- C. Air Entrainment Admixture: ASTM C 260 or CRD-C13.
 - 1. Acceptable Products by:
 - 2. Air-Tite Gifford-Hill Co.
 - 3. MB-VR, Master Builders Co.
- D. Water Reducing and Accelerating Admixture: ASTM C 494/C 494M Type E.
- E. Water Reducing and Retarding Admixture: ASTM C 494/C 494M Type D.
- F. Water Reducing Admixture: ASTM C 494/C 494M Type A.

2.05 ACCESSORY MATERIALS

- A. Non-Shrink Grout: ASTM C 1107/C 1107M; premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents.
 - 1. Minimum Compressive Strength at 48 Hours: 2,400 psi.
 - 2. Minimum Compressive Strength at 28 Days: 7,000 psi.
- B. Moisture-Retaining Cover: ASTM C 171; white burlap-polyethylene sheet.

2.06 BONDING, JOINTING, AND SEALANT PRODUCTS

- A. Self-Leveling Polyurethane Sealant: ASTM C 920, Grade P, Class 25, Uses T, I, M, A, O; single component, chemical curing, non staining, non bleeding, capable of continuous water immersion, self-leveling type.
 - 1. Color: to be selected by Architect from Manufacturer's standards.
 - 2. Movement Capability: Plus and minus 25 percent.
 - 3. Service Temperature Range: -40 to 180 degrees F.
 - 4. Shore A Hardness Range: 20 to 35.
- B. Epoxy Bonding System: Complying with ASTM C 881/C 881M and of Type required for specific application.
- C. Joint Filler: Premolded, preformed, compressible asphalt mastic with felt facers, complying with ASTM D 994, 1/2 inch thickness and full depth of slab less 1/2 inch.

2.07 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
 - 1. Fibrous Concrete Reinforcement: polypropylene multi-filament fibers specifically engineered and manufactured for use in concrete for secondary reinforcement.
- C. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3500 psi.
 - 2. Fly Ash Content: none.
 - 3. Minimum Cement Content: Cement content shall not be less than 470 lbs per cubic yard.
 - 4. Water-Cement Ratio: Maximum 44 percent by weight.
 - 5. Total Air Content: 5 percent, determined in accordance with ASTM C 173/C 173M.

6. Maximum Slump: 4 inches.
7. Maximum Aggregate Size: 3/4 inch.

2.08 MIXING

- A. Transit Mixers: Comply with ASTM C 94/C 94M.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.
- B. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.

3.02 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. 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.
- C. Do not begin delivery of concrete material until formwork, reinforcement, and all items required to be embedded in the concrete are complete, properly positioned and secured in place:
 1. Remove all ice, snow and debris from formwork.
 2. Remove hardened concrete and foreign material from the inner surfaces of conveying equipment, formwork and reinforcing.
 3. Position and secure expansion joints, anchors, dowels, etc.
- D. Verify that forms are clean and free of rust before applying release agent.
- E. Provide mock up for review and approval of concrete stamp pattern. Do not proceed with additional stamped paving until mock up is approved.
- F. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- G. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
 1. Use epoxy bonding system for bonding to damp surfaces, for structural loadbearing applications, and where curing under humid conditions is required.
- H. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.03 INSTALLING REINFORCEMENT

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Provide and maintain all dimension locations shown on drawings to provide required concrete cover around reinforcing.
- C. Use sufficient supports and spacers to maintain position of reinforcing during concrete placement.
- D. Do not use bricks, concrete chunks, or other simpler material as reinforcing supports.
- E. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.
- F. Provide sufficient numbers of supports and of strength to carry the reinforcement.
- G. Arrange, space, and securely tie bars and bar supports together with the specified tie wire.
- H. Set wire ties so twisted ends are directed away from exposed concrete surfaces.
- I. Do not place reinforcing bars more than 2" beyond last leg of any continuous bar support.
- J. Lap Splices:
 - 1. Tie securely with the specified wire to prevent displacement of splices during placement of concrete.
- K. 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.
- L. Welding:
 - 1. Perform in accordance with AWS D1.4-79.
- M. Do not splice bars except at locations specifically approved by the Owner's Representative.

3.04 INSTALLING JOINTS

- A. Align curb and sidewalk joints.
- B. Place expansion joints where indicated on drawings or at a maximum of 36 foot intervals.
- C. Place 3/8 inch wide expansion joints to separate paving from vertical surfaces and other components and in pattern indicated.
- D. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
- E. Provide scored control joints:
 - 1. As indicated on drawings.

- F. Saw-cutting:
 - 1. Primary Method: Soft-Cut System method, by Soff-Cut International, Corona, CA (800) 776-3328. Finisher must have documented successful experience in the use of this method prior to this project. Install cuts within 2 hours after final finish at each saw cut location. Use 1/4 inch thick blade, cutting 1 inch into slab.
 - 2. Optional Method (Where Soft-Cut System Method Equipment is Not Available): Properly time cutting with the set of the concrete, Saw-cut control joints within 24 hours after finishing. Start cutting as soon as the concrete has hardened sufficiently to prevent aggregates being dislodged by the saw. Complete cutting before shrinkage stresses become sufficient to produce cracking. Use 1/4 inch thick blade, cutting 1 inch into slab.
- G. Joints at Vertical Surfaces: Separate slabs on grade from vertical surfaces with bond breaker material.

3.05 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Notify Landscape Architect and Owner not less than 24 hours prior to commencement of placement operations.
- C. Moisten base to minimize absorption of water from fresh concrete.
- D. Add fibrous concrete reinforcement to concrete materials at the time concrete is batched in amounts in accordance with approved submittals for each type of concrete required. Mix concrete in strict accordance with fiber reinforcement manufacturer's instructions and recommendations for uniform and complete distribution.
- E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Install joint devices in accordance with manufacturer's instructions.
- G. Apply sealants in joint devices in accordance with this section and with the drawings.
- H. Place concrete continuously between predetermined expansion, control, and construction joints.
- I. Do not interrupt successive placement; do not permit cold joints to occur.
- J. Saw cut joints within 24 hours after placing.
- K. Place stamped concrete pattern using tool specified in areas shown on drawings. Place stamp pattern in accordance with approved manufacturer's instruction.

3.06 CONCRETE FINISHING

- A. Area Paving: Light broom, texture perpendicular to pavement direction, unless otherwise noted.
- B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 3/8-inch radius.
- C. Curbs: Light broom, texture parallel to pavement direction.

3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI 308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.
- C. Do not permit pedestrian traffic over pavement until 75 percent design strength of concrete has been achieved.
- D. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 - 1. Normal concrete: Not less than 7 days.
- E. Surfaces Not in Contact with Forms:
 - 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
 - 2. Final Curing: Begin after initial curing but before surface is dry.
 - a. Moisture-Retaining Cover: Seal in place with waterproof tape or adhesive.

3.08 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation from True Position: 1/4 inch.

3.09 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01400 (*Quality Requirements*).
 - 1. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
- C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.10 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Landscape Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Owner and Landscape Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of the Owner for each individual area.

END OF SECTION

SECTION 32 31 19

ORNAMENTAL IRON FENCE

AMERISTAR® PERIMETER SECURITY USA INC.

Montage Plus® - Steel Ornamental Fence System – Fusion Welded and Rackable

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system.

1.02 RELATED WORK

Section 02000 – Site Work
Section 02751 - Concrete

1.03 SYSTEM DESCRIPTION

- A. The manufacturer shall supply a total fence system of Montage Plus® standard picket space Welded and Rackable (ATF – All Terrain Flexibility) Ornamental Steel Majestic™ design. The system shall include all components (i.e., panels, posts, and hardware) required.

1.04 QUALITY ASSURANCE

- A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- C. ASTM D523 - Test Method for Specular Gloss
- D. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- E. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- F. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- G. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

- H. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- I. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- J. ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.
- K. IBC 2018 1607.8.1 Handrails and Guards

1.06 SUBMITTAL

- A. The manufacturer's literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

- A. Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

1.08 PRODUCT WARRANTY

- A. All structural fence components (i.e. rails, pickets, and posts) shall be warranted within specified limitations, by the manufacturer for a period of 20 years from date of original purchase. Warranty shall cover any defects in material finish, including cracking, peeling, chipping, blistering or corroding.
- B. Reimbursement for labor necessary to restore or replace components that have been found to be defective under the terms of manufacturer's warranty shall be guaranteed for five (5) years from date of original purchase.

PART 2 – MATERIALS

2.01 MANUFACTURER

- A. The fence system shall conform to Montage Plus standard picket space Welded and Rackable (ATF – All Terrain Flexibility) Ornamental Steel, standard picket space, Majestic design, flush bottom rail treatment, 3-Rail style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma.

2.02 MATERIAL

- A. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.60 oz/ft² (184 g/m²), Coating Designation G-60.
- B. Material for pickets shall be 3/4" square x 18 Ga. tubing. The rails shall be steel channel, 1.5" x 1.4375" x 14 Ga. Picket holes in the rail shall be spaced 4.675" o.c. Fence posts shall meet the minimum size requirements of Table 1.

2.03 FABRICATION

- A. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.
- B. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and

rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel).

- C. The manufactured panels and posts shall be subjected to an inline electrode position coating (E-Coat) process consisting of a multi-stage pretreatment/wash, followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be Black. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2 (Note: The requirements in Table 2 meet or exceed the coating performance criteria of ASTM F2408).
- D. The manufactured fence system shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Commercial weight fences under ASTM F2408.
- E. Majestic style with 3 rail configurations shall meet IBC compliance. Panel, post, and bracket assemblies shall be subjected to structural performance testing according to Chapter 17 – Structural Tests and Special Inspections – International Building Code (IBC) 2018. Physical testing to be completed by accredited third party testing facility. Completed assembly shall demonstrate loading capacity of 2.5 times prescribed design loads found in section 1607.8.1, 1607.8.1.1 and 1607.8.1.2 of IBC 2018 for Handrails and Guards. IBC compliant fence system requirements detailed within Table 4.

PART 3 – EXECUTION

3.01 PREPARATION

- A. All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 INSTALLATION

- A. Fence post shall be spaced according to Table 3, plus or minus ¼". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence panels shall be attached to posts with brackets supplied by the manufacturer. Posts shall be set in concrete footers having a minimum depth of 36" (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application.

3.03 FENCE INSTALLATION MAINTENANCE

- A. When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.0 4 CLEANING

- A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 – Minimum Sizes for Montage Plus Posts	
Fence Posts	Panel Height
2-1/2" x 16 Ga.	Up to & Including 6' Height

Table 2 – Coating Performance Requirements		
Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60-inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60" Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 – Montage Plus – Post Spacing By Bracket Type						
Span	For CLASSIC, GENESIS, MAJESTIC, & WARRIOR 8' Nominal (91.95" Rail)					
Post Size	2-1/2"	2-1/2"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Montage Plus Universal (BB112)	Montage Plus Line Blvd. (BB114)	Montage Plus Flat Mount (BB111)		Montage Plus Swivel (BB113)*	
Post Settings ± 1/4" O.C.	95"	95"	95"	95-1/2"	*95"	*95-1/2"
*Note: When using BB113 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.						

Table 4 – Montage Plus – IBC Compliant System Requirements				
Panel Options		Post Options		Brackets Options
Styles	Rail Configuration	Steel Post Options	Post Plate Options (anchorage by others)	Line Boulevard Brackets
Classic	3-Rail & 4-Rail	2.5" SQ x 14ga	8" x 8" x 3/8" – for 2.5" posts	End Boulevard Brackets
Majestic		3" SQ x 12ga	10" x 10" x 3/8" – for 3" posts	Corner Boulevard Brackets
Genesis		4" SQ x 12ga		*Flat Mount Brackets
Warrior				<i>*Note: Flat Mount Brackets require a thru-bolt installation</i>
Panel, post, and bracket assemblies shall be subjected to structural performance testing according to Chapter 17 - Structural Tests and Special Inspections - International Building Code (IBC) 2018. Physical testing to be completed by accredited third party testing facility. Completed assembly shall				

demonstrate loading capacity of 2.5 times prescribed design loads found in section 1607.8.1, 1607.8.1.1 and 1607.8.1.2 of IBC 2018 for Handrails and Guards.

END OF SECTION

SPECIFICATIONS

**SECTION 02870
SITE FURNISHINGS AND EQUIPMENT**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Included: Provide site furnishings where shown on Drawings, as specified herein, and as needed for a complete and proper installation of the following:
 - 1. Benches
 - 2. Trash Receptacle
 - 3. Bike Racks

1.02 QUALITY ASSURANCE

- A. Set items in a timely manner in accordance with manufacturer's recommendations.
- B. Minimum of 96% commingled post-consumer or post-industrial recycled plastic 2x4. With a maximum of 4% due to various additives including color and UV stabilization to obtain desirable properties.
- C. Legs are 2-3/8" O.D. x 12 gauge pre-galvanized structural steel tubing. Seat support is bent over a mandrel through the bend radius producing a wrinkle free bend. Tube ends are pre-galvanized steel capped. Seat mounting points are 7 gauge x 1-1/2" die stamped steel flat bar. Spreader bars are 2-3/8" O.D. x 12 gauge pre-galvanized structural steel tubing. All electrically MIG welded.
- D. Electrostatic powder coated application oven cured.
- E. All zinc hardware fasteners.

1.03 SUBMITTALS

- A. Comply with provisions of Section 01340.
- B. Samples:
Accompanying the Shop Drawings, submit samples of all finishes including actual materials on suitable substrates for true representation of color and textures of products called out under this Section.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of Section 1640 (Product Handling).
- B. Components should be covered or otherwise protected to prevent any use until after final inspection.

PART 2 – PRODUCTS

2.01 BENCH WITH BACK

- A. Acceptable Products:

1. Bench by: Foresite Designs / Bedford Technology, LLC, 2424 Armour Road, PO Box 609, Worthington, MN 56187, 800.721.9037, www.brightideashops.com ; or approved equal.
 - a. Model 1501
 - b. Park Scape Series (6' lengths)
 - c. With arms
 - d. Surface mount with non-corrosive tri-groove security bolt anti-theft hardware
 - e. Recycled plastic slats
 - f. Color: black frame
 - g. Install per manufacturer's installation instructions

2.02 TRASH RECEPTACLE

- A. Acceptable Products:
 1. Trash receptacle by: SITESCAPES, PO Box 22326, Lincoln, NE 68542, 402.421.9431, www.sitescapesonline.com or approved equal. or approved equal.
 - a. Model: JC2-2001-RP
 - b. Surface mount with non-corrosive tri-groove security bolt anti-theft hardware
 - c. Color: to match bench
 - d. Install per manufacturer's installation instructions

2.03 BIKE RACK

- A. Acceptable products:
 1. Bike rack by: Cycle Safe Classic Bike U-Rack or approved equal
 - a. Model: 12707
 - b. Mounting: in-ground
 - c. Color: powder-coated, black
 - d. Install per manufacturer's installation instructions

2.04 DRINKING FOUNTAIN

- A. Acceptable Products:
 1. Drinking fountain by: Most Dependable Fountains, Inc, 5705 Commander Drive, Arlington, TN 38002, 901.867.0039, www.mostdependable.com or approved equal.
 - a. Model 10145SMFA
 - b. Park Scape Series (6' lengths)
 - c. Color: blue
 - d. Install per manufacturer's installation instructions.

2.04 OTHER SITE FURNITURE – See plans for specifications of additional furniture.

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 execution of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Coordinate as required with other trades to assume proper interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the design, approved shop drawings and the manufacturer's recommendations.
- C. Upon completion of the installation, touch-up all scratches and abrasions to be completely invisible to the unaided eye from a distance of five feet.

END OF SECTION

SECTION 02935 SODDING

PART 1 - GENERAL

1.01 SUMMARY

- A. Work to include:
 - 1. Fine grading in all areas to be sodded.
 - 2. Fertilization, sod installation, watering, and maintenance.
 - 3. Contractor to install "U-3" Bermuda sod, or approved substitution, for all areas as shown on drawings. All areas disturbed by construction are to be sodded, including utility trenching and areas disturbed by construction traffic.
- B. Contractor shall be responsible for coordination of sod installation with other construction operations.
- C. Related Documents:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
 - 2. Section 01732: Selective Demolition.
Section 02000: Site Work.
Section 02100: Site Preparation.
Section 02210: Site Grading.
Section 02220: Excavating, Backfilling, and Compacting.
Section 02265: Finish Grading.
Section 02400: Site Drainage.
Section 02950: Planting.

1.02 REFERENCES

- A. ASPA (American Sod Producers Association) - Guideline Specifications to Sodding.

1.03 DEFINITIONS

- A. Weeds include, but are not limited to, Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle Nutgrass, Poison Oak, Blackberry, Ragwort, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel and Brome Grass.

1.04 SUBMITTALS

- A. Sod: Certified, each delivery bearing a certification tag and label as required by law.
- B. Fertilizer: Labeled with manufacturer's name and address, guaranteed analysis, including nutrient and its derived source, listing of potential acidity, and any toxic materials.
- C. Topsoil and sandy loam: Submit supplier's name and address and source of topsoil. Submit certified report of soil laboratory test results listing textures, pH, P and K nutrients, soluble salt, organic matter and mechanical analysis as to

percentage of sand, silt and clay. Do not deliver topsoil to site until approved. Approval does not constitute final acceptance.

D. Herbicide: Labeled with manufacturer's name and address and chemical analysis.

E. Compost: submit sample and manufacturer's information.

1.05 QUALITY ASSURANCE

- A. Sod Producer: Company specializing in sod production and harvesting, with minimum three years' experience.
- B. Sod: Sod shall have sufficient root development to support its own weight without tearing when suspended vertically by holding the upper two corners, free of weeds and undesirable native grasses.
- C. Contractor to have minimum of 2 years' experience in sod installation.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver sod on pallets or in rolls. Protect exposed roots from dehydration.
- B. Do not deliver more sod than can be laid within twenty-four (24) hours.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.
- D. Store materials in accordance with manufacturer's recommendation and as directed by the Owner's Representative.

1.07 COORDINATION

- A. Coordinate the work of this section with installation of any underground piping, conduit or wiring, and grading.
- B. Coordinate the work of this section with the installation of plant material.
- C. Closely coordinate all work with grading, paving and other site work.

1.08 WARRANTY / ACCEPTANCE

- A. Complete installation shall be guaranteed by the installer against defects of material and workmanship, for a period of one year, beginning with the date of final acceptance.
- B. It is the responsibility of the Contractor to install a dense lawn of permanent grasses as specified. Finished lawn to have smooth, even surface.
- C. All sodded areas shall have no bare spots or unacceptable cover. Bare spots shall be resodded to meet original specifications.
- D. Inspection: once all sodding is complete and in accordance with specifications, notify Owner's Representative for inspection. For sod, make requested repairs, including repairing grade and topdressing joints.

1.09 MAINTENANCE SERVICE

- A. Maintain installed sod until final acceptance. Maintenance shall include mowing, edging, watering, fertilizing and weed treatment as necessary to keep the sod healthy.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Sod: ASPA approved, nursery grown, "U-3" Bermuda sod, or approved equal, with strong fibrous root system capable of growth and development when planted; free of stones, burned or bare spots; containing no more than ten (10) weeds per one hundred (100) square feet.
- B. Topsoil: Topsoil shall be sandy loam free of weeds, clay lumps and other deleterious materials. Comply with Section 02220.
- C. Fertilizer: 10-20-10 (N-P-K ratio) granular fertilizer.
- D. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass. Provide all temporary sprinklers / hoses needed.

2.02 HARVESTING SOD

- A. Machine cut sod and load on pallets in accordance with ASPA guidelines.
- B. Cut sod in area not exceeding one square yard, with minimum of one half (1/2) inch and maximum one (1) inch topsoil base.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that prepared soil base is ready to receive the work of this section.
- B. By beginning installation, the contractor accepts existing site conditions.

3.02 PREPARATION

- A. Scarify subsoil where soil is compacted.
- B. Provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life. The top twelve-inch (12") layer of topsoil in lawn areas shall have no inorganic materials larger than one-half-inch (1/2") diameter.
- C. Place and spread topsoil over areas to be sodded to depth which will conform to finish lines, grades and elevations after natural settlement.
- D. Scarify and till topsoil into existing soil to a depth of 10-inches. Dump topsoil on the outside of the site and with a tractor/dozer push topsoil onto scarified soils: do not drive over re-graded / scarified soil. Equipment to ride on top of topsoil.
- E. Finish grade during dry weather and on dry unfrozen subgrade.
- F. Fine grade topsoil, eliminating rough or low areas, to achieve elevations per plans, smoothly blended to meet existing grades. Maintain levels, profiles, and contours of

subgrade. All areas are to have a smooth, even finished surface; free of depressions and uneven areas. Provide for positive drainage in all areas. Drag or rake to achieve a smooth surface.

- G. All lawn areas are to be free of bumps and depressions, with loose uniformly fine texture and one (1) inch below adjoining sidewalks and other paved surfaces.
- H. Planting surface shall be loose / friable at time of sodding. Plant immediately, thereafter, providing the sod bed has remained in a friable condition and has not become muddy or hard. If it has become hard, till to a friable condition again.
- I. If weeds germinate prior to sodding, apply herbicide to eradicate weeds, but do not injure sod.

3.03 FERTILIZING

- A. Apply fertilizer to all sodded areas at a rate of 3 lb./100 square feet.
- B. Apply after smooth raking of topsoil and prior to installation of sod. Apply fertilizer no more than forty-eight (48) hours before laying sod.
- C. Lightly water before installation to aid the dissipation of fertilizer.

3.04 LAYING SOD

- A. Do not lay sod when sodding area is muddy or frozen nor when sod is frozen. When soil surface is hot or dry, wet soil to a depth of 2-inches, six to eight hours prior to sodding. Lay sod within twenty-four (24) hours after harvesting to prevent deterioration.
- B. Remove synthetic sod backing prior to installation.
- C. Lay sod tight with no open joints visible and without overlapping; stagger end joint twelve (12) inches minimum. Do not stretch or overlap sod pieces.
- D. Lay smooth. Place top elevation of sod level with adjoining lawn areas, edging, paving or curbs.
- E. After sodding, roll with commercial lawn roller to ensure good bond between sod and soil and to remove minor depressions and irregularities.
- F. Water sodded areas immediately after installation and rolling. Saturate soil to a depth of four (4) inches. Provide all needed temporary sprinklers and hoses.
- G. Reroll/top-dress joints as required to provide a smooth surface. All finished sodding shall be smooth and free of significant lumps or depressions.

3.05 CLEAN-UP AND PROTECTION

- A. During the progression of work, the premises are to be kept neat and orderly at all times. Storage areas for materials shall be so organized that they, too, are neat and orderly. All trash, including debris resulting from removing weeds, etc. shall be removed from the site daily as the work progresses.
- B. All walks and drives shall be kept clean by sweeping and/or hosing.
- C. Erect warning signs, tape and barriers as necessary to protect sod against damage.

3.06 MAINTENANCE

Water to prevent grass and soil from drying out and for optimum establishment.

- A. Immediately replace sod in areas which show deterioration or bare spots to establish a smooth acceptable lawn, free of eroded or bare areas.
- B. Repair or replant areas that have been damaged or trampled. Repair and re-sod any erosion damage.
- C. Mow Bermuda when grass reaches a height of 2 1/2". Mowing height to be 2".
- D. Maintenance period shall extend until final acceptance of the Work of the Contract.

END OF SECTION

SECTION 02950 PLANTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Work to include:
 - 1. Providing complete landscaping as shown.
 - 2. Excavation of plant pits.
 - 3. Eliminating weeds – minimal two treatments.
 - 4. Provide plant materials and related items.
 - 5. Finished grading of planted areas.
 - 6. Provide imported topsoil.
 - 7. Provide compost.
 - 8. Provide mulch.
 - 9. Provide metal edging.
 - 10. Warranty and replacements.
- B. Contractor shall be responsible for coordination of tree and planting installation with other construction operations.
- C. Related Documents: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
 - Section 01732: Selective Demolition.
 - Section 02000: Site Work.
 - Section 02100: Site Preparation.
 - Section 02210: Site Grading.
 - Section 02220: Excavating, Backfilling, and Compacting.
 - Section 02265: Finish Grading.
 - Section 02400: Site Drainage.
 - Section 02930: Sodding.

1.02 REFERENCES

- A. The following Codes, Regulations, Reference Standards, and Specifications apply to work included in this Section.
 - 1. American Standard for Nursery Stock, Edition approved (May 2004) by American Nursery and Landscape Association (ANSI Z60.1-2004) - plant materials.
 - 2. Hortus Third, 1976 - Cornell University - plant nomenclature:

1.03 DEFINITIONS

- A. Weeds include, but are not limited to, Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Ragwort, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel and Brome Grass.

1.04 QUALITY ASSURANCE

- A. Source quality control: Furnish certificates of inspection of landscape materials, to accompany shipments, as required by governmental authorities or as requested for inspection by Owner. Comply with applicable federal, state, county and local regulations governing landscape materials.

B. Qualifications.

1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience
2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience installing projects of similar size and scope. The Landscape Contractor shall furnish a list of references or previous work experience as requested by the Owner. The Landscape Contractor shall employ only skilled personnel and provide adequate supervision.

1.05 SUBMITTALS

A. Provide representative quantities (1 gallon plastic bag or container each) of imported topsoil, compost, and coarsely shredded mulch. Samples shall be approved by Owner's Representative prior to installation. Attach product name, address of manufacturer and/or supplier and appropriate literature to each sample. Literature or Product Data shall consist of manufacturer's current specifications, with catalog cuts, data sheets and installation instructions. Samples shall be submitted no less than 60 days prior to installation.

1. Tree Staking Materials: Confirm staking method with complete material specification
2. Insecticide: Submit manufacturer's information or cut sheets on products.
3. Herbicides: Submit manufacturer's information or cut sheets on products.
4. Metal edging as specified on the drawings: Manufacturer's literature.
5. Anti-dessicant: Manufacturer's literature.

B. Plant Material Samples: Submit documentation within sixty (60) days after award of Contract that all plant materials have been located and are ready to be secured. Arrange specific review procedure of plant materials at time of submission. Submittals and review shall be organized as follows

1. Preliminary Review: Submit representative photographs for review of all plant materials in the required sizes and in available quantity at least ninety (90) working days prior to shipment to the site.
2. Submittal shall include one color digital images for each shrub, groundcover, ornamental grass, and perennial required for the project. The image shall be mounted on an 8-1/2" x 11" sheet and shall include the name and address of the supplier, size of the plant in the picture and scientific and common name of the plant.
3. Tree photographs shall include a person or device to determine scale and shall include two photographs of each tree type or group. The two photographs shall be taken at approximately 90 degrees from each other. The images shall be mounted on an 8-1/2" x 11" sheet and shall include the name and address of the supplier, size of the plant in the picture and scientific and common name of the plant.
4. Provide any additional tree groups and specimen photographs as required to illustrate the quality and/or quantity of material.
5. Each photograph shall be clear, in focus and sharp, with a minimum of 300 dpi and be 640 x 480 resolution and with minimum distortion. Poor quality photographs, photographs that are not in color, not mounted and labeled, or which do not adequately represent the plant material will be rejected.
6. Photograph Acceptance and Nursery Review: Acceptance of material through photographs does not preclude rejection of unsatisfactory material upon delivery. The Owner's Representative reserves the right to refuse review from photographs or at the grower if, in his judgment suitable material or sufficient quantities are not available. Contractor shall ensure a sufficient quantity of plants

will be available whenever trips are arranged to a nursery for the purposes of tagging material for the project.

7. Unavailable Material: If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. Substantiate such proof in writing no later than fifteen (15) days after award of contract

- C. Sources: Within at least sixty (60) days prior to delivery to site, notify Owner and Owner's Representative in writing of source of plant material and bed preparation materials required for the project.

1.06 PROJECT OR SITE CONDITIONS

- A. Verify and examine site conditions with the Owner's Representative. Proceed when official notice is given to the Contractor that the Work site is ready. Proceed with and complete the landscape work as rapidly as portions of the site become available
- B. Planting Restrictions: Perform plant installation only when weather and soil conditions are suitable in accordance with locally accepted practice. Do not install plant life when ambient temperatures may drop below 35 degrees F or above 100 degrees F. Commence landscaping work when the Site is free of rocks and debris. All planting areas to be left approximately 5" (0.4 foot) below finished grade by others for landscape contractor to add soil amendments. All lawn areas to be left approximately 1-1/2 inches (0.1 foot) below finished grade by others for landscape contractor to add soil mix.
- C. Protection:
 1. Do not move equipment over existing or newly placed paving without written approval from the Owner's Representative.
 2. Provide boardroading to protect paving.
 3. Protect paving, structures and any other site improvement from damage, with protection boards, ramps, and protective sheeting.
- D. Utilities:
 1. Determine locations of underground utilities and perform work in a manner which is intended to avoid possible damage. Hand-excavate, where required, to minimize possibility of damage to underground utilities.
 2. Water is available on site.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver packaged materials in sealed containers showing weight, analysis and name of manufacturer, supplier or grower. Protect materials from deterioration during delivery and while stored at the site.
- B. Storage: Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product. Protect metal containers from sun during summer months with temperatures above 80 degrees F.
- C. Preparation of Plant Materials.
 1. Trees shall have no "j" shaped roots, and the trunk flare shall be visible.
 2. Plants should bear label from the grower certifying genus and species. Labels should be securely attached and waterproof bearing legible designation of botanical and common name. Plants not labeled may be rejected. Labels shall be removed after approval by the Owner's Representative.

- D. Damage: Protect plant material in transit and at the site. Material not properly protected, and which is damaged will be rejected.
- E. Unloading and staging of trees:
1. Staging systems shall be prepared in advance to adequately hold trees above ground for optimum tree health prior to planting.
 2. Use extreme caution when handling trees. Use a strap cradle, adequate for weight and size for tree and root ball, attached to the root ball to unload and move trees. Strapping and wire baskets can break or loosen. Never move, lift, or handle by attaching to or by putting pressure on the trunk. Be very careful not to damage or scar trunks or branches. Trees with damage resulting from improper handling will be rejected.
 3. Prior to unloading, proper moisture shall be maintained in root balls. Trunks shall be staged in the shade prior to unloading. Unloading time shall be no more than two (2) hours per trunk.
 4. Immediately after unloading but no more than one hour after unloading, stand the trees up to reduce risk of sun scald. Properly staged trees shall be standing, untied and spaced.
 5. Remove cardboard trunk protector, bamboo staking, and nursery ties within forty-eight (48) hours of trees being stood upright to reduce the risk of damage.
 6. Monitor moisture in the root ball by probing the soil with a soil probe and manage supplemental irrigation accordingly. Be careful not to over or under irrigate.
 7. During cold weather periods, root balls must be protected from freezing temperatures.
 8. Storage is at Contractor's own risk.
- F. Handling of Plant Materials:
1. Do not deliver plants until the site conditions are ready for planting. Place plants in flats, pots, or other containers in a sheltered spot protected from sun, wind and mechanical damage and keep roots moist. Storage is at Contractor's own risk.
 2. Do not lift or handle any plants by tops, stems or trunks. Do not bind or handle plants with wire or rope at any time.

1.08 SEQUENCING

- A. Coordinate rough and landscape grading, soil preparation, irrigation, and other related units of Work specified in other Sections to ensure that plant material can be supported and installed as indicated.

1.09 SCHEDULING

- A. Submit a proposed work schedule to the Owner's Representative for approval at least sixty (60) days prior to start of work under this Section. After approval, no modification shall be made to this schedule without written authorization by the Owner.
- B. In general, the work shall proceed as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.

1.10 WARRANTY / ACCEPTANCE

- A. Inspection: once all planting is complete and in accordance with specifications, notify Owner's Representative for inspection.
1. In general, the work shall proceed as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.

- B. Replace plants and trees with same kind and size as originally planted at no cost to the Owner. Provide one year warranty on replacement plants. Trees should be replaced at start of next planting or digging season. In such cases, remove dead trees immediately. Protect irrigation system, other piping conduit, or other work during replacement. Repair any damage immediately.
- C. Warranty excludes replacement of plants after final acceptance because of injury by storm, drought, drowning, hail, freeze, or insects, or diseases if the Contractor can demonstrate that the plant was protected and treated for the insects or disease.
- D. Plants will be guaranteed to be true to species, variety or cultivar as specified.
- E. Warranty: Warrant that all trees and shrubs planted under this Contract will be healthy and in flourishing condition of active growth one (1) year from date of Conditional Acceptance.
- F. Replacements: As soon as weather conditions permit, replace, at no cost to Owner, all dead plants and all plants not in a vigorous, thriving condition, as determined by Owner's Representative during and at the end of Warranty Period.

1.11 REPLACEMENTS

- A. General:
 - 1. Plant materials exhibiting conditions which are determined as being unacceptable due to workmanship by the Contractor shall be replaced at no additional cost to the Owner.
 - 2. Closely match replacements to adjacent specimens of the same species. Apply all requirements of this Specification to all replacements.
- B. Replacement Quantities: Contractor shall be held responsible for a maximum of two (2) replacements for each failed tree and shrub, and same area of groundcover planting after final acceptance during the Warranty Period.

1.12 MAINTENANCE SERVICE

- A. Maintain installed plant material until final acceptance. Maintenance shall include watering, fertilizing and weed / insect / disease treatment as necessary to keep the plant material healthy.

PART 2 - PRODUCTS

2.01 PLANTS

- A. General: Provide healthy, nursery-grown container plants, well-formed No. 1 grade from a recognized, local nursery, and of the species and variety shown on the drawings, complying with the requirements of ANSI Z60.1-2004. Listed plant heights are from tops of root balls to nominal tops of plants. Provide only healthy, vigorous stock, grown under climatic conditions similar to conditions in the locality of the project and free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement. Remove crossing and rubbing branches prior to shipping.
- B. Vigor: Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs, or larvae. They shall have healthy, well-developed root systems. Plants shall be free from physical damage or adverse conditions which would prevent thriving growth. Trees with gall will be rejected.

- C. Container Stock – Ornamental trees and smaller plants: verify that all container stock has been grown in the containers in which delivered for at least six (6) months, but not over two (2) years. Samples must prove to be free of kinked, circling or girdling roots and with no evidence of a pot-bound condition. Do not install container plants that have cracked or broken balls of earth when taken from container. Field grown plants recently transplanted into containers will not be accepted. Root flare of plant material shall be made visible. Removal all weeds and other invasive plants from the base of the nursery plant's root container prior to delivery to site.
- D. Shrubs, groundcover, ornamental grasses and perennials: Nursery grown, healthy, vigorous, of normal habit of growth for species, free from disease, insect eggs, and larvae. Specified sizes are before pruning and measured with branches in normal position. Plants to be well rooted and established in the container.
- E. Ornamental and Shade Trees: No. 1 grade nursery stock healthy, vigorous, full-branched, well-shaped, trunk diameter, and height requirements as specified:
1. Ensure balls are firm, neat, and slightly tapered. Reject trees with loose or broken balls at time of planting.
 2. Trees will be individually approved or rejected by the Owner's Representative on site.
 3. Root balls: Minimum 10 inches in diameter for each 1 inch caliper, measured 6 inches above root ball.
 4. Trees: Free of physical damage such as scrapes, bark abrasions, or split branches. Contractor shall prune trees as directed by the Owner's representative, at no additional fee. Do not prune trees without approval by the Owner's Representative.
 5. Provide trees with full rounded, symmetrical crowns, meeting height and spread standards after pruning. No flat sided trees or trees with open areas on any side will be acceptable. Trees shall be consistently superior in form and branching, and typical of the growth habit of their species unless otherwise specified.
 6. Trees for planting adjacent to walk shall be branched up to seven (7) foot height above the finished grade of the walk for pedestrian clearances.
- F. Plants shall conform to the sizes and quality notes in the plant list and/or as indicated, with the exception of that larger plants than those specified may be used if approved by the Landscape Architect. Use of larger plants shall not increase the contract price. Specified sizes shall be after pruning, and plants shall be measured with their branches in normal position.
- G. Plants shall have normal, well-developed branches and vigorous, fibrous root systems, conforming to the specifications of the last edition of American Standard for Nursery Stock, (most current version) by American Nursery and Landscape Association (ANSI Z60).
- H. Pruning: Do not prune plants before delivery. Method of pruning shall be approved in the field by the Owner's Representative.

2.02 IMPORTED TOPSOIL

- A. Topsoil must be friable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones, and other extraneous material and reasonably free of weeds and foreign grasses. Loam containing Dallisgrass, Johnson grass or nutgrass will be rejected. Physical properties as follows:
- A. Sandy loam: between 55 - 75 percent by volume.

2.03 COMPOST – pH Balanced

- A. Compost that is a fully finished compost that has been produced by aerobic (biological) decomposition of organic matter and meets the requirements set forth by the United States Department of Agriculture and the United States Composting Council (USCC), "Test Methods for the Examination of Composting and Compost" (TMECC), shown in Table 1. Compost feedstock may include, but is not limited to, leaves and yard trimmings, biosolids, food scraps, food-processing residuals, manure or other agricultural residuals, forest residues, bark, and paper. Ensure compost and wood chips do not contain any visible refuse, other physical contaminants, or any substance considered to be harmful to plant growth. Do not use materials that have been treated with chemical preservatives as a compost feedstock or as wood chips.
- Do not use mixed municipal solid waste compost. Provide compost meeting all applicable United States Code of Federal Regulations (CFR), Title 40, Part 503 standards for Class A biosolids and Texas Commission on Environmental Quality (TCEQ) health and safety regulations as defined in the Texas Administrative Code (TAC), Chapter 332, including the time and temperature standards in Subchapter B, Part 23. Meet the requirements of the USCC Seal of Testing Assurance (STA) program
- Acceptable compost is as supplied by Back to Nature, 5407 E Slaton Hwy, Slaton, Texas 79364, (806) 745-1833.

Table 1
Physical Requirements for Compost

Particle Size: 95% passing 16 mm in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification"	
Heavy Metals: Pass in accordance with TMECC 04.06, "Heavy Metals and Hazardous Elements"	
04.06-As, Arsenic	04.06-Hg, Mercury
04.06-Cr, Chromium	04.06-Mo, Molybdenum
04.06-Cd, Cadmium	04.06-Ni, Nickel
04.06-Cu, Copper	04.06-Se, Selenium
04.06-Pb, Lead	04.06-Zn, Zinc
Soluble Salts: below 5 mmhos/cm in accordance with TMECC 04.08-A.	
pH: 6.5 – 7.5	
Maturity: germination and vigor greater than 80% in accordance with TMECC 05.05-A, "Germination and Vigor"	
Organic Matter Content: 25-65% (dry mass) in accordance with TMECC 05.07-A, "Loss-On-Ignition Organic Matter Method"	
Stability: less than 4 in accordance with TMECC 05.08-F, "Biological Available Carbon"	
Fecal Coliform: Pass (< 1000 per gram dry wt) in accordance with TMECC 07.01-B, "Fecal Coliforms"	
AgIndex: above 8 to ensure salts present are nutrient salts and not more sodium and/or chloride salts	

- B. The contractor is obligated to provide testing of bulk compost at the supplier's yard and at the job site for quality assurance.
- C. Testing of bulk deliveries
1. Testing shall occur if compost is delivered to the site in bulk versus pre-bagged.
 2. Contractor is advised to test the designated compost stockpile at the supplier's yard prior to loading to ensure the designated pile passes the compost maturity test. If the compost does not pass the test at the jobsite, it will be rejected.

- a. Use Solvita® Compost Maturity Test Kit or approved equal. Solvita® test kit shall be recently purchased and shall be stored in a refrigerator protected from heat until use at the site. (The two parameters that Solvita® measures (CO₂ / NH₃) are the most frequently cited factors that correlate closely with maturity and potential phytotoxicity. Ammonia is also an odorous aerosol toxicant and is a potential worker hazard at agro-cultural and compost facilities.) Provide Compost maturity test results to measure both carbon-dioxide (CO₂) and ammonia (NH₃) evolution and provide a Maturity Index value, useful for compost quality evaluation. Compost maturity test is TMECC Test #05-08A.
- b. Provide results to Owner's Representative.
- c. Physical inspection of the material shall be performed at the same time by the Owner's Representative and compared to the approved one (1) gallon sample as sent to the Lab and the Owner's Representative.
- d. Owner's Representative has the right to reject the material if it does not meet the above parameters.

2.04 PRE-EMERGENT WEED CONTROL

- A. Use pre-emergent herbicide for warm or cool season weeds and grasses depending on time of year in the bed areas. Herbicide must be applied by a licensed applicator.

2.05 MISCELLANEOUS MATERIALS

- A. Wrapping Material: Do not use
- B. Tree Paint: Do not use.
- C. Mulch: Coarsely shredded decomposed (heat sterilized) cypress or hardwood mulch with frayed edges. No soft green or unprocessed materials allowed
- D. Staking Materials for shade trees: eight (8') foot length steel T-posts with rubber hose chafe guard or nylon tree strap as shown in the Drawings.
- E. Steel Edging: 4 inches by 3/16 inch, (heavy gauge) by approved manufacturer. Color – green.
- F. Root stimulator: For application to newly planted trees.

2.06 HERBICIDE

- A. Use a non-selective systemic contact herbicide applied by a licensed applicator.

2.07 ANTI-DESICCANT

- A. Anti-desiccants for retarding excessive loss of plant moisture and inhibiting wilt shall be sprayable, water-insoluble, organic and biodegradable which will produce a moisture retarding barrier not removable by rain.
- B. Wilt-pruf Formula NCF as manufactured by Nursery Specialty Products, Greenwich, Connecticut, or equivalent product as approved by Owner's Representative.

2.08 WATER

- A. Potable. Available on site.

2.09 MACHINERY AND EQUIPMENT

- A. Machinery requirements listed under this Section are NOT intended to be restrictive of specific manufacturers or models, unless so stated. Specific mention of the manufacturers is intended as a guide to illustrate the final product of the maintenance operations desired. All equipment used shall be and maintained in top working condition at all times.
- B. Pruning and grinding tools shall be maintained in safe, working condition, cutting edges shall be sharp at all times.
- C. Insecticide and fungicide spreaders and sprayers may be hand-held, backpack, or vehicle-mounted type. The Contractor shall be responsible for any grade, plant material (turf, trees, shrubs, etc.), or hardscape amenity (fence, pavement, arbor, steel edging, stone wall, etc.) damage caused by the spreader and the application process. Spreaders shall be in a safe working condition at all times.

PART 3 – EXECUTION

3.01 SITE PREPARATION

- A. Examine subgrade and verify conditions under which work is to be performed. Do not proceed with work until all grading and related work is completed in a satisfactory manner so that the landscape installation can proceed. All lumps, clods, and debris over 2-inches in diameter shall be removed from the Worksite. Delineate bed areas and receive approval from Owner's Representative prior to starting work.

3.02 BED PREPARATION

- A. Excavate and remove soil from the Worksite as needed for clearing and grubbing work and soil preparation. Thoroughly clear bed and grub designated beds to remove existing vegetation. Grub to a depth to remove roots to prevent re-growth of removed plant. Remove soil as needed to match finish grades.
- B. Areas to receive shrubs, groundcover, ornamental grass, and perennials to be prepared as follows:
 - 1. Treat disturbed bed area and backfilled bed areas with non-selective herbicide to eradicate disturbed seeds and weeds and wait per manufacturer's recommended time prior to additional work in beds
 - 2. Install two (2") inches (settled depth) of stockpiled existing acceptable soil or imported topsoil.
 - 3. Install three (3") inches (settled depth) of compost.
 - 4. Till to a depth of twelve inches to mix additives thoroughly with native soil.
 - 5. Water beds to promote weed germination of dormant weeds and grasses. Treat beds with second application of non-selective herbicide.
 - 6. Apply pre-emergent herbicide to beds prior to planting.
 - 7. Remove weeds after recommended herbicide treatment period by hand digging. Clear and remove existing weeds upon herbicide's completed action by grubbing off all plant parts at least one (1") below the surface of the soil.

3.03 PLANTING AT SHRUB / GROUNDCOVER / ORNAMENTAL GRASS / PERENNIAL AREAS

- A. Place plants in position on bed areas before containers have been removed. Obtain approval from Owner's Representative.

- B. The Owner's Representative reserves right to interchange or shift locations of plants prior to planting.
- C. Plant in pits two (2) times greater in diameter than root balls or container diameter. Remove all burlap, ropes, wires, and strings from the rootball.
- D. Score the root ball vertically at four (4) equal points around the edge prior to planting.
- E. Plant shrub such that top of the root ball at the flare of the shrub is one (1) inch above finished grade or with all other plants such that the flare of the plant is just above finished grade.
- F. Backfill to depths of rootballs with planting media. Carefully settle by watering to prevent air pockets. Water in thoroughly.
- G. Carefully prune plants to remove dead or broken branches and hand-rake bed areas to smooth even surfaces.
- H. If rock or aggregate subbase materials are encountered on this site:
 - 1. Contractor shall perform a twenty-four (24) hour percolation test for the planting pit(s) prior to planting.
 - 2. If planting pit does not drain within twenty-four (24) hours the Contractor shall notify the Owner's Representative

3.04 ORNAMENTAL AND SHADE TREE PLANTING

- A. Stake locations for approval.
- B. Percolation test: After approval of tree locations, excavate pit and perform percolation test. The pit should be the same depth as the height of the root ball or slightly less so that the root ball sits no more than one inch above surrounding grade. The pit should be dug so that the pits are 12-inches or more greater in diameter than rootballs for trees in planter beds or two times the diameter of the root ball for trees in lawn areas. Fill excavated pits with water and wait until next day. If the water level has not fully drained within 12 to 24 hours, then notify Owner's representative. The tree may be relocated to another place on site that passes the percolation test OR a change order may be requested to install tree drainage system as approved by the Owner's Representative. If the water level drops more than six inches, a tree drainage system may not be required. An Owner's Representative must be present to monitor and record the results of the percolation test. Receive approval from Owner's Representative for extent and layout of proposed tree drainage system. The tree drainage system will be considered a change order to the bid.
- C. Install tree drainage system as approved if needed.
- D. Till soil to 10-inch depth within 10-foot radius of tree for trees in turf areas. Re-sod turf areas per section 02935 (Sodding).
- E. Plant in square pits two (2) times greater in diameter than root balls or container diameter.
- F. Handling trees: use extreme caution. Use a strap cradle (adequate for weight and size of root ball) attached to root ball to unload and move trees. Strapping and wire basket can break or loosen. Never move, lift, or handle by attaching to or by putting pressure on the

trunk. Be certain that equipment, including straps, chains, and cradles, are rated for the weights of the trees being lifted

- G. Remove any plastic or synthetic wrap and any circling roots from the root ball. Handle tree only by root ball.
- H. Plant tree directly into excavated pit such that the trunk flare will be two (2") inches above surrounding finished grade. Refer to planting details for cross-section of tree planters.
- I. Maintain tree in a straight and plumb position while backfilling with planting media consisting of native stockpiled / imported topsoil to not more than one-half (1/2) the depth of the root ball.
- J. Saturate the planting hole with water after backfilling is one-half (1/2) complete to aid removal of air from the backfill.
- K. After initial backfill, watering, and the tree is plumb, then add backfill to just below the top horizontal wire ring, saturate planting hole and adjust root ball, if necessary, to make tree straight and plum.
- L. After above items have been completed, remove synthetic wrap, cardboard packaging, and cut / remove the top portion of the wire basket down to and including the first horizontal ring. Remove the burlap from the top portions of the rootball.
- M. Complete the backfill with native stockpiled / imported topsoil mix to within nine (9") inches of top of rootball and then backfill the top nine (9") inches with mix of one (1) part compost to one (1) part native stockpiled / imported topsoil and thoroughly saturate with water to aid removal of air from backfill. Incorporate root stimulator into the backfill for even distribution to the root system.
- N. After backfill has substantially settled and the tree is straight and plumb, stake tree per Drawings to provide stability until root system is thoroughly established. Check staking as needed to make sure that trunk damage does not occur and that tree and root ball area stable.
- O. Remove all remaining straps, tags, ties, stakes and other items from the trunk and canopy of the tree.
- P. If rock is encountered:
 - 1. Owner's Representative may select alternative location if possible.
 - 2. Rock shall be removed to a minimum of 6-inches below the plant if an alternative location cannot be selected and tree drainage pits shall be installed.

3.05 TREE WRAPPING

- A. Do not wrap trees.

3.06 PRUNING OF NEW TREES

- A. Prune trees to preserve natural character of plant. Remove sucker growth, broken or badly bruised branches, and crossed branches. Thin native trees heavier than nursery grown plants. When directed by the Owner's Representative, remove approximately one-third of wood by thinning. Do not cut terminal branches: do not tip prune. Apply anti-desiccant to remaining tree foliage.

3.07 TREE SAUCERS

- A. Form a watering saucer around each new tree per construction drawings. Keep root flare exposed and keep watering saucer at edges of tree rootball. Saucer shall be no higher than three (3") inches above top of adjacent mulch elevation over rootball. Contractor is responsible for deep watering trees a minimum of once per week until final acceptance and as needed to promote growth.

3.08 TREE STAKING

- A. Stake all trees as detailed immediately following planting operation. Take precautions during staking operation to prevent damage or injury to roots and / or trunk. Orient all stakes within each cluster or row of trees in the same direction.

3.09 TOP DRESSING PLANTING BEDS AND TREE SAUCERS

- A. Top dress bed areas and tree rootballs with compost to a depth of one (1") inch and then top off with mulch at three (3") inches deep. Delay this operation until near final acceptance. Top dressing must achieve specified depth to attain final acceptance. Hold compost and mulch back to expose the flare of the plant or tree trunk at the root ball.

3.10 METAL EDGING

- A. Not used.

3.11 WATERING

- A. Deep root water all existing trees to remain within the construction limits of the project once every two weeks during the summer and once a month during the winter, during the duration of the project and until final acceptance. This should be adjusted to the amount of rain. However, unless it has rained at least one-half inch (1/2") since the last watering, continue to deep root water. Complete deep root watering by filling each tree saucer three times and letting it percolate dry.

3.12 NEW AND EXISTING TREE PRUNING

- A. Trees shall be continuously and routinely inspected for distress caused by construction activities. Notify Owner's representative at first sign of distress and present maintenance records.
- B. Trees: Pruning shall be carried out by experienced pruning personnel:
 - 1. Receive approval in the field for extent of pruning from Owner's Representative.
 - 2. Sterilize pruning tools between individual plants, especially in the genus *Quercus*. Paint all wounds on plants of the genus *Quercus* with wound paint as soon as possible. Paint deliberate wounds (pruning) within 1-hour. Paint accidental wounds (storm or equipment damage or vandalism) as soon as they are observed.
 - 3. Do not prune trees in the genus *Quercus* between November and April.
 - 4. Raise limbs to an acceptable height as approved by the Owner's Representative. Raise limbs to seven foot height for trees within seven (7') feet of walk if the removal of limbs does not significantly impact the tree canopy.
 - 5. No weed-eaters or edgers are to be used within 15-inches of any tree. Should the need for trimming be necessary within 15-inches of any tree, it shall be done so by hand trimming only.

6. Remove dead wood, broken branches, mistletoe, and suckers from trees as needed using the 3-point tree trim method. Thin prune by removing no more than 20 percent of growth. Sterilize pruning tools between individual plants to keep down spread of disease. Paint all wounds of plants of the genus *Quercus* with as soon as possible.

3.13 WEED REMOVAL

- A. Contractor shall obtain prior approval from the Owner's Representative before applying the approved herbicides.
- B. The Contractor shall be held solely responsible for plant loss due to the application of organic herbicides. Any loss of plant material shall be replaced at Contractor's sole expense and all plant replacements shall be of the same species and size of the existing plant materials.

1.14 PLANT CARE UNTIL FINAL ACCEPTANCE

- A. Water: Provide necessary hoses and other watering equipment required to complete landscaping.
- B. Maintain plantings and trees by watering, cultivating, weeding, raking, fertilizing, controlling diseases and pests, cleaning, and replacing plants as necessary to keep landscape in a vigorous, healthy condition as needed until final acceptance. Maintenance until final acceptance includes but is not limited to the following:
 1. Watering Trees: Tree balls to be kept moistened to the depth of the tree ball.
 2. Remove weeds and foreign grass over plant areas at least once a week.
 3. Cultivating: Cultivate bed areas to a depth of approximately three inches once a month. Care should be taken not to damage plant roots.
 4. Mowing and Edging: Refer to Section 02935 (Sodding).
 5. Application of approved pesticides, herbicides and insecticides shall be in accordance with manufacturers guidelines.
 6. Trimming and pruning includes only removal of dead or broken branches, and treatment of pruned areas and other wounds. Do not shear any plants. Do not prune terminal buds on trees: do not tip prune.
 7. Maintaining stakes.
 8. Repairing, replacing aggregates to maintain accepted grades.
- C. Coordinate watering schedules during installation and until final acceptance. Provide deep root watering to keep root balls moist on newly installed trees at a minimum of once every two weeks during summer months or as weather conditions indicate.

3.15 CLEAN-UP

- A. Keep premises neat and orderly including organization of storage areas. Remove trash and debris from excavated planting areas, preparing beds, or planting plants from Work site daily as work progresses. Keep paved areas clean by sweeping or hosing.

3.16 FINAL ACCEPTANCE

- A. Due to seasonal requirements, final acceptance of this Section may not coincide with that of the remaining contract work.
- B. Request inspection for final acceptance at least 10 calendar days before the end of the maintenance period

- C. Final acceptance shall be considered the time at which planting and related work, as well as, clean-up are 100% completed

END OF SECTION

**SECTION 03350
CONCRETE FINISHING**

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section includes specifications for the finishing and curing of formed and unformed concrete surfaces, including the repair of surface defects.

1.02 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials (AASHTO): 1. M182 Burlap Cloth Made from Jute or Kenaf
- B. American Concrete Institute (ACI):
 - 1. 117 Specification for Tolerances for Concrete Construction and Materials
 - 2. 301 Specifications for Structural Concrete
 - 3. 308 Standard Practice for Curing Concrete.
 - 4. 503.4 Specification for Repairing Concrete with Epoxy Mortars.
- C. ASTM International (ASTM):
 - 1. C33 Specification for Concrete Aggregates.
 - 2. C150 Specification for Portland Cement.
 - 3. C171 Specifications for Sheet Materials for Curing Concrete.
 - 4. C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - 5. C881 Specification for Epoxy-Resin-Base Bonding Systems for Concrete.

1.03 SYSTEM DESCRIPTION

- A. Finishing of formed concrete surfaces shall conform to applicable requirements of ACI 301.
- B. Finishes for slabs and flatwork shall conform to applicable requirements of ACI 301.
- C. Special architectural finishes for formed concrete surfaces shall conform to applicable requirements of ACI 301.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturers' product data for manufactured products.
- B. Samples: Review by the Landscape Architect will be for color and texture only. Approved samples will become the Landscape Architect's control samples.
 - 1. Submit samples not less than 12 inches by 12 inches in size of each type of sand blast finish, indicating materials and methods used to produce the sand blast finishes.
 - 2. Submit samples of seeded aggregate where washed aggregate finish is indicated.

1.05 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Comply with air pollution regulations of governing authorities for sandblasting activities and operations.
- B. Site Mock-Ups:
 - 1. Exposed Finishes: Provide site mock-ups, at least 3 feet by 4 feet in size, of finishes of formed surfaces in exposed locations and of exposed slab finishes for the Engineer's approval.
 - 2. Architectural Concrete: Provide site mock-ups of architectural concrete, at least 8 feet by 10 feet in size, showing finish texture and pattern of exposed formed concrete surfaces for Engineer's approval. Mock-ups may be smaller in size if approved by the Engineer.
 - 3. Provide the number of mock-up panels required necessary to obtain the Landscape Architect's approval of pattern, texture, and color of panel.
 - 4. Maintain approved mock-ups and use as the standard for the aesthetic quality of the surface finish for work represented by mock-ups. Remove mock-ups when permitted by the Landscape Architect.

PART 2 – PRODUCTS

2.01 REPAIR AND FINISHING MATERIALS

- A. Portland Cement: ASTM C150, Type I or II, of same brand as used in the work. Furnish white Portland cement where required to produce color matching color of surrounding concrete.
- B. Aggregate:
 - 1. For Bonding Grout: ASTM C33, washed clean sand passing a No. 30 sieve.
 - 2. For Patching Mortar: ASTM C33, washed clean, graded fine aggregate of suitable size for areas to be repaired. Clean coarse aggregate up to Size No. 8 may be added for repair of larger pockets and voids.
 - 3. For Washed Aggregate Finish: Washed clean, match approved sample.
- C. Commercial Patching Mortar: A structural repair mortar may be furnished if appropriate for the use and approved by the Engineer.
- D. Epoxy Patching Mortar: As specified in ACI 503.4 for Epoxy Mortar.
- E. Epoxy Adhesive: ASTM C881, Type II or Type V, epoxy-based bonding agent.
- F. Color Hardener: As specified in the Contract Documents.

2.02 REPAIR MIXES

- A. Bonding Grout: 1 part Portland cement to 1 part No. 30 mesh sand, mixed to the consistency of a thick cream,
- B. Patching Mortar: Make the patching mortar of the same materials and of approximately the same proportions as used for the concrete, except omit the coarse aggregate. Use not more than 1 part Portland cement to 2-1/2 parts sand by damp loose volume and substitute white Portland cement for a portion of the regular gray Portland cement to produce patching mix matching the surrounding concrete in color when dry. Determine the proportion of white Portland cement by trial mixes and test areas, prior to repair of actual defective areas.

2.03 CURING MATERIALS

- A. Damp Curing Materials: Non-staining.
 - 1. Waterproof Sheet Materials: ASTM C171, waterproof paper with white paper face, polyethylene film pigmented white, or white burlap polyethylene sheeting.
 - 2. Burlap: AASHTO M182, of class or weight suitable for the use and location. Do not use burlap where concrete is exposed to direct sunlight.
- B. Curing Compound: ASTM C309, liquid membrane-forming curing compound, Type I, Class A or B, as appropriate for the use or location.
 - 1. Where concrete surfaces will receive architectural finishes, such as resilient floor coverings, paint, or membrane waterproofing, membrane-forming curing compound shall not leave a coating or residue which will impair bond of adhesives, paints, and coatings with concrete.
- C. Curing Compound for Colored Concrete: For concrete colored with color hardener, use curing compound recommended by the manufacturer of the color hardener material. For integrally colored concrete, refer to Section 03335, Colored Concrete, for curing compound.

PART 3 – EXECUTION

3.01 REPAIR OF SURFACE DEFECTS

- A. Repair Standards: Repair of surface defects shall conform to applicable requirements of ACI 301. When using epoxy mortar, conform to applicable requirements of ACI 503.4.
- B. Surface Defects:
 - 1. Begin repair of surface defects immediately after form removal. For repair with epoxy mortar, concrete shall be dry.
 - 2. Surface defects are defined to include: form-tie holes, air voids and pockets, bug holes with a nominal diameter or depth greater than 1/4-inch, honeycombed areas, rock pockets, visible construction joints, fins and burrs.
 - 3. Repair of surface defects shall be tightly bonded and shall result in concrete surfaces of uniform color and texture, matching adjacent surfaces, and free of shrinkage cracks.
- C. Repair Work:
 - 1. Remove honeycombed and other defective concrete down to sound concrete. Saw-cut the edges perpendicular to the surface or slightly undercut. Feather-edges will not be permitted. Dampen the area to be patched and an area at least 6 inches wide surrounding it to prevent absorption of water from the patching mortar.
 - 2. Where rock pockets or similar defects or voids expose steel reinforcement, cutout to solid surface behind the reinforcing steel to provide suitable key-lock for patching mortar. Envelop exposed reinforcing bar with patching mortar.
 - 3. Bond patching mortar to concrete with bonding grout or epoxy adhesive. Brush bonding grout well onto the concrete. Bond commercial patching mortar to concrete in accordance with the manufacturer's instructions.
 - 4. After surface water has evaporated from the area to be patched, brush the bond coat well into the surface. When the bond coat begins to lose the water sheen, apply the patching mortar. Compact the mortar into place and strike off so as to leave the patch slightly higher than the surrounding surface. To permit initial

shrinkage, leave the patch undisturbed for at least 1 hour before being finally finished. Keep the patched area damp for 7 days.

5. Neatly finish patched surfaces to match adjacent surrounding surface texture of concrete. Grind or fill surfaces to produce level and plumb, true planes.
6. For walls exposed in the finish work, form tie holes shall be patched and finished flush with adjacent surface. For holes passing entirely through walls, use a plunger type injection gun or other suitable device shall be used to completely fill the holes.
7. In order to patch honeycombed areas or rock pockets which are too large and unsatisfactory for mortar patching, cut out to solid surface, key, and pack solid with matching concrete to produce firm bond and flush surface. Patching shall match texture of adjacent surfaces where exposed in the finished work.
8. Remove repair work in exposed locations which does not match the texture and color of surrounding adjacent surfaces or which was not well performed and perform again until the repair work conforms to specified requirements.
9. Remove fines and loose materials from surfaces to receive membrane waterproofing, and patch voids and cracks flush with adjacent surfaces.
10. Cure completed repairs as specified herein under Curing.

3.02 FINISHING OF FORMED SURFACES

A. Unexposed Surfaces:

1. Concrete which will not be exposed in the completed structure shall be any form finish as specified in Section 03100, Concrete Formwork, and ACI 301 for rough form finish.
2. Concrete to receive membrane waterproofing shall receive a "smooth form finish" in accordance with ACI 301.

B. Exposed Surfaces: Unless indicated otherwise, concrete which will be exposed in the completed structure shall receive the following finishes as indicated:

1. Smooth Form Finish: Conform to ACI 301.
2. Smooth Rubbed Finish: Conform to ACI 301.
3. Grout Cleaned Finish: Conform to ACI 301.
4. Unspecified Finish: When finish is not indicated, provide "smooth form finish" as specified above.

C. Sand Blast Finish:

1. Blasting Operations and Requirements:
 - a. Apply sandblasted finish to exposed concrete surfaces where indicated.
 - b. Perform sand blasting at least 72 hours after placement of concrete. Coordinate with formwork construction, concrete placement schedule, and formwork removal to ensure that surfaces to be blast finished are blasted at the same age for uniform results.
 - c. Determine type of nozzle, nozzle pressure, and blasting techniques required to match the Engineer's control samples.
 - d. Abrasive blast corners and edge of patterns carefully, using back-up boards, to maintain uniform corner or edge line.
2. Depths of Cut: Use an abrasive grit of proper type and gradation to expose aggregate and surrounding matrix surface to match the Engineer's control samples as follows:
 - a. Brush Sand Blast Finish: Remove cement matrix to expose face of fine aggregate; no reveal.
 - b. Light Sand Blast Finish: Expose fine aggregate with occasional exposure of coarse aggregate; maximum 1/16-inch reveal.

- c. Medium Sand Blast Finish: Generally expose coarse aggregate; 3/16-inch to 1/4-inch reveal.
- 3. Surface Continuity: Perform sand blast finishing in as continuous an operation as possible, utilizing the same work crew to maintain continuity of finish on each surface or area of work. Maintain patterns of variances in depths of cuts as indicated.
- 4. Construction Joints: Use technique acceptable to the Engineer to achieve uniform treatment of construction joints.
- 5. Protection and Repair:
 - a. Protect adjacent materials and finishes from dust, dirt, and other surface or physical damage during abrasive blast finishing operations. Provide protection as required and remove from site at completion of the work.
 - b. Repair or replace other work damaged by finishing operations.
- 6. Clean-up: Maintain control of concrete chips, dust, and debris in each area of the work. Clean up and remove such material at the completion of each day of operation. Prevent migration of airborne materials by use of tarpaulins, wind breaks, and similar containing devices.

3.03 SLABS AND FLATWORK

- A. Placement and Finishing Standards: Place, consolidate, and finish slabs and flatwork in accordance with applicable requirements of ACI 301. Coordinate with Section 03300, Cast-In-Place Concrete, as applicable.
- B. Placement:
 - 1. Place slabs and flatwork and finish monolithically. Strike off and screed slabs to true, plane surfaces at required elevations, and thoroughly compact concrete with vibrators, floats, and tampers to force coarse aggregate below the surface. Finish slab within four hours of concrete placement.
 - 2. Whether indicated or not, in areas where drains occur, slope finished slab to drains. Slope shall be a minimum of 1/8-inch per foot unless otherwise indicated.
- C. Slab Finishes: Unless indicated otherwise, slabs and flatwork shall receive the following finishes as indicated:
 - 1. Scratched Finish: Conform to ACI 301. Provide "scratched finish" for slab substrates to receive cementitious toppings or finishes, such as terrazzo or mortar setting bed for ceramic tile.
 - 2. Floated Finish: Conform to ACI 301. Provide "floated finish" for track slabs and mud slabs and for slabs and flatwork to receive roofing and membrane waterproofing.
 - 3. Troweled Finish: Conform to ACI 301. Provide "troweled finish" for interior slabs and flatwork to be exposed in the completed structure, for slabs to receive resilient floor coverings, and for flatwork to receive elastomeric bearing pads.
 - 4. Broom Finish: Conform to ACI 301. Exact texture and coarseness of the broom finish shall match the approved site mock-up. Provide fine or medium-coarse "broom finish" as indicated for exterior sidewalks and paving, garage floors (other than parking garages), exterior ramps, equipment and transformer pads, and subway invert slab.
 - 5. Unspecified Finish: When finish is not indicated or specified, provide finishes as specified in ACI 301.
 - 6. Washed Aggregate Finish: Evenly distribute seeded aggregate over a floated finish. Tamp surface to bring fines to surface completely covering seeded aggregate. Apply troweled finish. Apply surface retarder according to manufacturer's instructions and recommendations. Wash surfaces with water and finish with stiff bristle brush until seeded aggregate is uniformly exposed.

7. Swirl Pattern Finish: After basic floating operations have been completed, hand float slabs using wood float to produce a continuous swirl patterned surface, free from porous spots, irregularities, depressions, and small pockets or rough spots such as may be caused by accidentally disturbing particles of coarse aggregate embedded near the surface. Use natural arm circular motion to produce rows of approximately 1-foot radius swirl pattern covering approximately half of the preceding row with each successive row. Provide swirl pattern finish for parking garage floors.
- D. Surface Tolerances and Finishes: Refer to Tolerances specified herein.
1. Flat Tolerance: Slabs and flatwork with "troweled finish" and with "nonslip finish."
 2. Straightedge Tolerance: Slabs and flatwork with fine "broom finish" or medium-coarse "broom finish."
 3. Bullfloated Tolerance: Slabs and flatwork with "scratched finish," with "floated finish," and with coarse "broom finish."
- E. Joints:
1. Construction, expansion, isolation, and contraction joints shall be located as indicated. Construction joints shall act as contraction joints. Where additional contraction joints are required to prevent shrinkage cracks, saw-cut such joints. All joints shall be straight and true to line.
 2. Mark-off lines or edges at formed construction and expansion joints shall be finished with 1/4-inch radius curved edging tool, neat and true to line, uniform throughout.

3.04 TOLERANCES

- A. Formed Surfaces: Conform with applicable requirements of ACI 117.
1. Where elastomeric bearing pads are indicated, the level plane upon which bearing pads are placed shall not vary more than 1/16-inch from a 10-foot straightedge placed in any direction across the area and the area shall extend a minimum of 1 inch beyond the limits of the pads.
 2. Bearing surfaces of girders on a slope or girders with a camber shall be finished on a horizontal/level plane so that loads are uniformly distributed over the entire surface of the elastomeric bearing pads.
 3. The finished plane shall not vary more than 1/8-inch from the elevation indicated.
- B. Slabs and Flatwork: Conform to applicable classification requirements of ACI 117, as follows:
1. Very Flat Tolerance: True plane with maximum variation of 1/8-inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.
 2. Flat Tolerance: True plane with maximum variation of 3/16-inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.
 3. Straightedge Tolerance: True plane with maximum variation of 5/16-inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.
 4. Bullfloated Tolerance: True plane with maximum variation of 1/2 inch in 10 feet when measured with a 10-foot straightedge placed anywhere on

3.05 CURING

- A. Curing Standards: Cure concrete in accordance with applicable requirements of ACI 301 and ACI 308, except that the duration of the curing period shall be ten days. Curing of concrete shall also conform to Section 03300, Cast in Place Concrete.

- B. Curing Requirements:
1. Cure concrete with waterproof sheet materials, damp burlap, or curing compounds.
 2. Do not use curing compounds on surfaces when their use may be detrimental to bonding of concrete, mortar, membrane waterproofing, calking and sealants, adhesives, plaster, paint, or the specified surface finish or coating.
 3. Cure color-hardener finished slabs and flatwork as recommended by the color-hardener material manufacturer.
 4. Cure integrally colored concrete as specified in Section 03335, Colored Concrete, and as specified herein.
 5. At the expiration of the curing period, clean concrete surfaces of all curing media.
- C. Damp Curing:
1. Vertical surfaces shall be cured by keeping the forms wet at all times and by leaving the forms in place as long as possible as specified in Section 03100, Concrete Formwork. After removal of forms, concrete shall be kept continuously damp by fog spraying or otherwise washing down the concrete in an accepted manner until ten days after placing. Protect exposed surfaces by covering with sheet materials or burlap kept continuously moist.
 2. Horizontal surfaces shall be cured and protected by covering the finished surfaces with waterproof sheet materials or damp burlap, left in place for a minimum of ten days and kept continuously moist.
 3. Fog spray freshly placed slabs until finishing operations commence. Allow no slabs to become dry until finishing operations are complete.
- D. Curing Compound: Non-structural concrete, such as slabs-on-grade, may be cured by membrane curing compound in lieu of wet curing specified above. Apply curing compound in accordance with applicable requirements of ACI 308 and manufacturer's instructions. Apply without delay on newly finished surface. Protect integrity of membrane and touch up damaged spots immediately.

3.06 PROTECTION

- A. Protect exposed concrete surfaces, including flatwork, as required to prevent damage from impact or strains.

END OF SECTION

SECTION 07900 JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
- B. This Section includes sealants for the following applications:
 - 1. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:
 - a. Repair joints in unit masonry and exterior materials.
 - b. Joints between metal panels.
 - c. Joints between different materials.
 - d. Perimeter joints between exterior materials listed above and frames of doors and windows.
 - e. Control and expansion joints in ceiling and overhead surfaces.
 - f. Other joints as indicated.
 - 2. Exterior joints in the following horizontal traffic surfaces:
 - a. Joints between buildings and new or existing paving.
 - b. Concrete pavement expansion and control joints.
 - 3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Vertical control joints and cracks on exposed surfaces of interior unit masonry and concrete walls and partitions.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
 - e. Other joints as indicated.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.04 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required. Install joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Mockups: Before installing joint sealants, apply elastomeric sealants as follows to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution:
 - 1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
 - 2. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

PART 2 - PRODUCTS

2.01 PRODUCTS AND MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the sealant schedules at the end of Part 3.

2.02 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.03 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

2.04 LATEX JOINT SEALANTS

- A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex Joint-Sealant Schedule at the end of Part 3.

2.05 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Exposed and Concealed Joints: For each product of this description indicated in the Acoustical Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following:
 - 1. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

2.06 PREFORMED JOINT SEALANTS

- A. Preformed Foam Sealants: For each product of this description indicated in the Preformed Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard preformed, precompressed, impregnated, open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; factory produced in precompressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer; and complying with the following:
 - 1. Properties: Permanently elastic, mildew resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.
 - 2. Impregnating Agent: Manufacturer's standard.
 - 3. Density: Manufacturer's standard.
 - 4. Backing: Pressure-sensitive adhesive, factory applied to one side with protective wrapping.

2.07 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - 1. Type C: Closed-cell material with a surface skin.
 - 2. Type O: Open-cell material.
 - 3. Type B: Bicellular material with a surface skin.
 - 4. Type: Any material indicated above.

- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.08 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.

- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- F. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses provided for each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealants from surfaces adjacent to joint.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, to produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient

temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant to comply with sealant manufacturer's written instructions.

3.04 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

3.06 ELASTOMERIC JOINT-SEALANT SCHEDULE

- A. Single-Component Nonsag Urethane Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
 - 1. Products: Available products include the following:
 - a. Vulkem 116; Mameco International.
 - b. Vulkem 230; Mameco International.
 - c. Sikaflex - 1a; Sika Corporation.
 - d. NP 1; Sonneborn Building Products Div., ChemRex Inc.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Applications:
 - a. Exterior and interior horizontal wearing surfaces subjected to pedestrian or vehicle traffic.

END OF SECTION



CITY OF
Tulsa
A New Kind of *Energy*™