



**CONTRACT DOCUMENTS AND
SPECIFICATIONS**

**Ryan Meadows Storm
Water Improvements**

Bid 22- 02

**City of Grain Valley
Community Development Department
711 S. Main Street
Grain Valley, MO 64029**

**Bidder's Name and Address:
Phone & Fax No.**

January 2022

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CONTRACT DOCUMENTS AND SPECIFICATION

RYAN MEADOWS STORM WATER IMPROVEMENTS

CITY OF GRAIN VALLEY, MO

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CITY OF GRAIN VALLEY, MISSOURI
(“Owner”)
COMMUNITY DEVELOPMENT DEPARTMENT
RYAN MEADOWS STORM WATER IMPROVEMENTS
ADVERTISEMENT FOR BIDS

Sealed Bids will be received by the City of Grain Valley at City Hall, 711 Main Street, Grain Valley, Missouri until **2:00 p.m. on Tuesday February 8, 2022**. At said place and time, all Bids that have been duly received will be publicly opened and read aloud in the Lower Level Conference Room.

The Work is generally described as follows:

Ryan Meadows Storm Water Improvements

All Bids must be in accordance with the Bidding Documents, including, Drawings, Specifications, and Contract Documents on file at the Community Development Department, located in City Hall, 711 Main Street, Grain Valley, Missouri.

Copies of plans, specifications, bid documents, and other Contract Documents can be seen and downloaded on-line at www.cityofgrainvalley.org. Information regarding this project can be found under the “Bid Notices” link on the website. Prospective bidders desiring hard copies of the Contract Documents for use in preparing bids may obtain a set of such documents from the City of Grain Valley Community Development Department, 711 S. Main Street, Grain Valley, MO 64029. Any questions regarding the project, plans, specification, or bid documents should be directed to Richard Tuttle, City Engineer at (816) 847-6222 or dtuttle@cityofgrainvalley.org.

Bids will be received on a unit price basis.

Each Bid shall be accompanied by a certified check, made payable to the City of Grain Valley, Missouri in an amount not less than five percent (5%) of the total Bid or by a Bid Bond with a Surety licensed to do business in the State of Missouri in the amount of five percent (5%) of the total Bid. This Security may be retained by the Owner until the Contract for the Project has been fully executed.

The Contractor and all subcontractors will be required to comply with all applicable Federal and State labor regulations including Equal Employment Opportunity, Non-segregated Facilities, Minimum Wage Rates and Affirmative Action requirements. The City of Grain Valley hereby notifies all Bidders that it will affirmatively ensure that in any Contract entered into pursuant to this Advertisement, minority business enterprises will be afforded full opportunity to submit Bids without discrimination, regardless of race, color, or national origin in consideration for any award.

Wage rates paid for Work for this Project shall be at least equal to the prevailing wage rates as determined by the Division of Labor Standards of the State of Missouri.

The project contractor and each subcontractor shall require each on-site employee to complete the ten-hour safety program required under Section 292.675, RSMo, within 30 days of beginning any of the work on the project if he or she has not previously completed the program or does not have documentation of having done so.

All bids are subject to the Buy Local/American policy and any other applicable purchasing statutes of the State of Missouri.

No bidder may withdraw its Bid within 90 days after the actual date of the opening of Bids. The City of Grain Valley, Missouri reserves the right to award the Contract by sections, to reject any or all Bids, and to waive any informalities or irregularities therein.

Owner: City of Grain Valley, Missouri

Date: January 18, 2022

PRE-BID CONFERENCE

A pre-Bid conference will be held at City of Grain Valley, City Hall Lower Level Conference Room, 711 Main Street, Grain Valley, Missouri, 2:00 p.m. on Tuesday February 1, 2022. Representatives of Owner will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Owner will transmit to all prospective Bidders of record such Addenda as Owner considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

City of Grain Valley, Missouri
711 Main ♦ Grain Valley, MO 64029
Phone: (816) 847-6200 ♦ Fax: (816) 847-6209

Ryan Meadows Storm Water Improvements

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions of the Contract for Construction and any Supplementary Conditions as contained in the Bidding Documents. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both singular and plural thereof:

- A. *Bid* - The offer of a Bidder submitted on the prescribed form contained in the Bidding Documents setting forth the price(s) for the Work to be performed.
- B. *Bidder*- The entity who submits a Bid for the Work described in the Contract Documents.
- C. *Bidding Documents* - The Bidding Requirements and the Contract Documents (including *without* limitation all Drawings, Specifications and Addenda issued prior to receipt of Bids).
- D. *Bidding Requirements* - The Advertisement for Bids or Invitation to Bid, these Instructions to Bidders, the Bid Form and *required* attachments as set forth in the Bidding Documents and Bid Security.
- E. *Bid Security* - The deposit of an approved Bid Bond, Cashier's Check or Certified Check furnished by the Bidder and made payable to the Owner for the amount stipulated in the Advertisement for Bids or Invitation to Bid.
- F. *Owner*- City of Grain Valley, Missouri, 711 Main, Grain Valley, Missouri 64029.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from Owner as set forth in the Advertisement for Bids. A copy of the Bidding Documents are on file with the Owner at the City of Grain Valley, Missouri, 711 Main, Grain Valley, Missouri 64029.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; Owner assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

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

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 The Bidder must be qualified by experience, adequate financing, and equipment to perform the Work required by the Contract within the Contract Times.

3.02 To document Bidder's qualifications to perform the Work, within five (5) days of Owner's request, Bidder shall submit written evidence such as financial data, previous experience, qualifications of personnel, present commitments, and other data regarding Bidder's qualifications.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS AND SITE

4.01 It is the responsibility of each Bidder, before submitting a Bid, to (a) thoroughly examine the Bidding Documents, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work, (c) consider federal, state, and local laws and regulations that may affect cost, progress, performance, or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Bidding Documents, and (e) notify the City of all conflicts, errors, or discrepancies discovered by Bidder in the Bidding Documents.

4.02 Bidder must carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site which have been made available to Bidder, but Bidder shall not be entitled to rely upon the accuracy or completeness of such reports or tests. Such reports and drawings are not Contract Documents and may not be complete for Bidder's purposes, including without limitation, any reports or test described on Exhibit A hereto. Owner does not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to subsurface conditions, physical conditions, or underground facilities at or contiguous to the site. Bidder must obtain and carefully study, and assume responsibility for all such additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions, including, but not limited to, surface, subsurface, and underground facilities, at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto as Bidder deems necessary. Any discrepancies between the reports and drawings made available to the Bidder and the information revealed in the Bidder's own examinations, tests, studies, explorations or investigations of any type shall be immediately reported in writing by the Bidder to Professional.

4.03 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground facilities, and other physical conditions appear in the General Conditions.

4.04 Before submitting a Bid, each Bidder will be responsible to make or obtain such explorations, tests, and data concerning physical conditions, surface, subsurface, and underground facilities at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. On reasonable notice, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up, and restore the site to its former condition upon completion of such explorations. Each Bidder wishing to inspect the site and any existing facilities shall contact:

Richard J. Tuttle, P.E. City Engineer | 816.847.6222 | dtuttle@cityofgrainvalley.org

Michael Myers | 816.847.6272 | mmyers@cityofgrainvalley.org

4.05 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with the provisions of Section 4 of the Instructions to Bidders, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents, that Bidder has given Professional written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Professional are acceptable to Bidder, and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 5- SITE AND OTHER AREAS

5.01 The lands upon which the Work is to be performed and access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 6 - INTERPRETATIONS AND ADDENDA

6.01 All questions about the meaning or intent of the Bidding Documents are to be directed to Professional. Questions concerning the Bidding Documents may be directed to:

Richard J. Tuttle, City Engineer I816.847.6222 |
dtuttle@cityofgrainvalley.org

6.02 Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by Addenda. Questions received less than four (4) days prior to the date for the receipt of Bids may not be answered. Only answers issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued to modify the Bidding Documents as deemed advisable by Professional. Such Addenda must also be in writing in order to be binding.

ARTICLE 7 - BID SECURITY

7.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder's maximum Bid Price and in the form of a certified or bank check or a Bid Bond on the form attached issued by a surety meeting the requirements of the General Conditions.

7.02 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required Contract Security and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within fifteen (15) days after the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven (7) days after the Effective Date of the Agreement or ninety one (91) days after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned.

7.03 Bid Security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven (7) days after the Bid opening.

ARTICLE 8 - CONTRACT TIMES

8.01 The Contract Times shall be the dates by which: (a) Contractor shall achieve Substantial Completion of the entire Work; and (b) Contractor shall achieve Final Completion of the entire Work. The Contract Times for the Project are set forth in Article 3 of the Agreement Between Owner and Contractor.

ARTICLE 9 - LIQUIDATED DAMAGES

9.01 Provisions for liquidated damages are set forth in Article 3 of the Agreement.

ARTICLE 10 - SUBSTITUTE AND "OR-EQUAL" ITEMS

10.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Owner, application for such acceptance will not be considered by Owner until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Owner is set forth in the General Conditions and may be supplemented in the General Requirements or the Supplementary Conditions.

ARTICLE 11 - SUBCONTRACTORS, SUPPLIERS AND OTHERS

11.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within *five* (5) days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual or entity if requested by Owner. If Owner or Professional after due investigation has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, require the apparent Successful Bidder to submit a substitute, in which case, apparent Successful Bidder shall submit an acceptable substitute, and Bidder's Bid price will be adjusted in accordance with Paragraph 6.09 of the General Conditions.

11.02 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 12-PREPARATION OF BID

12.01 The Bid Form is provided in the Bidding Documents. Bid Forms must be fully completed in ink or typewritten and include all required attachments.

12.02 Bids by corporations must be executed in the corporate name by the president or vice-president (or other corporate officer accompanied by evidence of authority to sign), and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The state of incorporation shall be shown below the corporate name. Bids by partnerships must be executed in the partnership name and signed by a partner (accompanied by evidence of authority to sign) and the official address of the partnership must be shown below the signature. Bids by joint ventures shall be signed by each participant in the joint venture or by an authorized agent of each participant. Bids by limited liability companies shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm

and the official address of the firm must be shown below the signature. All names shall be typed or printed in ink below the signatures. The address and telephone number for communications regarding the Bid shall be shown.

12.03 A Bid by a person who affixes to his signature the word "president", "secretary", "agent", or other designation without disclosing his principal may be held to be the bid of the individual signing.

12.04 All blank spaces in the Bid Form shall be filled.

12.05 The Bid shall contain an acknowledgment of receipt of all Bidding Documents.

12.06 Each Bid shall be accompanied by an executed Affidavit in the form attached hereto.

ARTICLE 13 - BASIS OF BID

13.01 The Bidder shall complete the schedule of unit prices included in the Bid Form and shall accept all fixed unit prices listed therein. The total Bid will be calculated as the sum of the products of the estimated quantity of each item and the unit price bid. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. The unit prices set forth in the Bid Form shall be considered complete and include: (1) all materials, equipment, labor, delivery, installation, overhead and profit; and (2) any other costs or expenses in connection with, or incidental to, the performance of that portion of the Work to which such unit prices apply. Any estimated quantities of Work contained in any Bidding Document or Contract Document are not guaranteed and are solely for the purpose of comparison of Bids. Estimated quantities may change because of changes ordered by Owner or because of actual site conditions or other reasons. The unit prices for the Work shall remain unchanged even if the actual quantity of Work performed by Contractor differs materially and significantly from any estimated quantity of such items. Contractor agrees that it shall make no claim for an adjustment in any unit price for any variance between the actual quantity of Work performed by Contractor and any estimated quantity of such item.

ARTICLE 14 - SUBMISSION OF BIDS

14.01 Bids shall be submitted no later than the date and time prescribed in the Advertisement or Invitation for Bids, or the modified time and place indicated by Addendum. The unbound copy of the Bid Form is to be completed and accompanied by all other required documents, including the Bid Security.

14.02 Bids shall be enclosed in an opaque sealed envelope plainly marked as a "Bid" with the Project title and marked with the name and address of the Bidder. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it.

14.03 Bids received after the time and date for receipt of Bids will be returned unopened. Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids. Oral, telephone, telegraph, or facsimile Bids are invalid and will not receive consideration.

ARTICLE 15- MODIFICATION AND WITHDRAWAL OF BIDS

15.01 Bids may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

ARTICLE 16-OPENING OF BIDS

16.01 Bids will be opened and read aloud publicly. An abstract of the amounts of the base Bids will be made available to Bidders after the opening of Bids.

ARTICLE 17- BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for 90 days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date. Any extension of the commencement date for Work as specified in the Contract Documents shall be governed by the applicable provisions of the Contract Documents and shall not be grounds for withdrawal of a Bid.

ARTICLE 18-APPROVAL BY BOARD OF ALDERMAN

18.01 The Contract will not be binding and effective on the City until approved by Resolution of the Board of Alderman of Grain Valley, Missouri.

ARTICLE 19-AWARD OF CONTRACT

19.01 Owner reserves the right to reject any and all Bids, including, without limitation, the right to reject any or all bids which in the Owner's discretion are nonconforming, nonresponsive, unbalanced, or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work.

19.02 In evaluating Bids, Owner will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternatives, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.03 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

19.04 If the Contract is to be awarded, it will be awarded to the lowest, responsive and responsible Bidder whose evaluation by Owner indicates to Owner that Bidder is responsible and qualified to perform the Work.

19.05 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

ARTICLE 20- CONTRACT SECURITY AND INSURANCE

20.01 The General Conditions as may be modified by the Supplementary Conditions, set forth the requirements as to Performance and Payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required Performance and Payment Bonds.

ARTICLE 21- EXECUTION OF AGREEMENT AND BONDS

21.01 When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by unsigned counterparts of the Agreement with other written Contract Documents attached; the required number of copies will be determined by Owner. Within fifteen (15) days thereafter Contractor shall sign, leaving the dates blank, and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds and power of attorney. After confirmation of the Contract by action of the City, if required, or within fifteen (15) days if not required, Owner shall execute all copies of the Agreement and other Contract Documents submitted by Contractor/Successful Bidder, insert the date of Contract on the Agreement, Bonds, and power of attorney, and return all copies to Contractor for distribution. Distribution of signed copies shall be as directed by Owner.

ARTICLE 22- TAXES AND PERMITS

22.01 Responsibility for payment of taxes and permits is set forth in the General Conditions. As set forth in the General Conditions, certain equipment and materials are exempt from State and Local Sales and Use taxes. Said taxes shall not be included in the Bid.

ARTICLE 23- LAWS AND REGULATIONS

23.01 Provisions concerning Laws and Regulations are set forth in the Contract Documents.

23.02 Bids shall be based on payment by Contractor and each Subcontractor of wage rates not less than the prevailing hourly wage for each craft or classification of workmen engaged on the Work as determined by the Industrial Commission of Missouri on behalf of the Department of Labor and Industrial Relations. Higher prevailing wage rates may apply if a federal governmental agency is providing funding for this Project. Requirements regarding payment of prevailing wage rates are set forth in the General Conditions.

23.03 Information on the Missouri Domestic Product Procurement (Buy American) Act is contained in the General Conditions.

23.04 A pre-Bid conference will be held at City of Grain Valley, City Hall Lower Level Conference Room, 711 Main Street, Grain Valley, Missouri, 2:00 p.m. on February 1, 2022. Representatives of Owner will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Owner will transmit to all prospective Bidders of record such Addenda as Owner considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

23.05 Successful bidder must obtain a City of Grain Valley Business License prior to the start of work.

EXHIBIT A
REPORTS AND DRAWINGS REFERRED TO IN PARAGRAPH 4.02

NONE

AFFIDAVIT of COMPLIANCE

(Section 285.530.2, Revised Statutes of Missouri)

State of Missouri

County of _____) ss:
_____)

Now this ___ day of ___, 2022 the undersigned being first duly sworn, deposes and says:

1. I am more than 18 years of age.
2. I make this affidavit from my personal knowledge of the facts stated herein or upon information and facts available to me as a duly authorized owner, partner, corporate, or LLC officer or Human Relations Director of _____ ("Contractor").
3. I am authorized to make this affidavit on behalf of Contractor.
4. I state and affirm that Contractor is enrolled and is currently participating in E-Verify, a federal work authorization program or another equivalent electronic verification of work authorization program operated by the United States Department of Homeland Security under the Immigration Reform and Control Act of 1986.
5. Further, Contractor does not knowingly employ any person who is an unauthorized alien.
6. Further, Contractor has performed an electronic verification check as described above on all workers hired since January 1, 2009 or obtained documents required for completion of a Federal 1-9 form before it began participating in E-Verify.
7. Attached to this affidavit is a true and accurate copy of Contractor's Memorandum of Understanding with the United States concerning the use of E-Verify.

I certify under penalty of perjury that the statements above are complete, true and accurate to the best of my knowledge and belief.

Authorized Agent, Partner, Owner or Officer

Printed Name

Title

If Contractor has a Human Relations Director or equivalent that person must sign as an affiant as well.

I certify under penalty of perjury that the statements above are complete, true and accurate to the best of my knowledge and belief.

Human Relations Director

Printed Name

Title

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

Notary Public

My commission expires:

This form is promulgated pursuant to 15CSR 60-15.020. Use of this form is not required but the Attorney General has deemed this affidavit sufficient in form to satisfy the requirements of section 285.540 RSMo., Supp. 2008.

City of Grain Valley, Missouri
711 Main ♦ Grain Valley, MO 64029
Phone: (816) 847-6222 ♦ Fax: (816) 847-6209

RYAN MEADOWS STORM WATER IMPROVEMENTS

BIDDER'S AFFIDAVIT

STATE OF _____ - /)ss:
COUNTY OF _____,

I (Name}, representing

(Name of Bidder), (hereinafter "the Bidder") upon oath depose and state that neither the Bidder nor anyone in Bidder's employment has employed any person to solicit or procure this Contract nor will any agent, representative, employee, servant, officer, director, manager or member of Bidder make any payment or agreement for payment of any compensation in connection with the procurement of this Contract.

I further depose and state that no part of the Contract Price was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the Contract, other than the payment of their normal compensation to persons regularly employed by the Bidder whose services in connection with the construction of the public building or project were in the regular course of their duties for the Bidder.

I further depose and state that the Bid is genuine and not collusive or sham; that said Bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any Bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement, or collusion, or communication, or conference with any person to fix the bid price of Bidder or of any other Bidder, and that all statements in said Bid are true.

I further depose and state that Bidder has and will continue to comply with any Affirmative Action Plan and Disadvantaged Business Enterprise Plan of the City of Grain Valley, Missouri, as well as all Ordinances and directives of the City referring to the participation of Small, Disadvantaged, Women owned and Minority Businesses applicable to this Bid and the Contract to be awarded through this Bidding Process.

I further depose and state that the undersigned, the Bidder, and all, officers, directors, employees and agents of Bidder and all Subcontractors and Suppliers Bidder intends to use if awarded the Contract, are not currently debarred or suspended from bidding on contracts with any governmental entity or agency, nor are any such persons or companies proposed to be debarred or suspended from bidding on such contracts, nor have any such persons or companies been excluded from participating in the Contract to be awarded through this bid process by any federal, state or local governmental entity or agency.

I further depose and state that neither the Bidder, nor any person who is an agent, representative, employee, servant, officer, director, manager or member of the Bidder has offered, gave, or agreed to give any employee or former employee of the City, any gratuity, payment or gift in connection with any decision, approval, disapproval, or recommendation, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for filing, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore.

I further depose and state that Bidder has not received any payment or gratuity from a Subcontractor or Supplier, as an inducement for the award of a subcontract or a purchase order.

The undersigned further warrants that he or she has the authority to execute this affidavit on behalf of the Bidder.

Signature

, before me, a Notary Public, personally appeared

to me known to be the person who executed the within Bidder's Affidavit, and acknowledged to me that he/she executed the same for the purposes therein stated.

Notary Public

My commission expires:

BID FORM

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ARTICLE 1- BID RECIPIENT

1.01 This Bid is submitted to:

City of Grain Valley, Missouri
C/O Richard Tuttle, City Engineer
711 Main
Grain Valley, Missouri 64029

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 - BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 - BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Project – Ryan Meadows Storm Water Improvements

Item No.	Description	Units	Quantity	Unit Price	Extension
1	Mobilization	LS	1		
2	24" HDPE Drainage Pipe	LF	53		
3	5 Foot Diameter Manhole	each	1		
4	24-Inch Flared End Section	each	1		
5	12-inch Rip Rap	SY	35		
6	Fill and Restoration	LS	1		
7	Force Account (Set)	1	FA	\$10,000.00	\$10,000.00
Total Amount of Base Bid					

Total Amount of Bid for Project (Typed or Written)

Firm Name

The City reserves the right to adjust quantities for budget purposes

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 -TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete within 60 days of Notice to Proceed and will be completed and ready for final payment in accordance with Paragraph 14.10 of the General Conditions within 15 days of final punch list.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 -ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. Bidders Affidavit;
 - C. E-Verify Affidavit;
 - D. List of Proposed Subcontractors;
 - E. List of Proposed Suppliers;
 - F. List of Equipment;
 - G. List of Contracts on Hand;
 - H. Evidence of authority to do business in the state of Missouri; or a written covenant to obtain such license within the time for acceptance of Bids;
 - I. Contractor's License No.: [or] Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - J. All manufactured goods or commodities used or supplied under this contract must meet the requirements of the Domestic Products Procurement law RSMo 34.350 - RSMo 34.359. Compliance certification must be submitted with the bid.
- 7.02 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 8 - BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:
[Signature] _____

[Printed name]
{If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.}

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____
(where applicable)

EQUIPMENT QUESTIONNAIRE

The undersigned hereby represents that he proposes to perform the work in the following manner and with the following equipment:

- a. The work, if awarded, will have the personal supervision of whom?

- b. List below the equipment that will be used or is available for use on this contract.

QUANTITY ITEM	DESCRIPTION, SIZE, CAPACITY, ETC.	CONDITION	YEARS OF SERVICE	PRESENT LOCATION

Attach additional sheets if required.

LIST OF CONTRACTS ON HAND

LOCATION	TYPE OF WORK/CONTRACTING AGENCY	CONTRACT PRICE	DATE	% COMPLETE

Attach additional sheets if required.

BID BOND

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

BIDDER (Name and Address):

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

OWNER (Name and Address):

City of Grain Valley, Missouri
711 Main Street
Grain Valley, MO 64029

PROJECT

Date:

Amount:

Description (Name and Location):

Ryan Meadows Storm Water Improvements

BOND

Date:

Amount:

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

BIDDER AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title: _____

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title: _____

(Attach certified Power of Attorney)

NOW THEREFORE, Bidder and Surety jointly and severally agree to bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of the Bond and subject to the following terms and conditions:

1. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and the performance and payment bonds required by the Bidding Documents and Contract Documents.
2. This obligation shall be null and void if:
 - a. Owner accepts Bidder's bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and the performance and payment bonds required by the Bidding Documents and Contract Documents, or
 - b. All bids are rejected by Owner, or
 - c. Owner fails to issue a notice of award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder.
3. Payment under this Bond will be due and payable upon default of Bidder and within ten (10) calendar days after receipt by Bidder and Surety of written notice of default from Owner.
4. Notice required hereunder shall be in writing and sent via U.S. Mail or hand delivered to both Bidder and Surety at their respective addresses shown on the face of this Bond and shall be deemed to be effective upon receipt by the party concerned.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder.
6. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
7. This Bond is intended to conform to all applicable laws. Any applicable requirement of any applicable law that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable law, then the provisions of said laws shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

Address of Owner:

City of Grain Valley, Missouri
711 Main Street
Grain Valley, MO 64029

Address of Bidder:

[Insert Name and Address]

Address of Surety:

[Insert Name and Address]

BID GUARANTY

Attached hereto is a _____ Certified Check from _____ (the " Bidder") in the amount of _____ Dollars (\$ _____), which represents no less than five percent (5%) of the total Bid and payable to the City of Grain Valley, Missouri.

The Undersigned Bidder agrees that the accompanying Bid Security shall be forfeited to and become the property of the Owner should Bidder fail or refuse within the time required by the Bidding Documents to fully execute the Agreement as required by the Bidding Documents and timely delivery of a fully executed Performance Bond and Payment Bond required by the Bidding Documents and Contract Documents.

Dated this _____ day of _____, 20____

Name of Bidder (typed)

By: _____
(Authorized Signature)

Printed Name: _____

Title: _____

Address: _____

ATTEST:

Secretary (If Corporation)

Affix Corporate Seal

NOTICE OF AWARD

20

TO:

AT:

“Contractor”

FROM:

CITY OF GRAIN VALLEY, MISSOURI
711 Main Street
Grain Valley, MO 64029
“Owner”

RE: RYAN MEADOWS STORMWATER
IMPROVEMENTS
“Project”

You are notified that your Bid dated _____ for the referenced Contract has been evaluated. Your organization has been determined to be the lowest responsible and best Bidder, and has been awarded the Contract for the Work.

The Contract Price of your Contract is _____ Dollars (\$_____).

Five (5) copies of the Agreement Between Owner and Contractor accompany this Notice of Award.

Your organization shall comply with the following conditions precedent within the number of days after receipt of the Notice of Award specified in the Instruction to Bidders or otherwise stipulated, that is by _____, 20__ you shall:

Sign and return to the **Professional** the executed Notice of Award and all of the following required documents:

1. Five (5) fully executed counterparts of the Agreement Between Owner and Contractor
2. Fully executed Performance and Maintenance Bond and Payment Bond as specified in the General Conditions which may be modified by Supplementary Conditions.
3. Certificate of Insurance as specified the General Conditions which may be modified by Supplementary Conditions.

Failure to comply with these conditions within the time specified may entitle the Owner to consider your Bid abandoned, annul this Notice of Award and declare your Bid Security forfeited.

Issued On Behalf Of The Owner:

Contractor

By: _____

By: _____

Printed Name: Richard J. Tuttle

Printed Name: _____

Title: City Engineer

Title: _____

Received on _____, 20__

Return to the Owner

Ryan Meadows Storm Water Improvements

AGREEMENT BETWEEN OWNER AND CONTRACTOR **(UNIT PRICE)**

THIS AGREEMENT BETWEEN OWNER AND CONTRACTOR (this "Agreement") is made and Entered into and is effective on this ____ day of _____, 20__, by and between the City of Grain Valley, Missouri, a municipality, ("Owner"), and _____, a _____, having its principal place of business located at _____ ("Contractor")

WHEREAS, Owner has caused to be prepared specifications, plans and other Contract Documents for the Work herein described, and has approved and adopted the Contract Documents defined herein and has invited proposals for furnishing materials, labor, and equipment for, and in connection with, the construction of improvements in accordance with the terms of the Contract Documents; and

WHEREAS, the Contractor, in response to the invitation, has submitted to Owner in the manner and at the time specified, a proposal in accordance with the terms of the Contract Documents; and

WHEREAS, Owner has opened, and examined the bids submitted and as a result of such examination, has determined and declared the Contractor to be the lowest and best bidder for constructing said improvements, and has duly awarded to this Contract to Contractor.

Owner and Contractor, in consideration of the mutual covenants herein set forth, agree as follows:

ARTICLE 1 **WORK**

Contractor, at his own cost and expense, will provide all labor, tools, equipment and materials required to complete all Work specified or indicated in the Contract Documents or reasonably inferable by the Contractor therefrom as necessary to produce the results intended by the Contract Documents.

ARTICLE 2 **PROFESSIONAL**

The Project has been designed by the City of Grain Valley, who is referred to in the Contract Documents as the Professional. Professional, and its duly authorized agents, are to act as Owner's representative, assume all duties and responsibilities, and have the rights and authorities assigned to Professional in the Contract Documents in accordance with the Contract Documents.

ARTICLE 3 **CONTRACT TIME AND COMPLETION**

3.1 The date of commencement is the date from which the Contract Time(s) of Paragraph 3.2 is measured and shall be fixed in a written notice to proceed issued by Owner.

3.2 The Contractor shall achieve Substantial and Final Completion of the entire Work, and if set forth below, the various designated stages of the Work, not later than the dates shown in Section 3.3.

3.3 Contractor agrees that the Work will be substantially complete within sixty (60) calendar days of Notice to Proceed and will be fully completed and ready for final payment in accordance with Paragraph 14.10 of the General Conditions within fifteen (15) calendar days following receipt of notice of substantial completion.

3.4 Time is of the essence to the Contract Documents and all obligations thereunder. The Contractor acknowledges and recognizes that (1) Owner is entitled to full and beneficial occupancy and use of the completed Work following expiration of the Contract Times and (2) Owner will sustain damages if the Contract Time(s) are not met by Contractor. The Contractor further acknowledges and agrees that if the

Contractor fails to achieve Substantial Completion of the entire Work or any phase of the Work within the Contract Time(s), Owner will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, Owner and the Contractor agree as follows in this Paragraph 3.4:

- .1 If the Contractor fails to achieve Substantial Completion of the Work or designated portions within the Contract Time(s) as set forth in Paragraph 3.3, Owner shall be entitled to retain or recover from the Contractor, as liquidated damages and not as a penalty, the following per diem amounts for each day that expires after the time specified in Paragraph 3.3 for Substantial Completion of the Work or designated phases of the Work and continuing until the actual Date(s) of Substantial Completion:

\$400 per Calendar Day

- .2 After Substantial Completion, if Contractor shall neglect, refuse or fail to complete remaining Work or designated portions within the Contract Time(s), as set forth in Paragraph 3.3, Owner shall be entitled to retain or recover from Contractor as liquidated damages and not as a penalty, the following per diem amounts for each day that expires after the time specified in Paragraph 3.3 for final completion of the Work or phases of the Work and until the actual date(s) of final completion:

\$400 per Calendar Day

- .3 All such liquidated damages referred to in this Paragraph 3.4 are hereby agreed to be a reasonable pre-estimate of damages Owner will incur as a result of delayed completion of the Work or phases of the Work. Owner may deduct liquidated damages described in Paragraph 3.4 from any unpaid amounts then or thereafter due the Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Contractor shall be payable to Owner at the demand of Owner, together with interest from the date of the demand at a rate of one and one-half percent (1.5%) per month.

ARTICLE 4 **CONTRACT SUM**

4.1 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents and Contractor's bid an amount equal to the sum of the below established unit price of each separately identified item of Work set forth in the bid, times the actual quantities of that item completed by Contractor ("Contract Price"):

SEE ATTACHED BID

4.2 The unit prices set forth above are considered complete and include: (1) all materials, equipment, labor, delivery, installation, overhead and profit; and (2) any other costs or expenses in connection with, or incidental to, the performance of that portion of the Work to which such unit prices apply.

4.3 Owner will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Owner will review with Contractor's representative preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Owner's written decisions thereon will be final and binding upon Contractor, unless, within ten (10) days after the date of any such decision, Contractor delivers to Owner a written objection to such determination.

4.4 Any estimated quantities of Work contained in any Contract Document are not guaranteed and are solely for the purpose of comparison of Bids. Contractor acknowledges and agrees that the estimated quantities may change because of changes ordered by Owner or because of actual site conditions or other reasons. Contractor agrees that the unit prices for the Work shall remain unchanged even if the actual quantity of Work performed by Contractor differs materially and significantly from any estimated quantity of such items. Contractor agrees that it shall make no claim for an adjustment in any unit price for any variance between the actual quantity of Work performed by Contractor and any estimated quantity of such item.

ARTICLE 5
PAYMENTS

5.1 Contractor shall submit Applications for Payment in accordance with the General Conditions of the Contract for Construction and in the form provided by Owner. Owner shall make progress payments to Contractor in accordance with the Contract Documents. The period covered by each Application for Payment shall be one (1) calendar month ending on the last day of the previous month.

5.2 The Application for Payment submitted by Contractor shall include the quantities of each item of Work completed by Contractor. Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 The value of all completed Work by Contractor as determined by the sum of the unit price of each separately identified item of Work set forth in Paragraph 4.1 times the actual quantities of that item completed as determined by Owner as set forth in Paragraph 4.3;
- .2 Less retainage of five percent (5%) of the amount of Subparagraph .1;
- .3 Less the aggregate of previous payments made by Owner; and
- .4 Less amounts, if any, for which the Owner has withheld or nullified an approval of payment as set forth in the Contract Documents.

5.3 Owner shall make progress payments and final payment in accordance with the General Conditions of the Contract for Construction.

ARTICLE 6
CONTRACTOR'S REPRESENTATIONS

In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

6.1 Contractor has examined and carefully studied the Contract Documents (including the Addenda listed in Article 7) and the other related data identified in the Bidding Documents including "technical data."

6.2 Contractor has visited the site and become familiar with and satisfied itself as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work.

6.3 Contractor is familiar with and has satisfied itself as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

6.4 Contractor has been provided any and all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site. Contractor acknowledges that such reports and drawings are not Contract Documents. A list of such reports and drawings are attached hereto as Exhibit A. Contractor acknowledges that Owner and Professional do not assume responsibility for the accuracy or completeness of such information. Contractor also acknowledges that Owner and Professional do not assume responsibility for the accuracy or completeness of data shown or indicated in the Contract Documents with respect to underground facilities or utilities at or contiguous to the site, and Contractor shall not be entitled to rely on the accuracy or completeness of such data. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities and utilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Sum, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

6.5 Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work as indicated in the Contract Documents.

6.6 Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

6.7 Contractor has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Owner is acceptable to Contractor, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

6.8 Contractor has the full power and authority to make, execute, deliver and perform the Work hereunder and has authorized the undersigned to bind it to this Contract and the Contract Documents.

6.9 The representations of Contractor shall be continuing and shall survive the execution and termination of this Contract.

ARTICLE 7
CONTRACT DOCUMENTS

The Contract Documents, except for Modifications executed after the date of this Contract, which comprise the entire agreement between Owner and Contractor concerning the Work, consist of the following:

- 7.1 This Agreement.
- 7.2 Exhibits to this Agreement, if any.
- 7.3 Notice to Proceed.
- 7.4 General Conditions of the Contract for Construction.
- 7.5 Supplementary Conditions of the Contract.
- 7.6 Performance Bond.
- 7.7 Payment Bond.
- 7.8 Maintenance Bond
- 7.9 Specifications of the Contract
- 7.10 The Drawings, as follows: "Plans Dated November 2021 Sheets 1 through 3" and standard details.
- 7.11 Addenda, if any, as follows:

Number	<u>Title</u>	<u>Pages</u>

7.12 Other documents, if any, as follows:

There are no Contract Documents other than those listed above in this Article 7 or the General Conditions of the Contract for Construction.

ARTICLE 8
MISCELLANEOUS

8.1 Terms used in this Contract which are defined in Article 1 of the General Conditions of the Contract for Construction will have the meanings indicated in the General Conditions of the Contract for Construction.

8.2 Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in

respect to all covenants, agreements, and obligations contained in the Contract Documents.

8.3 The business address of Contractor given herein is the place to which all notices, letters, and other communication to Contractor will be mailed or delivered. The address of Owner appearing herein is hereby designated as the place to which all notices, letters, and other communication to Owner shall be mailed or delivered. Either party may change his address at any time by an instrument in writing delivered to Professional and to the other party.

IN WITNESS WHEREOF, Owner and Contractor *have* signed this Contract by and through their duly authorized representatives. All portions of the Contract Documents *have* been signed or identified by Owner and Contractor or by Professional on their behalf.

THE CONTRACT DOCUMENTS CONTAIN AN ARBITRATION PROVISION WHICH MAY BE ENFORCED BY THE PARTIES

ATTEST:

**CITY OF GRAIN VALLEY, MISSOURI
"Owner"**

City Clerk

By: _____

Printed Name: _____

Title: _____

"Contractor"

By: _____

Printed Name: _____

Title: _____

I, the undersigned, _____, the duly authorized and acting legal representative of Grain Valley, Missouri, do hereby certify as follows:

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

Date: _____

City Attorney

PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER:

City of Grain Valley, Missouri
711 Main Street
Grain Valley, MO 64029

CONTRACT

Date:
Price:
Description (Name and Location):

BOND

Date:
Amount:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:
(Attach certified Power of Attorney)

1. Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to Owner and any successor, grantee or assignee of Owner for the full performance of all of Contractor's obligations under the Contract. The Contract is incorporated herein by this reference.
2. If the Contractor fully performs all of its duties and obligations under the Contract, the Surety and the Contractor shall have no obligation under this Bond.
3. The Surety's obligations under this Bond shall arise after:
 - a. The Contractor fails to fully perform of all its duties and obligations under the Contract;
 - b. The Owner has given Surety notice of Contractor's failure to fully perform of all its duties and obligations under the Contract; and
 - c. The Owner has agreed to pay the Balance of the Contract Price, if any, to the Surety in accordance with the terms of the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at Surety's expense take one of the following actions:
 - a. Arrange for Contractor, with the written consent of the Owner, to perform, complete or cure the default or breach of the Contract; or
 - b. Undertake to perform and complete the Contract itself through qualified contractors approved by Owner;
 - c. Waive its right to perform, complete or cure the default of breach of the Contract and pay to the Owner the total amount of this Bond.
5. If the Surety does not proceed as provided by Paragraph 4 within fifteen (15) days of the Owner's compliance with Paragraph 3 and complete its obligations with diligence and promptness, Surety shall be deemed to be in default under this Bond.
6. If Surety elects to act under Paragraph 4(a) or 4(b) above, then the responsibilities of Surety to Owner shall not be greater than those of the Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of the Owner under the Contract. Surety recognizes and acknowledges that subject to the amount of the Bond, Surety's obligations under this Bond, include but are not limited to:
 - a. The responsibilities of Contractor for correction of defective work and completion of the Contract;
 - b. Attorneys' fees and design professional fees and delay costs resulting from Contractor's breach of or default under the Contract, or resulting from the acts or omissions of the Surety;
 - c. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by the delayed performance or non-performance of the Contractor under the Contract or the Surety under this Bond.
7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner.
8. The Surety hereby waives notice of any change, including changes of times, to the Contract or to related subcontracts, purchase orders and other obligations.
9. It is agreed by Contractor and Surety that notwithstanding any contrary provisions contained in this Bond or the Contract, that there shall be no limits on the Owner's right to sue under this Bond for defects, defaults, or breaches not discovered or known by Owner at the time such Work was paid for and accepted by Owner except those limits provided by the statute of limitations applicable to suits on contracts.
10. Surety further agrees that in event of any default by the Owner in the performance of the Owner's obligations to the Contractor under the Contract, the Contractor or Surety shall cause written notice of such default specifying said default in detail to be given to the Owner, and the Owner shall have thirty (30) days from time after receipt of such notice within which to cure such default, or such additional reasonable period of time as may be required if the nature of such default is such that it cannot be cured within thirty (30) days. Such Notice of Default shall be sent by certified or registered U.S. Mail, return receipt requested, first class postage pre-paid, to the Owner.
11. Surety further agrees this Bond shall remain in effect following the date of Final Payment during the Guarantee Period or the time required to resolve any items of incomplete Work and the payment of any disputed amounts for the period provided in the statute of limitations applicable to suits on contracts. This Bond shall be in an amount equal to the Contract Price and any adjustments thereto.
12. Surety agrees that it is obligated under the bonds to any successor, grantee or assignee of Owner.
13. Definitions
 - a. Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
 - b. Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto and including, but not limited to, all duties to correct or repair non-conforming Work.

Address of Owner:
 City of Grain Valley, Missouri
 711 Main Street
 Grain Valley, MO 64029

Address of Contractor/Principal:
 [Insert Name and Address]

Address of Surety:
 [Insert Name and Address]

PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

City of Grain Valley, Missouri
711 Main
Grain Valley, MO 64029

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date:

Amount:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____
Name and Title:
(Attach certified Power of Attorney)

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner and any successor, grantee or assignee of Owner to pay for labor, materials and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to the Owner this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due Claimants.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment for all sums due Claimants.

4. The Surety's total obligation shall not exceed the amount of this Bond.

5. Amounts due and payable by the Owner to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under the Performance Bond provided in connection with the Contract. By the Contractor furnishing this Bond, Contractor agrees that all remaining funds due and payable by the Owner to the Contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond subject to the Owner's priority to use the funds for the completion of the Work.

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

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

8. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location of the Project or after the expiration of one year from the date which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

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

10. Any provision in the Bond conflicting with any applicable law shall be deemed deleted herefrom and provisions conforming to such applicable law shall be deemed incorporated herein.

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

12. The Contract is hereby made a part of this bond.

13. Surety agrees that it is obligated under this Bond to any successor, grantee or assignee of the Owner.

14. DEFINITIONS

a. Claimants: Individuals or entities that furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, design services required for performance of the Work of the Contractor and the Contractor's subcontractors.

b. Contract: The agreement between the Owner and the Contractor identified in the first page of this Bond, including all Contract Documents and changes thereto.

Address of Owner:

**City of Grain Valley, Missouri
711 Main Street
Grain Valley, MO 64029**

Address of Contractor/Principal:

[Insert Name and Address]

Address of Surety:

[Insert Name and Address]

MAINTENANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That _____

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called Principal, and
(Corporation, Partnership, or Individual)

(Name of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____

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

THE CONDITION OF THIS OBLIGATION is such that, Whereas on the _____ day of _____, 20 ____, the Principal entered into a written agreement with the OWNER, for the construction and reconstruction, or repair of certain public improvements as designated and described in the said agreement; and

Whereas, it was a condition of the contract award by the Owner that these presents be executed by the Principal and Surety aforesaid, and

Whereas, the Principal agrees to guarantee the work hereinabove described, including all materials and workmanship, for the period of Two (2) year(s) beginning on the date the Owner so accepts said Work, said date being the formal acceptance date.

NOW, THEREFORE, if the Principal shall and will, in all particulars, well, duly, and faithfully observe, perform and abide by each and every covenant, condition and part of said written agreement and other Contract Documents and shall protect the Owner against all damages, losses and expenses which may occur to Owner, by reason of defective materials used, or by reason of defective workmanship done, and for the construction, reconstruction or repair of said public improvements, and settlement of backfill excavated areas.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be
Number

deemed an original, this the _____ day of _____, 20 ____ .

ATTEST:

(Principal) Secretary

Principal

(SEAL) By _____ (s)

(Witness as to Principal)

(Address)

(Address)

Surety

ATTEST:

(Witness to Surety)

By _____ (s)
Attorney-in-Fact

(Address)

(Address)

NOTE:

1. Date of BOND must not be prior to date of contract.
2. If CONTRACTOR is partnership, all partners should execute BOND.
3. Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.
4. Accompany this bond with Attorney-in-Fact's Authority from the Surety Company certified to include the date of the bond.



This form is to be completed and given to your contractor.

Exempt Entity and Project Information	Name of Exempt Entity Issuing the Certificate		Missouri Tax Exemption Number			
	Address		City		State	ZIP Code
	E-mail Address					
	Project Number	Project Begin Date (MM/DD/YYYY) ____/____/____	Estimated Project End Date (MM/DD/YYYY) ____/____/____			
	Description of Project					
	Project Location			Certificate Expiration Date (MM/DD/YYYY) ____/____/____		
	Provide a signed copy of this certificate, along with a copy of the exempt entity's Missouri Sales and Use Tax Exemption Letter to each contractor or subcontractor who will be purchasing tangible personal property for use in this project. It is the responsibility of the exempt entity to ensure the validity of the information on the certificate. The exempt entity must issue a new certificate if any of the information changes.					
Signature of Authorized Exempt Entity		Printed Name of Authorized Exempt Entity		Date (MM/DD/YYYY) ____/____/____		

Contractor	The Missouri exempt entity named above hereby authorizes the purchase, without sales tax, of tangible personal property to be incorporated or consumed in the construction project identified herein and no other, pursuant to Section 144.062, RSMo . Under penalties of perjury, I declare that the above information and any attached supplement is true, complete, and correct.					
	Name of Purchasing Contractor		Signature of Contractor		Date (MM/DD/YYYY) ____/____/____	
	Address		City		State	ZIP Code

Subcontractor	Contractors - Present this to your supplier in order to purchase the necessary materials tax exempt. Complete the Subcontractor portion if extending the certificate to your subcontractor. The contractor must sign the form in the space provided below.					
	Name of Purchasing Subcontractor					
	Address		City		State	ZIP Code
	Signature of Contractor		Contractor's Printed Name		Date (MM/DD/YYYY) ____/____/____	

Form 5060 (Revised 11-2019)

Taxation Division
P.O Box 358
Jefferson City, MO 65105-0358

Phone: (573) 751-2836
Fax: (573) 522-1666
E-mail: salestaxexemptions@dor.mo.gov

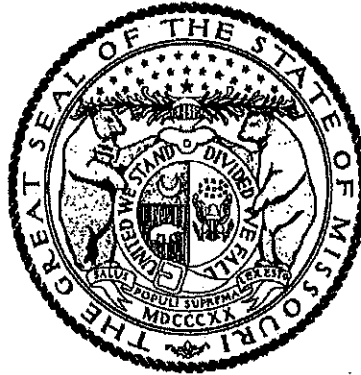
Visit <http://dor.mo.gov/business/sales/sales-use-exemptions.php> for additional information.



Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 28

Section 048
JACKSON COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by

Taylor Burks, Director
Division of Labor Standards

Filed With Secretary of State: _____ **March 10, 2021**

Last Date Objections May Be Filed: **April 8, 2021**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$64.10
Boilermaker	*\$35.84
Bricklayer	\$57.79
Carpenter	\$58.91
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$53.63
Plasterer	
Communications Technician	\$54.21
Electrician (Inside Wireman)	\$64.85
Electrician Outside Lineman	\$69.42
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	*\$35.84
Glazier	\$55.96
Ironworker	\$65.06
Laborer	\$47.93
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$52.40
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$59.15
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$49.71
Plumber	\$72.02
Pipe Fitter	
Roofer	\$56.28
Sheet Metal Worker	\$69.56
Sprinkler Fitter	\$61.52
Truck Driver	*\$35.84
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$58.86
Millwright	
Pile Driver	
Electrician (Outside Lineman)	*\$35.84
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$48.78
General Laborer	
Skilled Laborer	
Operating Engineer	\$57.36
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$48.89
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OVERTIME and HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "**overtime work**" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

Statement of Compliance

(To be submitted with weekly payroll if not using form WH-347)

I hereby certify the following:

- 1) The payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
- 2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
- 3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

Signature of Contractor or Subcontractor

Date



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
DIVISION OF LABOR STANDARDS

**AFFIDAVIT
COMPLIANCE WITH THE PREVAILING WAGE LAW**

I, _____, upon being duly sworn upon my oath state that: (1) I am the
 _____ of _____; (2) all requirements of

 _____; (3) I have reviewed and am familiar with the prevailing wage rules in 8 CSR 30-3.010 to 8 CSR 30-3.060; (4) based upon my knowledge of these rules, including the occupational titles set out in 8 CSR 30-3.060, I have completed full and accurate records clearly indicating (a) the names, occupations, and crafts of every worker employed by this company in connection with this project together with an accurate record of the number of hours worked by each worker and the actual wages paid for each class or type of work performed, (b) the payroll deductions that have been made for each worker, and (c) the amounts paid to provide fringe benefits, if any, for each worker; (5) the amounts paid to provide fringe benefits, if any, were irrevocably paid to a trustee or to a third party pursuant to a fund, plan, or program on behalf of the workers; (6) these payroll records are kept and have been provided for inspection to the authorized representative of the contracting public body and will be available, as often as may be necessary, to such body and the Missouri Department of Labor and Industrial Relations; (7) such records shall not be destroyed or removed from the state for one year following the completion of this company's work on this project; (8) when in effect, the requirements of §§ 290.550 through 290.580, RSMo, pertaining to excessive unemployment were fully satisfied; and (9) there has been no exception to the full and complete compliance with the provisions and requirements of Annual Wage Order No. _____ Section _____ issued by the Missouri Division of Labor Standards and applicable to this project located in _____ County, Missouri, and completed on the ____ day of _____

The matters stated herein are true to the best of my information, knowledge, and belief. I acknowledge that the falsification of any information set out above may subject me to criminal prosecution pursuant to §§290.340, 570.090, 575.040, 575.050, or 575.060, RSMo.

Signature

Subscribed and sworn to me this ____ day of _____
 My commission expires _____.

Notary Public

Receipt by Authorized Public Representative

CONTRACTOR'S AFFIDAVIT AND RELEASE FOR PARTIAL PAYMENT

Application for Payment No.: _____

Application for Payment Application Date: _____

_____ ("Contractor") has entered into a Contract with the City of Grain Valley, Missouri ("Owner") to furnish labor, materials, equipment and services for the construction of improvements located at _____ ("Project")

For and in consideration of the above-said progress payment under the said Contract, the sufficiency of which is hereby acknowledged, Contractor upon its oath states:

1. Contractor, in making this request for payment, hereby certifies that all work, materials, and services required to date under said Contract have been furnished and that the work has been completed in a satisfactory and workmanlike manner and in compliance with drawings, specifications, instructions and Contract Documents furnished to the Contractor.

2. Contractor also certifies that all work, labor, materials, machinery, and equipment furnished by the Contractor through the date of the last previous Application for payment have been paid for by the Contractor and that there are no amounts unpaid in favor of any subcontractor or materialman or any other person furnishing labor and materials to said Contractor for such period and utilized in the performance of the obligations of the Contractor under the Contract.

3. Contractor warrants and represents that through the date of this Application for Payment it has complied with all applicable laws and requirements of the Contract Documents, including prevailing wage Laws.

4. It is further certified that all amounts, including taxes, required by law or by agreement, to be withheld from employees' wages have been withheld and distributed in the manner provided by law or by the Contract.

5. Except for the amount of retainage, Contractor hereby releases, relinquishes, discharges and waives any and all rights, and claims arising out of labor, services, equipment, and/or materials and supplies ordered, furnished or provided to or in connection with the construction of the Project through the Application for Payment Date stated above, whether such rights or claims arise by virtue of contract, statute, ordinance, regulation, constitution, common law, or otherwise.

CONTRACTOR

BY: _____

(authorized signature)

TITLE: _____

DATE: _____

STATE OF _____)SS

COUNTY OF _____

The undersigned personally appeared before me, is personally known to me to be the _____ of the above-named Contractor, and after being duly sworn, stated that: he/she was and is duly authorized by the above-named Contractor to make the statements, undertakings, warranties, releases, waivers, and discharges contained in the above and forgoing Contractor's Affidavit and Release for Partial Payment; the statements made therein are true and correct; and, he/she executed the same for the purposes and consideration therein expressed.

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

Notary Public

My Commission Expires:

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

PROJECT: _____
(Name)

(Street Address)

(City, State, Zip Code)

CONTRACTOR: _____
(Name)

(Street Address)

(City, State, Zip Code)

TO: CITY OF GRAIN VALLEY, MISSOURI
711 MAIN STREET
GRAIN VALLEY, MO 64029
("OWNER")

CONTRACT FOR:

CONTRACT DATE:

In accordance with the provisions of the Contract between City and Contractor as indicated above, the
(here insert name and address of Surety Company as it appears in the bond) _____
_____, SURETY COMPANY,

on bond of (here insert name and address of Contractor as it appears in the bond) _____,
_____, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to the Owner as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF,
the Surety Company has hereunto set its hand this _____ day of _____, 20__.

Surety Company

Signature of Authorized Representative

Attest:

(Seal):

Title



Grain Valley
Come Home To Opportunity

**GENERAL CONDITIONS
OF THE CONTRACT FOR CONSTRUCTION**

City of Grain Valley, Missouri

711 Main ♦ Grain Valley, MO 64029

Phone: (816) 847-6200 ♦ Fax: (816) 847-6209

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GENERAL CONDITIONS

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1. Abbreviations - Wherever in these specifications and Contract Documents the following abbreviations are used, they shall be the latest year of adoption or revision, unless otherwise specified:

A.A.S.H.T.O.	American Association of State Highway and Transportation Officials
A.C.I.	American Concrete Institute
A.I.S.C.	American Institute of Steel Construction
A.P.W.A. Association	Kansas City Metropolitan Chapter of the American Public Works Association
A.R.E.A.	American Railway Professionaling Association
A.S.T.M.	American Society for Testing and Materials
A.W.S.	American Welding Society
A.W.W.A.	American Water Works Association
C.R.S.I.	Concrete Reinforcing Steel Institute
M.C.I.B.	Midwest Concrete Industry Board, Inc.
MoDOT	Missouri Highway and Transportation Department
M.S.S.H.C.	Missouri Standard Specifications for Highway Construction
U.S.A.S.I.	United States of America Standards Institute
U.B.C.	Uniform Building Code
B.O.R.	Board of Outdoor Recreation
I.S.S.A	International Slurry Surfacing Association

2. Addenda - Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Bidding Documents or the Contract Documents.

3. Agreement - The written agreement between Owner and Contractor covering the Work to be performed; other Contract Documents are attached to or referred to in the Agreement and are made a part thereof as provided therein.

4. Application for Payment - The form provided by Owner which is to be used by Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

5. Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

6. Bonds - Performance and Payment Bonds and any other instruments of security.

7. Change Order - Contractor's and Owner's and agreement with respect to an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement, as set forth in Paragraph 10.01 B.

8. Contract Documents - The Agreement, all Addenda which pertain to the Contract Documents, and identified in the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, if any, the Specifications and the Drawings as the same are more specifically identified in the Agreement, any other document identified in the Agreement as part of the Contract Documents, and Modifications issued after execution of the Agreement. A Modification is: (a) a written amendment to the Contract signed by both parties; (b) a Change Order, or; (c) a Field Order. Shop Drawings, Submittals and reports and drawings of subsurface and physical conditions identified in Exhibit A to the Agreement are not Contract Documents.

9. Contract - The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior representations or agreements, either written or oral. The Contract may be amended or modified only by a written Modification defined above. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and a Subcontractor or any lower-tier Subcontractor of any tier or a Supplier.

10. Contract Price - The moneys payable by Owner to Contractor under the Contract Documents as stated in the Agreement.
11. Contract Times - The number of calendar days, or the completion dates stated in the Agreement: (i) to achieve Substantial Completion, and (ii) to achieve Final Completion.
12. Contractor - The person, firm, or corporation, with whom Owner has entered into the Agreement.
13. Day - a calendar day of 24 hours measured from midnight to the next midnight.
14. Defective - An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to Professional's recommendation of final payment.
15. Drawings - The drawings which show the character and scope of the Work to be performed and which have been prepared or provided by Professional and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.
16. Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
17. Field Order - A written order issued by Professional or Owner which orders minor changes in the Work in accordance with Paragraph 10.01 E. but which does not involve a change in the Contract Price or the Contract Times.
18. Final Completion - Final Completion shall mean the date upon which the Professional certifies that the Work has been completed in strict accordance with the terms and conditions of the Contract Documents, including all Punch List items, that all documents and information required by the Contract Documents have been submitted to Owner by Contractor and that the entire balance of the Contract Price is due and payable to Contractor.
19. General Requirements - Section VII of the Contract Documents. The General Requirements pertain to all sections of the Specifications.
20. Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
21. Laws and Regulations- Any and all applicable laws, rules, regulations, ordinances and codes and interpretations thereof and any orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.
22. Liens - Liens, charges, security interests or encumbrances upon real property, Project funds or personal property.
23. Lump Sum Price Contract - A lump sum price contract is a contract for which compensation for the Work is based on one lump sum amount without regard to any units or portions of the Work accomplished.
24. Notice of Award - The written notice by Owner to the apparent successful bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, Owner will sign and deliver the Agreement.
25. Notice to Proceed - A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform Contractor's obligations under the Contract Documents.
26. Owner - The City of Grain Valley, Missouri with whom Contractor has entered into the Agreement and for whom the Work is to be provided.
27. Partial Utilization - Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.
28. PCBs - Polychlorinated biphenyls.
29. Pavement - Rigid or flexible type riding surface placed upon a previously prepared Sub-grade or base.

30. Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline's, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.
31. Product Data - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
32. Professional - The person, firm or corporation named as such in the Agreement.
33. Project - The total construction of which the Work to be provided under the Contract Documents may be the whole or a part as indicated elsewhere in the Contract Documents.
34. Punch List - The list of items, prepared in connection with the inspection of the Project by the Professional in connection with Substantial Completion of the Work or a portion of the Work, which the Owner's Representative or Professional has designated as remaining to be performed, completed or corrected before the Work will be accepted by the Owner.
35. Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time.
36. Resident Project Representative - The authorized representative of Professional who is assigned to the Project site or any part thereof.
37. Samples - Physical examples of materials, equipment or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. Site - Lands or areas indicated in the Contract Documents as being furnished by Owner which are designated for the use of the Contractor.
39. Shop Drawings - All drawings, diagrams, illustrations, performance charts, instructions, brochures, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work.
40. Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.
41. Standard Specifications - The officially adopted "Standard Specifications" as adopted by the Owner.
42. Subcontractor - Any individual or entity having a direct contract with Contractor for the performance of the Work at the Site or any person or entity having a contract with a Subcontractor or any lower tier Subcontractor for the performance of part of the Work at the Site.
43. Street, Road or Alley - The whole area within the right-of-way limits.
44. Sub-Grade - That portion of the construction area which has been prepared as specified and upon which a layer of specified material, base, sub-base course, pavement, or other improvement is to be placed.
45. Substantial Completion - The Work (or a specified part thereof) has progressed to the point where, in the opinion of Professional as evidenced by Professional's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended and Owner has obtained any approvals, permits or certificates of occupancy from any applicable governmental entity or agency so that the Work can be utilized for its intended purposes. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.
46. Supplementary Conditions - The part of the Contract Documents which amends or supplements these General Conditions.
47. Supplier - A manufacturer, fabricator, distributor, material man or vendor having a direct contract with Contractor or with any Subcontractor or with any lower tier Subcontractor to furnish materials or equipment to be incorporated in the Work.

48. Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

49. Unit Price Work - Work to be paid for on the basis of unit prices.

50. Work - The supervision, labor, equipment, tools, material, supplies, incidentals, operations and activities required by the Contract Documents or reasonably inferable by Contractor therefrom as necessary to produce the results intended by the Contract Documents in a safe, expeditious, orderly, and workmanlike manner, and in the best manner known to each respective trade. The Work may constitute the whole or part of the Project.

51. Work Change Directive - A written directive to Contractor, issued on or after the Effective Date of Agreement and signed by Owner and approved by Professional, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in Sections 4.02 or 4.03 or to emergencies under Paragraph 6.21. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in Article 10.

52. Written Amendments - A written amendment of the Contract Documents, signed by Owner and Contractor on or after the Effective Date of the Agreement and normally dealing with the non-engineering or non-technical matters rather than strictly construction-related aspects of the Contract Documents.

1.02 Furnish, Install, Perform, Provide

A. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site ready for use or installation and in usable or operable condition.

B. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

C. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

D. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. When Contractor delivers the executed Agreement to Owner, Contractor shall also deliver to Owner such Bonds as Contractor is required to furnish by the Contract Documents.

2.02 Copies of Documents

A. Owner shall furnish to Contractor up to five (5) copies of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

2.03 Before Starting Construction

A. Since the Contract Documents are complimentary, before starting each portion of the Work, the Contractor shall carefully study and compare the various Drawings and other Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the Site affecting it. These obligations are for the purpose of facilitating construction by the Contractor; however, any errors, inconsistencies or omissions discovered by the Contractor shall be reported promptly to the Professional as a request for information in such form as the Professional may require. Contractor shall not be liable to Owner or Professional for failure to report

any error, inconsistencies or omissions in the Contract Documents, unless Contractor had actual knowledge thereof or should reasonably have known thereof.

B. Any design error, inconsistencies or omissions noted by the Contractor during any review of the Contract Documents shall be reported promptly to the Professional.

C. If the Contractor believes that additional cost or time is involved because of clarifications or instructions issued by the Professional in response to the Contractor's notices or requests for information pursuant to Subparagraphs 2.03 A. or 2.03 B., the Contractor shall make Claims as provided in Articles 11 and/or 12. If the Contractor fails to perform the obligations of Subparagraphs 2.03 A. or 2.03 B., the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

D. Before any Work at the site is started, Contractor shall deliver to Owner, with a copy to Professional, certificates (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with Sections 5.01, 5.02, 5.03, 5.04, 5.05 and 5.06 and 5.07.

2.04 Preliminary Schedules

A. Within ten (10) days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements) Contractor shall submit to Professional for its timely review: (a) a preliminary construction schedule; and (b) a preliminary schedule for Submittals which will list each required submittal and the times for submitting, reviewing, and process such Submittals. The construction schedule shall be in a detailed format satisfactory to the and the Professional which shall also: (1) provide a graphic representation of all activities and events that will occur during performance of the Work; (2) identify each phase of construction and occupancy; and (3) set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as Milestones). If Professional has a reasonable objection to the construction schedule or schedule for Submittals by Contractor, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Professional and re-submitted for acceptance. Such acceptance will not impose on Professional or Owner responsibility for the construction schedule or schedule for Submittals, schedule, for sequencing, scheduling or progress of the Work nor interference with or relieve Contractor from Contractor's full responsibility thereof.

2.05 Audio/Video Tape Recordings of Surface

A. Before starting the Work, the Contractor shall record the following surface conditions in audio and video form in the presence of the Professional and Owner in the following means:

1. The following location information shall be provided on color audio/video tape recording while walking the construction route.

a. Audio: Each recording shall begin with a verbal description of the current date, project name and municipality and be followed by the general location, (i.e., name of street, viewing side and direction of progress).

b. Video: Transparent information must appear on the viewing screen. This information will consist of the date and time of recording. The date information will contain the month, day and year.

c. Digital: To preclude the possibility of tampering or editing in any manner, all video recordings must, by electronic means, display continuously and simultaneously generated transparent digital information to include the date and time of recording. The date information will contain the month, day and year.

2. The taped coverage shall include all surface features located within the zone of influences of construction supported by appropriate audio description. Audio description shall be made simultaneously with video coverage. Such coverage shall include, but not be limited to, all existing driveways, sidewalks, fences, curbs, ditches, roadways, landscaping, trees, culverts, headwalls, retaining walls, or buildings located within such zone of influence. Particular and detailed attention shall be given to any defects noted, such as cracks, disturbed areas, damaged items, or as may be required by the Professional. It is the intent of this coverage to accurately and clearly document pre-existing conditions and especially any items that could result in construction claims. **The excavation areas shall be physically marked with high visibility fluorescent paint prior to video taping. The markings shall include the job number and stationing.**

3. The zone of influence shall be defined as an area within 30 feet of the proposed work, and an additional 20 feet of supplemental coverage shall be provided in residential areas.

4. The Contractor shall be able to televise and tape areas with paved roads, along co-owned easements through parks, lawns, and open fields. If video taping on private property, the Contractor shall give the Owner sufficient prior notice of such entry so that property owners may be advised of and their permission obtained for the work.

5. To produce the proper detail and perspective, adequate lighting will be required to fill in the shadow areas caused by trees, utility poles, road signs and other such objects in residential areas or as directed by the Professional.

6. Houses and buildings shall be identified visually by house number, when visible, in such a manner that structures of the proposed system, (i.e., manholes on a sewer system and hydrants on a water system), can be located by reference.

7. Panning rates and zoom-in, zoom-out rates shall be controlled sufficiently such that during playback will produce clarity of the object viewed. The playback picture shall be in focus and be of extreme clarity at all times.

8. All taping shall be done during times of good visibility. No taping shall be done during periods of visible precipitation, or when more than 10% of the ground area is covered with snow, unless otherwise authorized by the Professional.

9. Professional shall have the authority to designate what areas may be omitted or added for audio-video coverage.

10. All tapes (cassettes and cases) shall be properly identified by tape number, location and project name and municipality in a manner acceptable to the Professional.

11. A record of the contents of each tape shall be supplied by a run sheet identifying each segment in the tape by location, i.e., roll number, street or road viewing, tape counter number, viewing side, point starting from, traveling direction and ending destination point.

12. Any portion of the video tape recording not conforming to specifications shall be rejected.

13. Any taped coverage not acceptable to the owner shall be re-filmed at no additional charge. The Contractor shall reschedule unacceptable coverage five (5) days after being notified.

14. One original and two copies are to be provided. Original to Owner, one copy to Professional, and one copy to Contractor.

15. Payment will be at the contract lump sum price for Video Documentation which price shall include all labor, equipment, and materials necessary to complete the work.

16. The taping shall be performed while a representative of the City and Professional is present. The City shall be notified a minimum of 48 hours in advance.

2.06 Preconstruction Conference

A. Within twenty (20) days after the Effective Date of the Agreement, but before Contractor starts the Work at the site, a conference attended by Contractor, Professional and others as appropriate will be held to discuss the schedules referred to in Section 2.04, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

2.07 Commencement of Contract Times

A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty (30) days after the Effective Date of the Agreement.

2.08 Starting the Project

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.09 Erosion Control

A. Contractor shall submit an erosion control plan for approval and shall implement the approved plan prior to any Work being performed.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

A. The Contract Documents comprise the entire agreement between Owner and Contractor concerning the Work. The Contract Documents are complimentary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for at no additional cost to Owner. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. Clarifications and interpretations of the Contract Documents shall be issued by Professional.

3.02 Reference to Standards and Specifications of Technical Societies; Reporting and Resolving Discrepancies

A. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated in the Contract Documents.

B. No provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of Owner, Contractor or Professional, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Professional or Owner, or any of Professional's or Owner's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the Contract Documents.

C. Except as otherwise specifically stated in the Contract Documents or as may be provided by a modification, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

1. the provisions of any standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
2. the provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

D. Drawings are intended to show general arrangements, design, and dimensions of the Work and are partly diagrammatic. Dimensions shall not be determined by scale or rule. If figured dimensions are lacking, they shall be supplied by the Professional on the Contractor's written request to the Professional. Where, on any Drawings, a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the Work. Where ornaments or other details are indicated by starting only, such details shall be continued throughout the courses or parts in which they occur and shall also apply to all other similar parts in the Work, unless otherwise indicated. In case of differences between small and large scale drawings, the larger scale drawings shall govern.

3.03 Contractor's Representations

A. Except as to any reported errors, inconsistencies or omissions, by executing the Contract, the Contractor represents the following:

1. The Contract Documents are sufficiently complete and detailed for the Contractor to (a) perform the Work required to produce the results intended by the Contract Documents and (b) comply with all the requirements of the Contract Documents; and
2. The Work required by the Contract Documents, including, without limitation, all construction details, construction means, methods, procedures and techniques necessary to perform the Work, use of materials, selection of equipment and requirements of product manufacturers are consistent with: (a) good and sound practices within the construction industry; (b) generally prevailing and accepted industry standards applicable to the Work; (c) requirements of any warranties applicable to the Work; and (d) all laws, ordinances, regulations, rules and orders which bear upon the Contractor's performance of the Work.

B. Execution of the Agreement by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. Contractor represents that it has performed its own

investigation and examination of the Project site and its surroundings and satisfied itself before entering into this Contract as to:

1. conditions bearing upon transportation, disposal, handling and storage of materials;
2. the availability of labor, materials, equipment, water, electrical power, utilities and roads;
3. uncertainties of weather, river stages, flooding and similar characteristics of the site;
4. conditions bearing upon security and protection of material, equipment and Work in progress;
5. the form and nature of the Project site, including the surface and sub-surface conditions;
6. the extent and nature of Work and materials necessary for the execution of the Work and the remedying of any defects therein; and
7. the means of access to the site and the accommodations it may require and, in general, shall be deemed to have obtained all information as to risks, contingencies and other circumstances.

3.04 Amending Contract Documents

A. The Contract Documents may be amended only by a Modification.

3.05 Reuse of Documents

A. Neither Contractor nor any Subcontractor, Supplier, other person or organization performing or furnishing any of the Work under a direct or indirect contract with Owner shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof). They shall not reuse any of them on extensions of the Project or any other project without written consent of Owner and specific written verification or adaptation by the Professional who prepared the documents. This prohibition shall survive final payment, completion, acceptance of the Work, or termination or completion of the Contract. Nothing contained herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS: PHYSICAL CONDITIONS: REFERENCE POINTS

4.01 Availability of Lands

A. Contract Times Owner shall obtain all lands and rights-of-way upon which the Work is located prior to the issuance of a notice to proceed, except as set forth in the Contract Documents. In the event Owner is unable to acquire all lands and rights-of-way prior to the issuance of the notice to proceed, Owner shall notify the Contractor of which lands and rights-of-way have not been obtained and will proceed with Work only upon lands and rights-of-way Owner has obtained. The Contractor recognizes this risk and this contingency has been included in the Contract Price. Owner, with reasonable promptness, shall obtain the lands and rights-of-way upon which the Work is located. In no event will the Contractor be entitled to monetary compensation for Owner's reasonable delay in obtaining the lands or rights-of-way, since this contingency has been included in the Contract Price. The Contractor's sole recovery will be in the form of an extension of time, if appropriate. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 Subsurface and Physical Conditions

A. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions, other than Underground Facilities, which differ materially from those indicated in the Contract Documents, or (2) unknown physical conditions, other than Underground Facilities, of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the Contractor shall be given to the Professional promptly before conditions are disturbed, and in no event later than three (3) days after first observance of the conditions. The Professional will promptly investigate such conditions. If such conditions differ materially, as provided for above and cause an increase or decrease in the Contractor's cost of, or time required for performance of the Work, an equitable adjustment in the Contract Price or Contract Times, or both, shall be made, subject to the provisions and restrictions set forth herein. If Professional determines that the conditions at the site are not materially different from those indicated in the Contract Documents, and that no change in the terms of the Contract is justified, Professional will so notify the Contractor in writing. If the Contractor disputes the finding of the Professional that no change in the terms of the Contract is justified, Contractor shall proceed with the Work, taking whatever steps are necessary to overcome or correct such conditions so that Contractor can proceed in a timely manner. The Contractor shall have the right to file a Claim in accordance with the Contract Documents.

B. It is expressly agreed that no adjustment in the Contract Times or Contract Price shall be permitted, however, in connection with a concealed or unknown condition which does not differ materially from those conditions

disclosed or which reasonably should have been disclosed by the Contractor's (1) prior inspections, tests, reviews and preconstruction investigations for the Project, or (2) inspections, tests, reviews and preconstruction inspections which the Contractor had the opportunity to make or should have performed in connection with the Project. The Owner assumes no responsibility for any conclusions or interpretations based upon information relating to sub-surface or other site conditions made available by the Owner, and marked "for informational purposes only." The Owner and Professional do not warrant the accuracy of any information relating to sub-surface conditions contained in reports, documents and drawings made available to Contractor marked "for informational purposes only" and such documents are not Contract Documents. Contractor may not rely upon the accuracy or completeness of such reports and drawings and should perform its own tests and investigations of the same. Contractor shall make no claim against the Owner or Professional for any inaccuracy of such information, reports, documents or drawings, including any Claim that the physical conditions are different than those indicated in such reports and drawings.

4.03 Underground Facilities

A. The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to Owner or Professional by the Owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Professional shall not be responsible for the accuracy or completeness of any such information; and
2. Contractor shall have full responsibility for reviewing and checking all such information and data, locating all Underground Facilities shown or indicated in the Contract Documents, coordination of the Work with the Owners of such Underground Facilities during construction, the safety and protection thereof as provided in Paragraph 6.21 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

B. If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which Contractor could not reasonably have been expected to be aware of, Contractor shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by Paragraph 6.21) identify the Owner of such Underground Facility and give written notice thereof to that Owner and to Owner and Professional.

1. Professional will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility as provided in Article 6.20.
2. Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which Contractor could not reasonably have been expected to be aware of. If the parties are unable to agree as to the amount or length thereof, Contractor may make a claim therefor as provided in Articles 11 and 12.

4.04 Reserved

4.05 Hazardous Environmental Conditions at Site

A. Contractor shall not be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the Site. Contractor shall be responsible for any such materials brought to the site by Contractor, Subcontractor, Suppliers or anyone else for whom Contractor is responsible.

B. Contractor shall immediately: (1) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by Paragraph 6.21), and (2) notify Owner and Professional (and thereafter confirm such notice in writing). Owner shall promptly consult with Professional concerning the necessity for Owner to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. Contractor shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after Owner has obtained any required permits related thereto and delivered to Contractor special written notice: (a) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (b) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or the amount or extent of any

adjustment, if any, in Contract Price or Contract Times as a result of such work stoppage or such special conditions under which Work is agreed by Contractor to be resumed, Contractor may make a claim therefor as provided in Articles 11 and 12.

C. If after receipt of such special written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, the Owner may order such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or the amount or extent of any adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefor as provided in Articles 11 and 12. Owner may have such deleted portion of the Work performed by Owners' own forces or others in accordance with Article 7.

D. It is acknowledged and agreed by Contractor that in no event shall Owner have any responsibility for any substance or material that is brought to the Project site by the Contractor, any Subcontractor of any tier, any materialman, Supplier or any person or entity for whom any of them is responsible. If Contractor brings to the Project site any hazardous material, toxic material or any material regulated by any Laws, Contractor shall notify Professional in writing and Contractor shall comply with all applicable Laws relating thereto and accept sole responsibility for compliance with all environmental quality standards, limitations and permit requirements promulgated thereunder, including without limitation federal, state and local air quality standards for fugitive dust control, prevention of surface and ground water contamination and hazardous and other waste disposal practices and procedures. Contractor shall utilize the highest degree of care in handling such materials and in taking all necessary precautions and measures to prevent any spills of such materials. The Contractor shall defend, indemnify and hold harmless the Owner from any and all claims, costs, losses, damages and expenses, including reasonable attorneys' fees and expert fees, prosecutions, payment of any and all fines or penalties, and the cost of abatement or remediation arising out of or relating to a hazardous condition created by Contractor, Subcontractor, Supplier, or anyone else for whom Contractor is responsible.

E. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers of the site in accordance with all applicable Laws.

4.06 Borrow and Waste Sites

A. Unless borrow or waste sites are designated on the Plans or specified in the Supplementary Conditions, the Contractor shall secure and operate such sites at their own expense. These borrow and waste sites shall be operated in such a manner as to meet safety and health requirements all Laws and Regulations.

ARTICLE 5 - INSURANCE AND BONDS

5.01 Contractor's Liability Insurance

A. Contractor shall secure from the date of the Agreement and maintain for such periods of time as set forth below, insurance of such types and in such amounts specified in Sections 5.02 through 5.05, inclusive. The form of such insurance together with carriers thereof, shall satisfy the requirements set forth below in Sections 5.02 through 5.06, inclusive.

5.02 Commercial General Liability

A. Contractor shall secure and maintain from the date of the Agreement and for a period of at least two (2) years from the date of Final Completion of the entire Work commercial general liability insurance ("CGL") with a combined single limit of not less than Two Million Dollars (\$2,000,000) per occurrence. If such CGL insurance contains a general aggregate limit, it shall separately apply to this Project. Such CGL insurance shall be on an occurrence basis.

B. CGL insurance shall be written on a comprehensive form and shall cover claims and liability in connection with or resulting from the Contractor's operations and activities under the Contract, for personal injuries, occupational sickness, disease, death or damage to property of others, including loss of use resulting therefrom, arising out of any operations or activities of the Contractor, its agents, or any Subcontractors of any tier or by anyone directly or indirectly employed by either of them.

C. CGL insurance shall include premises, operations, independent contractors, products-completed operations, personal injury and advertising injury and liability assumed under an insured contract (including the tort liability of another assumed in a business contract) coverages. In particular, and not by way of any limitation, the CGL insurance shall cover the Contractor's deference and indemnity obligations contained in the Contract Documents.

D. There shall be no endorsement or modification of the CGL policy limiting the scope of coverage for liability arising from blasting, explosion, collapse, or underground property damage.

E. "The City of Grain Valley, Missouri" shall be endorsed as an "additional insured" under the CGL policy. In lieu of naming the City of Grain Valley, Missouri as an additional insured, under the CGL policy, Contractor may satisfy such requirement by purchasing and maintaining an Owner's and Contractor's Protective Liability policy on behalf of Owner, as named insured with limits as provided for in Paragraph 5.02 A. The CGL policy shall also contain a "Separation of Insureds" provision. If Contractor's CGL policy does not contain a "Separation of Insureds" provision, Contractor's CGL policy shall be endorsed to provide cross-liability coverage.

F. Contractor waives all rights against Owner and its agents, officers, representatives and employees for recovery of damages to the extent those damages are covered by the CGL policy required hereunder.

5.03 Automobile Liability

A. Contractor shall secure and maintain from the date of the Contract for Construction and for a period of at least two (2) years from the date of Final Completion of the entire Work, insurance, to be on comprehensive form, which shall protect Contractor against any and all claims for all injuries and all damage to property arising from the use of automobiles, trucks and motorized vehicles, in connection with the performance of Work under this Contract, and shall cover the operation on or off the site of the Work of all motor vehicles licensed for highway use whether they are owned, non-owned or hired. Such insurance shall include contractual liability coverage and shall provide coverage on the basis of the date of any accident. The liability limits under such policy shall not be less than Two Million Dollars (\$2,000,000) combined single limit for bodily injury and property damage per accident. "The City of Grain Valley, Missouri" shall be endorsed as an "additional insured" under the policy required by this Paragraph 5.03 A.

B. Contractor waives all rights against Owner and its agents, officers, directors and employees for recovery of damages to the extent such damages are covered by the automobile liability insurance required hereunder.

5.04 Workers' Compensation Insurance

A. Contractor shall purchase and maintain workers' compensation insurance and employers' liability insurance which shall protect Contractor from claims for injury, sickness, disease or death of Contractor's employees or statutory employees. The insurance policies required hereunder shall include an "all states" or "other states" endorsement. In case any Work is sublet, Contractor shall require any Subcontractor of any tier to provide the insurance coverages required under this Section 5.04.

B. Contractor's workers' compensation insurance coverage shall be in compliance with all applicable Laws, including the statutes of the State of Missouri. Contractor's employers' liability coverage limits shall not be less than \$500,000 each accident for bodily injury by accident or \$500,000 each employee for bodily injury by disease.

C. Contractor waives all rights against Owner and its agents, officers and directors and employees for recovery of damages to the extent these damages are covered by the workers' compensation and/or employers' liability insurance required hereunder.

5.05 Miscellaneous Liability Insurance

A. If required by the Supplementary Conditions, Contractor shall also secure and maintain Owner's and Contractor's Protective Liability insurance on behalf of Owner, as named insured, with a minimum limit of coverage as set forth in the Supplementary Conditions.

B. If the Work is to be performed in or adjacent to a railroad right-of-way or if required by the Supplementary Conditions, Contractor shall secure on behalf of such applicable railroad company, as named insured, railroad protective liability insurance with minimum liability limits set forth in the Supplementary Conditions. Such insurance shall protect and defend the railroad company against claims as a result of the operations of Contractor. This insurance shall be acceptable to the railroad and shall be maintained throughout the period when Contractor is working on or adjacent to property the railroad company has an interest. Contractor shall not enter upon the property the railroad company has an interest until such insurance is in effect.

C. Contractor shall also provide any type of insurance not described above which Contractor requires for its own protection or on account of any applicable Laws.

5.06 General Requirements For Liability Insurance Coverages

A. All insurance coverages required herein shall be provided by insurance companies that are duly licensed to conduct business in the State of Missouri as an admitted carrier. The form and content of all insurance coverages provided by Contractor are subject to the approval of Owner. All required coverages shall be obtained and

paid for by Contractor. Any acceptance of the form, content or insurance company by Owner shall not relieve the Contractor from the obligation to provide the coverages required herein.

B. All insurance coverage procured by the Contractor shall be provided by insurance companies having policyholder ratings no lower than "A" and financial ratings not lower than "XII" in the Best's Insurance Guide, latest edition in effect as of the date of the Agreement, and subsequently in effect at the time of renewal of any policies required by the Contract Documents. Insurance coverages required hereunder shall not be subject to a deductible amount on a per-claim basis of more than \$10,000.00 and shall not be subject to a per-occurrence deductible of more than \$25,000.00. Insurance procured by Contractor covering the additional insureds shall be primary insurance and any insurance maintained by Owner shall be excess insurance.

C. All insurance required hereunder shall provide that the insurer's cost of providing the insureds a defense and appeal, including attorneys' fees, shall be supplementary and shall not be included as part of the policy limits but shall remain the insurer's separate responsibility. Contractor shall cause its insurance carriers to waive all rights of subrogation against the Owner and its officers, employees and agents.

D. The Contractor shall furnish the Owner with certificates, policies or binders which indicate the Contractor and Owner are covered by the required insurance showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates, policies or binders shall be submitted to Owner within ten (10) days from the date Contractor receives notice of the award of the Contract. All certificates, policies and binders shall be executed by a duly authorized agent of each of the applicable insurance carriers and shall contain the statement that: "The insurance covered by this certificate will not be canceled or altered except after thirty (30) days' written notice has been received by Owner." All certificates, policies and binders shall be in a form acceptable to the Owner. Contractor shall provide certified copies of all insurance policies required above within ten (10) days of Owner's written request for said copies.

E. With respect to all insurance coverages required to remain in force and affect after final payment, Contractor shall provide Owner additional certificates, policies and binders evidencing continuation of such insurance coverages along with Contractor's application for final payment and shall provide certificates, policies and binders thereafter as requested by Owner.

F. The maintenance in full current force and effect of such forms and amounts of insurance and bonds required by the Contract Documents shall be a condition precedent to Contractor's exercise or enforcement of any rights under the Contract Documents.

G. Failure of Owner to demand certificates, policies and binders evidencing insurance coverages required by the Contract Documents, acceptance by Owner of such certificates, policies and binders or failure of Owner to identify a deficiency from evidence that is provided by Contractor shall not be construed as a waiver of Contractor's obligations to maintain the insurance required by the Contract Documents.

H. The Owner shall have the right to terminate the Contract if Contractor fails to maintain the insurance required by the Contract Documents.

I. If Contractor fails to maintain the insurance required by the Contract Document, Owner shall have the right, but not the obligation, to purchase said insurance at Contractor's expense. If Owner is damaged by Contractor's failure to maintain the insurance required by the Contract Documents, Contractor shall bear all reasonable costs properly attributable to such failure.

J. By requiring the insurance set forth herein and in the Contract Documents, Owner does not represent or warrant that coverage and limits will necessarily be adequate to protect Contractor, and such coverages and limits shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

K. If Contractor's liability policies do not contain a standard separation of insureds provision, such policies shall be endorsed to provide cross-liability coverage.

L. If a part of the Work hereunder is to be sublet, the Contractor shall: (1) cover any and all Subcontractors in its insurance policies; (2) require each Subcontractor to secure insurance which will protect said Subcontractor and supplier against all applicable hazards or risks of loss designated in accordance with Article 5 hereunder; and (3) require each Subcontractor or supplier to assist in every manner possible in the reporting and investigation of any accident, and upon request, to cooperate with any insurance carrier in the handling of any claim by securing and giving evidence and obtaining the attendance of witnesses as required by any claim or suit.

M. It is understood and agreed that the insurance coverages required by the provisions of this Article 5 are required in the public interest and that the Owner does not assume any liability for acts of Contractor or Subcontractors of any tier or their employees in the performance of the Contract or Work.

5.07 Property Insurance

A. The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the State of Missouri, as an admitted carrier, builder's risk insurance on the entire Work. Such insurance shall be written on a completed value form and in the amount of the initial Contract Price as well as subsequent modifications thereto for the entire Work. The insurance shall apply on a replacement cost basis.

B. The insurance as required in Paragraph 5.07 shall name as insureds the Owner, Contractor and all Subcontractors of any tier. The insurance policy shall contain a provision that the insurance will not be canceled, allowed to expire or materially changed until at least thirty (30) days prior written notice has been given to Owner.

C. The insurance as required in Paragraph 5.07 shall cover the entire Work, including reasonable compensation for Professional's services and expenses made necessary by an insured loss. Insured property shall include portions of the Work located away from the site but intended for use at the site, and shall also cover portions of the Work in transit, including ocean transit. The policy shall include as insured property scaffolding, falsework, and temporary buildings located at the site. The policy shall cover the cost of removing debris, including demolition as may be made legally necessary by the operation of any law, ordinance or regulation.

D. The insurance required by Paragraph 5.07 shall be on an all risk form and shall be written to cover all risks of physical loss or damage to the insured party and shall insure at least against the perils of fire and extended coverage, theft, vandalism, malicious mischief, collapse, lightning, earthquake, flood, frost, water damage, windstorm and freezing.

E. If there are any deductibles applicable to the insurance required by Paragraph 5.07, Contractor shall pay any part of any loss not covered because of the operation of such deductibles.

F. The insurance as required in Paragraph 5.07 shall be maintained in effect until the earliest of the following dates:

1. the date which all persons and organization who are insureds under the policy agree in writing that it shall be terminated;
2. the date on which final payment of this Contract has been made by Owner to Contractor; or
3. the date on which the insurable interests in the property of all insureds other than the Owner have ceased.

G. Contractor shall purchase and maintain boiler and machinery insurance required by the Supplementary Conditions, which shall specifically cover such insured objects during installation until final acceptance by the Owner. This insurance shall name as insureds Owner, Contractor and Subcontractors of any tier in such Work.

H. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors of any tier, suppliers, agents and employees, each of the other, (2) the Professional and Professional's consultants, and (3) separate contractors described in Article 6, if any, and any of their subcontractors of any tier, suppliers, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Section 5.07 or other insurance applicable to the Work, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require of the Professional, Professional's consultants, separate contractors described in Article 7, if any, and the Subcontractors of any tier, Suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, was at fault or was negligent in causing the loss and whether or not the person or entity had an interest in the property damaged.

I. A loss insured under Contractor's property insurance shall be adjusted by the Owner in good faith and made payable to the Owner for the insureds, subject to requirements of the Contract Documents. The Contractor shall pay Subcontractors of any tier their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors of any tier to make payments to their Sub-subcontractors in similar manner.

J. Partial occupancy or use shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

5.08 Bonds

A. The Contractor shall procure and furnish a Performance and Payment Bond in the form prepared by the Owner, in an amount equal to one hundred percent (100%) of the Contract Price, as well as adjustments to the Contract Price. The Performance Bond shall secure and guarantee Contractor's faithful performance of this Contract, including but not limited to Contractor's obligation to correct defects after final payment has been made as required by the Contract Documents. The Payment Bond shall secure and guarantee payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract. These Bonds shall be in effect through the duration of the Contract plus the Guarantee Period as required by the Contract Documents.

B. The bonds required hereunder shall be executed by a responsible surety licensed in the State of Missouri, with a Best's rating of no less than A/XII. The Contractor shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of this power of attorney indicating the monetary limit of such power.

C. If the surety of any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to conduct business in the State of Missouri is terminated, or it ceases to meet the requirements of this paragraph, Contractor shall within ten (10) days substitute another bond and surety, both of which must be acceptable to Owner. If Contractor fails to make such substitution, Owner may procure such required bonds on behalf of Contractor at Contractor's expense.

D. Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds to such person or entity.

E. The Contractor shall keep the surety informed of the progress of the Work, and, where necessary, obtain the surety's consent to or waiver of: (1) notice of changes in the Work; (2) request for reduction or release of retention; (3) request for final payment; and (4) any other material required by the surety. The Owner shall be notified by the Contractor, in writing, of all communications with the surety. The Owner may, in the Owner's sole discretion, inform surety of the progress of the Work, any defects in the Work, or any defaults of Contractor under the Contract Documents and obtain consents as necessary to protect the Owner's rights, interest, privileges and benefits under and pursuant to any bond issued in connection with the Work.

F. Contractor shall indemnify and hold harmless the Owner and any agents, employees, representative or elected official of Owner from and against any claims, expenses, losses, costs, including reasonable attorneys' fees, as a result of any failure of Contractor to procure the bonds required by this Paragraph 5.08.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITY

6.01 General

A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. Contractor shall be responsible to see that the finished Work strictly complies with the Contract Documents.

6.02 Supervision

A. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract. The Contractor shall supply sufficient and competent supervision and personnel, and sufficient material, plant, and equipment to prosecute the Work with diligence to insure completion thereof within the time specified in the Contract Documents, and shall pay when due any laborer, Subcontractor of any tier, or supplier. Contractor shall keep on the Work at all times during its progress, a competent resident superintendent, who shall not be replaced without written notice to Owner and Professional except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

6.03 Labor and Construction Procedures

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and Contractor will not permit overtime work or the performance of the Work

on Saturday, Sunday or any legal holiday without Owner's written consent given after prior written notice to Professional.

B. The Contractor shall only employ labor on the Project or in connection with the Work capable of working harmoniously with all trades, crafts and any other individuals associated with the Project. The Contractor shall take all measures to minimize the likelihood of any strike, work stoppage or other labor disturbance. If the Work is to be performed by trade unions, the Contractor shall make all necessary arrangements to reconcile, without delay, damage or cost to the Owner and without recourse to the Professional or Owner, any conflict between the Contract Documents and any agreements or regulations of any kind at any time in force among members or councils which regulate or distinguish what activities shall not be included in the Work of any particular trade. In case the progress of the Work is affected by any undue delay in furnishing or installing any items or materials or equipment required under the Contract Document because of such conflict involving any such labor agreement or regulation, the Owner may require that other material or equipment of equal kind and quality be provided pursuant to a Change Order or Work Change Directive. Notwithstanding any other provision contained herein and superseding any contrary term expressed herein or in any of the Contract Documents, Contractor agrees that in the event of any strike, picket, sympathy strike, work stoppage, or other form of labor dispute (collectively referred to as "Disruption") at the Project site, whether that Disruption is in connection with Contractor, a Subcontractor of any tier, the Owner or any other contractor, subcontractor or supplier on this Project site, Contractor will continue to perform the Work required herein without interruption or delay. In the event Contractor fails to continue the performance of the Work included herein, without interruption or delay, because of such Disruption or other form of labor dispute, the Owner may terminate the services of Contractor after giving forty-eight (48) hours written notice of an intent to do so, or the Owner may invoke any of the rights set forth in the Contract Documents. Contractor expressly waives the right to any extension of time for any delay that may occur as the result of any Disruption, strike, picket, sympathy strike, work stoppage or other form of labor dispute at the Project site. Whenever Contractor has knowledge that any actual or potential Disruption or labor dispute is delaying or threatens to delay the timely performance of the Project, Contractor shall immediately notify Owner in writing.

C. The Contractor shall establish and maintain a permanent bench-mark to which access may be had during progress of the Work, and Contractor shall establish all lines and levels, and shall be responsible for the correctness of such. Contractor shall protect the established benchmarks and horizontal and vertical control points. Benchmarks and control points destroyed or that require relocation because of necessary construction activities shall be immediately reported to Professional. Contractor shall be fully responsible for all layout work for the proper location of Work in strict accordance with the Contract Documents. The Contractor shall establish and maintain alignment and grades, including the setting of all stakes, ranges, grid lines and other appurtenance facilities. Contractor shall carefully protect and maintain such stakes and keep the same uncovered for examination during the progress of the Work. Before starting construction on the site, the Contractor shall provide written assurances certifying that the monuments or markers which delineate the site boundaries are placed in the correct position and that the proposed new construction and site development work, as staked-out by the Contractor, are wholly within the limits of the Owner's ownership, leasehold or right-of-way. Contractor shall be responsible for the accurate replacement of any boundary markers which are disturbed, removed or destroyed during the performance of the Work.

D. The Contractor shall be responsible for the layout of the Work in the proper location and for any damage which may occur to the Work or the work of separate contractors, because of errors or inaccuracies in the layout of the Work.

E. The Contractor shall be responsible for the shoring required to protect its work or adjacent property and shall pay for any damage caused by failure to shore or by improper shoring or by failure to give proper notice. Shoring shall be removed only after completion of permanent supports.

F. During the performance of the Work, the Contractor shall be responsible for providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences, and other devices appropriately located on site which shall give proper and understandable warning to all persons of danger of entry onto land, structure, or equipment.

G. The Contractor shall be responsible for care of the Work and must protect same from damage or defacement until acceptance by the Owner. All damaged or defaced Work shall be repaired or replaced to the Owner's satisfaction, without cost to the Owner.

H. When requested by the Contractor, at no extra charge, shall provide scaffolds or ladders in place as may be required by the Professional or the Owner for examination of Work in progress or completed.

I. The Contractor shall coordinate all Work so there shall be no prolonged interruption of existing utilities, systems and equipment of Owner. Any existing plumbing, heating, ventilating, air conditioning, or electrical disconnection necessary, which affect portions of construction or building of the Project or any other building, must be

scheduled with the Owner and Professional to avoid any disruption of operation within the building under construction or other buildings or utilities. In no case shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities, either intentionally or accidentally, shall not relieve the Contractor from repairing and restoring the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.

J. The Contractor shall pump, bail, or otherwise keep any general excavations free of water. The Contractor shall keep all areas free of water before, during and after concrete placement.

K. The Contractor shall ensure that the Work is at all times performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials and equipment likely to cause hazardous conditions. Without limitation of any other provision of the Contract Documents, Contractor shall not interfere with the occupancy or beneficial use of (1) any areas and buildings adjacent to the site of the Work or (2) the Work in the event of partial occupancy. Contractor shall assume full responsibility for any damage to the property comprising the Project or to the owner or occupant of any adjacent land or areas resulting from the performance of the Work.

L. Contractor shall, and in accordance with any regulations or site rules presented by the Owner use only designated site entrances and roadways or use temporary entrances and roadways constructed by Contractor.

M. The Contractor shall not permit any workers to use any existing facilities at the Project site, including, without limitation, lavatories, toilets, entrances and parking areas other than those designated by Owner. The Contractor, Subcontractors of any tier, suppliers and employees shall comply with instructions or regulations of the Owner and Professional governing access to, operation of, and conduct while in or on the premises and shall perform all Work required under the Contract Documents in such a manner as not to unreasonably interrupt or interfere with the conduct of Owner's operations. Any request for Work, a suspension of Work or any other request or directive received by the Contractor from occupants of existing buildings shall be referred to the Professional for determination.

N. The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported in writing to the Professional and Owner within twenty-four (24) hours. During the progress of Work, Contractor shall verify all field measurements prior to fabrication of building components or equipment, and proceed with the fabrication to meet field conditions. Contractor shall consult all Contract Documents to determine the exact location of all Work and verify spatial relationships of all Work. Any question concerning said location or spatial relationships shall be submitted to the Professional. Specific locations for equipment, pipelines, ductwork and other such items of Work, where not dimensioned on plans, shall be determined in consultation with Professional. Contractor shall be responsible for the proper fitting of the Work in place. The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Professional, or the work installed by separate contractors, is not guaranteed by the Professional or the Owner. The Contractor shall, therefore, satisfy itself as to the accuracy of all grades, elevations, dimensions and locations. In all cases of interconnection of its Work with existing or other work, Contractor shall verify at the site all dimensions relating to such existing or other work. Any errors due to the Contractor's failure to so verify all such grades, elevations, locations or dimensions shall be promptly rectified by the Contractor without any additional cost to the Owner.

O. The Contractor shall be responsible for inspection of portions of the Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

P. Before ordering any materials or doing any Work, the Contractor and each Subcontractor shall verify measurements at the Project site and shall be responsible for the correctness of such measurements. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on the Drawings. Any difference which may be found shall be submitted to the Professional for resolution before proceeding with the Work. If a minor change in the Work is found to be necessary due to actual field conditions, the Contractor shall submit detailed drawings of such departure for the approval by the Professional before making the change.

6.04 Materials and Equipment

A. Contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

B. Unless otherwise specifically noted, the Contractor shall provide and pay for supervision, labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated in the Work. Contractor shall arrange for and pay all fees and charges for installation of motors and other devices and connection to existing outside services and utilities necessary for the Work. Contractor shall pay for bills for utilities for the Contractor's use and consumption of utilities until the date of Substantial Completion. Contractor, unless otherwise provided for in the Special Conditions, shall provide an office and maintain the office for use by Contractor, Professional and Owner. The office shall be removed when directed by Owner. Contractor shall provide heat, air conditioning, ventilation, other environmental controls and shall take all actions necessary to protect all Work, materials and equipment against injury, damage or loss from theft, weather, vandalism, wetness, temperature and humidity conditions, dust and other adverse environmental conditions.

6.05 Quality of Materials and Equipment

A. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by Professional, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents. No provision of any such instructions will be effective to assign to Professional, Owner or any of Professional's or Owner's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work.

B. Materials and workmanship shall be subject to inspection, examination, and test by the Professional at any and all times during manufacture, installation and construction of any of them, at places where such manufacture, installation or construction is performed.

6.06 Schedule

A. Contractor shall submit to Professional for acceptance adjustments in the progress schedule to reflect the impact thereon of new developments. These will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto. The submission or acceptance of such schedules shall not change or modify the Contract Times. Adjustments in the progress schedule that will change the Contract Times or Milestones shall be submitted in accordance with Article 12. An adjustment in the Contract Times or Milestones may only be made by Change Order in accordance with Article 12 regardless of the submission of a progress schedule or acceptance of such schedule.

B. The Contractor shall monitor the progress of the Work for conformance with the requirements of the most recently approved schedule and shall promptly advise the Owner of any delays or potential delays. The accepted construction schedule shall be updated to reflect actual conditions. Contractor shall submit written progress reports and updated schedules to Professional and Owner with each Application for Payment showing actual progress of the Work compared with the scheduled and planned progress. In the event any schedule or progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor and equipment and/or expediting delivery of materials, if necessary. In no event shall any progress report or construction schedule constitute an adjustment in the Contract Times, any Milestone Date or the Contract Price unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

C. In the event the Owner or Professional determines that the performance of the Work, as of a Milestone Date, has not progressed or reached the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction, including, without limitation, (1) working additional shifts or overtime, (2) supplying additional manpower, equipment, facilities, (3) expediting delivery of materials, and (4) other similar measures (hereinafter referred to collectively as Extraordinary Measures). Such Extraordinary Measures shall continue until the progress of the Work complies with the stage of completion required by the Contract Documents. The Owner's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the construction schedule. The Contractor shall not be entitled to an adjustment in the Contract Price in connection with Extraordinary Measures required by the Owner under or pursuant to this Paragraph 6.06 C. The Owner may exercise the rights furnished the Owner under or pursuant to this Paragraph 6.06 C. as frequently as the Owner deems necessary to ensure that the Contractor's performance of the Work will comply with any Milestone Date or completion date set forth in the Contract Documents.

6.07 "Or-Equal" Items

A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by Professional if it is proven as set forth in this Section 6.07 that the material or equipment proposed is equivalent or equal to that named.

B. The standard products of manufacturers other than those specified will be accepted when, prior to the ordering or use thereof, it is proven to the satisfaction of the Professional that such products are equal in design, appearance, spare parts availability, strength, durability, usefulness, serviceability, operation cost, maintenance cost, and convenience for the purpose intended. Any general listings of approved manufacturers in any Contract Document shall be for informational purposes only and it shall be the Contractor's sole responsibility to ensure that any proposed "or equal" complies with the requirements of the Contract Documents.

C. In the event that Contractor desires to propose an "or equal" of any article, appliance, device or material, Contractor shall submit a written list of all proposed or equals that Contractor proposes to provide to the Professional and within ten (10) days from the execution of the Agreement. Within ten (10) days from the execution of the Agreement, the Contractor shall submit to Professional and a written and full description of the proposed "or equal" including all supporting data, including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, and similar information demonstrating that the proposed "or equal" strictly complies with the Contract Documents. The Professional shall take appropriate action with respect to the submission of a proposed "or equal" item. If Contractor fails to submit proposed "or equals" as set forth herein, it shall waive any right to supply such items. The Contract Price and Contract Times shall not be adjusted as a result of any failure by Contractor to submit proposed "or equals" as provided for herein. All documents submitted in connection with preparing an "or equal" shall be clearly and obviously marked as a proposed "or equal" submission.

D. No "or equal" items shall be installed or utilized until Professional's review is complete and approved in writing. No approvals or action taken by the Professional or shall relieve Contractor from its obligation to ensure that an "or equal" article, appliance, device or material strictly complies with the requirements of the Contract Documents. Contractor shall not propose "or equal" items in connection with Shop Drawings or other Submittals, and Contractor acknowledges and agrees that no approvals or action taken by the Professional or with respect to Shop Drawings or other Submittals shall constitute approval of any "or equal" item or relieve Contractor from its sole and exclusive responsibility. Any changes required in the details and dimensions indicated in the Contract Documents for the incorporation or installation of any "or equal" item supplied by Contractor shall be properly made and approved by the Professional at the expense of the Contractor. No "or equal" items will be permitted for components of or extensions to existing systems when, in the opinion of the Professional, the named manufacturer must be provided in order to insure compatibility with the existing systems, including, but not limited to, mechanical systems, electrical systems, fire alarms, smoke detectors, etc. No action will be taken by the Professional with respect to proposed "or equal" items prior to receipt of bids, unless otherwise noted in the Supplementary Conditions.

6.08 Substitutions

A. If, after execution of the Contract or prior to submittal of applicable Shop Drawings, the Contractor desires to submit an alternate product or method in lieu of what has been specified or shown in the Contract Documents, which is not an "or equal" as set forth in Section 6.07, the Contractor may do so in writing and setting forth the following:

1. Full explanation of the proposed substitution and submittal of all supporting data including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, and other like information necessary for a complete evaluation of the substitution.
2. Reasons the substitution is advantageous and necessary, including the benefits to the Owner and the Work in the event the substitution is acceptable.
3. The adjustment, if any, in the Contract Price, in the event the substitution is acceptable.
4. The adjustment, if any, in the time of completion of the Contract and the construction schedule in the event the substitution is acceptable.
5. An affidavit stating that (a) the proposed substitution conforms to and meets all of the Contract Documents, except as specifically disclosed and set forth in the affidavit and (b) the Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Professional. Proposals for substitutions shall be submitted to the Professional and in sufficient time to allow the Professional and no less than ten (10) working days for review. No substitution will be considered or allowed without the Contractor's submittal of complete substantiating data and information as stated herein.

B. Substitutions and alternates may be rejected without explanation in Owner's sole discretion and will be considered only under one or more of the following conditions:

1. Required for compliance with interpretation of code requirements or insurance regulations then existing;
2. Unavailability of specified products, through no fault of the Contractor;

3. Material delivered fails to comply with the Contract Documents;
4. Subsequent information discloses inability of specified products to perform properly or to fit in designated space;
5. Manufacturer/fabricator refuses to certify or guarantee performance of specified product as required; or
6. When in the judgment of the Owner or the Professional, a substitution would be substantially to the Owner's best interests, in terms of cost, time, or other considerations.

C. Professional and Owner shall be allowed a reasonable time to evaluate each substitute proposed. No substitute will be ordered, included or utilized until Professional's review is complete and approved, which will be evidenced by a Change Order. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other guaranty with respect to any substitution. Whether or not any proposed substitution is accepted by the Owner or the Professional, the Contractor shall reimburse the Owner for any fees charged by the Professional or other consultants for evaluating each proposed substitute.

6.09 Concerning Subcontractors, Suppliers and Others

A. Contractor shall not employ any Subcontractor, Supplier or other person or organization whether initially or as a substitute, against whom Owner or Professional may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to Owner in advance of the specified date prior to the Effective Date of the Agreement for acceptance by Owner and Professional and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's or Professional's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case Contractor shall submit an acceptable substitute. The Contract Price shall be increased by the difference between the subcontract amount proposed by the person or entity recommended by the Contractor and the subcontract amount proposed by the person or entity to whom the Owner has no objection. However, no increase in the Contract Price shall be allowed unless the Contractor has acted promptly and responsively in complying with the provisions of Paragraph 6.09 B and the person or entity to which Owner has an objection is capable of performing the Work. No acceptance by Owner or Professional of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of Owner or Professional to reject defective Work.

C. Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

1. assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 15.01 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and
2. assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

Each subcontract shall specifically provide that the Owner shall only be responsible to the Subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this conditional assignment.

D. Contractor shall be fully responsible to Owner and Professional for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between Owner or Professional and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner or Professional to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

E. The divisions and sections of the Specifications and the identifications of any Drawings shall not control the Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

F. All Work performed for Contractor by a Subcontractor will be pursuant to an appropriate agreement between Contractor and the Subcontractor which specifically binds the Subcontractor to the applicable terms and

conditions of the Contract Documents for the benefit of Owner and Professional and contains waiver provisions as required by Section 5.07. Contractor shall pay each Subcontractor a just share of any insurance moneys received by Contractor on account of losses under policies issued pursuant Section 5.07.

G. Contractor shall perform with its own forces and organization Work amounting to not less than thirty percent (30%) (or a greater percentage if required by the Supplementary Conditions) of the original Contract Price.

6.10 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Professional its use is subject to patent right or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents. Contractor shall defend, indemnify and hold harmless Owner and Professional and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorney's fees and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

6.11 Permits and Fees

A. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement, Contractor shall pay all governmental charges and inspection fees necessary for the completion of the Work, which are applicable at the time of opening of Bids. Contractor shall pay all charges or assessments of utility owners for connections of utilities to the Work.

B. Contractor shall procure and obtain all bonds required of the Owner or the Contractor by the municipality in which the Project is located or any other public or private body with jurisdiction over the Project. In connection with such bonds, the Contractor shall prepare all applications, supply all necessary backup material, and furnish the surety with any required personal undertakings. Contractor shall also obtain and pay all charges for all approvals for street closings, parking meter removal, and other similar matters as may be necessary or appropriate from time to time for the performance of the Work.

6.12 Laws and Regulations

A. Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Professional shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor observes that the Specifications or Drawings are at variance with any Laws or Regulations, Contractor shall give Professional prompt written notice thereof. If Contractor performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to Professional, Contractor shall bear all costs arising therefrom; however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

6.13 Prevailing Wage Rates

A. This Contract shall be based upon payment by the Contractor and his Subcontractors of wage rates not less than the prevailing hourly wage rate for each craft or classification of workman engaged on the Work as determined by the Labor and Industrial Relations Commission of Missouri on behalf of the Department of Labor and Industrial Relations. The Contractor shall comply with all requirements of the prevailing wage law of Missouri, RSMo. §§ 290.210 to 290.340, including the latest amendments thereto. The Contractor and each Subcontractor shall keep an accurate record showing the names, occupations, and crafts of all workmen employed, together with the number of hours worked by each workman and the actual wages paid to each workman. At all reasonable hours, such records shall be open to inspection by the representatives of the Labor and Industrial Relations Commission of Missouri and Owner. The payroll records shall not be destroyed or removed from the state for at least two (2) years after completion of the Work. Throughout the life of this Contract, a copy of the wage determination and the rules promulgated by the Labor and Industrial Relations Commission of Missouri shall be displayed in at least four (4) conspicuous places on the Project under a heading of NOTICE, with the heading in letters at least one (1) inch high. Pursuant to RSMo. § 290.250, the Contractor shall forfeit to Owner as a penalty, Ten Dollars (\$10.00) for each workman employed, for each calendar day, or portion thereof, such workman is paid less than the stipulated rates for any work done under the Contract, by him or by any Subcontractor under him. After completion of the Work, and before final payment can be made under this Contract, the Contractor and each Subcontractor must file with Owner an affidavit of compliance stating that he has fully complied with the provisions and requirements of the prevailing

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wage law of Missouri. During the life of this Contract, the prevailing hourly rate of wages is subject to change by the Department of Labor and Industrial Relations or by court decision, as provided by law. Any such change shall not be the basis of any claim by the Contractor against Owner, nor will deductions be made by Owner against sums due the Contractor by reason of any such change.

B. If a federal governmental agency is providing funding for the Project and if required by Division 1 of the Specifications or the Contract Documents, the Contractor agrees to pay prevailing hourly rate of wages for regular, holiday and overtime work as determined by the Secretary of Labor in accordance with the Davis-Bacon Act as amended and supplemented. The Contractor further agrees to comply with all applicable federal laws, statutes and regulations relating to and establishing prevailing wage rates. Where Missouri and Federal prevailing wage rates are applicable, the higher of the two will be paid by the Contractor.

C. Violations of the Missouri prevailing wage statute, whether by the Contractor or its Subcontractors, result in additional costs for Owner, including, but not limited to, costs of construction delays, of additional work for City staff, of added interest expense, of legal and litigation expense, and of delays in the levying of special assessments. The Contractor shall ensure that prevailing wage rates are paid and that Work is done by the correct category of worker both on this Contract and on all subcontracts. The cost to Owner of any particular violation is difficult to establish; in the event of the failure by the Contractor or any of its Subcontractors to pay wages as provided in the Missouri prevailing wage Laws, Owner may deduct from the price specified in the Contract and may retain as liquidated damages, and not as a penalty, Thirty-Five Dollars (\$35.00) per day per individual who is paid less than the prevailing wage, to approximate the investigative costs resulting to Owner from such violations. To approximate the cost of delay, including interest expense from delay in levying special assessments and issuing special assessment tax bills, additional liquidated damages, and not as a penalty, shall be paid in the amount of One Hundred Dollars (\$100.00) per day for any delay in closing out the Contract occasioned by failure to pay the prevailing wage. Such additional sum shall be collected, whether or not the work days on the Contract could be closed out. Action under this section shall be commenced by Owner giving a written notice to the Contractor. The notice shall set out the persons who are claimed to have been underpaid, and the days they are claimed to have been underpaid. The Contractor shall have ten (10) days, or such longer time as Owner shall allow, to respond to the allegation. Based on the information in the notice, the response by the Contractor and such additional information as Owner shall determine, Owner shall render its decision, in writing, giving the amount of liquidated damages owed, including any damages for occasioning a delay in closing out the Contract. The Contractor shall not be required to pay liquidated damages for any false or malicious claims. This liquidated damage will be in addition to the liquidated damages specified in the Agreement.

6.14 Taxes

A. Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work. However, certain purchases by the Contractor of materials incorporated in or consumed in the construction of the Project are exempt from certain sales taxes pursuant to RSMo 144.062. The Contractor shall be issued a Project Tax Exemption Certificate for this Project to obtain the benefits of RSMo 144.062.

B. The Contractor shall furnish this certificate to all Subcontractors, and any person or entity purchasing materials for the Work shall present such certificate to all material suppliers as authorization to purchase, on behalf of the Owner, all tangible personal property and materials to be incorporated into or consumed in the Project and no other project on a tax-exempt basis. Such suppliers shall provide the purchasing party invoices bearing the name of the exempt entity and the Project identification number. Nothing in this section shall be deemed to exempt from any sales or similar tax the purchase of any construction machinery, equipment or tools used in construction, repairing or remodeling facilities for the Owner. All invoices for all personal property and materials purchased under a Project Tax Exemption Certificate shall be obtained and retained by the Contractor for a period of five years and shall be subject to audit by the director of revenue.

C. Any excess resalable tangible personal property or materials which were purchased for the Project under this Project Tax Exemption Certificate but which were not incorporated into or consumed in the construction of the Project shall either be returned to the supplier for credit or the appropriate sales or use tax on such excess property or materials shall be reported on applicable tax returns and paid by such purchasing party not later than the due date of the purchasing party's Missouri sales or use tax return following the month in which it was determined that the materials were not used in the Project.

D. If it is determined that sales tax is owed by the Contractor on property and materials due to the failure of the Owner to revise the certificate expiration date to cover the applicable date of purchase, Owner shall be liable for the tax owed.

E. The Owner shall not be responsible for any tax liability due to Contractor's neglect to make timely orders, payments, etc. or Contractor's misuse of the Project Tax Exemption Certificate. Contractor represents that the Project Tax Exemption Certificate shall be used in accordance with RSMo § 144.062 and the terms of the Project Tax Exemption Certificate. Contractor shall defend and indemnify the Owner for any loss or expense, including but not limited to, reasonable attorneys' fees, arising out of Contractor's use of the Project Tax Exemption Certificate.

6.15 Use of Premises

A. Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site, land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

B. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof of any land or area, or to the owner or occupant thereof of any land or areas contiguous thereto, resulting from the performance of the Work. Should any such owner or occupant because of the performance of the Work make any claim against Owner or Professional, Contractor shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or by law.

C. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold Owner and Professional harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, Professionals, attorneys and other professionals and court and arbitration's costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against Owner or Professional to the extent based on a claim arising out of Contractor's performance of the work.

6.16 Site Cleanup

A. During the progress of the Work, Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by Owner. Contractor shall restore to original condition all property whether or not designated for alteration by the Contract Documents.

6.17 Loading of Structures

A. Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.18 Record Documents

A. Contractor shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during construction. These record documents together with all approved samples, Submittals and a counterpart of all approved Shop Drawings will be available to Professional for reference. Upon completion of the Work and prior to final payment, these record documents, samples, Shop Drawings and Submittals will be delivered to Professional for Owner.

6.19 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. Contractor shall take all necessary precautions for the safety of, and provide the necessary protection to prevent damage, injury or loss to:

1. all employees on the Work and other persons and organizations who may be affected thereby;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.
4. Contractor shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may

affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property.

B. All damage, injury or loss to any property referred to in Paragraph 6.19 A.2. and 6.19 A.3. caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss solely attributable to the fault of Owner or Professional or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor).

C. The Contractor shall be solely responsible for materials delivered and Work performed until completion and final acceptance of the entire construction thereof. The Contractor shall bear the risk of injury, loss or damage to any and all parts of the Work for whatever cause, whether arising from the execution or from the non-execution of Work. The Contractor shall promptly rebuild, repair or restore Work and materials which have been damaged or destroyed from any causes before Final Completion, and shall bear the expense thereof. The Contractor shall provide security and drainage and erect temporary structures as necessary to protect the Work and materials from damage, including damage from water, flooding, wetness, temperature, dust, environmental conditions and all reasonably anticipated risks. The Contractor shall be responsible for materials not delivered to the Work site for which any progress payment has been made to the same extent as if the materials were so delivered.

6.20 Safety Representative

A. Contractor shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to Owner.

6.21 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Professional or Owner, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Professional prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Professional determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

6.22 Submittals

A. Shop Drawings, Product Data, Samples and similar submittals (collectively referred to as "Submittals") are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which Submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

B. After checking and verifying all field measurements and after complying with applicable procedures specified in the Contract Documents, Contractor shall submit to Professional for review and approval in accordance with the accepted schedule of Submittals, or for other appropriate action if so indicated in the Supplementary Conditions, five (5) copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which will bear a stamp or specific written indication that Contractor has satisfied Contractor's responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as Professional may require for tracking. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable Professional to review the information as required.

C. Contractor shall also submit to Professional for review and approval, with such promptness as to cause no delay in Work, all Samples, Product Data and other similar Submittals required by the Contract Documents in accordance with the Schedule for Submittals. All Samples and Product Data will have been checked by and accompanied with a specific written indication that Contractor has satisfied Contractor's responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

D. When professional certification of performance criteria of materials, systems, or equipment is required by the Contract Documents, the Contractor shall provide the person or party providing the certification with full information on the relevant performance requirements and on the materials, systems, or equipment that are expected to operate at the Project site. The certification shall be based on performance under the operating conditions generally prevailing or expected at the Project site. All certificates from persons or entities other than Contractor shall be endorsed by Contractor and Contractor shall submit such certificates as its own.

E. The Contractor represents and warrants that all Shop Drawings shall be prepared by persons and entities possessing expertise and experience in the trade for which the Shop Drawing is prepared and, if required by the Contract Documents, or the Professional or applicable Laws and Regulations, by a licensed engineer or other design professional.

F. Before submission of each Submittal Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Submittal with other Submittals and with the requirements of the Work and the Contract Documents.

G. By approving and submitting to Professional any Submittals, the Contractor represents such Submittals strictly comply with the requirements of the Contract Documents and that the Contractor has determined and verified field measurements and field construction criteria related thereto, that materials are fit for their intended use and that the fabrication, shipping, handling, storage, assembly and installation of all materials, systems and equipment are in accordance with best practices in the industry and are in strict compliance with any applicable requirements of the Contract Documents. Contractor shall also coordinate each Submittal with other Submittals.

H. Contractor shall be responsible for the correctness and accuracy of the dimensions, measurements and other information contained in the Submittals.

I. Each Submittal will bear a stamp or specific indication that the Submittal complies with the Contract Documents and Contractor has satisfied its obligations under the Contract Documents with respect to Contractor's review and approval of that Submittal. Each Submittal shall bear the signature of the representative of Contractor who approved the Submittal, together with the Contractor's name and Project identification.

J. The Contractor shall perform no portion of the Work requiring submittal and review of Submittals until the respective submittal has been approved by the Professional. Such Work shall be in accordance with approved Submittals.

K. At the time of each submission, Contractor shall give Professional specific written notice of each variation that the Submittals may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to Professional for review and approval of each such variation.

L. Professional's review and approval will be for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

M. Contractor shall make corrections required by Professional and shall return the required number of corrected copies of Shop Drawings and other Submittals and submit as required new Submittals for review and approval. Contractor shall direct specific attention in writing to revisions on the Submittals other than the revisions called for by Professional on previous Submittals.

N. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Professional on previous Submittals.

O. Professional's review and approval of Submittals shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called Professional's attention to each such variation at the time of submission as required by Paragraph 6.23 K. and Professional has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Submittal approval; nor will any approval by Professional relieve Contractor from responsibility for errors or omissions in the Submittals or from responsibility for having complied with the provisions of Section 6.23. In the event Contractor fails to submit any Submittals within the time required in the Contract Documents or submits inadequate or incorrect Submittals, Contractor shall be liable for all additional costs and damage suffered by Owner as a result thereof.

P. Where a Submittal or sample is required by the Specifications, any related Work performed prior to Professional's review and approval of the pertinent submission will be the sole expense and responsibility of Contractor.

6.23 Contractor's Warranty

A. In addition to all other warranties implied by law or expressed in the Contract Documents or elsewhere, the Contractor warrants to Owner that:

1. the materials and equipment furnished under the Contract will be of the most suitable grade of their respective kinds for the purposes intended, fit and sufficient for the purpose intended, merchantable, free from defects in material and workmanship, new, and in strict conformance with the Contract Documents; and

2. the Work will be executed in a workmanlike manner, in the best manner known to each respective trade, free of defects in material and workmanship, of the highest quality in the industry; and in strict conformance with the Contract Documents.

B. The above warranties are not intended as a limitation, but are in addition to, and not in lieu of, all other express warranties set forth in this Contract and such other warranties as are implied by law, in equity, custom, and usage of trade. The Contractor, and its surety or sureties, if any, shall be liable for the satisfaction and full performance of the warranties set forth herein.

C. The Contractor's warranties above shall not be affected by the specification of a product or procedure unless Contractor objects in writing promptly, and in any event before performing the Work in question affected by or related to such product or procedure, and advises the and Professional in writing of possible substitute products or procedures which will not affect the warranty.

D. Contractor shall assign to Owner all manufacturer, supplier or installer's warranties upon Final Completion of the Work; provided, however, the Contractor's warranties provided in this Section 6.23 and other provisions of the Contract Documents shall not be affected, diminished or restricted by the limitations, restrictions, or conditions of a manufacturer, supplier or installer's warranty, including, but not limited to, the expiration of any Uniform Commercial Code statute of limitations. Inability or refusal of a Subcontractor, lower-tier Subcontractor, supplier or installer furnishing defective Work to correct or warrant such Work shall not relieve Contractor of its responsibility for the warranties set forth above and in other provisions of the Contract Documents.

E. Contractor's obligation to perform and complete the Work in strict accordance with the Contract Documents shall be absolute. None of the following shall constitute an acceptance of Work that is not in strict accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in strict accordance with the Contract Documents:

1. observations or inspections by the Professional;
2. approval of any progress or final payment by the Professional;
3. the issuance of a certificate of Substantial or Final Completion or any payment by the Owner to Contractor under the Contract Documents;
4. use or occupancy of the Work or any part thereof by the Owner;
5. any acceptance by the Owner or any failure to do so;
6. any review or approval of Shop Drawings or other Submittal by the Professional;
7. any inspection, test or approval by others; or
8. any correction of defective Work by Owner.

F. The Contractor shall defend, indemnify, and save harmless the Owner from any and all loss, damages, costs, and attorneys' fees suffered or incurred on account of any breach of the aforesaid warranties, obligations and covenants.

6.24 Continuing the Work

A. Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as Contractor and Owner may otherwise agree in writing.

6.25 Indemnification

A. To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Owner, the Professional, Professional's consultants, and the agents, employees, representatives, insurers and re-insurers of any of the foregoing (hereafter collectively referred to as the "Indemnitees") from and against claims, damages (including loss of use of the Work itself), punitive damages, penalties and civil fines unless expressly prohibited by law, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from performance of the Work to the extent caused in whole or in part by negligent acts or omissions or other fault of Contractor, a Subcontractor of any tier, Supplier or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part

by the negligent acts or omissions or other fault of a party indemnified hereunder. The Contractor's obligations hereunder are in addition to and shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that the Owner may possess. If one or more of the Indemnitees demand performance by the Contractor of obligations under this paragraph or other provisions of the Contract Documents and if Contractor refuses to assume or perform, or delays in assuming or performing Contractor's obligations, Contractor shall pay each Indemnitee who has made such demand its respective attorneys' fees, costs, and other expenses incurred in enforcing this provision. The defense and indemnity required herein shall, however, be a binding obligation upon Contractor whether or not an Indemnitee has made such demand. Even if a defense is successful to a claim or demand for which Contractor is obligated to indemnify the Indemnitees from under this Paragraph, Contractor shall remain liable for all costs of defense.

B. The indemnity obligations of Contractor under this Section 6.25 shall survive termination of this Contract or final payment thereunder. In the event of any claim or demand made against any party which is entitled to be indemnified hereunder, the Owner may in its sole discretion reserve, return or apply any monies due or to become due the Contractor under the Contract for the purpose of resolving such claims; provided, however, that the Owner may release such funds if the Contractor provides the Owner with reasonable assurance of protection of the Owner's interests. The Owner shall in its sole discretion determine if such assurances are reasonable. Owner reserves the right to control the defense and settlement of any claim, action or proceeding which Contractor has an obligation to indemnify the Indemnitees against under this Section 6.25.

C. In claims against any person or entity indemnified under this Section 6.25 by an employee of the Contractor, a Subcontractor of any tier, a Supplier, or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 6.25 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor a Subcontractor of any tier or Supplier under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

6.26 Survival of Obligations

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

ARTICLE 7- OTHER WORK

7.01 Related Work at Site

A. Owner may perform other work related to the Project at the site by Owner's own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to Contractor prior to starting any such other work. In such events, Contractor must anticipate in its scheduling that its Work may be interfered with or delayed by such other Work. Contractor shall fully cooperate and coordinate its Work with the other work to avoid or mitigate such interferences or delays.

B. Contractor shall afford each utility owner and other contractor who is a party to such a direct contract (or Owner, if Owner is performing the additional work with Owner's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. Contractor shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of Professional and the others whose work will be affected. The duties and responsibilities of Contractor under this paragraph are for the benefit of such utility owners and other contractors.

C. If any part of Contractor's Work depends on proper execution or results upon the work of any such other contractor or utility owner (or Owner), Contractor shall inspect and promptly report to Professional in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results Contractor's failure to report this will constitute an acceptance of the other work as fit and proper for integration with Contractor's Work except for latent or non-apparent deficiencies in the other work.

7.02 Coordination

A. If Owner contracts with others for the performance of other work on the Project site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the **Supplementary Conditions**, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided in

the Supplementary Conditions. Unless otherwise provided in the Supplementary Conditions, neither Owner nor Professional shall have any authority or responsibility in respect of such coordination.

7.03 Liability

A. Contractor shall not delay a separate contractor by neglecting to perform its Work at the proper time. Contractor shall be required to coordinate its Work with separate contractors so as to afford separate contractors a reasonable and safe opportunity for execution of their work. Any costs caused by delays or improperly timed activities or defective construction shall be borne by the party responsible therefor.

B. Contractor shall be responsible for damage to Owner's or separate contractors' property caused by Contractor or any person or entity for whose acts or omissions Contractor may be liable.

C. In the event Contractor is delayed or damaged by the activities, fault, negligent acts or omissions, delays or improperly timed activities, or defective construction of any separate contractor of Owner or person or entity for whose acts or omissions the separate contractor may be liable, Contractor agrees to solely look to the separate contractor for compensation as a result of such activities, fault, negligent acts or omissions, delays or improperly timed activities, or defective construction. Contractor shall be considered a third party beneficiary of any contract between Owner and any separate contractor for the Project solely for the purpose of recovering damages from such separate contractor which are caused by the activities, fault, negligent acts or omissions, delays or improperly timed activities, or defective construction of such separate contractor of Owner or any person or entity for whose acts or omissions such separate contractor may be liable.

D. Contractor shall be responsible for any damages of separate contractors of Owner caused by the activities, fault, negligent acts or omissions, delays or improperly timed activities, or defective construction of Contractor or of any person or entity for whose acts or omissions Contractor is liable. Contractor acknowledges that such separate contractors shall be considered third party beneficiaries of this Contract for the sole purpose of allowing any separate contractor the right to directly recover damages from Contractor which are caused by the activities, fault, negligent acts or omissions, delays or improperly timed activities, or defective construction of Contractor or of any person or entity for whose acts or omissions Contractor may be liable.

E. Should Contractor cause any damage to a separate contractor of the Owner, Contractor shall promptly attempt to settle with such separate contractor in good faith. Contractor shall defend, indemnify and hold harmless Owner, and its agents, representatives and employees from and against any claims of separate contractors in accordance with Section 6.25.

F. If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, they may clean up and allocate the cost among those responsible as Owner determines to be just.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 Termination of Professional

A. In case of termination of the employment of Professional, Owner shall appoint a design professional whose status under the Contract Documents shall be that of the former Professional.

8.02 Data and Information

A. When requested in writing by Contractor, Owner shall furnish the data required of Owner under the Contract Documents promptly.

8.03 Limitations on Owner's Responsibilities

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

ARTICLE 9 - PROFESSIONAL'S STATUS DURING CONSTRUCTION

9.01 General

A. Professional will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Professional as Owner's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of Owner and Professional.

9.02 Visits to Site

A. Professional will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. On the basis of such visits and on-site observations, Professional will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defects and deficiencies in the Work.

9.03 Project Representation

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions. If Owner designates another agent to represent Owner at the site who is not Engineer's agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

9.04 Clarifications and Interpretations

A. Professional will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as Professional may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If Contractor believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Times and the parties are unable to agree to the amount or extent thereof, Contractor may make a claim therefor as provided in Articles 11 or Article 12.

9.05 Authorized Variations in Work

A. Professional may authorize minor variations in the Work from the requirements of the Contract Documents that do not involve an adjustment in the Contract Price or the Contract Times and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner, and also on Contractor who shall perform the Work involved promptly. The Professional shall not have the authority to order changes without the agreement of Owner which affect the Contract Price or Contract Times.

9.06 Rejecting Defective Work

A. Professional will have authority to disapprove or reject Work which Professional believes to be defective and will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.03 B., whether or not the Work is fabricated, installed or completed.

9.07 Submittals

A. In connection with Professional's responsibility for Submittals, see Section 6.22 inclusive.

9.08 Change Orders

A. In connection with Professional's responsibilities as to Change Orders, see Articles 10, 11 and 12.

9.09 Payments

A. In connection with Professional's responsibilities in respect of Applications for Payment, see Article 14.

9.10 Determinations for Unit Prices

A. Professional will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Professional will review with Contractor's representative preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Professional's written decisions thereon will be final and binding upon Contractor, unless, within ten (10) days after the date of any such decision, Contractor delivers to Owner and Professional a written objection to such determination.

9.11 Limitations on Professional's Responsibilities

A. Neither Professional's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by Professional in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of Professional to Contractor, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

9.12 Terminology

A. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" 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 a requirement, direction, review or judgment of Professional as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Professional any duty or authority to supervise or direct the furnishing or performance of the Work.

ARTICLE 10 – CHANGES IN THE WORK AND CLAIMS

10.01 Authorized Changes in Work

A. Without invalidating the Agreement and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions or revisions in the Work. Such additions, deletions or revisions will be authorized by a Written Amendment, a Change Order, or a Work Change Directive or Field Order. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved, which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. A Change Order is a written instrument signed by the Owner and Contractor, stating their agreement upon all of the following:

1. a change in the Work;
2. the amount of the adjustment in the Contract Price, if any; and
3. the extent of the adjustment in the Contract Time, if any.

C. Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Price and the Contract Times and any applicable Milestone Dates. In the event a Change Order increases the Contract Price, Contractor shall include the Work covered by such Change Orders in Applications for Payment as if such Work were originally part of the Contract Documents.

D. A Work Change Directive is a written order approved by Professional and issued by Owner directing a change in the Work and stating a proposed basis for adjustment in the Contract Price and/or Contract Times. A Work Change Directive shall be used in the absence of total agreement on the terms of a Change Order. Upon receipt of a Work Change Directive, the Contractor shall proceed with the change in the Work involved and advise Owner and Professional of Contractor's agreement or disagreement with the method, if any, provided in the Work Change Directive for determining the proposed adjustment in the Contract Price or Contract Times. A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Price and Contract Times or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

E. The Professional will have authority to issue order changes in the Work not involving adjustment in the Contract Price or extension of the Contract Times and not inconsistent with the intent of the Contract Documents. Such minor changes shall be effectuated by a written Field Order and shall be binding on Owner and Contractor. The Contractor shall carry out such changes set forth in a Field Order promptly.

10.02 Unauthorized Changes in Work

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented by a Modification, except in the case of an emergency as provided in Article 6.21 and except in the case of uncovering Work as provided in Section 13.03 B.

10.03 Notice to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the Surety. Such notice shall

10.04 Claims

A. A Claim is a demand or assertion by Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or any other relief with respect to the terms of the Contract. The term "Claim(s)" also includes demands and assertions of Contractor arising out of or relating to the

Contract Documents, including Claims based upon breach of contract, mistake, misrepresentation, or other cause for Contract Modification or rescission. Claims must be made by written notice in strict accordance with the Contract Documents. Contractor shall have the responsibility to substantiate Claims. A Claim for an adjustment in the Contract Price shall be submitted in accordance with Paragraph 11.02 B. A Claim for each adjustment in the Contract Times shall be submitted in accordance with Paragraph 12.01 A.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.01 Contract Price

A. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change in the Contract Price.

11.02 Change

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that the Owner has been unjustly enriched by any alteration or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Owner, shall be the basis of any Claim to an increase in any amounts due under the Contract Documents.

B. Any claim by Contractor for an adjustment in the Contract Price shall be based on written notice as set forth herein. Any claim for an increase or decrease in the Contract Price by Contractor shall be based on written notice delivered by Contractor to Owner and to Professional promptly (but in no event later than fifteen (15) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within forty-five (45) days after such occurrence (unless Professional allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by Contractor's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which Contractor is entitled as a result of the occurrence of said event. No claim for an adjustment in the Contract Price by Contractor will be valid if not submitted in accordance with this Paragraph 11.02 B.

C. Any work completed by Contractor not agreed to by Owner in a Change Order, Work Change Directive or a Field Order shall be at Contractor's sole cost and expense and shall be deemed a waiver of all rights the Contractor may have for any adjustment in the Contract Price or Contract Times.

11.03 Determination of Adjustment

A. The value of the Work covered by a Change Order or of any Claim for an increase or decrease in the Contract Price shall be determined by Owner in one of the following ways:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices contained in the Contract Documents to the quantities of the items involved in the change.
2. By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.06 A.2.); or
3. On the basis of the Cost of the Work (determined as provided in Paragraphs 11.04 and 11.05) plus a Contractor's Fee for overhead and profit (determined as provided in Paragraph 11.06).

11.04 Cost of the Work

A. The term Cost of the Work means the sum of all costs necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs described in Paragraph 11.05:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of

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

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to the Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from Subcontractors acceptable to Contractor and shall deliver such bids to Owner who will then determine, with the advice of Professional, which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as Contractor's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

4. Cost of special consultants (including but not limited to engineers, Professionals, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following

a. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of Contractor.

b. Rentals of all construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Professional, and the cost of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

c. Sales, consumer, use or similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

6. Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by Owner in accordance with Paragraph 5.07.

11.05 Costs Excluded

A. The term Cost of the Work shall not include any of the following:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, Professionals, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by Contractor whether at the site or in Contractor's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.04 A.1. or specifically covered by Paragraph 11.04 A.4. all of which are to be considered administrative costs covered by the Contractor's Fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Cost of premiums for all Bonds and for all insurance whether or not Contractor is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by Paragraph 11.04. A.6.).

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable including but not limited to, the

correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Section 11.04.

11.06 Contractor's Fee

A. The Contractor's Fee allowed to Contractor for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee;
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.04 A.1. and 11.04 A.2., the Contractor's Fee shall be ten percent;
 - b. for costs incurred under Paragraph 11.04 A.3., the Contractor's Fee shall be five percent. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of this Section is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of ten percent (10%) of the costs incurred by Subcontractor under Paragraphs 11.04 A.1. or 11.04 A.2. and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent (5%) of the amount paid to the next lower tier Subcontractor. In no event shall there be more than three-mark ups of cost on extract work regardless of the number of tiers of Subcontractors;
 - c. no fee shall be payable on the basis of costs itemized under Paragraphs 11.04. A.4., 11.04 A.5. and 11.04.A6;
 - d. the amount of credit to be allowed by Contractor to Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in Contractor's Fee by an amount equal to ten percent (10%) of the net decrease; and
 - e. when both additions and credits are involved in any one change, the adjustment in Contractor's Fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04 A.2.a. through 11.04 A.2.d., inclusive.

11.07 Submission of Itemized Costs

A. Whenever the cost of any Work is to be determined pursuant to Article 11.04, Contractor will submit in a form acceptable to Owner and Professional an itemized cost breakdown together with supporting data.

11.08 Allowance

A. It is understood that Contractor has included in the Contract Price all allowances (if any) so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to Professional. Contractor agrees that:

1. The allowances include the cost to Contractor (less any applicable trade discount) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and
2. Contractor's cost for unloading and handling material on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.
3. Prior to final payment, an appropriate Change Order will be issued as recommended by Professional to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

ARTICLE 12 - CHANGE OF CONTRACT TIMES

12.01 Claims for Additional Time

A. The Contract Times may only be changed by a Change Order or a Written Amendment. Any claim by Contractor for an adjustment in the Contract Price shall be based on written notice as set forth herein. Any claim for an extension or shortening of the Contract Times shall be based on written notice delivered by Contractor to Owner and to Professional promptly (but in no event later than fifteen (15) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five (45) days after such occurrence (unless Professional allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. No claim for an adjustment in the Contract Times will be valid if not submitted in accordance with the requirements of this Paragraph 12.01 A.

B. If abnormal weather conditions are the basis for a Claim for additional time, such Claim shall be documented by the Contractor by data acceptable to the Professional substantiating that weather conditions were abnormal for the period of time in question, and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled construction. Requests for extension of the scheduled Completion Date(s) or Milestone Dates due to adverse weather conditions shall include reliable or official climatological reports for the months involved, plus a report indicating the average precipitation, temperature, and other climatological data for the past ten (10) years from a reporting station near the Project site. The ten-year average will be the basis for determining the number of adverse weather days and the effect resulting therefrom on construction which Contractor would normally expect to encounter.

12.02 Delays of Contract Times

A. If the Contractor is delayed in the commencement or progress of the Work by an act or neglect of the Owner or Professional, or of an employee of either, or by changes in the Work, or by fire, or by unavoidable casualties, acts of God, or abnormal weather conditions established pursuant to Paragraph 12.01 B, or by acts or neglect of utility owners or separate contractors performing other Work as provided in Article 7, the Contract Times and applicable Milestones will be extended in an amount equal to the time lost due to such delay if a Claim is made therefore by Contractor as provided herein. The Contract Times and applicable Milestones will not be extended due to delays within the reasonable control of Contractor. Where Contractor is prevented from completing any part of the Work within the Contract Times or any applicable Milestones due to delay beyond the control of both Owner and Contractor, including but not limited to fires, unavoidable casualties, acts of God, abnormal weather conditions, or acts or neglect of utility owners or separate contractors performing other work as provided for in Article 7, an extension of the Contract Times or any applicable Milestones in an amount equal to the time lost due to such delay shall be Contractor's sole and exclusive remedy for such delay.

B. The Contractor further acknowledges and agrees that adjustments in the Contract Times will be permitted for a delay only to the extent such delay (1) is not caused, or could not have been anticipated, by the Contractor, (2) could not be limited or avoided by the Contractor's timely notice to the Owner of the delay, (3) prevents Contractor from completing its Work by the Contract Time, and (4) is of a duration not less than one (1) day. Delays attributable to and within the control of a Subcontractor or supplier shall not justify an extension of the Contract Times.

12.03 Delay Damages

A. Professional Notwithstanding anything to the contrary in the Contract Documents, an extension in the Contract Times, to the extent permitted under this Article, shall be the sole remedy of the Contractor for any (1) delay in the commencement, prosecution or completion of the Work, (2) hindrance or obstruction in the performance of the Work, or (3) loss of productivity except as set forth below. In no event shall the Contractor be entitled to any compensation or recovery of any damages or any portion of damages resulting from delays caused by or within the control of Contractor or by acts or omissions of Contractor or its Subcontractors of any tier or Supplier or delays beyond the control of both Owner and Contractor. If the Contractor contends that delay, hindrance, obstruction or other adverse condition results from acts or omissions of the Owner, or the Professional, Contractor shall promptly provide written notice to the Owner. Contractor shall only be entitled to an adjustment in the Contract Price to the extent that such acts or omissions continue after the Contractor's written notice to the Owner of such acts or omissions. The Owner's exercise of any of its rights or remedies under the Contract Documents (including, without limitation, ordering changes in the Work, or directing suspension, rescheduling or correction of the Work) regardless of the extent or frequency of the Owner's exercise of such rights or remedies, shall not be the basis of any Claim for an increase in the Contract Price or Contract Times. In the event Contractor is entitled to an adjustment in the Contract Price for any delay, hindrance, obstruction or other adverse condition caused by the acts or omissions of the Owner, or the Professional, Contractor shall only be entitled to its actual direct costs caused thereby and Contractor shall not be entitled to and waives any right to special, indirect, or consequential damages including loss of profits,

loss of savings or revenues, loss of anticipated profits, labor inefficiencies, idle equipment, home office overhead, and similar type of damages.

B. If the Contractor submits a progress report or any construction schedule indicating, or otherwise expressing an intention to achieve completion of the Work prior to any completion date required by the Contract Documents or expiration of the Contract Times, no liability of the Owner to the Contractor for any failure of the Contractor to so complete the Work shall be created or implied. Further, the Contractor acknowledges and agrees that even if Contractor intends or is able to complete the Work prior to the Contract Times, it shall assert no Claim and the Owner shall not be liable to Contractor for any failure of the Contractor, regardless of the cause of the failure, to complete the Work prior to the Contract Times.

12.04 Liquidated Damages

A. If liquidated damages are prescribed in the Agreement, the Owner may deduct from the Contract Price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in the Contract Documents for each calendar day after the date specified for completion of the Project that the entire Work is not substantially complete and/or finally complete.

B. The Professional shall certify the date of Substantial Completion and Final Completion which shall be conclusive and binding on the Owner and Contractor for the purpose of determining whether or not liquidated damages shall be assessed under terms hereof and the total amount due.

C. Liquidated damages or any matter related thereto shall not relieve the Contractor or his surety of any responsibility or obligation under this Contract.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Access to Work

A. Professional and Professional's representatives, other representatives of Owner, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. Contractor shall provide proper and safe conditions for such access.

13.02 Tests and Inspections

A. Contractor shall give Professional timely notice of readiness of the Work for all required inspections, tests or approvals.

B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests or approvals required by Laws and Regulations or the Contract Documents, except:

1. those costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.03. B. shall be paid as provided in Paragraph 13.03. B.; and
2. as otherwise specifically provided in the Contract Documents.

C. Without limiting the generality of Paragraph 13.03. B., Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for Professional's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

D. All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to Owner and Professional.

E. Neither observations, inspections, tests or approvals by Professional or others, shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract Documents.

F. If any Work (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of Professional, it must, if requested by Professional, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Professional timely notice of Contractor's intention to cover the same and Professional has not acted with reasonable promptness in response to such notice.

13.03 Uncovering Work

A. If any Work is covered contrary to the written request of Professional, it must, if requested by Professional, be uncovered for Professional's observation and replaced at Contractor's expense.

B. If Professional considers it necessary or advisable that covered Work be observed by Professional or inspected or tested by others, Contractor, at Professional's request shall uncover, expose or otherwise make available for observation, inspection or testing as Professional may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, Contractor shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including but not limited to fees and charges of engineers, Professionals, attorneys and other professionals), and Owner shall be entitled to an appropriate decrease in the Contract Price. If, however, such Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction: and, if the parties are unable to agree as to the amount or extent thereof, Contractor may make a claim therefor as provided in Articles 11 and 12.

13.04 Owner May Stop the Work

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

13.05 Correction or Removal of Defective Work

A. Contractor shall correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by Professional, remove it from the Site and replace with nondefective Work. Contractor shall bear all direct, indirect and consequential costs, losses and damages (including but not limited to fees and charges of engineers, attorneys and other professionals) arising out of or relating to such correction or removal (including, but not limited to, all costs of repair and replacement of work of others).

13.06 Guarantee Period

A. If within one year after the date of Substantial Completion or longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents, and/or Change Orders ("Guarantee Period"), any Work is found to be defective, Contractor shall promptly, without cost to the Owner and in accordance with Owner's written instructions, either correct such defective Work, or, if it has been rejected by Owner, remove it from the site and replace it with nondefective Work. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, attorneys and other professionals) will be paid by Contractor. Nothing contained in this Section 13.06 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the one (1) year Guarantee Period as described in this Paragraph 13.06 relates only to the specific obligation of the Contractor to correct, remove or replace the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations under the Contract Documents. The requirements of Article 13 are in addition to and not in limitation of any of the other requirements of the Contract for warranties or conformance of the Work to the requirements of the Contract Documents.

B. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.06, the correction period hereunder with respect to such Work will be extended for an additional period of one (1) year after such correction or removal and replacement has been satisfactorily completed.

C. Contractor's obligations under this paragraph 13.06 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.06 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.07 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and if, prior to Professional's recommendation of final payment, also Professional) prefers to accept it, Owner may do so. Contractor shall bear all direct, indirect and consequential costs attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Professional as to reasonableness and to include but not be limited to fees and charges of engineers, Professionals, attorneys and other professionals). If any such acceptance occurs prior to Professional's recommendation of final payment, a Change Order will be issued

incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.08 Owner May Correct Defective Work

A. If Contractor fails within a reasonable time after written notice of Professional to proceed to correct defective Work or to remove and replace rejected Work as required by Professional, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph, Owner shall proceed expeditiously.

B. To the extent necessary to complete corrective and remedial action, Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owners, agents and employees such access to the site as may be necessary to enable Owner to exercise such rights and remedies under this paragraph.

C. All direct, indirect and consequential costs, losses and damages of Owner in exercising the rights and remedies under this Paragraph 13.08 will be charged against Contractor. Such direct, indirect and consequential costs, losses and damages will include, but not be limited to, fees and charges of consultants, Professional, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of Contractor's defective Work. Contractor shall not be allowed an extension of the Contract Times because of any delay in performance of the Work attributable to the exercise by Owner of Owner's rights and remedies hereunder.

D. In the event that the defective Work, equipment or material creates a hazard or an emergency situation, the requirement of seven days written notice may be reduced to notification by telephone or attempt thereof. Hazardous or emergency situations include, but are not limited to: defective traffic control devices, flood control structures and devices; or excavations.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Contract Price

A. The Owner shall compensate Contractor for all Work described herein and in the Contract Documents the Contract Price set forth in the Agreement, subject to additions and deletions as provided hereunder.

14.02 Basis Of Progress Payments

A. The Schedule of Values, if any, established as provided in the Agreement, shall serve as the basis for progress payments for a lump sum contract and will be incorporated into a form of Application for Payment acceptable to Owner. The values set forth in such schedule shall not be used in any manner as fixing a basis for additions or deletions from the Contract Price. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.03 Applications For Payment

A. In the time set forth in Paragraph 14.06 B., the Contractor shall submit to the Owner and the Professional an itemized Application for Payment in accordance with the Contract Documents. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Professional may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage as provided for herein.

B. Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

C. Each Application for Payment shall be accompanied by the following, all in form and substance satisfactory to the Owner:

1. Contractor's updated schedule and a progress report setting forth in detail the actual progress to date (in terms of percent complete) and the scheduled or planned progress, a listing of the value of material on hand included in the Application and other data specified in the Specifications;

2. Weekly employee payrolls for Contractor and all Subcontractors. Each Application for Payment shall be accompanied by a certified copy of employee payrolls, submitted on Federal Form WH-347 and covering the Work performed during the time covered by the Application. No payment will be due

and no Application for Payment processed by the Owner until all pertinent payroll documents have been completed and approved;

3. Beginning with the second Application for Payment, a current Contractor's Receipt and Partial Release in the form provided by Owner, and, if requested by Owner, similar Receipt and Partial Releases from Subcontractors and Suppliers; and

4. All information and materials required to comply with the requirements of the Contract Documents or reasonably requested by the Owner or the Professional.

D. In addition to the requirements set forth in Paragraph 14.03 C., Owner shall not be obligated to make any progress payments until the Contractor has provided Owner and Professional:

1. certificate(s) of insurance or policies as required herein;
2. a signed copy of this Contract;
3. evidence that performance and payment bonds have been purchased as required herein;
4. an approved Schedule of Values;
5. an approved construction schedule and schedule for Submittals; and
6. other documents and certifications required by the Contract Documents.

E. The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment, free and clear of any liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, Suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work. The Contractor further expressly undertakes to defend and hold harmless the Owner, at the Contractor's sole expense, against any such claims, liens, actions, lawsuits or proceedings.

F. The Application for Payment shall constitute a representation by the Contractor to the Owner that the Work has progressed to the point indicated; the quality of the Work covered by the Application for Payment is in accordance with the Contract Documents; and the Contractor is entitled to payment in the amount requested.

14.04 Approval For Payment

A. The Professional will, within fifteen (15) days after receipt of the Contractor's Application for Payment, either approve Contractor's Application for Payment for such amount as the determines is properly due, or notify the Contractor in writing of the reasons for withholding certification in whole or in part as provided in Section 14.05.

14.05 Decisions To Withhold Approval

A. The Professional may decide not to certify payment and may withhold approval in whole or in part, to the extent reasonably necessary to protect the Owner. If the Professional is unable to approve payment in the amount of the Application, the Professional will notify the Contractor as provided in Paragraph 14.04 A. If the Contractor and Professional cannot agree on a revised amount, the Professional will promptly issue approval for payment for the amount for which the Professional is able to determine is due Contractor. The Professional may also decide not to approve payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of approval for payment previously issued, to such extent as may be necessary in the opinion to protect the Owner from loss because of:

1. defective Work not remedied or damage to completed Work;
2. failure to supply sufficient skilled workers or suitable materials;
3. third party claims filed or reasonable evidence indicating probable filing of such claims;
4. failure of the Contractor to make payments properly to Subcontractors or Suppliers for labor, materials or equipment;
5. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
6. damage to the Owner or another contractor;
7. reasonable evidence that the Work will not be completed within the Contract Times or an unsatisfactory rate of progress made by Contractor;

8. Contractor's failure to comply with applicable Laws and Regulations; or
9. failure to carry out the Work in strict accordance with the Contract Documents.

B. When the above reasons for withholding approval are removed, approval will be made for amounts previously withheld.

14.06 Progress Payments

A. Based upon Applications for Payment submitted to the Owner and Professional by the Contractor and approvals issued by the Professional, the Owner shall make progress payments on account of the Contract Price to the Contractor as provided below and elsewhere in the Contract Documents.

B. Applications for Payment shall be submitted to Owner not later than the tenth (10th) day of the month unless otherwise indicated in the Special Conditions. The period covered by each Application for Payment shall be one (1) calendar month ending on the last day of the previous month.

C. The Owner shall make payment to Contractor for amounts due and approved by Professional not later than thirty (30) days after the Owner receives a properly detailed Application for Payment which is in compliance with the Contract Documents. The Owner shall not have the obligation to process or pay such Application for Payment until it receives an Application for Payment satisfying such requirements. Payments by Contractor and all tiers of Subcontractors to all of their subcontractors and suppliers shall be made in accordance under similar terms as contained in this Paragraph 14.06 C. Contractor shall require that this term be incorporated in all tiers of subcontracts.

D. The Contractor shall promptly pay each Subcontractor and Supplier, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's or supplier's portion of the Work, the amount to which said Subcontractor or supplier is entitled, reflecting percentages actually retained from payments to the Contractor on account of each Subcontractor's or supplier's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor or supplier, require each Subcontractor or supplier to make payments to Sub-subcontractors in similar manner.

E. Neither the Owner nor Professional shall have an obligation to pay or to see to the payment of money to a Subcontractor of any tier or a laborer or employee of Contractor except to the extent required by Laws and Regulations. Retainage provided for by the Contract Documents are to be retained and held for the sole protection of Owner, and no other person, firm or corporation shall have any claim or right whatsoever thereto.

14.07 Failure Of Payment

A. If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment by Contractor shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, the Owner shall have an absolute right to offset such amount against the Contract Price and may, in the Owner's sole discretion, elect either to: (1) deduct an amount equal to that to which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Price by an amount equal to that to which the Owner is entitled.

14.08 Substantial Completion

A. Substantial Completion is the stage in the progress of the Work as defined in Paragraph 1.01 A.45. as certified by the Professional.

B. When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner and the Professional a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, Professional will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Professional's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall complete or correct such item upon notification by Professional. The Contractor shall then submit a request for another inspection by Professional to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Professional will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the Punch List accompanying the Certificate which shall identify all non-conforming, defective and incomplete Work. In

no event shall Contractor have more than thirty (30) days to complete all items on the Punch List and achieve Final Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Warranties required by the Contract Documents shall commence on the date of Final Completion and acceptance of the entire Work.

C. At the date of Substantial Completion, the Contractor may apply for, and if approved by Owner's Representative, the Owner, subject to the provisions herein, shall increase total payments to one hundred percent (100%) of the Contract Price less two hundred percent (200%) of the value of any incomplete Work and unsettled claims, as determined by Professional.

14.09 Partial Occupancy Or Use

A. The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities, if any, having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, security, maintenance, heat, utilities, damage to the Work and insurance. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a Punch List to the Professional and Owner as provided under Paragraph 14.09 B. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by Professional.

B. Immediately prior to such partial occupancy or use, the Owner, Contractor and Professional shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

14.10 Final Completion And Final Payment

A. Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, Professional will promptly make such inspection and, when Professional finds the Work acceptable under the Contract Documents and the Contract fully performed, the will promptly issue a final approval for payment; otherwise, will return Contractor's Final Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application. Submission of a Final Application for Payment shall constitute a further representation that conditions listed in Paragraph 14.10 B. as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the as part of the final Application for Payment. The final approval for payment will not be issued by the until all warranties and guarantees have been received and accepted by the Owner.

B. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Professional and the Owner (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid and satisfied; (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner; (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents; (4) consent of surety to final payment, (5) data establishing payment or satisfaction of obligations, such as receipts, releases and waivers, to the extent and in such form as may be designated by the Owner; (6) reproducible record and marked-up drawings; (7) a certification that all Punch List Work has been completed; (8) all applicable maintenance and operating instructions and warranties and guarantees have been received and accepted by Owner; (9) subject to final payment, a final release of the Owner relating to any and all claims related to the Project; (10) a certification that all operating systems and equipment have passed all tests required by the Contract Documents; and (11) all documents required by the Contract Documents and such data and other documents as Professional may reasonably require.

C. Final Payment constituting the entire unpaid balance due shall be paid by the Owner to the Contractor within thirty (30) days after Owner's receipt of Contractor's Final Application for Payment which satisfies all the requirements of the Contract Documents and Owner's receipt of all information and documents set forth in Section 14.10.

D. The acceptance by Contractor of its Final Payment shall be and operate as a release of all claims of Contractor against Owner for all things done or furnished or relating to the Work and for every act or alleged neglect of Owner arising out of the Work.

E. No payment under this Contract, including but not limited to final payment, shall constitute acceptance by Owner of any Work or act not in accordance with the requirements of the Contract Documents.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 Termination by Owner for Cause

A. In addition to other rights and remedies granted to Owner under the Contract Documents and by law, the Owner may terminate the Contract if the Contractor:

1. if Contractor commences a voluntary case under any chapter of the Bankruptcy code (Title 11, United States Code), as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to bankruptcy or insolvency;
2. if a petition is filed against Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency;
3. if Contractor makes a general assignment for the benefit of creditors;
4. if a trustee, receiver, custodian or agent of Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge of property of Contractor is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of Contractor's creditors;
5. if Contractor admits in writing an inability to pay its debts generally as they become due;
6. refuses or fails to supply enough properly skilled workers, superintendents, foremen or managers;
7. refuses or fails to supply sufficient or proper materials;
8. fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
9. breaches any warranty or representations made by the Contractor under or pursuant to the Contract Documents;
10. fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract Documents;
11. fails after commencement of the Work to proceed continuously with the construction and completion of the Work for more than ten (10) days, except as permitted under the Contract Documents;
12. fails to maintain a satisfactory rate of progress with the Work or fails to comply with approved construction schedules or Schedule of Submittals;
13. fails to correct defective Work.
14. if Contractor fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the approved Schedule as revised from time to time);
15. if Contractor disregards Laws or Regulations of any public body having jurisdiction;
16. if Contractor disregards the authority of Professional; or
17. if Contractor otherwise violates in any substantial way any provisions of the Contract Documents;

15.02 Notice of Termination

A. Owner may, without prejudice to any other rights or remedies, after giving Contractor and the surety, seven days written notice terminate the Contract and exclude Contractor from the site and take possession of the Work and of all Contractor's tools, appliances, construction equipment and machinery at the site Contractor (without liability to Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished.

B. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work and damages, costs and expenses caused thereby (including but not limited to fees and charges of engineers, Professionals, attorneys and other professionals and court and arbitration costs) such excess will be paid to Contractor. If such costs exceed such unpaid balance, Contractor shall pay the difference to Owner. Such costs incurred by Owner will be approved as reasonable by Professional and incorporated in a Change Order, but when exercising any rights or remedies under this Article Owner shall not be required to obtain the lowest price for the Work performed.

C. In exercising the Owner's right to secure completion of the Work under any of the provisions hereof, the Owner shall have the right to exercise the Owner's sole discretion as to the manner, methods, and reasonableness of costs of completing the Work.

D. The rights of the Owner to terminate pursuant to Section 15.01 will be cumulative and not exclusive and shall be in addition to any other remedy provided by law or the Contract Documents.

15.03 Suspension by the Owner for Convenience

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

B. An adjustment to the Contract Price will be made for increases in the cost of performance of the Contract caused by suspension, delay or interruption. However, in the event of a suspension under this Section 15.02, Contractor hereby waives and forfeits any claims for payment of any special, indirect, incidental or consequential damages such as lost profits, loss of savings or revenue, loss of anticipated profits, idle labor or equipment, home office overhead, and similar type damages. No adjustment will be made to the extent:

1. that performance is, was, or would have been so suspended, delayed or interrupted by another cause for which the Contractor in whole or in part is responsible, or
2. that an equitable adjustment is made or denied under another provision of this Contract.

15.04 Owner's Termination For Convenience

A. The Owner may, at any time, terminate the Contract in whole or in part for the Owner's convenience and without cause. Termination by the Owner under this Section 15.04 shall be by a notice of termination delivered to the Contractor specifying the extent of termination and the effective date.

B. Upon receipt of a notice of termination for convenience, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this Paragraph:

1. cease operation as specified in the notice;
2. place no further orders and enter into no further subcontracts for materials, labor, services or facilities except as necessary to complete Work not terminated;
3. terminate all subcontracts and orders to the extent they relate to the Work terminated;
4. proceed to complete the performance of Work not terminated; and
5. take actions that may be necessary, or that the Owner may direct, for the protection and preservation of the terminated Work.

C. Upon such termination, the Contractor shall recover as its sole remedy payment for Work properly performed in connection with the terminated portion of the Work prior to the effective date of termination and for items properly and timely fabricated off the Project site, delivered and stored in accordance with the Owner's instructions and for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors and suppliers. The Contractor hereby waives and forfeits all other claims for payment and damages, including, without limitation, anticipated profits, consequential damages and other economic losses.

D. The Owner shall be credited for (1) payments previously made to the Contractor for the terminated portion of the Work, (2) claims which the Owner has against the Contractor under the Contract and (3) the value of the materials, supplies, equipment or other items that are to be disposed of by the Contractor that are part of the Contract Price.

E. Upon determination that termination of Contractor pursuant to Paragraph 15.01 was wrongful, such termination will be deemed converted to a termination for convenience pursuant to Paragraph 15.04, and Contractor's

sole and exclusive remedy for wrongful termination is limited to recovery of the payments permitted for termination for convenience as set forth in Paragraph 15.04.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

A. All Claims, disputes, and other matters in question between the Contractor and the Owner arising out of or relating to this Agreement or breach thereof shall be subject to and decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect unless the parties mutually agree otherwise. At the Owner's sole option, and only upon the exercise of that sole option by the Owner, together or separately as the Owner sees fit, any dispute or other matter in question as described above may be submitted, prior to any arbitration, to nonbinding mediation in accordance with the then-current mediation rules of the American Arbitration Association. The mediation may include by consolidation, joinder or in any other manner, at the Owner's sole option, any other persons whom the Owner believes to be substantially involved in a common question of fact or law.

B. Any arbitration arising out of or relating to this Agreement or the breach thereof may include, by consolidation, joinder, or in any other manner, at the Owner's sole option, any other entities or persons whom the Owner believes to be substantially involved in a common question of fact or law.

C. A demand for arbitration shall be provided in writing to the other party to this Agreement and filed with the American Arbitration Association. A demand for arbitration shall be made within a reasonable time after the claim, dispute, or other matter in question has arisen. In no event shall the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statutes of limitations. If the Owner shall elect to proceed with nonbinding mediation, such election shall be made, in writing, to the Contractor and the American Arbitration Association. Such election may be made before or after either party files any demand for arbitration, but the Owner's unilateral right to proceed with mediation shall be forfeited upon the final designation of an arbitrator by the American Arbitration Association. The election to proceed with nonbinding mediation shall not prejudice the right of either party to proceed with arbitration.

D. Unless the parties agree otherwise, discovery as provided by the Federal Rules of Civil Procedure shall be allowed in the arbitration, provided, that the arbitrator(s) shall have the authority to restrict unduly burdensome and onerous discovery. The parties shall exchange documents the parties intend to use at the hearing and disclose witnesses they anticipate testifying at the hearing. If a party intends to use an expert, such party shall provide the other party an expert report disclosing the expert's opinions and the reasons for the opinion.

E. The place of the arbitration shall be Grain Valley, Missouri.

F. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. Any award rendered by the arbitrator(s) shall be final and enforceable by any party to the arbitration, and judgment may be rendered upon it in accordance with applicable law in any court having jurisdiction thereof.

16.02 Continuing Performance

A. Unless otherwise agreed in writing, and notwithstanding any other rights or obligations of either of the parties under this Agreement, the Contractor shall carry on with the performance of its Services hereunder during the pendency of any claim, dispute, or other matter in question or arbitration or other proceeding to resolve any claim, dispute, or other matter in question, and the Owner shall continue to make payments of undisputed amounts to the Contractor in accordance with this Agreement, but the Owner shall be under no obligation to make payments to the Contractor on or against such claims, disputes, or other matters in question, during the pendency of any arbitration, nonbinding mediation, or other proceeding to resolve such claims, disputes, or other matters in question.

16.03 Exceptions

A. Regardless of any term or provision herein to the contrary, claims arising out of actions on claims filed or asserted by third parties on account of personal injury or death of any person shall not be subject to the terms and provisions of this Article 16.

ARTICLE 17 - MISCELLANEOUS

17.01 Notice

All notices required to be given under the terms of this Contract shall be made in writing and shall be deemed to have been made and given if sent by registered or certified mail, postage prepaid or hand-delivered (hand delivery to include by air courier services such as Federal Express, Airborne Express, or Purolator or other reputable delivery service

guaranteeing delivery and providing a receipt) to the party to receive such notice at the addresses specified below or to such other address as any party hereto may subsequently specify by written notice to the other party:

If to Owner: Person and address contained in the Agreement

If to Contractor: Address contained in the Agreement or the temporary office of Contractor at the Site.

17.02 Rights and Remedies

A. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law. No action or failure to act by the Owner or Professional will constitute a waiver of a right or duty afforded to Owner under the Contract Documents, nor will such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing. The terms of this Contract and all representations, indemnifications, warranties and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Work and shall remain in effect so long as the Owner is entitled to protection of its rights under applicable law. Contractor shall carry out the Work and adhere to the current construction schedule during all disputes or disagreements with the Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements except as the Owner and Contractor may otherwise agree to in writing.

17.03 Buy American Requirements

A. Pursuant to the Missouri Domestic Product Procurement (Buy American) Act, RSMo. §§ 34.350 to 34.359, any manufactured goods or commodities used or supplied either in the performance of this Contract or of any subcontract thereto shall be manufactured, assembled or produced in the United States unless one of the exceptions contained in that Act applies. The Contractor shall comply with such requirements and shall provide proof of compliance with this provision both at the time of bid and before any payment is made on the Contract. Pursuant to RSMo. § 71.140, preference shall be given to materials, products, supplies, provisions and all other articles produced, manufactured, compounded, made, or grown in the State of Missouri. The Contractor shall comply with such requirements and shall provide proof of compliance with this provision at the time of bid and before any payment is made on the Contract.

17.04 Successors and Assigns

A. The Contractor hereby binds itself, its partners, successors, assigns and legal representatives to the Owner in respect to covenants, agreements and obligations contained in the Contract Documents. Contractor shall not assign the Contract or proceeds hereof without written consent of the Owner. If Contractor attempts to make such an assignment without such consent, it shall be void and confer no rights on third parties, and Contractor shall nevertheless remain legally responsible for all obligations under the Contract. The Owner's consent to any assignment is conditioned upon Contractor entering into a written assignment which contains the following language: "it is agreed that the funds to be paid to the assignee under this assignment are subject to performance by the Contractor and to claims and to liens for services rendered or materials supplied for the performance of the Work required in said Contract in favor of all persons, firms, corporations rendering such services or supplying such materials."

17.05 Records

A. The Owner, or any parties it deems necessary, shall have access to and the right to examine any accounting or other records of the Contractor involving transactions and Work related to this Contract for five (5) years after final payment or five (5) years after the final resolution of any on going disputes at the time of final payment. All records shall be maintained in accordance with generally accepted accounting procedures, consistently applied. Subcontractors of any tier shall be required by Contractor to maintain records and to permit audits as required of Contractor herein.

17.06 General

A. The Contract Documents are the exclusive statement of the agreement of the parties with respect to its subject matter and the Contract Documents supersedes and replaces all prior agreements, discussions and representations, whether written or oral, relating to the subject matter hereof. The Contract Documents may only be amended, modified or changed by a Modification.

B. All headings, titles and paragraph captions are inserted in this Contract for convenience of reference only, are descriptive only and shall not be deemed to add or detract from or otherwise modify the meaning of the paragraphs.

C. Contractor acknowledges and agrees that time and exact performance are of the essence of this Contract.

D. Contractor and Owner agree to do all acts and things and to make, execute and deliver such written instruments, as shall from time to time be reasonably required to carry out the terms and provisions of the Contract Documents.

E. Any specific requirement in this Contract that the responsibilities or obligations of the Contractor also apply to a Subcontractor is added for emphasis and are also hereby deemed to include a Subcontractor of any tier. The omission of a reference to a Subcontractor in connection with any of the Contractor's responsibilities or obligations shall not be construed to diminish, abrogate or limit any responsibilities or obligations of a Subcontractor of any tier under the Contract Documents or the applicable subcontract.

F. This Contract shall be interpreted, construed, enforced and regulated under and by the laws of the State of Missouri. Whenever possible, each provision of this Contract shall be interpreted in a manner as to be effective and valid under applicable law. If, however, any provision of this Contract, or a portion thereof, is prohibited by law or found invalid under any law, only such provision or portion thereof shall be ineffective, without invalidating or affecting the remaining provisions of this Contract or valid portions of such provision, which are hereby deemed severable. Contractor and Owner further agree that in the event any provision of this Contract, or a portion thereof, is prohibited by law or found invalid under any law, this Contract shall be reformed to replace such prohibited or invalid provision or portion thereof with a valid and enforceable provision which comes as close as possible to expressing the intention of the prohibited or invalid provision.

G. Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the written application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

H. Owner's total liability to Contractor and anyone claiming by, through, or under Contractor for any Claim, cost, loss, expense or damage caused in part by the fault of Owner and in part by the fault of Contractor or any other entity or individual shall not exceed the percentage share that Owner's fault bears to the total fault of Owner, Contractor and all other entities and individuals as determined on the basis of comparative fault principles.

I. Contractor agrees that Owner shall not be liable to Contractor for any special, indirect, incidental, or consequential damage whatsoever, whether caused by Owner's negligence, fault, errors or omissions, strict liability, breach of contract, breach of warranty or other cause or causes whatsoever. Such special, indirect, incidental or consequential damages include, but are not limited to loss of profits, loss of savings or revenue, loss of anticipated profits, labor inefficiencies, idle equipment, home office overhead, and similar types of damages.

J. Nothing contained in this Contract or the Contract Documents shall create any contractual relationship with or cause of action in favor of a third party against the Owner.

K. Any provision or provisions of this Contract to the contrary notwithstanding, Contractor and Owner intend that the relationship between Owner and Contractor shall be that of a project owner and an independent contractor.

L. Payments and amounts due and unpaid by Contractor to Owner under the Contract Documents shall bear interest from the date payment is due at the rate of one and one-half percent (1.5%) per month.

M. The terms "hereof," "herein," and "hereunder" and words of similar import shall be construed to refer to this Contract as a whole, and not to any particular paragraph, section or provision unless expressly so stated.

N. Should Owner be required to institute any action, including, any arbitration proceeding, to enforce any of its rights set forth in the Contract Documents, then Owner shall be entitled to reimbursement from Contractor for all reasonable attorneys' fees and costs incurred. In the event Contractor institutes any action, including any arbitration proceeding, against Owner and in the further event Owner prevails in such action, Contractor shall pay Owner the amount of its reasonable attorneys' fees incurred in such action.



**PROJECT SPECIAL CONDITIONS OF
THE CONSTRUCTION CONTRACT**

City of Grain Valley, MO

711 S. Main Street

Grain Valley, MO 64029

Phone: (816) 847-6200

Fax: (816) 847-6209

PROJECT SPECIAL CONDITIONS

SC-01 Scope of Work

The work provided for in these specifications shall consist of furnishing all labor, materials. Equipment and other services necessary to construct the Ryan Meadows Storm Water Improvements as described herein. Work shall include but not be limited to excavation for, installation of drainage pipe, manhole, rip rap and backfill and all other incidental and related work as shown in the contract documents and as described herein.

SC-02 Execution of Contract Documents

Five (5) copies of the Contract Documents will be prepared by the Owner for execution by the Contractor. All copies of the Contract shall be executed by the Contractor and the Contractor shall insert executed copies of all of the required bonds, Certificate of Liability Insurances and Power of Attorney and submit all copies to the Owner. The date of the contract agreement and bond forms shall be left blank for filling in by the Owner. The City will return 2 copies to the contractor.

SC-03 Scope, Nature and Intent of Specifications and Plans

The work shall also conform to the following referenced standards which are hereby incorporated into the Contract Documents:

1. "Standard Specifications and Design Criteria", Current Edition as published by the Kansas City Metropolitan Chapter of the American Public Works Association (APWA)
2. The City of Grain Valley Standard Detail Drawings as revised July 2021.

SC-04 Before Starting Construction

Prior to the start of construction, the Contractor shall submit for approval of the Owner all required shop drawings, mix designs, traffic control details and the proposed project schedule.

SC-05 Sub-Contracting

Section 6.09G is hereby amended to read "Contractor shall perform with its own forces and organization Work amounting to no less than sixty percent (60%) of the original contract price.

SC-06 Assignment and Subletting of Contract

No second tier subcontracting will be permitted. It shall be the responsibility of the Contractor to ensure that his/her subcontractors do not in turn subcontract any portion of the work. Assigning, transferring or subletting, even though consented to, shall not relieve the Contractor of his liabilities under this contract. The Contractor shall give his personal attention to any and all portions of the contract which has been sublet and he shall be responsible for its proper construction.

SC-07 Partial Occupancy or Use

Not Used

SC-08 Maintenance of Traffic

The Contractor shall conduct his work so as to interfere as little as possible with public travel, vehicular or pedestrian. In no case shall a road be completely closed. Flagging and traffic control shall be in accordance with the contract documents and the MUTCD. It shall be the Contractor's responsibility to check the traffic control devices each evening to make sure they are in place before leaving the jobsite. At least one lane of traffic must be maintained at all times unless approved by the Owner. Any approved road or parking lot closures shall be properly signed by the Contractor after the closure and signing plan has been approved by the Owner. The contractor shall place signage warning motorists of gravel and oil. See Appendix for Typical Construction Signing.

SC-09 Responsibility of Contractor

In addition to the responsibilities outlines in Article 6 of the General Conditions, the Contractor shall also be responsible for:

1. Maintain access to the school at all times.
2. Taking necessary precautions to keep loose aggregate, mud, and other debris being deposited onto the drives within the school property. Should aggregate, mud, or debris become deposited upon such driveway, the Contractor shall promptly remove it at no additional cost to the Owner.
3. Before the work will be accepted by the Owner, the Contractor shall be required to remove all aggregate, mud, and other debris resulting from his operation, which also includes cleaning of ditches, creeks and driveways of objectionable materials within the project limits.

SC-09 Inspection

This project will be inspected by City of Grain Valley personnel and will use MoDOT standard inspections protocol. Contractor shall notify his subcontractors, Owner and all other contractors when he is ready for them to install their portions of the work. Contractor shall not put in place any work which will prevent observation and approval of previous work without first notifying the Owner.

SC-10 No Waiver of Right

Neither the inspection or evaluation by the Owner or any of the Owner's officials, employees, or agents, nor any order by the Owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the work by the Owner, nor any extension of time, nor any possession taken by the Owner or its employees shall operate as a waiver of any provision of this contract, or of any power reserved to the Owner, or any right to damages herein provided, or shall any waiver of any breach in this contract be held to be a waiver of any other or subsequent breach.

SC-011 Beginning, Progress and Time of Completion of Work

The time for completion of the work is an essential part of the Contract. It shall begin on the date stated in the Notice to Proceed and shall be the number of calendar days as stated in the Proposal and as follows:

Contractor shall not be allowed to work on Saturdays, Sundays or Holidays without prior approval by the City. Contractor will need to coordinate with the Owner on the after hours and weekend schedules. Normal workweek hours are 7:30 am to 4:30 pm.

The Contractor shall take, at no additional expense to the Owner, whatever means are necessary including but not limited to working nights, weekends, double shifts, temporary weather enclosures to assure substantial completion of all work during the Contract Time.

Prior to starting work, a pre-construction conference will be held to discuss the project, scheduling and its coordination with the work of others. It is expected that this conference will be attended by the Owner, the Contractor, his subcontractors and other contractors of the Owner as needed.

SC-12 Schedule

The City is currently planning to issue a Notice To Proceed by March 10, 2022 with completion by May 9, 2022. Work should be scheduled and coordinated with Grain Valley Schools and around school activities.

SC-13 Compliance With Laws

1. The Contractor shall comply with all Federal, State and Local Laws and Ordinances.
2. Contractor and each subcontractor shall require each on-site employee to complete the ten-hour safety program required under Section 292.675 RSMo, with 30 days of beginning any work on the project, if he or she has not previously completed the program or does not have documentation of having done so, the contractor shall forfeit a penalty to the City of \$2,500 plus \$150 for each on-site employee employed by Contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required documentation.

SC-14 Force Account

1. This work shall cover miscellaneous extra work required during the course of construction.
2. Before the extra work is performed, the contractor shall submit a proposed price in accordance with the Contract requirements for approval by the Owner and shall have received the written approval of the Owner, prior to commencing the proposed extra work.



TECHNICAL SPECIFICATIONS

CITY OF GRAIN VALLEY, MO

TECHNICAL SPECIFICATIONS

RYAN MEADOWS

STORM DRAINAGE IMPROVEMENTS PROJECT

LAMP RYNEARSON PROJECT NO. 0321006.03

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SECTION 01 10 00 - SUMMARY OF WORK - GENERAL

PART 1 - GENERAL

1.01 PROJECT

- A. Project Name: 0321006.03 Grain Valley MO Ryan Meadows Storm Drainage Improvements
- B. Owner's Name: City of Grain Valley, Missouri
- C. The Project consists of the construction of

1.02 RELATED SECTIONS

- A. Section 01 50 00 - Temporary Facilities and Controls

1.03 SECTION INCLUDES

- A. Contractor's duties:
 - 1. Except as specifically noted, provide and pay for:
 - a. Labor, materials, and equipment.
 - b. Tools, construction equipment, and machinery.
 - c. Water, heat, and utilities required for construction.
 - d. Other facilities and services necessary for proper execution and completion of work.
 - 2. Pay legally required sales, consumer, and use taxes.
 - a. Owner will furnish Contractor a state sales tax number for use by the Contractor.
 - b. Other use taxes shall be paid by the Contractor.
 - 3. Secure and pay for, as necessary for proper execution and completion of work, and as applicable at time of receipt of bids:
 - a. Permits.
 - b. Government fees.
 - c. Licenses.
 - 4. Give required notices.
 - 5. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of work.
 - 6. Promptly submit written notice to Engineer of observed variance of Contract Documents from legal requirements.
It is Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
 - a. Appropriate modifications to Contract Documents will adjust necessary changes.
 - b. Assume responsibility for work known to be contrary to such requirements, without notice.
 - 7. Enforce strict discipline and good order among employees. Do not employ on work:
 - a. Unfit persons.
 - b. Persons not skilled in assigned task.
 - 8. Pay minimum wages and comply with prevailing wage law requirements.
 - 9. Comply with nondiscrimination requirements.
 - 10. Perform all supervision and work necessary to provide safe working conditions for completion of all required excavation and construction work.

11. Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.
12. Notify Owner of existing conditions differing from those indicated on the Drawings. Do not remove or alter structural components without prior written approval.

1.04 CONTRACTOR USE OF PREMISES

- A. Confine Operations at site to areas permitted by:
 1. Law.
 2. Ordinances.
 3. Permits.
 4. Contract Documents.
 5. Owner.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move any stored products which interfere with operations of Owner.
- F. Obtain and pay for use of additional storage or work areas needed for operations.
- G. Use of site.

Exclusive and complete for execution of work, except:

 1. Contractor shall maintain access to existing facilities.
 2. Owner shall have access to existing facilities.
- H. Operation of the existing facilities:
 1. It is essential that the existing facilities be kept in operation during the construction period. Short periods of shutdown will be possible to permit modifications or connections to or tie in with existing facilities. The time period will vary with Owner usage at different times of the day.
 2. In some instances, it will be necessary to complete and put new facilities into operation prior to commencing work on existing facilities which would require their removal from service.
 3. Where interruption of existing facilities is necessary, the Contractor is to plan their work in cooperation with facility operating personnel for the least possible disruption of service. Night or weekend work may be necessary. When facility operation must be suspended because of the Contractor's work, they shall have all necessary materials and equipment on hand and have ample work force available prior to beginning the work.

1.05 POSITION, GRADIENT, AND ALIGNMENT

- A. All construction work shall be done to the lines and grades shown on the Plans. The Engineer will establish on the site the required benchmarks and base lines. Detailed survey and staking for location and grade of individual structures or other construction, as well as measurements and elevations within structures, shall be performed by the Contractor.
- B. Any work done without being properly located and established by base lines, offset stakes, benchmarks, or other basic reference points, may be ordered removed and replaced at the Contractor's expense.

1.06 PROTECTION AND MAINTENANCE OF PUBLIC AND PRIVATE PROPERTY

- A. Protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by the construction work performed. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, and other surface structures affected by construction operations in connection with the performance of the Contract shall be restored to the original condition thereof as determined and approved by the Engineer. All replacements of such underground construction and surface structures or parts thereof shall be made with new materials conforming to the requirements of these Specifications or, if not specified, as approved by the Engineer.
- B. The Contractor shall be responsible for all damage to streets, roads, highways, railroads, shoulders, ditches, embankments, culverts, bridges, power transmission lines, oil lines, gas lines, or other public or private property or facility, regardless of location or character, which may be caused by moving, hauling, or otherwise transporting equipment, materials, or workers to or from the work or any part or site thereof, whether by them or their subcontractor or subcontractors. The Contractor shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property or facility concerning its repair or replacement or payment of costs incurred in connection with said damage.

1.07 INSPECTION BY PUBLIC AGENCIES

- A. Authorized representatives of the Engineers and Owner shall have access to the work wherever it is in preparation or progress. The Contractor shall provide proper facilities for such access and inspection.

1.08 CONTRACTOR'S RESPONSIBILITY FOR MATERIALS

- A. The Contractor shall be responsible for the condition of all materials furnished by them, and they shall replace at their own cost and expense any and all such material found to be defective in design or manufacture, or which has been damaged after delivery. This includes the furnishing of all materials and labor required for replacement of any installed material which are found to be defective at any time prior to the expiration of one (1) year from the date of final payment.

1.09 EXPLANATION OF PROPOSAL

- A. The Owner reserves the right to select any or all alternates. The best and lowest bid will be determined by bidder's qualifications and the low total price for the base bid and the alternate bid items selected by the Owner.
- B. Base bid:
The base bid includes complete construction of the project, ready for use, except for items specifically listed as alternate bid items.

1.10 "OR EQUAL" STATEMENT

- A. When a manufacturer's name is used in these Specifications it is used to establish a standard and the words "or equal", if not stated, are implied.

1.11 CONTRACTOR USE OF SITE AND PREMISES

- A. Provide access to and from site as required by law and by Owner:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.

2. Do not obstruct roadways, sidewalks, or other public ways without permit.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01 20 00 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Method of measurement.
- B. Basis of payment.

1.02 RELATED SECTIONS

- A. Agreement Bid Form
- B. Section 01 10 00 - Summary of Work - General
- C. Section 01 78 00 - Project Closeout - Project record documents.

1.03 UNIT PRICES

- A. Various items of work are bid on a unit price basis to provide flexibility for change in quantities during construction. Unless a change in the indicated limits is made during construction, final payment will be based on the item total listed in the Proposal, as if it was a Lump Sum amount.
- B. If changes are made in the indicated limits during construction, payment for the item will be adjusted upward or downward, in accordance with the actual change in plan quantity, using the unit price for the item listed in the Proposal.
- C. The Contract unit prices bid in the Proposal shall be full compensation for furnishing, preparing, transporting, delivering, and placing all materials, and for all labor, equipment, tools, and incidentals, as well as all subsidiary items, necessary to complete the Work.
- D. All items shown on the Plans or covered by these Specifications but for which there are no unit or Lump Sum prices, will not be paid for directly but will be considered as subsidiary items in connection with items for payment. The Contractor shall include allowance for all such items in their unit prices bid.
- E. Quantities of unit price items can be adjusted upward or downward by the Owner to the extent that the final Contract amount for that section is between 80 and 120 percent of the original estimated Contract price. Amounts of individual items may be varied to any extent and individual items may be omitted entirely as long as the above limits are met. In the event that the total quantity of work is adjusted upward or downward beyond the above limits, that portion of the work may be performed at the original bid unit prices if agreed by the Owner and Contractor, or in accordance with provisions for additional, omitted or changed work.
- F. At the Contractor's option and expense, cross-sections of fill areas before and after construction may be made for consideration in arriving at final quantities of earthwork. Otherwise, the quantities contained in the Proposal shall be considered final.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 GENERAL

- A. The method of measurement and basis of payment for each item as listed in the Bid Form shall be as stipulated in each of the following items.
 - 1. Mobilization

- a. This item will be paid for as a lump sum item. This item shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.
 - b. Payment shall be based on the contract lump sum bid price for Mobilization, when payments become due partial payments will be made as follows:
 - 1) When less than 100% of the original contract amount is completed, the amount paid for Mobilization will be based on the percentage of the original contract completed.
 - 2) When the project is complete and accepted, 100% of the original amount bid for Mobilization may be paid.
 - c. No adjustment will be made in the Lump Sum Bid Price because of overruns in original contract items developed in the process of construction.
2. Clearing, Grubbing, and Demolition
 - a. This item will not be paid for as a separate item, but the cost shall be included in the cost of other items and shall include all costs for labor, equipment, disposal of all resulting refuse and debris, and all incidental and appurtenant work required to complete this item, which includes, but is not limited to, grading berms, clearing scrub trees/bushes, tree removal, stump grinding, grading swales, and all other appurtenances required for the completion of the construction work and acceptance of the project.
 3. Embankment
 - a. The Embankment will be included as part of the cost of restoration. The compacted backfill will not be measured and will not be paid for separately.
 4. Sediment Fence
 - a. The Sediment Fence is not included as a separate item but is included as part of project mobilization. The contractor will install new fence if existing fence is damaged during construction. This item shall include the periodic maintenance and cleanout of sediment as needed during the construction of the project.
 5. Pipe (24") (HDPE)
 - a. Pipe will be measured for payment on a horizontal plane, per linear foot, along the longitudinal centerline of the pipe as installed. Measurement will be made between all manholes and to the inside edge of the manholes on each end of the pipe.
 - b. Payment for Pipe, of each designated type and size, shall be paid for at the contract unit price, per linear foot and shall cover all costs of furnishing and installation, including all excavation and trenching, pipe, jointing materials, pipe embedment, backfill, concrete encasement, pipe collars, connection to newly installed structures or pipes, and testing of the completed lines unless otherwise stated herein. All flowable fill backfill under street and sidewalk shall be considered subsidiary to pipe placement.
 6. End Section with Toe Wall (X" RCP)
 - a. End Section, as detailed on the Drawings, shall be included in the price of the pipe and will not be paid for as a separate item. Payment shall be for the entire end section complete and in place.

- b. Payment will constitute full compensation for the end section complete and in place including excavation and backfill, all materials and all labor involved in the construction of each end section including the foundation, excavation, tow wall, backfill, pipe bedding aggregate, and trench subgrade stabilization as approved by the Engineer.
- 7. Rip Rap
 - a. The Engineer will measure the Rip Rap construction by the square yard of exposed surface of specified thickness, in place and accepted.
 - b. Payment for rip rap, of each designated type, size, and thickness, shall be paid for at the contract unit price, per square yard and shall cover all costs including bedding material, grout if specified, filter fabric if specified, and labor to complete installation of the rip rap.
- 8. Concrete Collar
 - a. The Engineer will measure each pipe collar of the specified size and type as called out on the plans.
 - b. Payment for concrete collar at the contract unit price bid is full compensation for the specified work.
- 9. Sodding
 - a. The Engineer will not measure sod.
 - b. Payment for Sodding is to be included in the restoration lump sum as full compensation for the specified work, including bed preparation, fertilizer, transporting, placing, firming, watering, cultivating, and maintaining the sod.
- 10. Erosion Control
 - a. This item is to be included as part of the mobilization lump sum. This item shall include all costs in connection with furnishing and properly maintaining all erosion and sedimentation control devices to adequately protect existing downstream features in accordance with City, State, and Federal requirements, and other precautionary measures as required by the project drawings, specifications, and specific job conditions, including such costs as securing proper permits and approvals. This item shall include the periodic maintenance and cleanout of the erosion control devices as needed during the construction of the project. The contractor will install new erosion control devices if existing erosion control devices are damaged during construction. This item shall include temporary seeding of areas where no work will occur for more than 14 days, unless permanent seeding or other vegetation can be installed.
 - b. Payment shall be included in the contract lump sum bid price for mobilization.
- 11. Grading
 - a. The quantities of excavation for which payment will be made shall be part of the lump sum bid price for restoration.
 - b. The price shall be full compensation for furnishing and erecting all materials, for clearing, excavation and for all labor, tools, equipment and incidentals necessary to complete the work.
- 12. Traffic Control
 - a. This item will be considered incidental to construction and shall not be paid as a separate item. This item shall include all costs in connection with developing certified plans, furnishing and properly maintaining all barricades, signs (with high intensity reflective sheeting), and other precautionary measures as required by the project drawings, specifications, and specific job conditions, including such costs as securing proper permits and approvals. This item shall

- include the removal and re-installation of street signs removed for construction. The Contractor will install new signs if existing signs are damaged during construction.
- b. No separate payment shall be made for Traffic Control.
13. Contractor Construction Staking
 - a. This item will be considered incidental to construction and shall not be paid as a separate item.
 14. Earthwork/Mass Grading
 - a. Grading shall be performed as indicated on the plans. This includes all labor, materials, tools and equipment necessary to fully complete the grading according to the plans and specifications. No direct measurement will be made for the grading. All excavation is unclassified.
 - b. Payment for grading at the contract lump sum price bid is full compensation for the specified work.
 15. Manhole (5') (Storm Sewer)
 - a. The Engineer will measure the Manhole per each, as detailed on the Drawings and shall include the manhole foundation, invert construction, walls, top section, steps, casting, and all other connected costs.
 - b. Payment will be made at the contract unit price for Manhole as detailed on the Drawings, and shall cover the cost of furnishing all labor, materials, tools, plant, equipment, services, and other expenses in connection with the construction of manholes, complete in place, including unclassified excavation (including rock if necessary), backfill, masonry, all castings, concrete, reinforcing steel, all as herein specified.
 16. Finish Grading
 - a. This work shall consist of the preparation of surfaces, excavating, topsoil, on-site hauling, placing and spreading of topsoil on all disturbed areas.
 - b. Finish grading is considered part of the fill and restoration line item and will not be measured and paid for separately and shall include all topsoil, labor, tools, equipment, on-site hauling, placing, spreading and incidentals necessary to establish an adequate surface for seeding or sodding.
 17. Fence (6' Privacy Screening)
 - a. Payment for any required "Fence" replacement is considered part of the restoration and the contract price bid is full compensation for the specified work.
 18. Topsoil (6") (Import)
 - a. This work shall consist of hauling imported topsoil to the project site to support finish grading within soccer field and 10-ft around the soccer field.
 - b. Topsoil will not be measured and paid for separately but is included in the Contract price for restoration.
 19. Seeding, Fertilizing and Mulching
 - a. Payment for Seeding is included in the lump sum price for restoration and is full compensation for the specified work, including bed preparation, fertilizer, planting, mulching, and crimping.
 - b. Payment shall include all labor, material and equipment necessary to plant Temporary Seeding as detailed in the construction drawings and will be paid for at the contract unit price per acre.
 20. Force Account (Set)

END OF SECTION

SECTION 01 25 00 - SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Substitutions and product options.

1.02 RELATED SECTIONS

- A. Section 01 33 23 - Shop Drawings, Product Data, and Samples

PART 2 - PRODUCTS

2.01 PRODUCTS LIST

- A. Within 30 days after date of Contract, submit to Engineer five (5) copies of complete list of all products which are proposed for installation.
- B. Tabulate list by each Specification section.
- C. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of manufacturer.
 - 2. Trade name.
 - 3. Model or catalog designation.
 - 4. Manufacturer's data:
 - a. Performance and test data.
 - b. Reference standards.

PART 3 - EXECUTION

3.01 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, manufacturer shall submit data for approval 10 days prior to bid date.
- B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
- C. For products specified by naming one (1) product, Contractor must submit a request, as required for substitution, for any product not specifically named.

3.02 SUBSTITUTIONS

- A. Submit five (5) copies of request for substitution. Include in request:
 - 1. Complete data substantiating compliance of proposed substitution with Contract Documents.
 - 2. For products:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature.
 - 1) Product description.
 - 2) Performance and test data.
 - 3) Reference standards.
 - c. Samples.
 - d. Name and address of similar projects on which product was used, and date of installation.
 - 3. For construction methods:
 - a. Detailed description of proposed method.

- b. Drawings illustrating methods.
- 4. Itemized comparison of proposed substitution with product or method specified.
- 5. Data relating to changes in construction schedule.
- 6. Relation to separate contracts.
- B. In making request for substitution, Bidder represents:
 - 1. They have personally investigated proposed product or method and determined that it is equal or superior in all respects to that specified.
 - 2. They shall provide the same guarantee for substitution as for product or method specified.
 - 3. They shall coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
 - 4. They waive all claims for additional costs related to substitution which consequently becomes apparent.
 - 5. Cost data is complete and includes all related costs under their contract, but excludes:
 - a. Costs under separate contracts.
 - b. Engineer's redesign.
- C. Substitutions will not be considered if:
 - 1. They are indicated or implied on Shop Drawings or Project Data submittals without formal requests submitted in accord with Paragraph 1.04.
 - 2. Acceptance will require substantial revision of Contract Documents.
- D. Engineer will notify Bidders of all approved substitutions by Addendum listing manufacturers of each item.

END OF SECTION

SECTION 01 29 00 - FORCE ACCOUNT

PART 1 - GENERAL

1.01 GENERAL

- A. This work shall cover miscellaneous extra work required during the course of construction.
- B. Before the extra work is performed, the Contractor shall submit a proposed price in accordance with the Contract requirements for approval by the Engineer and shall have received the written approval of the Engineer, prior to commencing the proposed extra work.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 29 76 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Progress payment and final payment.

1.02 RELATED SECTIONS

- A. Section 01 29 00 - Force Account

1.03 SUBMITTALS

- A. Progress payment submittal:
 - 1. Make formal submittal by filling in the agreed data, by typewriter or neat lettering in ink, on Application for Payment, plus continuation sheet or sheets.
 - 2. Included with certificate for payment shall be properly executed bills of sale for materials and equipment upon which payment is being requested.
 - 3. Sign and notarize the application and certificate for payment.
 - 4. Submit the original and three copies to the Engineer for payment approval.
 - 5. Payments shall be submitted to the Engineer on the twentieth of each month for approval. Owner will process payment submittal within 30 days after Engineer approval.
- B. Final payment:

Final payment shall be processed as described in Section 01 77 00 of these Specifications.

1.04 QUALITY ASSURANCE

- A. Prior to start of construction, secure the Engineer's approval of the schedule of values to be submitted under the Regulations of the Contract and further described in these Specifications.
- B. During progress of the Work, modify the schedule of values for approval by the Engineer to reflect changes in the contract sum due to change orders or other modifications of the Contract or Work schedule.
- C. Base requests for payment on the approved Work completed, not to exceed the schedule of values.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project meeting.
- B. Delays in meeting schedules shall not constitute an allowable extension of time when determining liquidated damages.

1.02 RELATED SECTIONS

- A. Section 01 33 23 - Shop Drawings, Product Data, and Samples
- B. Section 01 78 39 - Project Record Documents

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule after date of notice to proceed.
- B. Attendance:
 - 1. Owner.
 - 2. Engineer.
 - 3. General Contractor.
 - 4. Subcontractors.
 - 5. Representatives of governmental or other regulatory agencies.
- C. Minimum agenda:
 - 1. Distribute and discuss:
 - a. List of major subcontractors.
 - b. Tentative construction schedule.
 - 2. Critical work sequencing.
 - 3. Relation and coordination of prime contractors.
 - 4. Designation of responsible personnel.
 - 5. Processing of field decisions and Change Orders.
 - 6. Adequacy of distribution of Contract Documents.
 - 7. Submittal of Shop Drawings, Project Data and Samples.
 - 8. Procedures for maintaining record documents.
 - 9. Use of premises:
 - a. Office and storage areas.
 - b. Owner's requirements.
 - 10. Major equipment deliveries and priorities.
 - 11. Safety and first-aid procedures.
 - 12. Security procedures.
 - 13. Housekeeping procedures.

1.04 PROJECT MEETINGS

- A. Hold called meetings as progress of work dictates.
- B. Location of meetings:
Job Site, or as indicated in notice.
- C. Attendance:
 - 1. Engineer or Engineer's representative.
 - 2. General Contractors.
 - 3. Subcontractors as pertinent to agenda.
- D. Minimum agenda:
 - 1. Review work progress since last meeting.

2. Note field observations, problems, and decisions.
3. Identify problems which impede planned progress.
4. Revise construction schedule as indicated.
5. Plan progress during next work period.
6. Coordinate projected progress with other prime contractors.
7. Review submittal schedules, expedite as required to maintain schedule.
8. Maintaining of quality and work standards.
9. Review changes proposed by Owner for:
 - a. Effect on construction schedule.
 - b. Effect on completion date.
10. Complete other current business.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Shop Drawings, Product Data, and Samples required by specification sections.

1.02 RELATED SECTIONS

- A. Section 01 45 29 - Testing Laboratory Services
- B. Section 01 77 00 - Project Closeout
- C. Section 01 78 39 - Project Record Documents

1.03 SHOP DRAWINGS

- A. Original drawings, prepared by Contractor, subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.
- B. Prepared by a qualified detailer.
- C. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

1.04 PRODUCT DATA

- A. Manufacturer's standard schematic drawings:
 - 1. Modify drawings to delete information which is not applicable to project.
 - 2. Supplement standard information to provide additional information applicable to project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.
 - 1. Clearly mark each copy to identify pertinent materials, products or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.
 - 4. Show wiring diagrams and controls.

1.05 SAMPLES

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- B. Office samples: of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of product or material with integrally related parts and attachments devices.
 - 2. Full range of color samples.
 - 3. After review, samples may be used in construction of Project.
- C. Field samples and mock-ups:
 - 1. Erect at Project site at location acceptable to Engineer.
 - 2. Construct each sample or mock-up complete, including work of all trades required in finished work.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data, and Samples prior to submission.
- B. Verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar data.

- C. Coordinate each submittal with requirements of Work and of Contract Documents.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
- E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless the Engineer gives written acceptance of specific deviations.
- F. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- G. Begin no work which requires submittals until submittal approval.
- H. After Engineer's review, distribute copies.

1.07 SUBMISSION REQUIREMENTS

- A. Schedule submissions at least 10 days before dates approved submittals will be needed.
- B. Submit number of copies of Shop Drawings, Product Data, and Samples which Contractor requires for distribution plus three copies which will be retained by the Engineer.
- C. Submit number of Samples specified in each of Specification sections.
- D. Accompany submittals with transmittal letter, in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. The number of each Shop Drawing, Product Data, and Sample submitted.
 - 5. Notification of deviations from Contract Documents.
 - 6. Other pertinent data.
- E. Submittals shall include:
 - 1. Date and revision dates.
 - 2. Project title and number.
 - 3. The names of:
 - a. Engineer.
 - b. Contractor.
 - c. Subcontractor.
 - d. Supplier.
 - e. Manufacturer.
 - f. Separate detailer when pertinent.
 - 4. Identification of product or material.
 - 5. Relation to adjacent structure or materials.
 - 6. Field dimensions, clearly identified.
 - 7. Specification section number.
 - 8. Applicable standards, such as ASTM number or Federal Specification.
 - 9. A blank space, 3 inches by 5 inches, for the Engineer's stamp.
 - 10. Identification of deviations from Contract Documents.
 - 11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

1.08 RESUBMISSION REQUIREMENTS

- A. Shop Drawings:
 - 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 - 2. Indicate on drawings any changes which have been made other than those requested by Engineer.

3. Product Data and Samples:
Submit new data and samples as required for initial submittal.

1.09 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute copies of Shop Drawings and Product Data which carry Engineer's stamp, to:
 1. Contractor's file.
 2. Job-site file.
 3. Record Documents file.
 4. Subcontractors.
 5. Supplier.
 6. Fabricator.
- B. Distribute samples as directed.

1.10 ENGINEER'S DUTIES

- A. Review submittals with reasonable promptness.
- B. Review for:
 1. Design concept of project.
 2. Information given in Contract Documents.
- C. Review of separate item does not constitute review of an assembly in which item functions.
- D. Affix stamp and initials or signature indicating review of submittal.
- E. Return submittals to Contractor for distribution.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01 45 29 - TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Testing:

From time to time during progress of the work, the Owner may require that testing be performed to determine that materials provided for the work meet the specified requirements.

1.02 RELATED SECTIONS

A. Requirements for testing may be described in various Sections of these Specifications. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require testing to be performed under current pertinent standards for testing.

1.03 QUALITY ASSURANCE

A. Qualifications of testing laboratory:

The testing laboratory will be qualified to the Owner's approval.

B. Codes and standards:

Testing will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

1.04 TEST REPORT DISTRIBUTION

A. Promptly process and distribute all required copies of test reports and related instructions to ensure all necessary retesting and/or replacement of materials with the least possible delay in progress of the work. The testing laboratory shall distribute copies of the test results as follows:

Owner	1 copy
Engineer Office	1 copy
Contractor Office	1 copy
Project Representative	1 copy
Job Superintendent	1 copy

1.05 PAYMENT FOR TESTING SERVICES

A. Initial services:

1. The Owner shall pay for all initial testing services for concrete testing during construction. All cost required for mix design shall be paid by Contractor.
2. The Owner will pay for all initial testing services for soil and compaction testing.
3. Testing not called for but required by Owner will be paid by the Owner.
4. The Owner shall pay all delivery cost on concrete cylinders.
5. The Contractor shall pay all cost for concrete and asphalt mix design requirements. This cost is not part of testing allowance.

B. Re-testing:

When initial tests indicate non-compliance with the Contract Documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same testing laboratory and the costs thereof will be paid by the Contractor.

1.06 CODE COMPLIANCE TESTING

- A. Inspections and tests required by codes or ordinances, or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.07 CONTRACTOR'S CONVENIENCE TESTING

- A. Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

PART 2 - MATERIALS

Not applicable to this section.

PART 3 - EXECUTION

3.01 COOPERATION WITH TESTING LABORATORY

- A. Representatives of the testing laboratory shall have access to the Work at all times. Provide facilities for such access in order that the laboratory may properly perform its functions.

3.02 SCHEDULES FOR TESTING

- A. Establishing schedule:
 - 1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
 - 2. Provide all required time within the construction schedule.
- B. Revising schedule:

When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.
- C. Adherence to schedule:

When the testing laboratory is ready to test according to the determined schedule but is prevented from testing or taking specimens due to incompleteness of the Work, all extra costs for testing attributable to the delay may be back charged to the Contractor and shall not be borne by the Owner.

3.03 TAKING SPECIMENS

- A. All specimens and samples for testing, unless otherwise provided in these Contract Documents, will be taken by the testing laboratory; all sampling equipment and personnel will be provided by the testing laboratory; and all deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.
- B. Concrete specimens for test cylinders shall be taken by the Owner.

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
1. COMPACTION OF EARTHWORK				
		Field Density Tests	KT-13, KT-51	a 600 sy ² of prepared subgrade. Not less than 4 per day per equipment spread.
	Structure Backfill	Field Density Tests Moisture Tests	KT-13, KT-51 KT-11, KT-51, or g	a 1 per structure minimum (each side) a 600 sy ² of prepared subgrade. Not less than 4 per day per equipment spread.
	Structure Backfill	Moisture Tests	KT-11, KT-51, or g	a 1 per structure minimum (each side)
2. SUBGRADE MODIFICATION				
	Aggregates	Plasticity Tests Sieve Analysis of Aggregate	KT-10 KT-2	b,c 500 TONS or yd ³ a 500 TONS or yd ³
		Material Passing the No.200 Sieve by the Wash Method	KT-3	a 500 TONS or yd ³
		Sticks in Aggregate	KT-35	e
		Clay Lumps in Aggregate	KT-7	e
		Shale or Shale-like Materials in Aggregate	KT-8	e
		Field Density Tests	KT-13 or KT-41	a,b 1 000 ft
		Moisture Tests	KT-11 or g	e
3. AGGREGATE BASE COURSE				
	Combined Aggregate	Sieve Analysis of Aggregate Plasticity Tests	KT-2 KT-10	a 1 000 ft each lift or if total aggregate each 500 TONS a,c 1 000 ft each lift or if total aggregate each 500 TONS
	Completed Base	Moisture Tests Field Density Tests Moisture Tests	KT-11 or g KT-13 or KT-41 KT-11, KT-41 or g	e a 200 ft e

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
3A. AGGREGATE BASE COURSE				
	Combined Aggregate	Sieve Analysis of Aggregate Soundness, Wear, Absorption and Specific Gravity	ASTM C 117-04 ASTM C 136-06 Methods stated in the Standard Specifications, Subsection 1117	a Preconstruction and when source of material changes
		Liquid Limit and Plasticity Index	ASTM C 117-04	
		Sieve Analysis of Aggregate	ASTM C 136-06	h 1000 TONS with a minimum of one for each days placement
	Completed Work	Liquid Limit and Plasticity Index Field Density Tests	Test strip roller pattern	h Verification of roller pattern
4. STABILIZED SHOULDERS (Aggregate, Non-Bituminous)				
	Combined Aggregate	Sieve Analysis of Aggregate Plasticity Tests Moisture Tests	KT-2 KT-10 KT-11 or g	a 500 TONS a,c 500 TONS e
	Completed Shoulder	Field Density Tests Moisture Tests	KT-13 or KT-41 KT-11, KT-41 or g	b 200 ft or 150 TONS b 200 ft or 150 TONS
5. GRANULAR SUBBASE				
	Combined Aggregate	Sieve Analysis of Aggregate Plasticity Tests Moisture Tests	KT-2 KT-10 KT-11 or g	a 1 000 ft, 500 TONS, or 500 yd ³ a 1 000 ft, 500 TONS, or 500 yd ³ e
	Completed Work	Field Density Tests Moisture Tests	KT-13 or KT-41 KT-11, KT-41 or g	a 200 ft a 200 ft
6. SURFACE OR RESURFACING AGGREGATE				
		Sieve Analysis of Aggregate	KT-2	a 500 TONS
		Material Passing the No. 200 Sieve by Wash Method	KT-3	a 500 TONS
		Sticks in Aggregate	KT-35	e
		Soft or Friable Particles in Aggregate	KT-7	e
		Moisture Tests	KT-11 or g	e

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
7. PORTLAND CEMENT CONCRETE STRUCTURES AND MISCELLANEOUS CONSTRUCTION				
		Slump Unit Weight Air Content	KT-21 KT-20 KT-18, KT-19, or KT-20 ASTM C 1064-05	h As needed to control product, minimum 1 set of tests every 50 yd ³ . Select initial sample from first 2 or 3 loads and then on a random basis or as conditions indicate. Perform tests with every set of test cylinders.
		Temperature Cylinders	KT-22	<u>Bridge Decks</u> Minimum 1 set of seven 6"x12" cylinders and one 4"x8" cylinder per 100 yd ³ or major mix design change
		Permeability of Concrete	ASTM C 1202-97	<u>Structures</u> Minimum 1 set of 7 per 100 yd ³ <u>Sidewalk and Flatwork</u> Minimum 1 set of 7 per 500 yd ² <u>Curb and Gutter</u> Minimum 1 set of 7 per 500 lf
		Density of Fresh Concrete	KT-36	All cylinders shall be tested for compressive strength in accordance with ASTM C 39-05 at the following intervals: Two cylinders each at 7 days, 14 days, and 28 days. One cylinder shall be reserved for additional testing, if required. <u>Bridge Decks</u> One 4"x8" cylinder shall be tested at 28 days using standard moist curing (2 tests per cylinder). 150 yd ³ for Bridge Decks, Thin Overlays, and Bridge Deck Surfacing
		KCMMB Test #1	As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" available from Engineer.	a As needed to control product, beginning of every project and every 150 cubic yards.

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
8. CONCRETE PAVEMENT				
		Slump Unit Weight Air Content	KT-21 KT-20 KT-18, KT-19, or KT-20 ASTM C 1064-05	h As needed to control product, minimum 1 set of tests per each half day and/or per 4 000 yd ² . Perform tests with every set of test beams.
		Temperature Beams	KT-22 & KT-23	a 1 set of 3 on initial pour. 1 set per week and/or major mix design change.
		Profilograph Thickness Cores	KT-46	b Testing by Contractor, results reviewed by City See Std. Spec. Sec. 502.03(k).
		Density of Fresh Concrete	KT-38	a,b Initially, 1 complete transverse profile, thereafter 5 tests per day.
		KCMMB Test #1	As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" available from the Engineer.	a As needed to control product, beginning of every project and every 150 cubic yards.
9. ASPHALTIC CONCRETE QUALITY ASSURANCE TESTING				
	Bituminous Mixtures	Test showing the information required in KC Metro APWA Specifications Mix Cured 4 hours before testing. Engineer shall receive test results in approximately 7 hours.	Per APWA Specifications	a One prior to construction for mix design approval, one volumetric test per 500 tons placed.
	Completed Road Work	Resistance to moisture damage <u>Field Density Tests</u> Cores	AASHTO T283-03 KT-15 Procedure 3 or AASHTO T166	a 1 per year and every 10,000 tons as directed by the Engineer. <u>Surface & Base Courses</u> 1 set of 3-4" cores per 1000 tons placed as directed by the Engineer.

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
10.	SLURRY SEAL	Sieve Analysis of Aggregate	KT-2	a 250 TONS
11.	AGGREGATE FOR CONCRETE	Sieve Analysis of Aggregate	KT-2	a 250 TONS
		Material Passing the No. 200 Sieve by the Wash Method	KT-3	a 250 TONS
		Sticks in Aggregate	KT-35	e
		Clay Lumps in Aggregate	KT-7	e
		Shale or Shale-like Materials in Aggregate	KT-8	e
		Unit Weight (light weight aggregate only)	Section 1102(d)(3)	e
12.	PORTLAND CEMENT TREATED BASE	Sieve Analysis of Aggregate	KT-2	a 1 in A.M. and 1 in P.M. or each 500 TONS
		Plasticity Tests	KT-10	a,b 1 in A.M. and 1 in P.M. or each 500 TONS
		Moisture Tests	KT-11 or g	e Minimum of 1 per day
		Density Standard	KT-12	e Minimum of 1 per day
		Field Density Tests	KT-13 or KT-41	a 1 000 ft/width laid or 2 000 ft/lane
		Field Moisture Tests	KT-11 or KT-41	a 1 000 ft/width laid or 2 000 ft/lane
13.	UNDERDRAIN AGGREGATE	Sieve Analysis of Aggregate	KT-2	a 250 TONS
		Sticks in Aggregate	KT-35	e
		Clay Lumps in Aggregate	KT-7	e
14.	CRUSHED STONE FOR BACKFILL	Sieve Analysis of Aggregate	KT-2	a 500 TONS
		Clay Lumps in Aggregate	KT-7	e
15.	STONE FOR RIPRAP, WASH CHECKS & OTHER MISC. USES	Sieve Analysis of Aggregate	KT-2	a 500 TONS or yd ³ Note: Tests to be conducted at production site.

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
16.	FLY ASH	Moisture/Density and Compressive Strength Tests	D4609	e 4 series of Standard Proctors Moisture/Density relationships for each earth fill material. Two series incorporating 16% fly ash by dry weight, at delays of 0 and 2 hours. Two series incorporating 13% fly ash by dry weight at compaction delays of 0 hours. Find compressive strength for both series after 7 days at 100.4 degrees Fahrenheit. Min. 5 test specimens per series.
		In Place Moisture	AASHTO 217	Perform in place moisture tests using the gas pressure ("Speedy") method, at a rate of 1 per 500 sq. yard as during initial subgrade preparation and thereafter as directed by the engineer.

Code Instruction

- a. Normal operation. Minimum frequency for exceptional conditions may be reduced by the Engineer on a project basis, written justification shall be made to the City and placed in the project documents.
- b. Applicable only when specifications contain those requirements.
- c. If, for a given project, no Plastic Index results of ten (10) consecutive tests are closer than 1 Plastic Index to the specifications limit, the specified testing frequency may be reduced by fifty percent (50%). When operating at a reduced testing frequency, should any two (2) consecutive Plastic Index results exceed the test limit results required for reduced testing frequency, testing shall be resumed at the original specified frequency. The original specified testing frequency shall be resumed should any one test result exceed the specification limits. Following a return to the original specified testing frequency, the reduced frequency may be resumed providing the original criteria for reduced frequency are met.
- d. Engineer's discretion. Frequency of tests shall be agreed upon by the Field Engineer and the Project Engineer. Frequency will be governed by field conditions. Written documentation of the agreed upon testing frequency shall be included in the project records.
- e. For determining moisture content of a material, KT-43, Moisture Content of Asphalt Mixtures or Mineral Aggregates - Microwave Oven Method, can be used in conjunction with KT-2, KT-3, KT-4, KT-8, KT-12, KT-13, and KT-34.

- f. Initial frequency. Frequency may be reduced on a project basis, by authority of the Engineer, upon continued satisfactory and uniform production.
- g. Authorization for reductions in testing frequency shall be documented in the project records.

GENERAL NOTES

Note 1: All sampling and testing frequencies listed are minimum. Additional or other tests will be conducted, as required, to control the work.

Note 2: Frequencies are based on two lane roadways. For four or more lane roadway construction, double the frequencies shown per unit length.

Note 3: All aggregate acceptance tests are to be conducted at the point of usage except for Item 15, Stone for Riprap, Wash Checks, and Other Miscellaneous Uses.

Note 4: All test methods listed as "KT" are Kansas Test methods and may be found in the KDOT Construction Manual Part V.

END OF SECTION

SECTION 01 52 00 - LAND CORNER MONUMENT BOXES

PART 1 - GENERAL

1.01 GENERAL

- A. All land corner monuments shall be set by a registered land surveyor.
- B. Existing land corner monuments shall be carefully preserved. Before disturbing existing monuments within the limits of the work, the Contractor shall give sufficient notification so that the Surveyor can set reference points beyond the limits of the work. Before disturbing such corners, the Contractor shall obtain verification directly from the Surveyor that such reference points have been set.
- C. Existing land corner monuments without monument boxes shall be reset as shown on the Plans. Materials shown shall be furnished and set by the Contractor at the location provided by the Surveyor.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

3.01 PAYMENT

- A. No separate payment will be made for surveying and layout work for monument boxes. All cost pertaining thereto shall be included in contract prices for other items as listed in the Proposal.

END OF SECTION

SECTION 01 57 00 - MAINTENANCE OF TRAFFIC AND ACCESS

PART 1 - GENERAL

1.01 GENERAL

- A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, whether public or private, the Contractor shall, at their own expense, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them provided that maintenance of traffic will not be required where the Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over public property involved, to obstruct traffic for the duration of time as may be agreed upon.
- B. The Contractor shall present a work schedule and a plan for handling traffic during construction for review and approval by the Owner before commencing any work. The traffic control plan shall be certified by an ATSSA Worksite Traffic Supervisor.
- C. Contractor shall obtain required permits 15 days in advance of proposed closure date, in order to allow sufficient time for public notification.

PART 2 - MATERIALS

2.01 TRAFFIC CONTROL DEVICES

- A. In addition to traffic control devices shown on the plans, the Contractor shall provide and maintain all barricades, cones, construction warning signs, flagmen, temporary pavement marking, and incidental devices to protect the traveling public and the Contractor's personnel or equipment on the job site. During all phases of construction, the Contractor shall display the required signs. Any traffic control device not in use shall be either covered, removed, or turned away from the view of on-coming traffic. Whenever the work area changes, all construction warning signs and traffic channelization devices shall be made current, both in legend and function. Temporary pavement marking shall be plastic or paint.
- B. All traffic control devices, design, installation and maintenance of the devices, shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highway," latest edition, and its most current revisions. No substitutions for the devices required by the above referenced manual will be allowed without the written approval of the Engineer.

PART 3 - EXECUTION

3.01 WHEN WORK NOT IN PROGRESS

- A. The work shall be cleaned up at the end of each working day and temporary surfacing shall be placed such that access will be had to all driveways during the night, weekends, holidays and other days when work is not in progress and when the stage of the work does not directly interfere with the drive. The Engineer, at their discretion, may grant short-term exceptions to this requirement in connection with preparing sub-grade and paving.

3.02 CONTACT PERSON

- A. The Contractor shall designate a person (with phone number) who can be called by the City during the night, weekends, holidays and other days when work is not in progress. The Contractor will be responsible, through this person, for making such temporary repairs during said periods as may be needed to meet the requirements of paragraph 1.02 above.

3.03 THROUGH TRAFFIC AND LOCAL TRAFFIC

- A. The Contractor shall handle local traffic along the project in accordance with the applicable sub-sections of Section 805 of the Kansas Specifications for State Road & Bridge Construction, as modified in this specification. Local traffic includes the traffic to and from side streets in which there is no other outlet.
- B. Where required to provide access for local traffic and when directed by the Engineer, the Contractor shall provide and maintain temporary surfacing consisting of crushed stone. The crushed stone for temporary surfacing shall meet the requirements of Section 1104 of the Kansas Specifications for State Road & Bridge Construction for Type AB-3 Aggregate, unless the Engineer agrees to a different gradation because of site conditions.
- C. Driveway entrances, steps and finish grading, shall be completed as soon as practicable so that access may be had from the street adjacent property as soon as possible.

3.04 INSPECTION

- A. The project representative on this project will make daily inspections of the traffic control devices installed as part of this contract and maintain an accurate record of any maintenance required and the date on which it was completed.

3.05 MAINTENANCE OF TRAFFIC CONTROL DEVICES

- A. The Contractor will be required, at the time of the preconstruction conference, to detail a method by which the maintenance of the required traffic control devices will be accomplished during the working and non-working hours. The Contractor shall assign a specific person to be responsible for the installation and maintenance of traffic control devices. This information shall be provided to the Owner. The Contractor may, at their option, establish a maintenance agreement, approved by the Owner, with one of the area sign companies to supply, install and maintain required traffic control devices throughout the duration of this project. When the traffic control devices are no longer needed, immediate removal of said devices shall be included in this agreement.

3.06 UTILITIES

- A. Damage to existing utilities during construction of this project which requires immediate repairs, and which would necessitate the utility company or the Contractor to work in any manner other than described herein, may be considered an "Emergency." When the Owner declares an Emergency, the work shall proceed on a 24-hour a day basis until such time as the roadway can return to normal traffic and all costs, including cost for additional traffic control will be the sole responsibility of the Contractor.

3.07 EMERGENCY VEHICLE ACCESS

- A. The Contractor shall coordinate their work with public safety officials for emergency vehicle access.

3.08 COMMUNICATIONS WITH PROPERTY OWNERS AND TENANTS

- A. The Contractor shall endeavor, with the cooperation and concurrence of the Owner, to communicate with property owners and tenants affected by the work. Such communications may be both written and verbal. The emphasis shall be on advance notification and explanation of how the property owner or tenant will be affected during the course of the work.
- B. The Contractor shall investigate, answer and take care of complaints from property owners and tenants in connection with their work during the progress thereof.

3.09 ADDITIONAL TRAFFIC CONTROL DEVICES

- A. The Owner or the Owners Representative may inspect the work area at various times to determine if any additional traffic control devices are necessary or if any maintenance is required to the traffic control devices in place. Any traffic control device which requires maintenance or any additional traffic control needs found during these inspections will be reported to the Contractor. It will be the responsibility of the Contractor to perform the necessary maintenance or provide additional traffic control devices as requested by the Engineer. Failure to comply with this request will result in suspension of work in the street right-of-way until approval is obtained. No separate payment will be made for additional traffic control devices.

3.10 EXISTING TRAFFIC SIGNS, STOP SIGNS, AND STREET SIGNS

- A. All existing traffic signs, stop signs, and street signs in the way of the work shall be carefully removed by the Contractor and replaced. The required function of stop signs and other signs affecting driver safety shall be preserved by the Contractor whenever a street is open to traffic.
- B. Upon completion of the project, all street signs shall be reset by the Contractor as approved by the Engineer. No separate payment will be made for this work unless new signage is indicated in the contract bid items.

END OF SECTION

SECTION 01 58 00 - MOBILIZATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This work shall be constructed in accordance with Section 618 of the **Missouri** Standard Specifications for Highway Construction as amended herein.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 74 00 - CLEANUP

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project cleanup.

1.02 RELATED SECTIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

1.03 SAFETY REQUIREMENTS

- A. Hazards Control:
 - 1. Store volatile wastes in covered metal containers and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Maintain premises and public properties free from accumulations of waste, debris, and rubbish caused by operations.
- B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

3.02 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals during progress of Work, clean site and public properties, and dispose of waste materials, debris, and rubbish.
- D. Provide on-site dump containers for collection of waste materials, debris, and rubbish.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

- G. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- H. Remove from the Owner's property and from all public and private property, at Contractor's expense, all temporary structures, rubbish, excess excavation, and waste material resulting from their operations.
- I. Clean all dirt from paved surfaces, not allowing same to pack on the roadway or to create a traffic nuisance. Insofar as practicable, clean all dirt from gravel and oil aggregate surfaces.
- J. All existing sod areas shall be hand raked to remove earth deposited on or in them during construction.
- K. All ditches shall be graded and properly sloped.
- L. Shoulders where sodding, seeding, or surfacing is not required shall be bladed and shaped.

3.03 FINAL CLEANING

- A. Employ experienced workers, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion or occupancy, conduct final review of sight-exposed interior and exterior surfaces, and of concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds.
- F. Maintain cleaning until project, or portion thereof, is occupied by Owner.

END OF SECTION

SECTION 01 78 00 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Administrative procedures, closeout submittals, and forms to be used at substantial completion and at final completion of the Work. Project record documents.
- B. Warranties and bonds.

1.02 RELATED SECTIONS

- A. Section 01 74 00 - Cleanup
- B. Section 01 78 39 - Project Record Documents

1.03 SUBSTANTIAL COMPLETION

- A. Contractor:
 - 1. Submit written certification to the Engineer, that project, or designated portion of project, is substantially complete.
 - 2. Submit list of major items to be completed or corrected.
- B. Engineer will make an inspection within seven (7) days after receipt of certification, together with Owner's representative.
- C. Should the Engineer consider that work is substantially complete:
 - 1. Contractor shall prepare and submit a list of items to be completed or corrected, as determined by the inspection.
 - 2. Engineer will prepare and issue a Letter of Substantial Completion, containing:
 - a. Date of substantial completion.
 - b. Contractor's list of items to be completed or corrected, verified, and amended.
 - c. The time within which Contractor shall complete or correct work of listed items.
 - d. Time and date Owner will assume possession of Work or designated portion thereof.
 - e. Responsibilities of Owner and Contractor for:
 - 1) Utilities.
 - 2) Operation of mechanical, electrical, and other systems.
 - 3) Maintenance and cleaning.
 - 4) Security.
 - f. Signatures of:
 - 1) Contractor.
 - 2) Owner.
 - 3) Engineer.
 - 3. Owner occupancy of Project or designated portion of Project.
 - a. Contractor shall:
 - 1) Obtain certificate of occupancy.
 - 2) Perform final cleaning in accordance with Section 01 74 00.
 - b. Owner will occupy Project, under provisions stated in Certificate of Substantial Completion.
 - 4. Contractor:
Complete work listed for completion or correction within designated time.
- D. Should the Engineer consider that work is not substantially complete:
 - 1. They shall immediately notify Contractor, in writing, stating reasons.
 - 2. Contractor:

3. Complete work and send second written notice to the Engineer, certifying that Project or designated portion of Project, is substantially complete.
4. Engineer will review work.

1.04 FINAL PROJECT REVIEW

- A. Contractor shall submit written certification that:
 1. Contract Documents have been reviewed.
 2. Project has been reviewed for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in presence of Owner's representative and are operational.
 5. Project is completed, and ready for final review.
- B. Engineer will make final project review within seven days after receipt of certification.
- C. Should the Engineer consider that work is finally complete in accordance with requirements of Contract Documents, the Project will be closed out.
- D. Should the Engineer consider that the work is not complete:
 1. They will notify Contractor, in writing, stating reasons.
 2. Contractor shall take immediate steps to remedy the stated deficiencies and send second written notice to the Engineer certifying that work is complete.
 3. Engineer will review work.

1.05 CLOSEOUT SUBMITTALS

- A. Project record documents:
To requirements of Section 01 78 39.
- B. Deliver evidence of compliance with requirements of governing authorities.
- C. Deliver Certificate of Insurance for products and completed operations.

1.06 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Contractor's affidavit of payment of debts and claims.
- B. Contractor's affidavit of release of liens, with:
 1. Consent of surety of final payment.
 2. Contractor's release of waiver of liens.
 3. Separate releases of waivers of liens for subcontractors, suppliers, and others with lien rights against property of Owner, together with list of those parties.
- C. All submittals shall be duly executed before delivery.

1.07 INSTRUCTION

- A. Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment.

1.08 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit final statement of accounting to Engineer.
- B. Statement shall reflect all adjustments.
 1. Original Contract Sum.
 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Cash Allowances.
 - c. Other Adjustments.
 - d. Deductions for uncorrected Work.
 - e. Deductions for liquidated damages.

- f. Deductions for Re-inspection Payments.
- 3. Total Contract Sum, as adjusted.
- 4. Previous payments.
- 5. Sum remaining due.
- C. Engineer will prepare final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.09 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit final application in accordance with requirements of the General Conditions.

1.10 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of the General Conditions.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue, for Owner's approval, a Semi-Final Certificate for Payment, in accordance with provisions of the General Conditions.

1.11 POST-CONSTRUCTION PROJECT REVIEW

- A. Prior to expiration of one (1) year from Date of Substantial Completion, the Owner may request a visual review of Project in company with Engineer and Contractor to determine whether correction of Work is required, in accordance with provisions of the General Conditions. The Contractor shall be present for the review and be ready to promptly correct any noted deficiencies. The Contractor will also provide equipment as necessary to facilitate this review.
- B. The Engineer will promptly notify Contractor, in writing, of any observed deficiencies.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Record documents.

1.02 RELATED REQUIREMENTS

- A. Section 01 33 23 - Shop Drawings, Product Data, and Samples

1.03 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one copy of:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Reviewed Shop Drawings.
 - 5. Change Orders.
 - 6. Other Modifications to Contract.
 - 7. Field Test Records.
- B. Maintain documents in clean, dry, legible condition.
- C. Do not use record documents for construction purposes.
- D. Make documents available at all times for inspection by Engineer, appropriate State and Federal Regulatory Agencies, and Owner.
- E. Store documents in temporary field office apart from documents used for construction.
- F. Provide files and racks for storage of documents.
- G. File documents in accordance with Project Filing Format of Uniform Construction Index.
- H. For a period of time, from the inception of the contract to three years from the date of final payment under the contract, the Contractor and subcontractors shall maintain books, accounts, ledgers, invoices, drafts, pages and other records pertaining to the performance of this contract. At all reasonable times during this period these records shall be available within the State of Missouri at a field or permanent business office for inspection by authorized representatives of the Owner or of any other agency which has contributed funds in connection with the contract or to which the Owner is obligated to make such inspections available. In addition, this requirement shall be included in all subcontracts entered into in connection with this contract.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in two (2)-inch high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings: Legibly mark to record actual construction:
 - 1. Depths of various elements of sewer pipe and manholes in relation to survey datum.
 - 2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Change Order or Field Order.
 - 6. Details not on original contract drawings.

- E. Specifications and Addenda: Legibly mark up each section to record:
 - 1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
 - 2. Changes made by Change Order or Field Order.
 - 3. Other matters not originally specified.
- F. Shop Drawings: Maintain as record documents; legibly annotate following drawings to record changes made after review.
 - 1. Electrical controls.
 - 2. Equipment.
 - 3. Structural.
 - 4. Mechanical.

1.05 SUBMITTAL

- A. At completion of project, deliver record documents to the Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each record document.
 - 5. Certification that each document as submitted is complete and accurate.
 - 6. Signature of Contractor, or their authorized representative.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 02 01 00 - RESTORATION

PART 1 - GENERAL

This section covers all work required in surface restoration on private and public properties which are disturbed by sanitary sewer system rehabilitation work.

1.01 DESCRIPTION:

- A. The Contractor shall restore the project site to conditions not less than those existing prior to their entry thereon, unless otherwise required by these specifications, Permits and/or Licenses, or shown on the Drawings.
 - 1. The Contractor shall coordinate surface restoration work with the affected private property owners.
 - 2. Private property over which the Owner has prior rights (i.e., utility easement, sewer easement) and/or has obtained rights-of-way, licenses and/or agreements from the property owner to allow construction of a sanitary sewer pipeline and appurtenances shall be restored in conformance with these Contract Documents.
 - 3. Public property shall be restored to match existing with strict adherence to the requirements of these technical specifications.
 - 4. Property Pins: The Contractor shall preserve all property corners, pins or markers. In the event any property corners, pins, or markers that are removed by the Contractor, such property points shall be replaced at the Contractor's expense and shall be reset by competent surveyors properly licensed to do such work. In the event such points are section corners or Federal land corners, they shall be referenced and filed with the appropriate authority.

1.02 REFERENCE STANDARDS:

- A. Surface restoration with respect to pavement, driveways, sidewalks, curb and gutters, bushes, shrubs, trees and sodding shall be in accordance with Division II of the "Standard Specifications and Design Criteria" as prepared by Kansas City Metropolitan Chapter of the American Public Works Association and the additional requirements specified herein.

PART 2 - PRODUCTS

2.01 TOP SOIL

- A. Topsoil shall be free from large roots, sticks, weeds, brush, or stones larger than one (1) inch in diameter or other litter and waste products. It shall be a loamy mixture having at least 90 percent passing the No. 10 sieve. A sample, free from extraneous materials, shall comply with the following requirements:
 - 1. Contain not less than 1.0 percent organic matter as determined by the test for organic matter in accordance with AASHTO T 194.
 - 2. Contain not less than 12 percent clay as determined in accordance with AASHTO T 83.
 - 3. Sand content shall not exceed 55 percent as determined in accordance with AASHTO T 88.
 - 4. The pH of the sample shall not be lower than 5.0 nor higher than 8.0. The pH shall be determined with a calibrated pH meter, on that portion of the sample passing

the No. 10 sieve in accordance with the "Suggested Methods of Tests for Hydrogen Ion concentration (pH) of soils," included in the procedures for Testing Soil issued December 1964, by ASTM.

2.02 FERTILIZER

- A. Fertilizer shall be a standard commercial 10-8-6 or 10-6-4 grade, uniform in composition, free flowing and suitable for application with manufacturer's recommended equipment, delivered to the site in bags or other convenient containers, each fully labeled, conforming to applicable State laws.

2.03 SOD

- A. Sod shall be nursery or field grown grass. Sod shall be well rooted in soil of such consistency that it will not break, crumble, or tear during handling and placing. Sod shall be free of noxious weeds and other objectionable plants and shall not contain substances injurious to growth. Sod shall be rolled after placement and joints filled between sections with screened soil.
- B. Grass shall be between 1-1/2 and 3 inches in length when the sod is cut. The sod shall be placed within 48 hrs of cutting in rectangular pieces not less than 12 inches in width and not less than one (1) inch in soil thickness. Keep sod in a moist condition between the initiation of cutting and the completion of placing and protect against exposure to the sun, wind, freezing during transportation to the site, and during storage prior to placing.
- C. Before any sod is delivered, the Contractor shall furnish to the Engineer:
 - 1. A statement giving the location of the property from which the sod is to be obtained and the approximate quantity available.
 - 2. An adequate sample from each source of supply for inspection and approval. Delivery of sod may begin upon approval of the sample.
- D. Perform only in seasons when satisfactory results can be expected; these are between March 15 and June 1 or between September 15 and November 1.

2.04 PLANTS:

- A. Plants shall be nursery grown in accordance with good horticultural practices and grown under climatic conditions similar to those in the locality of the project for at least 2 years. They shall have been root pruned within the last 2 years.
- B. Plants shall be freshly dug. No heeled-in plants from cold storage will be accepted.
- C. Unless specifically noted otherwise, all plants shall be of nursery stock quality, exceptionally heavy, symmetrical, tightly knit plant, so trained or favored in its development and appearance as to be superior in form, number of branches, compactness and symmetry.
- D. They 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, and have healthy, well-developed root systems. They shall be free from physical damage or adverse conditions that would prevent thriving with specified results.
- E. Plants shall be true to species and variety and shall match existing plants removed or damaged during construction. Plants that meet the requirements above, but do not possess a normal balance between height and spread, shall be rejected.
- F. Plants shall not be pruned before delivery. Trees, which have a damaged or crooked leader, or multiple leaders, unless specifically specified, will be rejected. Trees with

abrasion of the bark, sunscalds, disfiguring knots, or fresh cuts of limbs over 1-1/4 inches, which have not completely calloused, will be rejected.

- G. Label all plants. Plant material labels shall be durable, legible labels stating the correct plant name and size in weather-resistant ink or embossed process. Attach securely to all plants, bundles, and containers of plant material delivered being careful that those attached directly to plants will not restrict growth.

2.05 MULCH:

- A. Mulch shall be either the vegetative type, wood cellulose fiber type, or as approved by the Owner.
 - 1. Vegetative Type: The vegetative type shall be the cereal straw from stalks of oats, rye, wheat, or barley and shall be free of prohibited and noxious weed seeds.
 - 2. Wood Cellulose Fiber Mulch: Wood cellulose fiber shall contain no germination or growth inhibiting ingredients and shall be dyed an appropriate color to aid in visual metering in its application. It shall be easily and evenly dispersed and suspended when agitated in water, and when sprayed uniformly on the soil surface, shall form a blotter like cover, which readily absorbs the water and allows infiltration to the underlying soil. The mulch material shall be supplied in packages of not more than 100 pounds (43.36 kg) gross weight and shall be marked by the manufacturer to show the air-dry weight content. (Air-dry weight shall contain no more than 10 percent moisture.)

2.06 TREES:

- A. Trees to be replaced shall be replaced with Sugar Maple, Norway Maple, Schwedler Maple, Crimson King Maple, Scarlet (red) Maple, Sycamore Maple, Busiman Elm, Red Oak, Pin Oak, Burr Oak, Scarlet Oak, American Linden, European Linden, Sycamore Tree, Hackberry Tree, Sweet Gum Tree, Ginkgo Tulip Tree, Beech Tree, Ironwork, Thornless Honey or any thornless, podless, patented locust, as specified by the Owner.
- B. Trees shall be replaced with the same diameter tree, up to a maximum of four (4) inches in diameter, measured four (4) feet above the ground. Trees shall be first class nursery grown stock and shall be typical of their species or variety. They shall have average or normal well-developed branches, together with vigorous root systems. The root systems shall have been pruned at least once prior to final planting. Trees shall be sound, healthy, vigorous, and free from defects, disfiguring knots, abrasion of the bark, borers, and other forms of infections. Trees shall be nursery grown, and without gathered materials. Trees shall be free of branches no higher from the ground line than one-half of the total height of the tree, shall have single leaders, be well branched and with reasonably straight stems. Plants shall have been growing under the same climatic conditions as the climate of the area for a minimum of two years prior to the date of planting. The Contractor is to certify that said trees are free from disease.
- C. In preparing trees for moving and transport, take precautions customary in good trade practice. Workmanship that fails to meet the highest standards will not be accepted. Dig trees to retain as many fibrous roots as possible.
- D. Balled and burlapped trees shall have a solid ball of soil a minimum of 24 inches in diameter and a minimum depth of 16 inches held in place securely by burlap and a stout rope. Mudded-in or peat balls will not be allowed. Broken or loose balls will not be allowed.

- E. Prepare planting mix in accordance with accepted practice of the American Nurseryman's Association. Planting soil shall be good quality loam topsoil, mixed with a 6-24-24 fertilizer at the rate of ten pounds per cubic yard of topsoil.
- F. Plant materials used shall be true to name and size in conformity with the following standards of the American Joint Committee on Horticulture Nomenclature, 1942 Edition of Standard Plant Names. (Published by Mount Pleasant Press, J. Horace McFarland and Company, Harrisburg, Pa.) and American Standard for Nursery Stock, copyright 1973 (Published by the American Association of Nurserymen, Inc., 230 Southern Building, Washington, D.C. 20005).

2.07 FENCING:

- A. Chain Link Fence Fabric. Chain link fence fabric to be repaired or replaced shall be no less than the following:
 - 1. For fences less than 72 inches, it shall consist of two-inch uniform square mesh and shall be knuckled at both selvages.
 - 2. The wire shall be 11 gauge (.120 inch) for 36 and 42 inch fencing, 9 gauge (.148 inch) for 48 and 60 inch fencing, and 6 gauge (.192 inch) for 72 and 84 inch fencing.
 - 3. The fabric shall be zinc coated or aluminum coated steel wire. Zinc coated steel fabric shall conform to the requirements of ASTM A392, Class I with the fabric galvanized after weaving. Aluminum coated fence fabric shall conform to the requirements of ASTM A491.
- B. Woven Wire Fence Fabric. Woven wire fence fabric to be repaired or replaced shall be no less than the following and shall be zinc coated or aluminum coated steel wire. The design shall be the same as that removed or remaining. Zinc coated woven wire fabric shall conform to the requirements of ASTM A116 with Class 3 coating. Aluminum coated woven wire fabric shall conform to ASTM A584 with Class II coating. Wire shall not be less than number 11 gauge.
- C. Wood Fencing. Wood for wood fencing to be repaired or replaced shall be of the same type as that used in the fence removed or remaining and shall be of equal or better quality and of the same dimensions as the material used in the original installation.
- D. Iron Fencing. Ornamental iron fencing shall be removed at the nearest panel weld in complete sections so that the sections can be reinstalled after construction is complete. Ornamental iron fencing shall be reinstalled to match existing and workman knowledgeable and skilled at erecting iron fences shall complete the Work. All new welds shall be sanded and painted to match the existing color of the fence.

2.08 POSTS:

- A. Steel posts shall be comparable in size and weight as to those originally installed in the fence system. Posts removed may be reinstalled if sound and undamaged by this construction. All new steel posts shall be galvanized by the hot dip process with the zinc coating averaging not less than 1.80 ounces per square foot of surface area, with no individual specimen having less than 1.60 ounces per square foot. Steel top rails shall be the same diameter and material as line posts and installed with proper fittings.
 - 1. Wood posts shall be of the same type, quality and dimension as used in the original fence installation. Posts removed may be reinstalled if sound and undamaged by this construction. New wood posts shall be preservative-treated material.

2.09 CONCRETE:

- A. Cement shall be Portland cement conforming to ASTM C150/C150M. Aggregates shall conform in quality to ASTM C33/C33M for heavy weight aggregate. Heavyweight aggregates shall be graded crushed stone with a resulting unit weight of concrete of up to 155 pounds per cubic foot. Water shall be clean and free of injurious and deleterious substances. Concrete strength shall be minimum 4,000 psi at 28 days.

2.10 HOT MIX ASPHALTIC CONCRETE:

- A. Hot mix asphaltic concrete shall be Type 2 as defined in Section 2200, "Paving" in accordance with "Standard Specifications and Design Criteria," latest revision as published by Kansas City Metropolitan Chapter, American Public Works Association (APWA).

PART 3 - EXECUTION

3.01 CLEANUP

- A. The Contractor, upon completion of installation and backfill operations, shall cause the work area to be cleaned and dressed up ready for final grading including but not limited to the following items.
 - 1. Construction debris and litter shall be promptly hauled off the worksite to a dumpsite or landfill approved by the Owner.
 - 2. Excess excavation material including rock, gravel and excess granular backfill material, shall be removed from the site including material which has washed into stream beds, storm water facilities, streets, culverts, etc. The site shall be left clean.
 - 3. Tools, equipment and construction materials shall be removed except in designated storage areas along the construction route, and then shall be stored in a neat appearing manner.
 - 4. Restore surface and subsurface drainage and provide drainage wash checks necessary to prevent soils from being washed downstream. Contractor shall use best management practices when constructing erosion control devices. Contractor shall be responsible for controlling erosion due to surface runoff on all disturbed areas. Contractor shall leave erosion control devices in place until the required surface restoration has been completed and the vegetative growth is sufficient to control erosion.
 - 5. Machine grade the area in preparation of final grading, seeding, sodding, pavement replacement, etc.
 - 6. Restore all street signs and mail boxes.
 - 7. Maintain adequate safety signs, barricades and lights until final restoration of work area is completed.
 - 8. Where ordered by the Owner, dust control over temporary surfaces shall be accomplished with a 77 percent calcium chloride solution, periodic wetting, or by some other appropriate method. Costs for dust control shall be considered incidental.
 - 9. If in the opinion of the Owner, hot mix asphaltic concrete cannot be installed due to weather conditions, then cold patch asphalt shall be installed and maintained as a temporary surface until, in the opinion of the Owner, weather conditions will allow installation of a permanent hot mix asphaltic concrete surface pavement.

- B. Finish Grading. The Contractor shall finish grade the area with top soil to lines and grades which existed prior to the area being disturbed, or to the lines and grades shown on the Drawings, with special attention directed to proper surface drainage, and the refilling of settled excavations with earth compacted to densities required. The area shall be smoothed by raking or dragging. All flower and vegetable gardens in existence prior to this project shall have the separately stored topsoils restored unless otherwise required.
- C. Fences:
1. All existing fencing damaged and/or removed shall be restored to a condition equivalent to or better than that, which existed prior to construction.
 2. It shall be the responsibility of the Contractor to survey and record the location of all existing fence corners with a minimum of three ground ties prior to removal of the fences. Copies of all ties to fence corners shall be given to the Owner. A certified fence erector shall perform the erection of the new fences. The Owner prior to the start of the fence installation must approve the fence erectors.
 3. All fencing damaged in removal, by construction or otherwise unsuitable for reinstallation shall be repaired or replaced with like materials of equal or better quality than the material used in the original installation, but the minimum quality shall be as specified in Part 2 "Materials" or as noted on the Drawings. Height and style shall match the remaining fence or that removed. All wood fences shall be painted to match existing fence where applicable. All steel posts shall be set in concrete, plumb, and true to line and grade. Spacing shall be uniform and comparable to that in the existing fence system. All line posts shall be embedded two feet six inches; corner and end posts embedded three feet six inches. Wood posts may be driven or set in pre-bored holes.
 4. Pre-bored holes shall be backfilled and thoroughly compacted to secure the post. Any posts damaged by driving will be rejected. Wood line posts shall be embedded a minimum of two feet six inches; corner and end posts embedded three feet six inches.
- D. Walls.
Retaining and architectural walls, if disturbed or damaged, shall be restored architecturally and structurally to conditions not less than those existing prior to construction.
- E. Concrete Lined Ditches:
1. All existing ditches damaged or removed during construction, shall be restored to a condition not less than that which existed prior to construction.
 2. All concrete ditch lining shall be reinforced using 6 x 6 – W2.9 x W2.9 welded wire fabric placed uniformly at mid-slab.
- F. Rock Blanket Lined Slope Protection and Drainage Ditches:
1. All existing rock blanket lined slope protection or drainage ditches disturbed during construction shall be restored to a condition not less than that which existed prior to construction.
 2. Materials: The material for rock blanket shall be durable stone containing a combined total of not more than 5 percent of earth, sand, shale, and non-durable rock. The material shall contain a large percentage of pieces as large as the thickness of the blanket, with enough smaller pieces of various sizes to fill the larger voids. Acceptance of quality and size of material may be made by visual inspection at the job site.

3. Rock Blanket: Rock blanket shall be installed to a minimum depth of eight (8") inches. At least 40% of the rock shall have a cross sectional diameter of eight (8") inches or more.
 4. Construction Requirements: The slopes and other areas to be stabilized with the rock blanket shall be graded and conform to existing slopes and contours. The rock shall be placed on the slope, to a depth of eight inches, and shall be manipulated so that the flat sides are in contact, thereby eliminating large voids. The outside of the blanket shall present an appearance free from segregation and with a proportionate amount of the larger pieces showing.
- G. Subsurface Obstructions:
1. Where existing utilities and service lines are to be encountered, the Owner thereof shall be notified by the Contractor at least 48 hours (not including weekends and/or holidays) in advance of performing any work in the vicinity. All excavation, pipeline installation and backfilling work in the vicinity of such utilities shall be accomplished in the manner required by the respective owner and, if requested, under their direct supervision. The Contractor shall be responsible for any and all damages to a public or private utility that may occur as the result of the construction.
 2. The Contractor shall make a reasonable effort to ascertain the existence of obstructions and shall locate obstructions by digging in advance of machine excavation where definite information is not available as to their exact location. Where such facilities are unexpectedly encountered, and damaged, responsible officials and other affected parties shall be notified and arrangements made for the prompt repair and restoration of service.
- H. Sodding:
1. Maintained Lawns shall be restored with sod that matches existing grass as close as possible. Remove and replace sod, as required, in accordance with the reference standard.
 2. Place 6 inches of black dirt topsoil over trenched areas and 3 inches over areas disturbed by construction equipment prior to final grading.
 3. Before placing sod, apply fertilizer to the topsoil surface at the rate of 30 lbs/1,000 sf and work into the top one inch of the topsoil. Rake to a smooth even surface. Lay sod so that no voids occur, with tight joints and staggered seams. Perform sodding operations so that workmen walk only on the laid sod. Immediately after placing sod, roll with a 200-lb roller to obtain a smooth, firm surface. Brush or rake screened top soil over the joints in the sodded area and water thoroughly. The completed sodded surface shall be true to finished grade, even and firm over the entire area. The sod shall be watered by the Contractor until rooted at no additional cost to the Owner.
- I. Tree, Bush, and Hedge Planting, Transplanting and Replacement:
1. Existing trees, bushes, and hedges which cannot be tied back or trimmed to prevent damage and must be removed in the opinion of the Owner due to the proposed construction shall be removed by the Contractor. The Contractor shall remove or grind the stump and roots to a depth of 12 inches below grade and haul the spoil material away. If the stump cannot be removed or ground down, Contractor shall contact City arborist for direction. The cost for removal of trees, bushes and shrubbery will be considered as incidental. Transplanting shall be at the location directed by the Owner. After digging the plants, they shall be properly stored until they can be planted. Replacement plants shall not be delivered until they can be

planted. Short tunneling techniques shall be utilized to avoid removing and damaging trees unless the trees are specifically indicated to be removed or removed and replaced on the drawings. Short tunneling shall be performed from an excavation which shall be outside the drip line of the tree whenever possible.

2. All trees to be planted shall be like species as the tree removed unless otherwise directed by the Owner or by the local jurisdictional Forester.
3. All planting shall be done during the proper seasons. No planting shall be done in frozen soil or during unfavorable weather conditions. Tree pits shall be dug of such size as to provide ample space for the entire root system, as the tree comes from the nursery, without crowding or bending the roots. The pits shall be 12 inches wider than the ball diameter, shall have vertical sides, and be six inches deeper than the thickness of the ball. The soil in the bottom of the pit shall be thoroughly loosened by spading to a depth of six inches. Holes shall be dug immediately before planting.
4. All trees shall be set at a depth slightly below finished grade, and the hole shall be half-filled with planting soil and thoroughly watered. The upper half of the burlap shall then be loosened and folded down and the hole filled with planting soil and thoroughly watered. This process shall continue until a 2-inch deep watering basin remains around the tree. The watering basin shall be brought to grade with two inches of well-rotted mulch.
5. After planting, the branches shall be pruned in proportion to the amount of root system lost in the transplanting operations but in such a manner as to retain the form typical of the tree. In general, approximately one-third of the branch structure shall be removed. All pruning shall be done by expert workmen in such a manner as to insure healthy and symmetrical growth of new wood. Spoil earth dug from the tree pits shall be disposed of by the Contractor.
6. After planting, trunks of all trees planted after October 15 shall be wrapped with special tree wrap from the crotch of the first major branches down to the ground. Wrapping shall be tied with cotton twine to keep the wrapping in place.
7. All trees shall be planted vertically. Trees found leaning during the guarantee period shall immediately be staked with two 2-inch by 3-inch wood stakes, eight feet long, pointed on one end. The stake shall be of sound and durable oak or cedar. The stakes must be long enough to properly support the tree. The stakes shall be driven to a depth of 18 inches below the bottom of the tree pit. The stakes shall be located one on the north side and one on the south side of the tree, and 12 inches to 18 inches from the trunk. Stakes shall not be driven into the ball and burlap. The trees shall be guyed using a figure eight hitch consisting of No. 14 gauge wire encased in a section of rubber hose.

J. Black Dirt Topsoil:

1. The black dirt topsoil used for surface restoration shall be pulverized and come from a material supplier, which is subject to the review of the Owner.
2. If the Contractor desires to use topsoil from the construction site, it shall be stripped and stockpiled separately for future use, subject to the approval of the Owner.
3. Topsoil shall be provided by the Contractor to bring the area to be sodded to the proper grade. The minimum depth of topsoil shall be six (6") inches in grassed areas.
4. Fertilizer nutrients shall be spread over the area at a rate of 160 pounds per acre (nutrient weight only) or as recommended by the manufacturer.

K. Pavement Replacement:

1. Scope: This section covers the furnishing of all labor, equipment, tools and materials in the performance of all work for the replacement of pavement including sidewalks, driveways and curbing as shown on the Drawings. In addition to these Special Conditions, pavement replacement shall be done in accordance with "Standard Specifications and Design Criteria," latest revision as published by Kansas City Metropolitan Chapter, American Public Works Association (APWA).
2. Definition: Pavement replacement, as used herein, shall mean reconstruction of the entire structural section of all pavements removed in excavated areas, including sidewalks, driveways and curbing and all damaged pavement surfaces outside of excavation limits.
3. General:
 - a. Replacement of pavement shall proceed in accordance with approved traffic control Drawings.
 - b. Prior to pavement replacement, all edges that were previously cut but have been subsequently damaged, shall be re-cut and all adjacent undermined and heaved pavement shall be removed.
 - c. Removed pavement shall be replaced in conformance with the requirements (latest revision) of applicable portions of Section 2200 – Paving, and/or Section 2300 – Incidental Construction as detailed in the Kansas City Metropolitan Chapter of the APWA, "Standard Specifications and Design Criteria" and as shown on the Contract Plans.
 - d. Where shown on the Plans, Contractor shall mill and overlay pavement from curb to curb to the limits shown on the Plans. Contractor shall plan traffic control and placement of pavement to minimize street closures.

L. Residential Driveways:

1. The Contractor shall saw cut saw cut driveways to remove all damaged edges and all undermined and heaved pavement. Saw cuts shall be made perpendicular to the existing driveway edge. If there is an existing joint within 10 feet of the proposed saw cut, then the driveway shall be replaced to the existing joint. However, in no case shall the distance between saw cuts be less than 15 feet.
2. The driveway replacement shall match or exceed the existing driveway but in no case shall the drive have a depth less than the existing. As a minimum, all driveways shall be reinforced with #4 bars at 18" centers each direction or 6" x 6" - W2.9 x W2.9 welded wire fabric at the mid-depth of the slab. All driveways shall be jointed in a manner that matches the original contraction and expansion joints. All contraction joints shall have a depth of 1/4 of the slab thickness and a spacing no greater than 15 feet in separation.

- M. Progress of Clean-up Operations. If clean-up work is not following the construction activities satisfactorily, construction will be suspended until clean-up work is completed.

END OF SECTION

SECTION 02 30 00 - SUBSURFACE CONDITIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Subsurface investigations have been made at the project site. Test borings and logs were performed by **Kaw Valley Engineering**. Copies of the boring logs and report will be made available to prospective bidders upon request to the Engineer.
- B. The subsurface investigations were made to determine the nature of materials to be excavated, their suitability for use, and foundation conditions at the site. While the test borings were made with reasonable care and in accordance with standard practice, there is no express or implied guarantee as to the accuracy or completeness of the subsurface information, nor of the interpretation thereof by the Engineer, Owner, or any of their representatives. The subsurface information is not a part of this or any contract document connected with this project.

1.02 ADDITIONAL INFORMATION

- A. Each prospective bidder shall make their own interpretation of the subsurface information issued to them and shall make any additional surveys or investigations, at their own expense, which they deem necessary to evaluate conditions which may affect their bid or performance of the work.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Demolish above-grade structures and improvements.
- B. Demolish grade-level site improvements.
- C. Demolish below-grade foundations, improvements and obstructions to depth to avoid conflict with new construction or sitework. Remove hollow items which could collapse.
- D. Remove and legally dispose of demolished materials off-site.
- E. Protect sitework and adjacent structures.
- F. Coordinate disconnection, capping and removal of utilities.

1.02 RELATED SECTIONS

- A. Section 01 10 00 - Summary of Work - General: Limitations on Contractor's use of site and premises.
- B. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- C. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- D. Section 31 10 00 - Clearing and Grubbing - General
- E. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 SUBMITTALS

- A. Permits and notices authorizing demolition.
- B. Certificates of severance of utility services.
- C. Permit for transport and disposal of debris.
- D. Demolition procedures and operational sequence for review and acceptance.

1.04 QUALITY ASSURANCE

- A. Contractor shall have experience in demolition of comparable structures.
- B. Comply with governing codes and regulations.

1.05 JOB CONDITIONS

- A. Protection:
 - 1. Erect barriers, fences, guard rails, enclosures, chutes, and shoring to protect personnel, structures, and utilities remaining intact.
 - 2. Protect designated trees and plants from damage.
- B. Maintaining Traffic:
 - 1. Ensure minimum interference with roads, streets, driveways, sidewalks, and adjacent facilities.
 - 2. Do not close or obstruct streets, sidewalks, alleys or passageways without permission from authorities having jurisdiction.
 - 3. If required by governing authorities, provide alternate routes around closed or obstructed traffic ways.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

2.01 INSPECTION

- A. Verify that structures to be demolished are unoccupied and discontinued in use.
- B. Do not commence work until conditions are acceptable to the Owner.

2.02 PREPARATION

- A. Arrange for and verify termination of utility services to include removing meters and capping lines.
- B. Exterminate vermin and rodent in structures to be demolished.
- C. Remove items scheduled to be salvaged for Owner, and place in designated storage area.

2.03 DEMOLITION

- A. Sprinkle debris and use temporary enclosures as necessary to limit dust to lowest practical level.
- B. Do not use water to extent causing flooding, contaminated runoff, or icing.
- C. Place fill in lifts not exceeding 12 in. and compact to density not less than adjacent soil.
- D. Grade surface to adjacent contours and slope to drain.
- E. Repair damage to adjacent structures.

2.04 DISPOSAL

- A. Remove demolition debris daily.
- B. Do not store or burn materials on site.
- C. Transport demolition debris to off-site disposal area.

END OF SECTION

SECTION 02 43 00 - REMOVAL OF EXISTING STRUCTURES

PART 1 - GENERAL

1.01 DESCRIPTION

This work shall include the removal of subsurface structures such as all existing drainage structures, head walls, pipe, inlets, manholes, retaining walls, conduits, foundations, cables, and other obstructions which are encountered during construction. This includes any items which may not be specifically listed in the Plans but are in conflict with the new construction and which would normally be encountered upon a careful examination of the site of the work. This includes repair, plugging, or removal of existing pipe after removal of structures.

The work shall also include removal and wasting of surface structures such as concrete curb, pavement of all types, sidewalk, signs and markers, fencing, and abandoned utilities as directed by the Engineer. Excluded are utilities currently in service and structures for which other provisions are made for removal.

PART 2 - PRODUCTS

2.01 BACKFILL MATERIAL

Backfill cavities created by removing existing structures, using granular material or loose friable soil from the project. Use material that is free of excess moisture, frozen lumps, roots, sod, rocks greater than 4 inches in diameter or other deleterious material. The Engineer will accept the backfill material based on visual inspection.

2.02 MATERIALS TO RECONSTRUCT EXISTING STRUCTURES

- A. Provide the specified materials that comply with Part 2 - Materials' divisions (Divisions 3, 32 and 33).
- B. If the existing structure is damaged during the removal operations, replace any damaged materials with new materials matching the originals.

PART 3 - EXECUTION

3.01 EROSION CONTROL MEASURES

Erosion control measures shall be in place prior to the commencing of any work on the site in accordance with the "Temporary Erosion and Pollution Control" section. If the erosion control measures are not effective or are not approved by the City Engineer, all removal of existing structures shall be halted until such time as the erosion control measures are approved.

3.02 FENCES

Fences that have portions of the fence removed and not replaced shall be left in a useable condition. The remaining fencing shall be terminated at an existing post, or a new corner post shall be set as shown on the plans or at the direction of the City Engineer.

3.03 EXISTING PAVEMENT

Existing pavement shall be removed to provide match points as directed by the City Engineer.

3.04 PIPE

Unless otherwise provided, all pipe designated for removal shall be removed and every precaution taken to avoid breaking or damaging those pipes which are to remain. The Contractor shall be held responsible for the repair of any damaged pipe and any such pipe will be replaced at the Contractor's expense. All damaged drainage pipe shall be replaced with the same type, grade and class as exists prior to the damage.

END OF SECTION

SECTION 03 11 00 - CONCRETE FORM WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Forming all cast-in place concrete, as required by the work and form removal.
- B. Forming accessories.

1.02 RELATED SECTIONS

- A. Section 03 20 00 - Concrete Reinforcement.
- B. Section 03 30 00 - Concrete.
- C. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 SUPERVISION

- A. Provide qualified supervision on the job at all time form erection or removal is in progress.
- B. All persons erecting forms shall be journeyman carpenters.

1.04 PRODUCT HANDLING

- A. Protection:
Form material to be used on the project shall be stored in a neat manner, off the ground and protected from weather when not in use.
- B. Design:
Form structure shall be designed according to American Plywood Association published data for plywood forms.
- C. Replacement and repair:
Forms damaged during use shall be repaired before storing. Damaged material shall be removed from the site.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Form lumber:
All lumber to be used in forming structural concrete shall be new except as allowed for reuse as described in Part 3.
 - 1. Class 1B-B exterior type plyform. Medium density overlaid with sealed edges required for concrete exposed to view on project completion.
 - 2. "Steel Ply" as manufactured by Symons Corporation with plastic overlaid plywood panels.
 - 3. Equal system approved for this project.

2.02 TIES AND SPREADERS

- A. Form ties for non-exposed concrete walls shall be Richmond standard SBR "Snap-Ty" with 1-inch break back as manufactured by Richmond Screw Anchor Co., Inc.
- B. Form ties for concrete walls exposed to view or walls exposed to water shall be SPC Snap-Ty with 1-½ inch plastic cone.
- C. Spreaders shall be ST FC or ST FC-N steel spreaders as manufactured by Richmond Screw Anchor Company, Inc.
- D. Miscellaneous forming accessories required for the work shall be similar and equal to those manufactured by Richmond.

- E. Products of other manufacturer but equal to the above will be considered and are subject to the Engineer's approval.

PART 3 - EXECUTION

3.01 GENERAL

All concrete work shall be formed using fabricated forms as specified in this Section. Earth forming will be permitted only where fence post or thrust block requires direct bearing against undisturbed earth.

3.02 COORDINATION

- A. Other trades:
The Contractor shall coordinate the work of all other trades and subcontractors before undertaking concrete formwork.
- B. Conflicts:
The Contractor shall notify the Engineer in the event there is conflict between plan requirements for forming and other construction requirements.

3.03 ERECTION OF FORMS

- A. General:
Forms shall be erected true and rigid with adequate bracing to ensure permanent alignment.
- B. Cleaning:
Provide cleanout openings at bottom of all wall forms to permit cleaning after erection.
- C. Alignment:
 - 1. Joints between form panels shall be adjusted and accurately anchored to prevent offsets in concrete surfaces and leakage of concrete during placement.
 - 2. Bowed forms will not be accepted.
- D. Embedded items:
Set all anchor bolts, shear keys, pipe hanger supports, blockouts, sleeves, and other items required for subsequent construction and equipment or material of other trades.
- E. Keyways:
Keyways shall be formed from 2 by lumber, cut to size and shape called for. Keyway forms shall be secured in place before placement of concrete. Forming keyway after concrete is placed will not be allowed.
- F. Tolerance:
Dimensional tolerances shall not exceed the following:
 - 1. Floors and slabs:
Plus or minus 1/4 inch. Floor shall not pond water.
 - 2. Building alignment:
Not to exceed 1/2 inch.
 - 3. Structural member alignment. Not to exceed 1/480 span.
Width of structural member or wall:
 - 4. Not to exceed 1/5 inch.
 - 5. Basin:
Plus 1/2 inch minus 0 for all horizontal dimensions.
 - 6. Walls:
Elevation differential of top of walls and overflows shall be plus or minus 1/8 inch not to exceed 1/4 inch in 20 feet horizontally.

7. Wall depth:
Plus 1 inch minus 0.

3.04 FORM RE-USE

A. General:

Forms may be reused so long as they are in good condition, will form a continuous plane surface, have square corners and will form mortar tight joints.

B. Metal forms:

Metal forms with plywood panels must meet the above criteria and must lock to a rigid position to prevent movement between adjacent forms.

3.05 FORM REMOVAL

A. General:

1. Forms shall be removed in a careful workman manner. Precautions shall be taken to prevent danger or hazard to workmen or other persons.
2. Form removal shall be performed in a manner to protect the formed concrete and other construction from damage.

B. Clean-up:

1. Forms shall be cleaned immediately and neatly stored if re-use is intended. Cleaning shall include repair and oiling.
2. Damaged form material shall be promptly removed from the site.

C. Concrete Repair:

Any repair of newly formed concrete that is required by Section 03 30 00 shall be made immediately after forms are removed.

END OF SECTION

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Reinforcing steel and related items required for cast-in-place concrete.

1.02 RELATED REQUIREMENTS

- A. Section 03 11 00 - Concrete Form Work.
- B. Section 03 30 00 - Concrete.

1.03 SUPERVISION

- A. Workmanship:
Provide qualified supervision at all times reinforcing work is in progress. Workers shall be experienced ironworkers.
- B. Codes:
Reinforcement placement and detailing shall comply with practice specified in the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" publication ACI 315-80 of the American Concrete Institute or its latest revision, unless otherwise specified herein.

1.04 SUBMITTALS

- A. Shop Drawings:
Shop drawings shall be prepared for all reinforcement required by the project. Shop drawings shall be logically and legibly prepared to permit reasonable ease of sorting, selecting, placing reinforcement as well as checking drawings. Preparer and fabricator shall be identified on the drawings.
- B. Fabrication:
Reinforcement shall not be fabricated until shop drawings have been processed, approved, and returned.

1.05 PRODUCT HANDLING

- A. Protection:
 - 1. Use all means necessary to protect reinforcement from dirt and other foreign substances before and after placing.
 - 2. Store in a neat manner in logical order, bundled, tagged, off the ground, and in an area adequately isolated.
 - 3. Re-bundle to maintain identification when placing is interrupted.
- B. Replacement:
All damaged or improperly fabricated bars shall be replaced at the Contractor's expense.

PART 2 - MATERIALS

2.01 CONCRETE REINFORCEMENT

- A. General:
All reinforcement shall be free from rust, loose mill scale, and other contaminants.
- B. All bars shall be billet steel bars for concrete reinforcement ASTM A615/A615M Grade 60.
All reinforcements shall be epoxy coated.
- C. Welded steel wire:

Welded steel wire shall meet ASTM A185.

D. Accessories:

1. General:

Accessories shall be subject to Engineer's approval.

2. Tie wire – 18-gauge steel wire.

3. Support above form with fabricated steel chairs. Number of chairs shall be adequate to prevent sag during steel and concrete placement.

4. Support above subgrade with solid concrete bricks.

5. Wall layer spacers shall be ¼-inch round "Z" bar.

6. Horizontal layer spacers shall be Standee.

E. Dowel bar splicer:

1. Dowel bar splicer shall be Richmond or approved equal, manufactured from standard specified rebar material, with NC threads and shop fabricated to specified dowel configurations.

PART 3 - EXECUTION

3.01 GENERAL

A. Other trades:

Coordinate all work of other trades to avoid conflict with reinforcement.

B. Shop drawings:

Check all shop drawings to verify dimensions required.

3.02 FABRICATING

A. General:

Reinforcement shall be shop fabricated except where straight bars No. 5 or smaller are required.

B. Bending:

All bending shall be by using bending jigs and mandrels. All bars shall be bent cold.

C. Cutting:

Bars shall be cut by cold shearing. Torch cutting in the field may be permitted in special situations.

3.03 PLACING

A. General:

1. Accurately place all bars and tie in place before placing concrete, include dowels. Tie at all intersections with 18 gauge steel wire.

2. Corner bars required for horizontal reinforcing. Unless otherwise noted on plans corner bars shall be same size as horizontal bar.

B. Clearance:

1. Preserve clearance between bars of 1 inch minimum, not less than one bar diameter or 1-1/3 times large aggregate, whichever is larger.

2. Provide following concrete coverage over reinforcing steel unless other-wise indicated on plans:

a. Three inches above subgrade - in excavation.

b. Two inches above subgrade - slab on fill.

c. Two inches from form - walls exposed to water or earth.

d. One and one-half inches from form - normal cover interior walls, beams, columns, etc.

- e. One and one-half inch on top steel - interior slabs.
 - f. One and one-half inches on top and bottom - exterior slab or slab over or under water.
- C. Splicing:
- 1. Lap all reinforcing bars as required by ACI 318-77 Class B lap with a minimum of 36 diameters except where otherwise shown or required by ACI.
 - 2. Stagger splices except where otherwise shown.
 - 3. Lap welded wire two spaces.
- D. Dowels:
All dowels shall be placed and securely anchored before placing concrete.
- E. Supports:
- 1. Secure all reinforcement in place using steel chairs, supports, Z bars and other products fabricated for the purpose. Supports shall be spaced adequately to support the steel firmly in place. Use sand plates or other approved products when reinforcement is placed on sand or earth subgrade.
 - 2. Chairs will not be accepted to hold reinforcing clearance on walls.
- F. Openings and obstructions:
- 1. Place one extra No. 5 bar, 4 feet long, diagonally in each face at corners of openings. Place No. 4 hoop around all round openings.
 - 2. Bend reinforcing around obstructions. Place extra reinforcing where cutting is authorized. Engineer's approval required before cutting steel.
 - 3. Consult Engineer on special situations.
- G. Certification:
Certify material and type of deformation.
- H. Condition:
All reinforcement shall be free from loose rust, dirt coating, oil, paint, or any foreign substance.

END OF SECTION

SECTION 03 30 00.01 - CONCRETE CURING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Initial and final curing of horizontal and vertical concrete surfaces.

1.02 RELATED SECTIONS

- A. Section 03 30 00: Cast-in-Place Concrete

1.03 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1999.
- B. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004.
- C. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International; 2001.
- D. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; 2003.
- E. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2003.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on curing compounds and moisture-retaining sheet, including compatibility of different products and limitations.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301 and ACI 302.1R.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver curing materials in manufacturer's sealed packaging, including application instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Moisture-Retaining Sheet: ASTM C 171.
 - 1. Polyethylene film, clear, minimum nominal thickness of .006 in.
 - 2. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd, 40 inches wide.
 - 3. Water: Potable, not detrimental to concrete.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to be cured.

3.02 EXECUTION OF HORIZONTAL SURFACES

- A. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 4 days.
- B. Spraying: Spray water over floor slab areas and maintain wet for 7 days.

- C. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges; maintain in place for not less than 7 days.
- D. Absorptive Moisture-Retaining Sheet: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place for 7 days.

3.03 EXECUTION OF VERTICAL SURFACES

- A. Formed surfaces:
 - 1. Forms are adequate if left in place five (5) days.
 - 2. Cover top with 6 mil polyethylene sheet. Seal top and hold in place with 2 x 4's or similar method. Air shall not be allowed to circulate under sheets.
 - 3. If forms are removed to "stone" finish or repair concrete, moisten surface and completely cover with 6 mil polyethylene sheets. Anchor in place.

3.04 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 03 30 00 - CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This specification covers all cast-in-place plain and reinforced concrete construction required by the plans and specifications in the performance of this Contract, including all materials, labor, equipment and appliances.

1.02 GENERAL CONCRETE CONTROL AND QUALITY

- A. All producing and placing of concrete shall be conform to Section 500 of the **Missouri** Standard Specifications for State Road & Bridge Construction.

PART 2 - MATERIALS

2.01 MATERIALS

Materials shall conform to the requirements of the Kansas City Metropolitan Materials Board (KCMMB).

- A. Cement. Cementitious materials shall meet the requirements of the KCMMB.
- B. Fine Aggregate. Aggregate for concrete shall meet the requirements of the KCMMB.
- C. Coarse Aggregate. Aggregate for concrete shall meet the requirements of the KCMMB.
- D. Mixing water. Mixing water for concrete shall be potable and shall meet the requirements of the KCMMB.
- E. Air-Entraining Agent. Air-entraining agents used to produce specified amounts of air entrainment shall meet the requirements of the KCMMB.
- F. Admixtures. Admixtures listed in the KCMMB mix design as "optional" will be used only with prior approval of the engineer.
- G. Reinforcing Steel.
 - 1. General: All reinforcing steel shall be deformed bars and shall comply with ASTM A615/A615M, Grade 40 or 60.
 - 2. Bar Supports: All bolsters and chairs shall be in accordance with ACI Standard 513, and those used in the underside of the top slabs shall be pre-galvanized. On sub-grade, support on continuous chairs.
 - 3. Fabrication:
Fabrication of reinforcing steel shall be in accordance with ACI Standard 315. Requirements for laps, spacing, edge distance, length and bending of bars are given on the Plans. Reinforcing steel shall be protected from damage at all times. The bars shall be firmly tied at the alternate crossings, or closer. The steel shall be tied in correct position, positively secured against displacement, and inspected before any concrete is placed. Care shall be exercised to maintain proper clearance between the forms and the reinforcement. Bars at the top of lifts shall be held securely in correct position by means of approved metal bar supports. Before any concrete is placed, any dried mortar, loose rust or mud shall be cleaned from the reinforcing steel.
- H. Welded Wire Fabric: ASTM Designation A-185.
- I. Expansion Joint Filler: AASHTO M213.

2.02 READY MIXED CONCRETE

- A. Ready mixed concrete, in accordance with ASTM C94/C94M, shall be used unless otherwise authorized by the Engineer. Any concrete which is not plastic and workable when placed on the subgrade or in the forms shall be rejected.
- B. Concrete shall be completely placed and consolidated in the forms in accordance with 3.02 B of this Section.

2.03 CONCRETE MIX

- A. KCMMB 4K Concrete Construction: All concrete used in construction of curb and gutters, retaining walls, culvert aprons, inlets, junction boxes, yard inlets, manholes, ditch liners, sidewalks, and integral sidewalk retaining walls shall be classified as Class KCMMB 4K unless otherwise stated in the plans.

PART 3 - EXECUTION

3.01 CONCRETE EQUIPMENT AND PLACING

- A. The Contractor's attention is called to the size of concrete pours required. He shall have sufficient crews, vibrators and other equipment to properly handle same so that no cold joints will be created and that concrete surfaces will be kept "alive." The Engineer shall be advised in advance of the equipment to be used.
- B. Before delivery of concrete the Contractor shall have made all necessary preparations and shall have all necessary items on hand not only for proper placing but for covering, curing, heating, finishing, rubbing and/or as required to perform in accordance with the Plans and Specifications. Failure to be properly prepared may result in inability to perform properly and consequent rejection of the work.
- C. Any concrete damaged by the Contractor's equipment, or by other means during construction shall be replaced at the Contractor's expense.

3.02 JOINTS

- A. Joints shall be constructed as shown on the Plans. Unless shown on the plans, joints shall not be constructed unless approved by the Engineer.
- B. All construction joints shall be made with canted 2 x 4 at least 2 inches from wall face. All construction joint contact surfaces shall be finished with wood float finish.
- C. Normal Grout
Furnish and install normal cement grout where called for on the plans. Mix to be one part sand to 2 parts cement by volume. Use minimum water required for workability.
- D. Expanding Grout
Proportion by weight 1 part normal Portland cement, 1 part sand and 1 part Ironite compound similar and equal to Embecco (Master Builders Co.). Thoroughly dry mix and add a minimum of water to a stiff consistency as limited by placing conditions. Firmly pack mortar into the hole or joint and moist cure for three (3) days.

3.03 FORMS - WALL

- A. Forms shall be constructed from surface finished plywood and 2 x 4 studs or approved manufactured forming system. All form material shall be in first class condition and with mortar tight joints. Provide cleanouts at bottom and remove debris.
- B. Forms shall be erected true and rigid with adequate bracing to insure alignment. Provide chamfer for all exposed corners.

3.04 CONCRETE FINISH

- A. All concrete shall be finished monolithically. No "topping" or "plastering". Walls exposed to view shall be rubbed to produce uniform sandy texture without air voids, fins, form marks or offsets. Tops of all walls shall be hard trowel finish with chamfered corners.
- B. Pavement slab, slope paving, inlet tops, sidewalk, and exposed slabs of structures shall receive a light broom finish.

3.05 CURING CONCRETE

Maintain continuously for 5 days after placing:

- A. Concrete temperature at least 50° F. and not over 100° F.
- B. Concrete Moisture:
 - 1. Walls & Structures: Cover with 6 mil polyethylene film and leave forms on 5 days, except as required for rubbing.
 - 2. Slabs: Polyethylene membrane 4 mil thick; lap joints 6". Hold down with 1 x 4 at laps and at 6 foot centers. Membrane to be translucent or white in hot weather; black in cold weather.
 - 3. Pavement, Walks, Channels, and other Approved Structures: Spray approved membrane -One (1) gallon to 200 square feet.

3.06 SPECIAL WEATHER CONDITIONS

- A. Cold Weather. The Contractor shall comply fully with the provisions of ACI 306.1-90 as modified below:
 - 1. Average daily temperatures as defined in ACI 306.1-90 will be determined and recorded by the City.
 - 2. Concrete temperatures will be determined through the use of high-low thermometers placed and operated by the contractor below insulated blankets, or where the concrete is uncovered, by checking air temperatures. Uncovered concrete, which has been subjected to freezing temperatures of any duration during the first 24 hours will be considered "frozen," and shall be rejected.
 - 3. The months of December, January and February will be considered "Cold Weather" and will require concrete protection, regardless of temperature.
 - 4. Concrete shall reach 75% of its design strength prior to backfilling. This strength can be determined through the use of field-cured cylinders, made and tested at contractor's expense. Concrete must have 5 days where the average daily temperature is above 50 degrees F prior to backfilling unless field cured cylinders are taken. These days do not need to be consecutive.
 - 5. All coverings and heating equipment shall be on hand prior to beginning placement of the concrete.
- B. Hot Weather. Concrete operations in hot weather shall conform to the following requirements:

- Place concrete within the time and temperature conditions shown in Table below.

Ambient Air Temperature and Agitated Concrete Placement Time		
T = Ambient Air Temperature at Time of Batching (F)	Specimen Age Time limited agitated concrete must be placed within, after addition of cement to water (hours)	Admixtures
T<75	1½	None
75≤	1	None
75≤T<90	1½	Set Retarder

- In all cases, if the concrete temperature at time of placement is 90°F or above, or under conditions contributing to quick stiffening of the concrete, place the concrete within 45 minutes of adding the cement to the water. Do not use concrete that has developed its initial set. Regardless of the speed of delivery and placement, the Engineer will suspend the concreting operations until corrective measures are taken if there is evidence that the concrete cannot be adequately consolidated.

END OF SECTION

SECTION 31 10 00 - CLEARING AND GRUBBING - GENERAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Removal of trees, stumps, vegetation and unusable material
- B. Clearing and grubbing.

1.02 RELATED SECTIONS

- A. Section 31 23 16 - Excavation, Backfill, and Site Grading
- B. Section 31 23 16.13 - Trenching, Backfilling and Compaction

1.03 SUPERVISION AND QUALITY

- A. This work shall comply with all codes governing and all insurance requirements. Work shall be undertaken only when the construction superintendent is present and supervising the work.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

3.01 GENERAL

- A. Clear and grub trees, stumps, vegetation, debris, rubbish, and designated improvements from site.
- B. Protect trees, landscaping, site improvements, and other items not scheduled for clearing, or that might be damaged by construction activities.
- C. Strip topsoil and stockpile at approved location on-site.
- D. Provide temporary erosion and dust control.
- E. Do not disturb benchmarks or monuments.

3.02 PREPARATION

- A. Notification:
Notify the Owner and secure approval at least three (3) days prior to beginning work.
- B. Investigation:
 - 1. Investigate the site and locate all objects to be removed or protected.
 - 2. Locate all existing utility and pipe lines and determine the status of each.
 - 3. Relocate all existing piping that must remain in service but conflicts with new construction.
- C. Plans:
Plans may not show all existing or exact location of utilities or pipelines.
- D. Removal of debris:
Remove all debris and dispose of away from the site.
- E. The Engineer will designate all trees, shrubs and plants within the construction limits that are to remain. All other vegetation within the construction limits shall be removed and disposed of properly.

3.03 CLEARING

- A. Prevent damage to existing improvements indicated to remain, including improvements on and off site. Protect existing trees and vegetation indicated to remain. Do not stockpile materials within drip line of trees. Provide and maintain temporary guards to encircle trees or groups of trees; obtain approval before beginning work.
- B. Water vegetation as required to maintain health. Cover temporarily exposed roots with wet burlap and backfill as soon as possible. Coat cut plant surface with approved emulsified asphalt plant coating.
- C. Repair or replace vegetation which has been damaged. Remove heavy growths of grass before stripping. Stockpile satisfactory topsoil without stones, foreign matter and weeds in location directed.
- D. Completely remove all improvements including stumps and debris except for those indicated to remain. Remove below grade improvements at least 12 inches below finish grade and to the extent necessary to not interfere with new construction. Remove abandoned mechanical and electrical work as required.
- E. Prevent erosion and siltation of streets, catch basins and piping. Control windblown dust. Remove waste materials and unsatisfactory topsoil from site and dispose of in a legal manner.

3.04 BLASTING:

- A. Blasting will not be allowed.

3.05 GRUBBING

- A. Grubbing shall consist of the removal of all stumps, roots, buried logs, foundations, drainage structures, abandoned water wells and other objectionable materials below the ground surface.
 - 1. Limits of grubbing:
The area to be grubbed shall include all area within the construction site limits.
 - 2. Materials:
All tap roots, lateral roots or other projections over two (2) inches in diameter shall be removed to a depth of two (2) feet below the natural ground surface. Grubbing of Osage Orange or Locust hedge shall include removal of roots.
 - 3. Filling of holes:
All holes caused by grubbing operations shall be backfilled and compacted in accordance with the applicable provision of Section 31 23 16 and to the level of the surrounding ground surface.
 - 4. Disposal:
Products of grubbing shall be disposed of away from the site.

3.06 BURNING

- A. When burning is permissible under controlling air pollution regulations, all burning of products of clearing and grubbing shall be done under the care of a competent watchman at such times and in such manner that neither vegetation on adjacent property nor that designated to remain will be jeopardized. The burial of stumps and debris will not be permitted.

3.07 CLEARING

- A. The contractor shall scalp all areas where excavation or embankment is to be made. Scalping shall include the removal of material such as sod, grass residue of agricultural crops, sawdust, and decayed vegetable matter from the surface of the ground without removing more earth than is necessary. The products of scalping shall be disposed of away from the project site. All such disposal shall be at the Contractor's sole expense.

3.08 REMOVAL

- A. Pavements, abandoned sewers, pipe lines, or other obstructions to the project construction within the construction limits or street right-of-way not designated or permitted to remain, shall be removed and disposed of by the Contractor away from the site of the work.
- B. In removing pavement, curb, curb and gutter, gutters, sidewalk, and other similar improvements, and where a portion of such improvements are to be left in place, they shall be removed to an existing joint or to a joint sawed to a minimum depth of one (1) inch with a true line and vertical face. Sufficient removal shall be made to provide for proper grade and connections in the new work regardless of any limits which may be indicated on the plans.
- C. All sewers, drainage pipes and floor drains which have been or are to be abandoned shall be permanently sealed at the ends with bulkheads constructed of concrete or brick masonry, having a minimum thickness of eight (8) inches. The use of salvaged brick will be permitted for construction bulkheads provided the brick are clean and sound.

END OF SECTION

SECTION 31 10 13 - UTILITY LINE ADJUSTMENTS

PART 1 - GENERAL

1.01 GENERAL

- A. The work of this section shall consist of:
 - 1. Adjustments or relocations of publicly-owned utilities within the right-of-way;
 - 2. By the relaying or connecting miscellaneous small drain lines or sanitary sewer service lines, which may be encountered during roadway construction.
- B. Where the locations or grades of items described are shown on the Plans, the information is considered approximate only, and no guarantee is made as to the accuracy or completeness thereof. It is anticipated that unknown items not shown on the plans will also be uncovered during excavation and shall require adjustment as specified herein.
- C. Relocations or adjustments to facilities owned by private utilities located within city right-of-way will be accomplished by the utility company at no cost to the Contractor.
- D. The Contractor will endeavor to have all necessary adjustments or relocations of public or private utility facilities in direct conflict with the street improvements, as soon as practicable. Such adjustments or relocations will be made at no cost to the Contractor. Some adjustments or relocations may be completed before the Contractor progresses to the point affected. Under some circumstances, however, such adjustments or relocations may have to be performed during the Contractor's construction. The Contractor shall be responsible for coordinating his work with that of the utility owners or their contractors so as to cause the least possible delay in work.
- E. It is anticipated that sanitary sewer house service pipes, and miscellaneous small drainpipes will be encountered in excavation for roadway, storm sewers and structures. Locations are generally unknown and, generally, no attempt has been made to show them on the plans. These pipes, whether shown on the plans or not, shall be relaid as directed, furnishing all necessary materials, to provide satisfactory cover and grade. Any sanitary sewer service line which crosses within 30" the proposed storm sewer shall be encased in concrete or placed in ductile iron pipe. Sanitary sewage shall not be allowed to run uncontrolled over the ground or into any watercourse. The sanitary sewage shall be directed back into the sanitary sewer system.
- F. The Contractor is responsible for the maintenance of service of all sewer lines encountered or damaged by the Contractor's operations.
- G. The Engineer will furnish plans to the Utility Companies for their records.

PART 2 - PRODUCTS

2.01 PUBLICLY-OWNED UTILITIES WITHIN THE RIGHT-OF-WAY

- A. Relocation of publicly owned utilities in the right-of-way is the responsibility of the utility company, except as shown on the plans and incorporated into the Work.

2.02 SMALL DRAIN LINES

All work and materials required to install, relay, and connect small miscellaneous drain pipes shall conform to the details on the Plans and to the applicable portions of Section 33 41 00 of these specifications.

- 1. Miscellaneous small drainpipes shall be intercepted and brought to a point of underground or surface discharge, as shown on the Plans and as directed.

2. Underground discharge may be to a new or existing storm sewer pipe or may be to a new or existing drainage structure. In either case, the pipe shall be tightly grouted into the structure and supported to the first joint with concrete.
3. Surface discharge may be to a ditch or through curbing as shown on the Plans.

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. No measurement or payment shall be made for installing, relaying and connecting small existing drainpipes. All costs shall be included in the contract unit prices for other items.

END OF SECTION

SECTION 31 23 16.13 - TRENCHING, BACKFILLING AND COMPACTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Trenching and Trench Backfilling.
- B. Pipe embedment.

1.02 RELATED SECTIONS

- A. Section 31 10 00 - Clearing and Grubbing - General
- B. Section 31 23 16 - Excavation, Backfill, and Site Grading: Building and foundation excavating.

1.03 QUALITY ASSURANCE

- A. Testing laboratory:
 - 1. Soil compaction testing and other required testing will be performed by a testing laboratory selected by the Owner.
 - 2. Frequency of testing and location of tests shall be determined by the Owner's representative and testing laboratory personnel to assure compliance with Specification requirements.
- B. Compliance:
 - 1. Contractor shall correct all deficiencies disclosed by test results promptly upon being notified of deficiencies.

1.04 REFERENCE STANDARDS

- A. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- C. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- D. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- E. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- F. AWWA C150/A21.50 - Thickness Design of Ductile-Iron Pipe.

PART 2 - PRODUCTS

2.01 FILL AND PIPE EMBEDMENT MATERIAL

- A. Embedment material:
 - 1. Material shall be clean river gravel or sound crushed limestone, free of cementitious, shaly or flat and flaky particles in an amount which would cause the material to cake or pack or otherwise form an unyielding support for the pipe. Gradation shall be:
 - $\frac{3}{4}$ " square mesh sieve - 100% passing
 - $\frac{1}{2}$ " square mesh sieve - 90-100% passing
 - No. 4 square mesh sieve - 0-15% passing
 - No. 8 square mesh sieve - 0-5% passing
 - 2. Where bedding rock is not required, bedding material shall be same as fill material.

B. Fill material:

Backfill material shall be selected earth or granular fill material, free from sod, sticks and roots over 1/2 inch in diameter, and free from hard lumps, clods or rock in such quantity or concentration as to interfere with the specified compaction. Material shall be of proper moisture content for specified compaction.

PART 3 - EXECUTION

3.01 GENERAL

- A. Trenching work shall be performed in a safe and proper manner, with suitable precautions being taken against hazards of every kind. Trenching shall provide adequate working space and clearances for the work to be performed therein.
- B. Trenching and backfilling during freezing weather shall not be done except by permission of the Engineer. No backfill materials shall be installed on frozen surfaces nor shall frozen materials, snow or ice be placed in any backfill.
- C. When operating on pavements or walks all equipment shall be rubber tired, except for excavation equipment. Excavating equipment, in such cases, shall not have grousers, cleats or lugs on the tracks. The Contractor shall take all precautions necessary to protect the existing pavements and walks.
- D. No classification of excavated materials will be made. Trenching and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work, regardless of the type, character, composition or condition thereof.
- E. Pipe lines and other existing underground installations and structures in the vicinity of the work to be done hereunder are indicated on the Plans according to the best information available to the Owner. The Owner does not guarantee the accuracy of such information. The Contractor shall make every effort to locate all underground pipe lines, conduits and structures by contacting Owners of underground utilities and by prospecting in advance of trench excavation. Damage to any existing underground installation caused by the Contractor's operation shall be repaired at the Contractor's expense.
- F. Any delays or extra cost to the Contractor caused by pipe lines or other underground structures or obstructions not shown by the Plans, or found in locations different than those indicated, shall not constitute a claim for extra work, additional payment or damages.
- G. Erosion control of disturbed areas will be required during the construction period through the use of check dams, siltation pools, mulching, etc.
- H. Operation:
 - 1. Use all means necessary to control dust or mud that may interfere with operation.
 - 2. Maintain all streets and driveways free of dirt and materials from Contractor's operation.
- I. Protection:
 - 1. Use all means necessary to protect material and preserve Specification requirements.
 - 2. Replace all damaged material or material that has lost Specification requirements.

3.02 TRENCH EXCAVATION

- A. General:

1. The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. One block or 400 feet (whichever is the shorter) shall be the maximum length of open trench permitted on any line under construction.
 2. Except where tunneling is permitted by the Engineer or called for on the Plans, all trench excavation shall be open cut from the surface.
 3. Trench walls shall be vertical, and braced where necessary, in streets or improved area unless otherwise authorized by Engineer.
- B. Alignment and grade:
1. Sewer and storm sewer lines:
The alignment and grade or elevation of each pipe line shall be fixed and determined by means of offset stakes. Vertical and horizontal alignment of pipes and the maximum joint deflection used in connection therewith shall be in conformity with the requirements of the Specification covering the installation of the pipe being laid in each case.
 2. Water lines:
Trenches shall be carefully excavated so that the minimum cover over top of pipe will be 42 inches to existing street or ground surface, or to future surface when indicated. Greater cover at some locations along the line may be required due to street or ground profile and clearance of culverts, structures, utility lines, etc.
- C. Minimum trench widths and pipe clearances:
1. Trenches shall be excavated to a width which will provide adequate working space and pipe clearances for proper pipe installation, jointing and embedment.
 2. Below an elevation of 12 inches from ground level to the top of the installed pipe, the trench width shall be maintained as narrow as possible.
 3. Where necessary to reduce the earth load on trench banks to prevent sliding and caving, the banks may be cut back on slopes which shall not extend lower than one (1) foot above the top of the pipe.
- D. Mechanical excavation:
1. The use of mechanical equipment will not be permitted in locations where its operation would cause damage to buildings, culverts, or other existing property, utilities, or structures above or below ground; in all such locations, hand excavating tools and methods shall be used.
 2. Mechanical equipment used for trench excavation shall be of a type, design and construction and shall be so operated, that the rough trench excavation bottom elevation can be controlled, that uniform trench widths and vertical side walls are obtained at least from an elevation one (1) foot above the top of the installed pipe to the bottom of the trench, and that the trench alignment is such that the pipe when accurately laid to specified alignment will be centered in the trench with adequate clearance between the pipe and side walls of the trench. Undercutting of the trench sidewall to obtain clearance will not be permitted.
- E. Excavation below pipe subgrade:
Except where otherwise required, pipe trenches shall be excavated below pipe subgrade elevations to provide for the installation of granular fill pipe foundation material.
- F. Unauthorized trench widths:
Where the width of the lower portion of the trench as excavated at any point exceeds the maximum permitted, either pipe of adequate strength, classification or gauge, special pipe embedment, or Class A concrete arch encasement (for concrete pipe only), as

required by loading conditions and as determined by the Engineer, shall be furnished and installed by and at the expense of the Contractor.

G. Grubbing:

Grub out live roots for a distance of at least six (6) inches below and eight (8) inches on sides of outside surface of pipe.

H. Bell holes:

Bell holes shall provide adequate clearance for the tools and methods used in installing the pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or the granular fill when the pipe is jointed.

I. Cutting concrete pavement and walks:

1. Cuts in concrete and asphalt pavements shall be no larger than necessary to provide adequate working space for proper installation of pipe and pipe line appurtenances. Cutting shall be started with a concrete saw (or by other cutting method approved by the Engineer) and in a manner which will provide a clean groove at least 1-1/2 inches deep along each side of the trench and along the perimeter of cuts for structures.
2. Pavement and base pavement over trenches excavated for pipe lines shall be removed so that a shoulder not less than 6 inches in width at any point is left between the cut edge of the pavement and the top edge of the trench. The trench width at the bottom shall not be greater than at the top and no undercutting will be permitted. Pavement cuts shall be made to and between straight or accurately marked curved lines which, unless otherwise required, shall be parallel to the center line of the trench.

3.03 SHEETING AND SHORING

- A. Except where banks may be cut back on a stable slope, excavation for trenches shall be properly and substantially sheeted, braced and shored, as necessary, to prevent caving or sliding, to provide protection for the workmen and the work, and to provide protection for existing structures and facilities. Sheet piling, bracing and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure, and shall be rigid, maintaining its shape and position under all circumstances.

3.04 STABILIZATION

A. General:

1. Trench bottoms shall be firm, dense and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workers.
2. Trench bottoms which are otherwise solid, but which become mucky on top due to construction operations, shall be reinforced with one or more layers of granular fill material or other crushed stone or gravel embedded therein. Not more than 1/2 inch depth of mud or muck shall be allowed to remain on stabilized trench bottoms when the pipe bedding material is placed thereon. The finished elevation of stabilized subgrades for concrete structures shall not be above the subgrade elevations.
3. All stabilization work hereunder shall be performed by and at the expense of the Contractor.
4. If the subgrade for pipe can be stabilized with a thickness of granular fill of 12 inches or less below bottom of pipe, or subgrade of structure, such stabilization will be at the Contractor's expense.

3.05 BLASTING

- A. Blasting will not be allowed.

3.06 REMOVAL OF WATER

- A. The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water entering excavations, trenches, or other part of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe line to be installed, therein is completed to the extent that no damage from hydrostatic pressure, flotation, or other causes will result.

3.07 STANDARD COMPACTION AND FIELD DENSITY TESTS

- A. General:
Wherever the terms, "____% of Maximum Density" or "Optimum Moisture," are used, Maximum Density and Optimum Moisture shall be determined by the standard compaction test described below.
- B. Standard compaction test:
 - 1. The standard compaction test shall be in accordance with AASHTO Desig. T99, except as modified below.
 - 2. For samples containing no material retained on the No. 4 sieve, use Method A or B. When the plasticity index of the soil is greater than 25 (heavy clays), the soil shall be placed in the mold in four layers, each compacted as outlined in the test method used.
 - 3. For samples containing material retained on the No. 4 sieve, use Method D, preferably, or Method C. The amount retained on the 3/4 inch sieve shall be weighed and discarded. To prepare the sample for the compaction test, the same amount of 3/4 inch to No. 4 sieve material shall be substituted for the portion discarded.
- C. Field density test:
Field density shall be obtained using the sand cone method (AASHTO Desig. T-147), by the balloon method, or by use of any satisfactory materials or equipment suitable to the conditions prevailing in the material being tested. The calculated density obtained in this test is divided by the Maximum Density as determined by the Standard Compaction Test to determine the percent compaction obtained.
- D. Rock correction:
When the amount of material retained on the No. 4 sieve is different in the field density tests than that in the sample used in the Standard Compaction Test, the actual degree of compaction shall be determined by applying a correction factor to the apparent percent compaction. This correction factor may be arrived at by any well-established engineering procedure or by the recommendations of the State Highway Commission, "Geology and Soils Manuals," said recommendations being made a part of this Contract by reference.
- E. Comparison with surrounding soil density:
It will be assumed that undisturbed surrounding soil in its natural state will have a field density of 87 percent of maximum density. On this basis, where 90 percent of maximum density is specified, the required density will be 103.5 percent of density of the surrounding soil. Where 95 percent of maximum density is specified, the required density will be 109 percent of the density of the surrounding soil.

3.08 PIPE EMBEDMENT

A. General:

1. Place pipe embedment material on a suitably prepared subgrade in lifts not exceeding six (6) inches and bring up evenly on both sides of pipe. Do not dump over side of trench in any manner that will bring earth into the embedment material or displace the pipe. Compact, vibrate, or slice with a shovel, in such manner that material fill will take its final compaction and provide uniform and solid bearing under the pipe and its haunches.

B. Water line pipe bedding

1. Where rock has been excavated, selected earth or granular material shall be placed under the sides and around the pipe to a point 6 inches above the top of the pipe. Embedment material shall be deposited simultaneously on each side of the pipe to prevent lateral displacement of the pipe.
2. When not in rock excavation, all buried pipe shall be installed under Laying Condition Type 2 as described in AWWA C150/A21.50, latest edition. This condition calls for flat-bottom trench with backfill lightly consolidated to the centerline of the pipe.

3.09 TRENCH BACKFILL COMPACTION

A. General:

All trench backfill above pipe embedment shall conform to one of the following Specifications:

1. All County and City gravel surface roads shall be backfilled entirely with approved crushed rock or river gravel. The disposal of unsuitable material excavated will be the responsibility of the Contractor.
2. Ninety percent compacted backfill. Under streets, drives or state or county highways surfaced with gravel, crushed stone, "blacktop" or other low or intermediate type surfacing. In street, road, highway, railway or alley rights-of-way. In traveled ways. In established lawns. Any line within five (5) feet of back of curb or five (5) feet of street surfacing if no curb, either perpendicular to or parallel to the street shall be considered as under the street surfacing, and 90 percent compaction shall apply.
3. 95 percent compacted backfill. Under concrete, asphaltic concrete, brick, concrete structures or other high type pavements. Under concrete walks, curbs, gutters and culverts. Under all types of street surfacing where trench cut is approximately at right angle to roadway. Backfill material shall be as designated on the plans or elsewhere in these specifications.
4. In areas not listed above, backfill shall be compacted to a density equal to the surrounding ground.
5. Six (6) inches of topsoil shall be placed in the top of trenches that are to be covered with sod or to be seeded.
6. If specified density cannot be obtained with available earth, the Contractor shall furnish and haul granular fill material or suitable earth at their expense. Unsuitable earth shall be disposed of at the Contractor's expense.
7. The Engineer will call for density tests to be made whenever deemed necessary. The specified density will be the minimum allowed and the obtainment thereof will be entirely the Contractor's responsibility.

8. Thickness of backfill layers will be determined by the coordination of test results with field performance and equipment used. The Contractor will be expected to maintain established procedures except where unusual conditions arise. If greater than 12 inch thick compacted layers are used, the Contractor shall hand excavate to the test level as directed by the Engineer and then refill the test excavation with compacted backfill to the specified density.
 9. All completed lines shall be returned, in the opinion of the Engineer, as nearly as possible to original condition, including reseeding, re-sodding or repaving.
- B. Equipment:
- Equipment used for compacting soil or granular fill shall conform to the following specifications.
1. The bucket on an Excavator or Backhoe is not a piece of compaction equipment and shall NOT be used as the method for compacting soil or base rock under a future or current: street, parking lot, sidewalk, curb and gutter, or driveway.
 2. Permitted compaction equipment are as follows: sheepsfoot roller, vibratory roller, tamper, vibratory plate compactor, pneumatic tyred rollers, grid rollers, and pad foot tamping rollers.

3.10 DRAINAGE MAINTENANCE

- A. Trenches across roadways, driveways, walks, or other traffic-way's adjacent to drainage ditches or water courses shall not be backfilled prior to completion of backfilling the trench on the upstream side of the traffic-way, to prevent impounding water after the pipe has been laid. Bridges and other temporary structures required to maintain traffic across such unfilled trenches shall be constructed and maintained by the Contractor. Backfilling shall be done so that water will not accumulate in unfilled or partially filled trenches. All material deposited in roadway ditches or other water courses crossed by the line of trench shall be removed immediately after backfilling is completed and the section, grades, and contours of ditches or water courses shall be restored to their original condition. Surface drainage shall not be obstructed longer than necessary.

3.11 FINAL GRADING AND DISPOSAL OF EXCESS EXCAVATED MATERIALS

- A. General:
1. Except as otherwise indicated, all excess excavated materials shall be disposed of by the Contractor away from the site of the work.
 2. Pavement and pavement base material, excavated rock in excess of the amount permitted to be and actually installed in trench backfill, junk and debris encountered in excavation work, and other similar waste materials shall be disposed of away from the site of the work.
 3. The disposal of waste and excess excavated materials, including hauling, handling, leveling and surfacing, shall be at the Contractor's expense.
- B. Un-compacted backfill:
- Where un-compacted backfill is specified, excess earth from excavations, over and above that displaced by the pipe, shall be mounded directly over the pipe trench, in such manner that the earth will settle into the trench as natural consolidation occurs. Openings for natural drainage shall be provided. The mounded earth shall be graded to a smooth, uniform surface. That portion of the earth displaced by the pipe shall be uniformly and smoothly graded adjacent to the trench.
- C. Other types of backfill:

For all types of backfill other than un-compacted, the Contractor shall dispose of excess excavated material above the surface of the ground or subgrade of pavement walks, etc., unless otherwise directed. Where directed, the Contractor shall leave all or a portion of the excess earth and grade smoothly along and adjacent to the trench in the manner prescribed by the Engineer. If directed, they shall grade excess earth into adjacent low areas, fine grading and sloping to drain.

D. Final grading:

1. Just prior to completion and acceptance of the project, the Contractor shall final grade over all pipe trenches and around structures, filling in any places that may have settled during the period between construction of each line and the completion of the entire Contract. Finished surface shall be bladed and aligned to a neat and uniform appearance.
2. Improved yards and lawns:
Fine grade, suitable for seeding or sodding. Hand rake earth off grass in established lawn areas, unless directed to leave excess earth as outlined above.

E. Deficiency of backfill:

Wherever there is a deficiency of material required to backfill to the specified surface or subgrade, the Contractor shall furnish the necessary amount of suitable earth at their expense.

F. Restoration of disturbed earth:

The Contractor shall restore all earth areas disturbed from the original condition by their operations. Restoration will be by seeding, fertilizing and mulching or by appropriate pavement and street repair.

3.12 RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT

A. The Contractor shall be responsible financially and otherwise, for:

1. All settlement of trench and other backfill which may occur from time of original backfilling until the expiration of one (1) year after the date of final payment for the entire contract under which the backfilling work was performed.
2. The refilling and repair of all backfill settlement and the repair or replacement to the original or a better condition of all pavement, top surfacing's, driveways, walks, surface structures, utilities, drainage facilities and sod which may have been damaged as a result of backfill settlement or which have been removed or destroyed in connection with backfill replacement operations.
3. All damage claims or court actions against the Owner for any damage directly or indirectly caused by backfill settlement.

B. The Contractor shall make all necessary backfill replacements and repairs, or replacements appurtenant thereto, within 30 days after notification by the Owner or Engineer. Upon the Contractor's failure to do so, the Owner may do, or have done, the necessary work and charge the cost to the Contractor.

3.13 BARRICADES AND LIGHTS

- A. All streets, roads, highways and other public thoroughfares which are closed to traffic shall be protected by means of effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.
- B. All open trenches and other excavations shall be provided with suitable barriers, signs, and lights to the extent that adequate protection is provided to the public. Obstructions

such as material piles and equipment, shall be provided with similar warning signs and lights.

- C. All barricades and obstructions shall be illuminated by means of warning lights at night. All lights used for this purpose shall be kept on from sunset to sunrise. Materials stored shall be so placed, and the work at all times shall be so conducted, as to cause the minimum obstruction and inconvenience to the public.
- D. All barricades, signs, lights and other protective devices shall be installed and maintained in conformity with applicable statutory requirements, and where within highway rights-of-way, as required by the authority having jurisdiction.

3.14 MAINTENANCE OF TRAFFIC

- A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian; whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall at their own expense provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to Owners of private drives before interfering with them; provided however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the Owner and tenant of private property, or from the authority having jurisdiction over the public property involved, to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon.

END OF SECTION

SECTION 31 25 00 - EROSION CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary sediment barrier
- B. Temporary ditch checks

1.02 RELATED SECTIONS

- A. Section 31 10 00 - Clearing and Grubbing - General
- B. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements:
Erosion controls shall meet all requirements of the EPA.

1.04 SYSTEM DESCRIPTION

- A. Definitions
 - 1. Sediment Fence
A temporary sediment barrier consisting of filter fabric buried at the bottom, stretched, and supported by posts.
 - 2. Ditch Checks
A barrier installed across, or at the toe of, a slope to intercept and detain sediment.
- B. Purpose
 - 1. Sediment Fence
To retain sediment from small disturbed areas by reducing the velocity of sheet flows to allow sediment deposition.
 - 2. Ditch Checks
To intercept and detain small amounts of sediment from unprotected areas of less than 1/2 acre.
- C. Location
 - 1. Sediment Fence
 - a. Below small disturbed areas.
 - b. Where runoff can be stored behind the sediment fence without damaging the fence or the submerged area behind the fence.
 - c. Do not install sediment fences across streams, ditches, or waterways.
 - 2. Ditch Checks
 - a. Where contributing area is approximately 1/2 acre, or less.
 - b. Where there is no concentration of water in a channel above the barrier.
 - c. Where erosion would normally occur in form of sheet erosion.
 - d. Where length of slope above the barrier is less than 100 feet.
 - e. Straw bales shall not be used on high sediment producing areas, above "high risk" areas, where water concentrates, or where there would be a possibility of a washout.
- D. Planning
 - 1. A sediment fence is a permeable barrier that shall be planned as a system to retain sediment on the construction site. The fence retains sediment primarily by retarding flow and promoting deposition. In operation, generally the fence becomes clogged with fine particles, which reduce flow rate. This causes a pond to develop more quickly behind the fence. Anticipate ponding and provide sufficient storage

areas and overflow outlets to prevent flows from overtopping the fence. Since sediment fences are not designed to withstand high heads, locate them so that only shallow pools can form. Tie the ends of a sediment fence into the landscape to prevent flow around the end of the fence before the pool reaches design level. Provide stabilized outlets to protect the fence system and release storm flows that exceed the design storm.

2. Deposition occurs as the storage pool forms behind the fence. Plan deposition areas at accessible points to promote routine cleanout.

E. Design Criteria

1. Sediment Fence
 - a. Ensure that the drainage area is no greater than 1/4 acre per 100 ft. of fence.
 - b. Make the fence stable for the 10-yr. peak storm runoff.
 - c. Ensure that the depth of impounded water does not exceed 1.5 ft. at any point along the fence.
 - d. Provide a riprap splash pad or other outlet protection device for any point where flow may overtop the sediment fence, such as natural depressions or swales. Ensure that the maximum height of the fence at a protected, reinforced outlet does not exceed 1 ft. and that support post spacing does not exceed 4 ft.
 - e. The design life of a synthetic sediment fence should be 6 months.

PART 2 - MATERIALS

2.01 MATERIALS

A. Sediment Fence

1. Use a synthetic filter fabric or a pervious sheet of polypropylene, nylon, polyester, or polyethylene yard, which is certified by the manufacturer or supplier as conforming to the requirements shown in Table below.
2. Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120° F.
3. Posts for sediment fences shall be either 4-inch diameter pine, 2-inch diameter oak, or 1.33 lb/linear ft. steel with a minimum length of 4 ft. Make sure that steel posts have projections to facilitate fastening the fabric.
4. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.
5. Sediment Fence Fabric Specifications

<u>Physical Property</u>	<u>Minimum Requirements</u>
Filtering Efficiency	85%
Tensile Strength at 20%	Standard Strength @ (max.) Elongation 30 psi Extra Strength @ 50 psi
Slurry Flow Rate	0.3 gal/sq ft/min

B. Straw Bales

1. Straw shall be locally baled material.
2. Anchors shall be #5 reinforcing bars or 2"x2" oak stakes.

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Sediment Fence

1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 18 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts using heavy duty wire staples at least 1 inch long, or tie wires. Extend the wire mesh support to the bottom of the trench.
5. When a wire mesh support fence is used, space posts a maximum of 8 ft. apart. Support posts should be driven securely into the ground to a minimum of 18 inches.
6. Extra strength filter fabric with 6-ft. post spacing does not require wire mesh support fence. Staple or wire the filter fabric directly to the posts.
7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier.
8. Backfill the trench with compacted soil or gravel placed over the filter fabric.
9. Do not attach filter fabric to existing trees.

B. Ditch Checks

1. Bales will be placed in a single row, lengthwise, on the contour and embedded in the soil to a depth of 3 inches.
2. Bales must be securely anchored in place by stakes or re-bars driven through the bales or by other acceptable means to prevent displacement.
3. Inspection must be frequent, and repair or replacement must be made promptly as needed.

3.02 MAINTENANCE

A. Sediment Fence

1. Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during cleanout.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

B. Ditch Checks

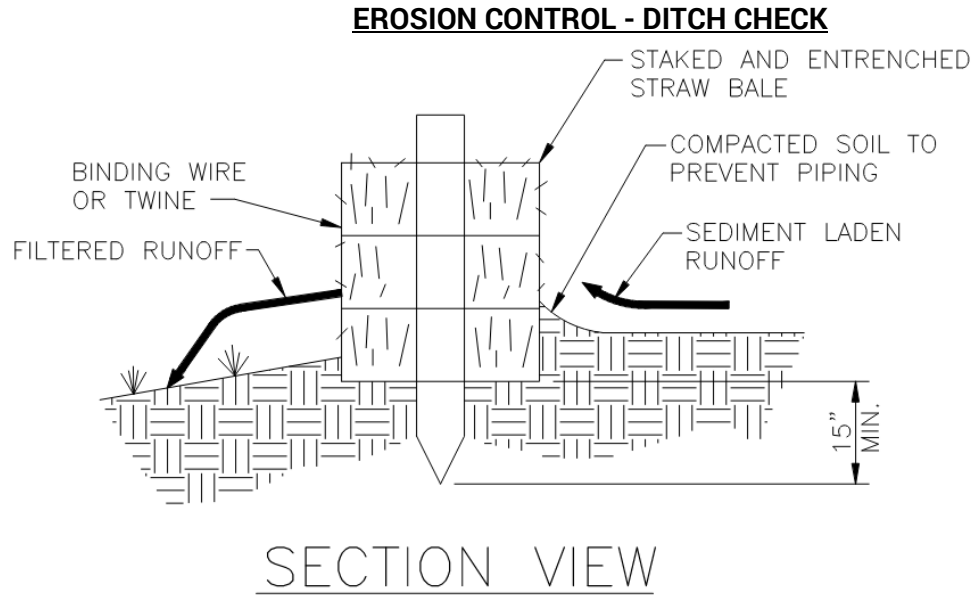
1. Inspect straw bale barriers at least once a week and after each rainfall. Make any required repairs immediately.
2. Should the barrier collapse, decompose or become ineffective, replace it promptly.

3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the barrier.
4. Remove the barrier and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

3.03 CLEANUP

A. General

1. Remove all sediment and other debris from project site.
2. Remove all sediment fence and ditch check materials from project site.
3. Grade area for uniform slope to blend with existing or finish contours.

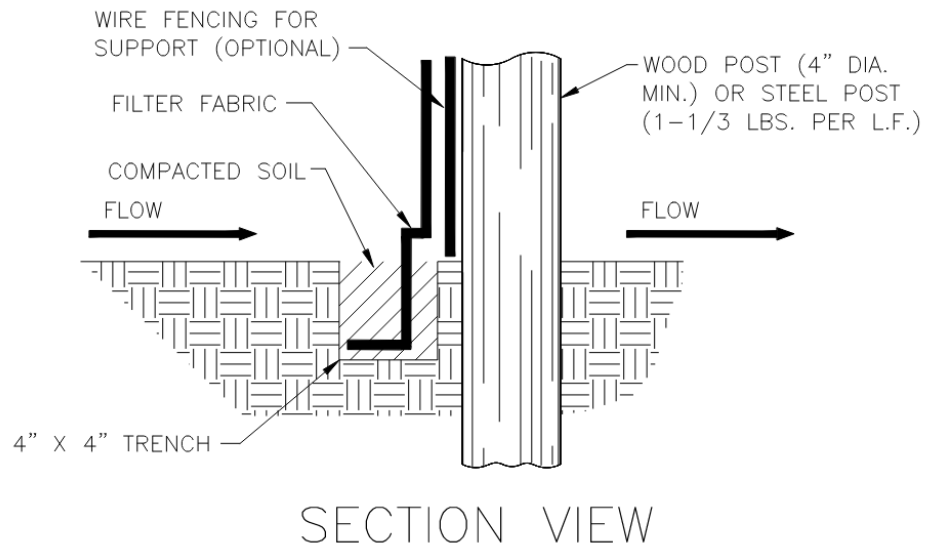


Notes

- *Straw bales shall not be used longer than a time period of three months. If construction continues beyond this time period, replace bales with new.*
- *Excavate a trench along the areas that the straw bales will be used as erosion control to a depth of four (4) inches and to the width of one straw bale. The straw bales then shall be placed in the trench. Place excavated material on upslope side of the trench.*
- *Straw bales shall be anchored with a min. of two (2) stakes or rebar driven into the underlying soil; making sure that the binding wire or twine is facing the sides and not touching the soil. The first stake into each bale shall be driven toward the previously laid bale to force them together.*
- *Spacing between the bales shall be tightly chinked with loose straw.*
- *After straw bales are in place the excavated soil shall be backfilled against the upslope side of the straw bales to a height of four (4) inches after compacting.*
- *Straw bales shall be inspected after each rainfall to determine if any repairs or replacements to the straw bales are needed. If it is determined that the straw bales need to be repaired or replaced, the work will occur immediately. Sediment accumulations must be removed when they reach 1/2 the barrier height.*

EROSION CONTROL - SEDIMENT FENCE

EROSION CONTROL – STRAW BALES



Notes

- *The filter fabric shall have a minimum filtering efficiency of 75%, a minimum tensile strength of 30 pounds per linear inch, and a flow rate of 0.3 gallons per square foot per minute. The filter fabric shall also have ultraviolet ray inhibitors to assure a life use expectancy of six (6) months at 0 to 100 degrees Fahrenheit.*
- *The filter fabric shall be 36 inches or less in height. Joints shall occur only at posts with six (6) inch minimum overlap. Posts shall be spaced ten (10) feet on center when wire mesh support is included or six (6) feet on center without wire mesh support. A minimum of eight (8) inches of fabric will be buried in the 4" x 4" trench.*
- *The sediment fence shall be inspected after every rainfall to determine if any part of the fence needs to be repaired or replaced. If it is determined that the fence needs any repair or replacement, this work will occur immediately.*
- *Sediment deposits shall be removed after each rainfall or before they accumulate to 1/3 of the fence height.*

END OF SECTION

SECTION 31 37 00 - RIPRAP

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Riprap.
- B. Filter cloth.

1.02 RELATED SECTION

- A. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 SOURCE OF RIPRAP

Stone for riprap shall be imported from approved quarries outside the site area.

PART 2 - MATERIAL

2.01 GENERAL

- A. Rock for riprap shall be durable limestone with a specific gravity not less than 2.58 and absorption not exceeding three (3) percent. The material shall not contain more than three (3) percent shale, seven (7) percent soft or friable pieces, or one (1) percent clay lumps by weight, as delivered.

2.02 FILTER CLOTH

- A. Geotextile Fabric shall be Mirafi 140N or approved equal.

2.03 RIPRAP

- A. 1/4 Ton Riprap:
Riprap shall be composed of durable pieces of limestone rock approximately rectangular in shape, free from thin slabby pieces having a maximum dimension more than four (4) times the minimum dimension. The maximum size stone shall weigh 1000 lbs. and at least 50 percent of the riprap pieces weighing 500 lbs. or more. At least 90 percent of the riprap pieces shall weigh 75 lbs. or more.
- B. Light 18" Riprap:
Light 18" Riprap shall be supplied in accordance with the Standard Specifications.

2.04 PORTLAND CEMENT GROUT

- A. Grout for surface grouted riprap shall consist of one (1) part Portland cement and three (3) parts of clean sand by volume. The grout shall have a consistency which will permit it to flow freely into voids.

PART 3 - EXECUTION

3.01 GENERAL

The filter cloth shall be installed on the slopes as detailed. Riprap slope protection shall then be installed.

3.02 RIPRAP

- A. Placement:
Stone for riprap shall be placed at indicated locations and to the indicated thickness, in such a manner as to produce a reasonably well graded mass of rock with a minimum of voids. Stone shall be placed to its full course thickness in one (1) operation without

causing excessive disruption of the underlying materials. Placing of stone in layers will not be permitted. The larger stones shall be well distributed throughout the mass and the completed riprap shall be free of objectionable pockets of small stones or clusters of large stones. Placement shall be done by conveying the stone to the slope and depositing it essentially in place. Drifting and excessive moving of stone across or down the slope by dozers or other blade equipment will not be permitted. Hand placing may be required to a limited extent, particularly around structures and pipe protrusions, to secure the required results.

B. Grouting:

Where surface grouted riprap is indicated, the surface of the completed riprap blanket shall be grouted at the rate of a one (1) sack batch of grout to 1-1/2 square yards covered. The surface shall be swept clean of surplus grout with a stiff broom, using the major portion of the grout to fill the voids between the stones. The grout shall be cured by application of sprayed curing compound.

C. Tolerances:

A tolerance of plus 0.5 foot from the finish grade is permissible in the finished surface of the riprap except that such tolerance shall not be continuous over an area greater than 200 square feet.

D. Protection of work:

The Contractor shall maintain the riprap until accepted by the Owner's Representative. Any material displaced prior to final acceptance shall be replaced to the lines and grades at the Contractor's expense.

END OF SECTION

SECTION 32 00 00 - CONTRACTOR CONSTRUCTION STAKING

PART 1 - GENERAL

1.01 DESCRIPTION

This work shall be performed in accordance with Section 802 of the Kansas Standard Specifications for State Road & Bridge Construction as amended herein. The Contractor shall set construction stakes establishing all lines, slopes, continuous profile-grades, centerlines, and benchmarks necessary to control and perform the work.

PART 2 – MATERIALS

Not applicable for this section.

PART 3 - EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

A. Vertical Control

Prior to construction, County Bench Marks that will be damaged or removed by construction shall be replaced by a benchmark outside of construction area. New benchmarks shall be an aluminum cap set in a rigid concrete structure. A hole shall be drilled into concrete and the cap grouted into place. The preferred locations are traffic signal bases, culvert headwalls and bridge handrails. A standard monument record sheet shall be completed for each permanent benchmark. Elevations shall be determined with a double rod level run using digital level and bar code rods and shall tie into County vertical control network at each end of the level run. Level runs shall close within 0.1 ft. per four (4) miles. Level run data shall be furnished in digital and paper format. Mapping grade state plane coordinates shall also be provided. This effort shall be coordinated with the County Surveyor.

B. Horizontal Control

Prior to construction Section Corner and quarter section corners shall be referenced to points outside construction and a Land Corner Endangerment Report submitted to the County Engineer within 30 days of the survey as required by state law. During construction the surveyor will coordinate with the Contractor on the placement of the monument box. After construction the surveyor shall use their previous reference ties and preliminarily mark the aluminum cap. This location shall be checked with coordinates from the design survey to ensure that the ties match the previous coordinates. If within tolerance the aluminum cap shall be punched at the proper location. New Land Corner Reference Reports with updated references shall be submitted to the County Engineer within 30 days of the survey as required by state law.

C. Property Corners

The Contractor shall locate all existing property corners within the project limits prior to commencing construction. All existing property corners shall be marked and protected. Property corners anticipated to be disturbed during construction shall be located by ties and shall be reset by the Contractor at the termination of construction activities. All property surveying shall be performed by a qualified land surveyor registered in the State of work.

D. Every Conduits

A stamped, sealed survey shall be provided by the Contractor for all conduit installed as part of the contract.

E. Swale Staking

The Contractor shall set cut stakes for all rough swale grading and shall maintain or reset such stakes for checking of the grade as required by the Engineer. Final grade for the swales and berms shall be established by "blue top" surveying or other approved method, and grade devices shall be maintained for inspection by the Engineer prior to sodding.

END OF SECTION

SECTION 32 31 13 - FENCING

PART 1 - GENERAL

1.01 DESCRIPTION

At the locations shown on the plans or directed by the Engineer, woven wire, chain link, wood privacy, or other types of fence shall be removed and replaced or installed in accordance with Section 828 of the Kansas Standard Specifications for Highway Construction, except as otherwise modified herein.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

- A. All fences and gates within the construction easements and necessary to be removed for construction of the project shall be disposed of by the Contractor. After construction is completed, fences and gates of the type that existed prior to removal shall be constructed with new materials by the Contractor as designated by the Engineer.
- B. All material used for fencing shall be brand new and meet minimum standards in accordance with Division 2300 of the Standard Specifications and **KDOT** standard details except as otherwise modified herein. In addition, all fence replacement shall be of a quality at least equal to that fence being replaced when it was new.

PART 3 - EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

- A. All corner posts assemblies, line post assemblies and connectors shall be considered incidental to the fence construction.

3.02 GATES

- A. Gate construction shall follow the details as set forth in the plans. The material used for gates shall be in accordance with Division 2300 of the Standard Specifications. Gate posts shall be three (3) inches outside diameter with a minimum weight of 5.79 lb./ft. All gates shall have heavy duty gate hinges, and all hinges and latch designs shall be submitted for approval by the Engineer. Single gates shall have standard gate latches, and double gates shall have standard double drive gate drop rod assemblies with center stop and concrete footings.

3.03 PRIVACY FENCE

- A. All material used for construction of wood privacy fencing shall be brand new and shall be of a quality at least equal to that fence being replaced when it was new. As a minimum requirement, all line posts shall four (4) inches square, corner posts shall be six (6) inches square, and all posts and rails shall be ACQ treated. All posts shall be set in concrete, the concrete shall be left four (4) inches below grade, and the top of the concrete base shall be sloped away from the post. Rails shall be 2"x4" dimension ACQ treated lumber. Facing material shall be as shown on the plans or as directed by the Engineer. Typical facing shall be four (4) inches wide dog eared cedar planks, except that facing shall be six (6) inches wide if the existing fence facing was six (6) inches wide. All privacy fencing shall be constructed with galvanized ring shank nails, staples are not permitted.

3.04 TEMPORARY FENCE

- A. The Contractor shall install temporary fencing wherever existing fencing is removed for construction, or where requested by the Engineer. The temporary fencing shall skirt the edge of the construction area and tie into existing fencing. Temporary fencing shall not extend outside the indicated easements.

END OF SECTION

SECTION 32 92 19 - SEEDING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Fertilizer.
- B. Mulch.
- C. Seed.
- D. Preparation.
- E. Maintenance.

1.02 ALTERNATE METHODS AND PRODUCTS

- A. Alternate methods from those specified will be considered for use, provided that in the Engineer's opinion the end product will be equal to or exceed that which would result from the specified methods and products.

1.03 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.04 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.05 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.06 MAINTENANCE DATA

- A. Submit maintenance data for continuing Owner maintenance.
- B. Include maintenance instruction, cutting method, maximum grass height, types, application frequency, and recommended coverage of fertilizer.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 - MATERIALS

2.01 FERTILIZER

- A. Shall be a standard commercial product which when applied at the proper rate will supply the equivalent quantity of total nitrogen, available phosphoric acid and soluble potash specified. Fertilizer shall be delivered to the site in bags or other suitable containers, each fully labeled, conforming to applicable state fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.

- B. Requirements per acre:
 - 1. 600 pounds of 17-17-17 grade fertilizer or equivalent.

2.02 MULCH

- A. Shall be vegetative mulch consisting of cereal straw from stalks of oats, rye, wheat or barley. Straw shall be free of prohibited weed seeds as stated in State Seed Law and shall be relatively free of all other noxious and undesirable seeds. Straw shall be clean and bright, relatively free of foreign material and be dry enough to be spread properly.

2.03 SEED

- A. Seed shall be tall turf type Fescue blend, with a minimum of three Fescue varieties included in the mix or shall be chosen to match the primary grass type in the surrounding area with approval of the engineer. Selection should also take planting season into consideration. To match planting seasons, alternative seed types may be used with the permission of the Engineer.
- B. Seed shall be labeled in accordance with USDA regulations. Care shall be taken during transportation to avoid segregation of seed mixtures.
- C. Seed shall be sown at a rate per the supplier's recommendations.

PART 3 - EXECUTION

3.01 GENERAL

- A. All unpaved areas disturbed during the project will be seeded.
- B. The application of fertilizer, seed, and mulch shall follow each other in successive sequence as closely as possible.
- C. Seeding outside the specified seeding periods may be permitted at the Engineer's option, provided the Contractor is willing to make appropriate modifications to their seeding operations, and will guarantee the crop.

3.02 INSPECTION

- A. Contractor must request that Engineer inspect site grading, clean-up and surface preparation to determine if site is ready for the seeding, fertilizing and mulching operations.
- B. Upon Engineer's approval operations, may begin.

3.03 SURFACE PREPARATION

- A. Immediately in advance of fertilizing, the surface to be seeded shall be repaired, if necessary, to eliminate all damage from erosion or construction operations. The surface shall then be loosened and thoroughly pulverized by discing, harrowing and raking or other approved methods, to such an extent that it is free from sod, stones, clods, or roots. All growth of vegetation that will seriously interfere with planting operations shall be removed and disposed of as directed. The final surface shall be smooth and uniform and left in such a condition as to prevent formation of low places and pockets.

3.04 GRADING

- A. The Contractor shall grade all areas as noted on the Contract Document drawings;
- B. Fine grade all areas eliminating rough or low areas to ensure positive drainage.

3.05 FERTILIZING

- A. Fertilizer and lime shall be dressed evenly over the areas to be seeded using approved mechanical type spreading equipment.
- B. Fertilizer and lime after spreading shall be immediately incorporated into the soil to a depth of approximately two (2) inches, by chisel, spike tooth harrow, or other approved methods.

3.06 SEEDING METHODS

- A. General methods:
The Contractor shall employ a satisfactory method of sowing only by use of mechanical power-driven drills unless stated otherwise by the engineer. When delays in operation carry the work beyond the specified planting seasons, or when conditions are such that by reason of drought, high winds, excessive moisture, or other factors, satisfactory results are not likely to be obtained, seeding shall stop. It will be resumed only where the desired results are probable or when approved alternate procedures have been adopted.
- B. Drill seeding:
When drilling is utilized, it shall be done with approved equipment best suited to perform the work under prevailing conditions. The seed shall be uniformly drilled to a depth of 1/3" to 3/4" at the rate per acre specified. Drill seeding may be required in windy weather.
- C. Prior to start of seeding, the Contractor shall demonstrate that the application of seed is being made at the specified rate. A final check of the total quantity of seed used shall be made against the area seeded. If the check shows that the Contractor has not applied seed at the specified rate, they shall uniformly distribute seed at a rate calculated to meet the shortage.
- D. The Contractor shall maintain the seeded areas until all fertilizing, seeding and mulching is complete, and the work accepted by the Engineer. Areas damaged from the Contractor's own operations shall be repaired at their expense. After acceptance of the work the Contractor will not be held responsible for erosion due to weather, or conditions not due to the Contractor's own operations or negligence. The Contractor is not required to guarantee a crop, if seeding is done during the specified seeding periods.

3.07 MULCHING

- A. Immediately after seeding, the Contractor shall apply vegetative mulch at a rate between 1-1/2 and 2-1/2 tons per acre to all seeded areas. Quantity of mulch shall be adjusted within the above limits, as directed by the Engineer, to the particular area or slope being mulched. Total application of mulch for the project shall average approximately two (2) tons per acre. Mulch shall be applied by mechanical mulch spreaders equipped to eject by means of a constant air stream controlled quantities of the vegetative mulch.
- B. Mulch shall be embedded by a disc type roller having flat serrated discs spaced not more than 10 inches apart, with cleaning scrapers for each disc.
- C. All mulch shall be distributed evenly over the areas to be mulched within 24 hours after the seeding operation. Following the mulching operation, suitable precautions shall be taken to prohibit traffic over mulched areas. Displaced mulch shall be replaced immediately, including repair of the underlying seed bed, if damaged as well.

3.08 MAINTENANCE

- A. The Contractor shall maintain all seeded areas until the grass is properly established (not less than 90 days) until satisfactory development. Maintenance shall be continued until final acceptance of the work.

- B. Maintenance of seeded areas shall include protecting, watering, mowing, fertilizing, and such other work as may be necessary to establish a permanent lawn. The Contractor shall reseed those seeded areas in which a satisfactory growth is not obtained and shall refill any areas which become eroded prior to final acceptance of the work.
- C. Paved areas shall be kept clean while maintenance operations are in progress.

3.09 REPLACEMENT

- A. The Contractor shall replace all trees, shrubs, and flowers damaged by construction activities in the areas designated on the construction plans. The replacement trees and shrubs shall be equal in size to the damaged or removed specimen.

END OF SECTION

SECTION 32 92 23 - SODDING

PART 1 - GENERAL

1.01 SECTION INCLUDES

Sod shall be a blend of three (3) varieties of tall turf type fescue, as approved by the Engineer, unless otherwise noted. The areas to which these specifications apply and on which topsoil is to be spread shall be all disturbed areas or as otherwise specified. Equipment, labor and materials necessary for preparation of the specified areas shall be furnished by this Contractor.

A. Grading:

Grades on the areas to be topsoiled which have been previously established in conformance with the drawings and/or other applicable specifications shall be maintained in a true and even grade.

B. 30 days prior to sod installation, the Contractor shall schedule to have a reputable laboratory test the soil for pH.

1. Low pH Correction:

Where the subsoil is highly acid, it shall be tested by a reputable laboratory and a pH correction material shall be spread at a rate sufficient to correct the pH to a range of 6.0-7.0. The material shall be distributed uniformly over the designated areas and worked into the soil in conjunction with and expanded tillage operation as described in Paragraph C below.

2. High pH Correction:

If alkali soils are found, subsoil samples shall be tested by a reputable laboratory and recommendations followed to balance the pH.

C. Tilling:

After the areas to be topsoiled have been brought to grade, compacted where necessary and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or by scarifying to a depth of at least two (2) inches to permit bonding of the topsoil to the subsoil.

D. Acceptance:

Initial Acceptance shall be given to the General Contractor by the Owner or their representative upon satisfactory completion of each section or area as indicated on the drawings or as otherwise specified. Final Acceptance will be made by the Owner or their representative at least 30 days after installation.

E. Sod placed out of Season:

Payment for sod placed out of season will be deferred until the sod has been accepted after an inspection at the appropriate time during the next growing season. The inspection and acceptance will conform to this Section.

1.02 PRE-RESTORATION MEETING

The Contractor shall be responsible for scheduling a pre-restoration meeting within one (1) week prior to beginning final grading, select soil placement, and restoration of the sodded areas in the project. The time and location of the meeting shall be approved by the Engineer, with required attendance by the Contractor's superintendent and any/all subcontractors involved in the restoration. The purpose of this meeting is to discuss in detail the requirements of sod restoration in the Specifications. At this meeting the Contractor shall provide:

1. A complete schedule of operations and proposed methods for soil preparation, sod placement, and watering.
2. A list of the equipment to be used for soil preparation and compaction, fertilizer distribution, sod delivery, placement and rolling and watering.
3. The proposed source or sources of the sod, select soil, and water.
4. A list or set of "marked up" plans indicating the proposed location of each type of sod.
5. A list of at least three (3) locations that the sod crew to be used on this project has placed sod within the previous two (2) weeks.

PART 2 - MATERIALS

2.01 TOPSOIL MATERIAL AND APPLICATION

Note: Topsoil on the existing site may often be used, but it should meet the same standards as set forth in these specifications.

A. General:

The Contractor shall furnish all topsoil, labor, material and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract.

B. Materials:

Topsoil shall be a loamy sand, sandy loam, clay loam, loam, silt loam, sandy clay loam or other soil approved by the Architect. It shall not have a mixture of subsoil and contain no slag, cinders, stones, lumps of soil, sticks, roots, trash or other extraneous materials larger than 1½ inches in diameter. Topsoil must also be free of viable plants or plant parts of common bermudagrass, quackgrass, johnsongrass, nutsedge, poison ivy, Canada thistle, or others as specified. All topsoil shall be tested by a reputable laboratory for pH and soluble salts. If needed, pH correction material shall be applied at a rate sufficient to correct the pH to a range of 6.0-7.0. Soluble salts shall not be higher than 500 parts per million.

No turfgrass sod shall be placed on soil, which has been chemically treated until sufficient time has elapsed to permit dissipation of all toxic materials. This Contractor shall assume full responsibility for any loss or damage to turfgrass sod arising from improper use of chemicals or due to their failure to allow sufficient time to permit dissipation of toxic residues, whether or not such materials are specified herein.

C. Grading:

The topsoil shall be uniformly distributed on the designated areas and it shall be a minimum of three (3) inches after firming. Spreading shall be performed in such a manner that sod installation can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed for turfgrass sod installation.

D. Clean Up:

After the topsoil has been spread and the final grades approved, it shall be cleared of all grade stakes, surface trash and other objects that would hinder installation and/or maintenance of turfgrass sod and other plantings. Paved areas over which hauling operations are conducted shall be kept clean, and any soil which may be brought upon

the surfacing shall be promptly removed. The wheels of all vehicles shall be kept clean to avoid tracking soil on the surfacing of roads, walks or other paved areas.

E. Acceptance:

Acceptance shall be given to the General Contractor, by the Owner or their representative upon satisfactory completion of each section or area indicated on the drawings or as otherwise specified.

2.02 FERTILIZER, PH CORRECTION MATERIALS AND FINAL SOIL PREPARATION

Note: Specifications given in this section apply both to areas where topsoil has been added and to areas where soil from the existing site is used.

A. General:

The Contractor shall furnish all labor, material and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract.

B. Materials:

Soil tests shall be made to determine the exact requirements for any amendments. Soil tests shall be conducted by a reputable laboratory.

Note: For the following three (3) items, use appropriate recommendations of the state agricultural experiment station or extension service for the variety of turfgrass being specified:

1. Fertilizers: All fertilizers shall be uniform in composition, free flowing and suitable for application with approved equipment. Fertilizers shall be delivered to the site fully labeled according to applicable state fertilizer laws and shall bear the name, trade name or trade-mark, and warranty of the producer/manufacturer.

After tilling, shaping and dressing, commercial fertilizer, grade 10-10-10, shall be applied uniformly at a rate not less than 300 pounds per acre and harrowed lightly. Fertilizer shall be distributed evenly over the area to be sodded.

2. Low pH Correction Materials: Lime material shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Ground limestone shall be ground to such fineness that at least 50% will pass through a 100-mesh sieve and 98% to 100% will pass through a 20-mesh sieve.

Application rates for liming materials shall be determined by soil tests.

Bluegrass or Fescue sod areas are to have a pH of 6.0-7.0

Zoysia sod areas are to have a pH of 5.0-7.0

3. High pH Correction Materials: Materials and application rates shall be determined by appropriate soil tests performed by a reputable laboratory. If leaching or special management is necessary, final grading will be delayed as specified.

C. Grading:

1. Tillage: Soil amendments such as lime and fertilizer shall be uniformly mixed into the top four (4) inches of soil by discing, harrowing or other approved method.

2. Final Grading: Any undulations or irregularities in the surface resulting from fertilizing, liming, tilling or other causes shall be smoothed prior to turfgrass installation. Flooded, washed out areas damaged or otherwise, shall be reconstructed and all grades re-established by the Contractor in accordance with the drawings and/or other applicable specifications.

D. Clean Up:

Prior to sod installation, the surface shall be cleared, to a depth of four (4) inches, of all trash, debris and stones larger than 1½ inches in diameter, and of all roots, brush, wire,

grade stakes and other objects that would interfere with planting or maintenance operations.

E. Acceptance:

Acceptance shall be given to the General Contractor, by the Owner or their representative upon satisfactory completion of each section or area as indicated on the drawings or as otherwise specified.

F. General Contractor's Responsibility:

The General Contractor shall be responsible for maintaining the accepted areas which are to be sodded until the effective date to begin installation. The effective sod installation date shall be specified in a written notice from the General Contractor.

G. Trim edges of existing sod edges with a sod cutter to provide near straight lines.

H. No pieces of sod smaller than 1'x1' square shall be allowed.

I. Pick and clear all rock over 1 1/2" in size out of subgrade, clean all rock lenses out of subgrade. No hard soil lumps over 1" in diameter will be allowed.

PART 3 - EXECUTION

3.01 TURFGRASS SOD MATERIALS AND TRANSPLANTING/INSTALLING

A. General:

The Contractor shall furnish all labor, material and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract.

B. Grading:

All previously established grades shall be maintained in conformance with the drawings and/or other specifications.

C. Materials:

1. Class of Sod and Composition: Class of the Turfgrass shall be Certified and approved or Nursery Turfgrass sod.

a. Certified Turfgrass Sod. Certified turfgrass sod is superior sod grown from certified, high quality seed of known origin or from plantings of certified grass seedlings or stolons. It is inspected by the certification agency of the state to assure satisfactory genetic identity and purity, overall high quality and freedom from noxious weeds, as well as excessive amounts of other crop and weedy plants at time of harvest. It may be of either one variety or composed of a mixture of two (2) or more varieties or species. However, all seed or original plant material in a mixture must be certified. The turfgrass sod must meet the published state standards for certification.

b. Approved Turfgrass Sod. Approved turfgrass sod is superior sod grown from approved seed of known origin or from plantings of approved grass seedlings or stolons. Field standards for approved sod are similar to those of certified sod. It is inspected by the official certification agency of the state to assure overall high quality and freedom from noxious weeds, as well as excessive amounts of other crop and variety of composed or a mixture of two (2) or more varieties or species. However, all seed original plant material in a mixture must be approved.

c. Nursery Turfgrass Sod. Any turfgrass sod planted on cultivated agricultural land and grown specifically for sod purposes. It shall have been mowed regularly and carefully and otherwise maintained from planting to harvest to

maintain reasonable quality and uniformity. May also be termed "Cultivated Turfgrass Sod."

2. Thickness of Cut: Turfgrass sod shall be machine cut at a uniform soil thickness of 5/8 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.
 3. Pad Size: Individual pieces of turfgrass sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be plus or minus 1/2" on width and +/- 5% on length. Broken pads and torn or uneven ends will not be acceptable.
 4. Strength of Sod Sections: Standard size sections of sod shall be strong enough that when grasped at one end, it can be picked up and handled without damage.
 5. Moisture Content: Turfgrass sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
 6. Mowing Height: Before harvesting, the turf shall be mowed uniformly at a height of 1 to 1½ inches on cool season grasses (i.e., bluegrass, rye and fescue); and ½ to ¾ inches on warm season grasses (i.e., bentgrass, zoysiagrass and bermudagrass).
 7. Time Limitations: Turfgrass sod shall be harvested, delivered and installed/transplanted with a period of 36 hours unless a suitable preservation method is approved prior to delivery. Turfgrass sod not transplanted within this period shall be inspected and approved by the inspecting officer or their representative prior to its installation.
- D. Transplanting:
1. Moistening the Soil: During periods of higher than optimal temperature for the species being specified and after all unevenness in the soil surface has been corrected, the soil shall be lightly moistened immediately prior to laying and turfgrass sod.
 2. Starter Strip: The first row of turfgrass sod shall be laid in a straight line with subsequent rows placed parallel to and tightly against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to ensure that the pieces are not stretched or overlapped and that all joints are butted tightly to prevent voids that would cause air drying of the roots.
 3. Sloping Surfaces: On 3:1 or greater slopes, turfgrass sod shall be laid across the angle of the slope, with staggered joints and secured by tamping, pegging or other approved methods of temporarily securing each piece.
 4. Watering and Rolling: Contractor shall water the turfgrass sod immediately after transplanting to prevent excessive drying during progress of the work. As sodding is completed in any one section, the entire area shall be lightly rolled. It shall then be thoroughly watered to a depth sufficient that the underside of the new sod pad and soil immediately below the pad are thoroughly wet. The General Contractor shall be responsible for having adequate water available at the site prior to and during installation.
- E. Guarantee:
The Contractor shall guarantee work covered by this specification to the extent that all transplanted turfgrass sod shall be uniform in color, leaf texture and shoot density and be reasonably free of visible imperfections at acceptance.
- F. Sod shall be planted on all disturbed areas within the project limits. The sod shall be planted immediately after construction of the project is completed. After planting, the sod shall be watered and mowed as required until completion and acceptance of the

entire work. On 2:1 slopes, or steeper, the sod shall be anchored as approved by the Engineer. The full areas shall be sodded and plug, or strip sodding will not be permitted.

3.02 MAINTENANCE OF TRANSPLANTED TURFGRASS SOD

A. General:

The Contractor shall furnish all labor, material and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract.

B. Watering:

The General Contractor shall supply adequate water to the site.

1. First Week: The Contractor shall provide all labor and arrange for all watering necessary for rooting of the turfgrass sod. Soil on sod pads shall be kept moist at all times. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least four (4) inches. Watering should be done during the heat of the day to prevent wilting.
2. Second and Subsequent Weeks: The Contractor shall water the turfgrass sod as required to maintain adequate moisture in the upper four (4) inches of soil, necessary for the promotion of deep root growth.
3. Flooding will not be permitted.

C. Mowing:

The first mowing shall not be attempted until the turfgrass sod is firmly rooted and securely in place. Not more than 40% of the grass leaf shall be removed by the initial or subsequent mowings.

Bluegrass and other cool season grasses shall be maintained between 1 1/2 and 2 1/2 inches, unless otherwise specified.

Stoloniferous grasses shall be maintained between 1/2 and 1 inch unless otherwise specified.

D. Time Limitation:

Duration of maintenance responsibilities shall be for 20 days unless otherwise specified. The Contractor is to provide, by letter with copy to the Owner, a note to each property owner stating that after 20 days of installation, the homeowner is responsible for maintenance of sod.

E. Guarantee:

Any portion of the sod that is not in good growing condition shall be replaced with fresh, live sod in accordance with these Specifications and shall be maintained in good, live condition until final acceptance of the work and at least 30 days from installation.

END OF SECTION

SECTION 33 05 61 - MANHOLES AND SPECIAL STRUCTURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pre-cast concrete manholes and related items.

1.02 RELATED SECTIONS

- A. Section 31 23 16.13 - Trenching, Backfilling and Compaction
- B. Section 33 31 00 - Sewer Pipe

1.03 WORKMANSHIP

- A. Supervision:
Provide full time supervisor trained and familiar with the work to be undertaken.

1.04 WORKERS:

- A. Provide workers qualified with every phase of work to be undertaken including concrete reinforcement, placement, and finish.

1.05 PRODUCT HANDLING

- A. Protection:
Use all means necessary to protect material prior to, during and after installation.
- B. Replacement:
Replace all material damaged during course of project.

1.06 SUBMITTALS

- A. Shop Drawings
- B. Product Data
- C. Mix Design and Test Reports

PART 2 - PRODUCTS

2.01 MANHOLE MATERIALS OF CONSTRUCTION

- A. General:
At the option of the Contractor, standard manholes may be constructed with cast-in-place concrete bases or precast concrete (developed) bases.
- B. Materials:
 - 1. Cast-in-place concrete:
Materials, handling, forms, finishing, curing, and other work as specified in the concrete section.
 - 2. Precast concrete:
Circular, uniform outside diameter; ASTM C478/C478M, with a minimum wall thickness of five inches.
 - 3. Precast concrete adjusting rings:
Circular, ASTM C478/C478M, with Shear Keys.
 - 4. Non-shrink grout:
L & M "Crystex", Master Builder Masterflow 713 Grout, or U.S. Grout "Five Star" or equal.
 - 5. Resilient manhole pipe connectors:

A-LOK manhole pipe connector or approved equal to be used on connections up to 10 degrees on 17.5%. For connection with grades greater than 10 degrees or 17.5%, a Z-LOK manhole pipe connector or approved equal is to be used.

6. Joint Sealant:
7. Joints shall be sealed with flexible joint sealant conforming to ASTM C990.
8. Manhole frames and covers:
 - a. Type I:
 - 1) Waterproof manhole rings with bolted covers shall be Clay and Bailey No. 2014 or Neenah R-1915-H2 or approved equal.
 - b. Type II:
 - 1) Standard manhole frames and covers shall have a minimum weight of 300 pounds and shall be Clay and Bailey No. 2011-MR or Neenah R-1775 or equal. All frames shall have brick rings. All covers shall be solid with no vents. Iron shall be in accordance with ASTM A48/A48M-94A, Class 35.
 - c. Flat top manhole frame and lid shall be Clay and Bailey No. 2002 or Neenah R-6033 type y.
- C. Manhole steps:

Steps shall be ASTM C478/C478M Plastic Steps, M. A. Industries Polypropylene Plastic Steps No. PS2-PF or equal.
- D. External Joint and Frame seal:
 1. External Frame Seal shall be CCI Pipeline Systems WrapidSeal or approved equal.

2.02 WATERPROOFING

- A. Waterproofing shall be Blackhawk BH 5011 or approved equal.
- B. Total thickness shall be 16-24 mils.

PART 3 - EXECUTION

3.01 GENERAL

- A. Standard manholes and special manholes shall be constructed complete with covers in accordance with the details shown on the drawings. Standard manholes above the foundations, unless otherwise required by the plans, shall be constructed of precast concrete sections specially cast for use in manholes. Special manholes shall be constructed of monolithic concrete as shown on the plans. Concrete and reinforcing steel shall conform to the specifications for concrete, Section 03 30 00. Precast concrete sections shall be in compliance with ASTM C478/C478M specifications, with joints filled with mastic compound.
- B. Manhole inverts shall be carefully constructed to maintain the proper velocities through the manhole, and in no case shall the invert sections through the manhole be greater than that of the outgoing pipe. The shape of the invert shall conform exactly to the lower half of the pipe it connects. Side branches shall be connected with as large radius of curve as practicable. All inverts shall be troweled to a smooth clean surface.
- C. The main sewer shall be carried through manholes by split pipe wherever practicable. Concrete filling between the sewer invert and walls of manholes shall be flush with the top edges of the invert and shall slope up from the invert at the rate of two inches per foot. The sewer should be laid continuously through manhole locations wherever grade and alignment permit, and the manhole built later. In such cases, the foundation shall be laid and carried up approximately to the center of the pipe with the specified surface

slope. After the manhole is built, the upper half of the pipe shall be cut out and the bottom finished.

Where it is not practicable to use a split pipe through manholes, due to breaks in grade or elevation of incoming sewers, the sewer invert shall be made of concrete deposited between forms.

- D. Drop manholes and other special structures shall be built in accordance with the drawings. All fittings, connections, drops, concrete drop encasement, and all other sewer pipe appurtenances built into wall shall be provided for drop manholes and other special structures.
- E. In streets, highway shoulders, and in yard areas, manhole tops shall match adjoining surface elevations with final adjustment with precast concrete adjusting rings at top of manhole. Contractor shall allow for two quantity 4" high adjusting rings when determining manhole heights when precast manholes are used to permit adjustment downward if needed. At other locations, manhole tops shall be constructed to elevations as shown on plans.

3.02 JOINTING CIRCULAR PRE-CAST RISER SECTIONS

- A. The bell section shall be "buttered" with mastic compound and the next section set in place. Excess mastic inside the manhole shall be struck-off and any void places filled. On the exterior all void places shall be filled.
- B. Mastic compound shall be a sewer joint compound meeting the approval of the Engineer. Preformed flexible plastic gaskets with removable paper will be acceptable.

3.03 INSTALLATION OF FRAME SEAL

- A. The external joint and frame seals and extensions shall be installed in accordance with the manufacturer's instructions.

3.04 FLEXIBLE WATERTIGHT PIPE ENTRANCE

- A. The all rubber gasket shall be permanently cast in place in the manhole opening for the entry pipe.
- B. The design of the joint will be such that when fully assembled the entering pipe can be deflected a minimum of nine degrees and withstand an internal hydrostatic pressure equivalent to 30 feet head pressure or 13 psi for 10 minutes without leakage. Moisture or beads of water appearing on the surface of the joint will not be considered leakage.
- C. Installation shall be accomplished in accordance with the gasket manufacturer's instructions. Joints shall be in accordance with the above specification.

3.05 MANHOLE BASE

- A. Pre-cast manholes may be furnished with developed base or base may be constructed in the field at the Contractor's option.
- B. If cast-in-place concrete bases are used, concrete shall be placed on undisturbed earth in accordance with applicable requirements of the concrete section.
- C. If pre-cast concrete (developed) bases are used, the subgrade materials shall be excavated to undisturbed earth and to a uniform elevation which will permit at least four inches of granular embedment material, as specified in the earthwork section. The surface of the granular material shall be compacted and carefully graded to provide proper grade and alignment of the base section. The base section shall be accurately set so that connecting pipes will be on proper line and grade. No wedging or blocking under precast concrete bases will be permitted.

3.06 MANHOLE STEPS

- A. Steel reinforced plastic steps shall be plant-installed, driven into prepared holes or vibrated into green concrete in accordance with the recommendations of the step manufacturer.

3.07 CONNECTING PIPING

- A. The space between connecting pipes and the wall of pre-cast sections shall be completely filled with non-shrinking grout, except where resilient connectors are provided.
- B. When resilient connectors are used, the connecting pipe shall be carefully adjusted to proper line and grade. The pipe shall be installed in the resilient connector prior to backfilling outside the manhole and shall be resealed after completion of the manhole and backfill. All visible leakage shall be eliminated.
- C. The connecting pipe for installation with resilient connectors shall be plain end, square cut spigots and shall not protrude more than one inch inside the manhole wall. A clear distance of at least one inch from the end of each connecting pipe and around the pipe shall be provided when the concrete invert fill is installed. After completion of the manhole, the boxout shall be filled with mastic filler material, completely filling the space beneath the pipe and extending to at least the springline. The filler material shall provide a smooth, uniform surface between the inside diameter of the pipe and the manhole invert.

3.08 STUBS

- A. Stubs for future connections shall be provided in manholes at the locations indicated on the drawings. Stubs shall be not less than 3'-0" or more than 4'-0" long, unless otherwise noted on the drawings, and shall terminate in a bell and plug.

3.09 WATERPROOFING MANHOLES

- A. Surface shall be prepared by manufacturer.
- B. The exterior of all manholes shall be coated with a heavy coat of coal-tar paint as required by manufacturer's instructions.
- C. Reinforced concrete pipe manholes or circular pre-cast concrete section manholes shall be waterproofed.
- D. Coating damaged during construction shall be recoated and allowed to cure prior to backfilling.

3.10 VACUUM TESTING MANHOLES

- A. Each manhole shall be inspected and tested immediately after assembly.
- B. All lift holes shall be plugged with an approved non-shrink grout.
- C. All pipes entering the manhole shall be plugged, taking care to securely brace the plug from being drawn into the manhole.
- D. The test head shall be placed at the inside of the top of the cone section and the seal inflated in accordance with the manufacturer's recommendations.
- E. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to nine inches. The manhole shall pass if the time is greater than 60 seconds for 48 inches diameter, 75 seconds for 60 inches, and 90 seconds for 72 inches diameter manholes.
- F. If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout. Retesting shall proceed until a satisfactory test is obtained.

END OF SECTION

SECTION 33 41 00 - DRAINAGE STRUCTURES

PART 1 - GENERAL

1.01 GENERAL

- A. This section covers structures appurtenant to the storm sewer system. These structures include inlets, manholes, and junction boxes.

1.02 RELATED SECTIONS

- A. Section 03 20 00 - Concrete Reinforcement
- B. Section 03 30 00 - Concrete
- C. Section 31 23 16 - Excavation, Backfill, and Site Grading: Excavating for subdrainage system piping and surrounding filter aggregate.

PART 2 - PRODUCTS

2.01 EARTHWORK

- A. All earthwork shall conform to the requirements stipulated in Section 31 23 16.13.
- B. Excavations for structures in improved areas shall be held to the smallest practical dimensions. No increase in payment for street or lawn repair will be made to allow for areas disturbed by such excavations.

PART 3 - EXECUTION

3.01 CONCRETE CONSTRUCTION

- A. All new inlets and junction boxes shall be constructed of concrete in accordance with Sections 03 20 00 and 03 30 00.
- B. Inlet tops shall have light broom finish.
- C. Curb transitions shall have broom finish. Contraction joints shall be cut where shown. Cut each a minimum of $\frac{1}{4}$ of the concrete depth and finish with joint tool.
- D. Concrete structures may be cast in place, or precast, in accordance with the requirements of this section.
- E. Connections to existing pipes shall be made with a concrete collar with KCM MB 4K concrete and any existing pipe that requires replacing shall be done so subsidiary to the pipe inlet connection bid item.

3.02 PRECAST INLETS AND JUNCTION BOXES

- A. Precast concrete inlets and junction boxes shall be constructed in all respects, in accordance with the Plans and Specifications, except as provided in the following items of this subparagraph. The use of precast structures will not relieve the Contractor of the responsibility to make any adjustments to the structures found to be necessary because of field utility conflicts or other field conditions. Modification of precast structures, if allowed by the Engineer or substitution of an approved structure to meet field conditions shall be entirely at the Contractor's expense.
- B. All applicable requirements of ASTM C478/C478M shall apply to the manufacture of precast concrete manholes.
- C. The manufacturer of precast concrete inlets and junction boxes shall submit detailed drawings and specifications, for the construction of the basic precast units and appurtenances to the Engineer, for prior approval. A shop drawing for each structure

showing dimensions, elevations and openings, shall be submitted to the Engineer for approval prior to manufacturing of the units. The Contractor shall verify all top of inlet and manhole elevations prior to construction of the structures.

- D. Multiple precast units may only be used as specified on the plans, or with approval of the Engineer. Where dividing walls are used or where multiple precast units are used, the total net length of opening shall equal the length of inlet specified on the project plans. Intermediate wall openings shall be large enough so as to not cause hydraulic head loss. Location and number of manhole openings, as well as openings in walls between multiple units or in dividing walls, shall be as required to promote easy access to all parts of the inlet, subject to the Engineer's approval.
- E. Unless otherwise noted on the plans, concrete base slabs for precast structures shall be constructed monolithic with the walls. The base slab shall be reinforced in accordance with the project plans, and the bottom of the base slab shall be located to provide at least 4" of clearance between the bottom of the lowest pipe and the top of the base slab.
- F. Mastic pipe joint compound, or approved preformed mastic, shall be used in horizontal joints and where walls of multiple sections join, in order to form a reasonably watertight structure.
- G. All curb inlet, area inlet, and shallow manhole top slabs shall be cast in place. Wall steel shall be extended a minimum of 4.5" into the top slab for 6" thick curb inlet tops, and 6.5" for 8" thick manhole top slabs.

3.03 MASONRY CONSTRUCTION

Where necessary to adjust existing structures, as directed by the engineer, masonry construction shall meet the following requirements:

- A. Brick shall be clay or shale, ASTM Desig. C 62, Grade SW, or ASTM Desig. C 32, Grade MS.
- B. Materials for Mortar:
 - 1. Portland Cement Type I
 - 2. Hydrated Lime ASTM Desig. C 207, Type N.
 - 3. Masonry Cement AASHTO Desig. M 150, Type II.
 - 4. Sand. Per KCMMB Specifications.
 - 5. Water. Potable, per KCMMB Specifications.
 - 6. Iron Oxide for Expanding Grout. Embecco by Master Builders Co., or equal.

3.04 MORTAR OR PLASTER

- A. Materials shall be in accordance with Section 31 25 00.13.
- B. The ingredients shall be proportioned as follows:

	<u>Weights</u>	<u>Parts by Volume</u>
Portland Cement	94#	1
Hydrated Lime	10#	0.15
Sand	200#	3

- C. Masonry cement may be substituted for Portland cement and hydrated lime, providing satisfactory results are obtained. Proportion by volume shall be one (1) part masonry cement to three (3) parts sand.
- D. All the materials except water shall be mixed, either in a tight box or in an approved mortar mixer, until the mixture assumes a uniform color, after which the water shall be added, and the mixing continued. Sufficient water shall be added to produce a mortar of such consistency that it can be handled easily and spread with a trowel. Mortar shall be

mixed only in those quantities required for immediate use. Mortar that is not used within 45 minutes after water has been added shall be discarded. Retempering of mortar will not be permitted.

- E. Work involving mortar or plaster shall not be done in freezing weather and shall be protected from freezing for three days after construction.

3.05 EXPANDING MORTAR OR GROUT

- A. Materials shall be in accordance with Part 4.01 of Section 31 25 00.13. Proportion, mix and use in accordance with manufacturer's instructions.

3.06 WATER TIGHTNESS

- A. All structures shall be constructed substantially water tight. All obvious leaks shall be repaired.
- B. Curing seal, moist cure or shade shall be used, when required, to accomplish these results and to provide a watertight structure.
- C. Masonry and mortar around pipe shall be carefully constructed to provide water-tight connections.

3.07 SETTING TOP CASTINGS

- A. Top castings for all structures with a concrete top slab shall be cast in the slab at the time of pouring.
- B. Top castings for manholes shall be set in full mortar bed and to required elevation and slope.
- C. Except when otherwise indicated or directed, set manhole tops as stated in the following paragraphs.
- D. Top shall be set flush, and on same slope, with finished pavements or walks. In newly developed areas, set top to designed street surface.
- E. In streets with stone or oiled surfacing, set tops so that they will remain exposed, but flush, when construction is completed.
- F. In established lawns, set tops approximately one (1) inch above normal grade and slope away from manhole at 1 on 10 slope.

3.08 MISCELLANEOUS

- A. Steel Items. ASTM A7 or ASTM A36/A36M. Painting or galvanizing, as required by the plans.
- B. Cast Iron Items. ASTM A48/A48M, Class 35, gray iron. Except for the buried portion of manhole steps, coat with coal tar pitch, two (2) coats, at foundry. Castings shall fit together properly, mating surfaces shall be machined, and be non-rocking under moving loads.

END OF SECTION

SECTION 33 44 13 - STORM SEWER CONSTRUCTION

PART 1 - GENERAL

1.01 DESCRIPTION

All storm sewers, structures and appurtenances shall be located as shown on the plans and as determined by the Engineer.

PART 2 - MATERIALS

2.01 CONCRETE PIPE

A. Pipe

Except as modified or otherwise provided in this chapter, the manufacture of concrete pipe shall be governed by ASTM C76, ASTM C-506 and ASTM C-507. Except for fittings and closure pieces, each piece of the pipe shall not be less than eight (8) feet long for pipe diameters 48 inches or less and shall not be less than six (6) feet long for pipe diameters larger than 48 inches.

The wall thickness of concrete pipe shall be not less than Wall B.

The pipe class in each case shall be as designated on the plans and shall not be less than Class III.

B. Reinforcement

Circumferential reinforcement shall be full-circle type. Elliptical or part-circle reinforcement will not be approved. All reinforcing shall be located and spaced as recommended by the pipe manufacturers.

C. Joints

Rubber gasket joints shall be required for all round pipe. Mastic joints shall be required for all other pipe shapes.

The City Engineer reserves the right to require joint testing on pipe sections, either at the plant or in place, as designated by the City Engineer to demonstrate compliance.

D. Rubber Gasket Joints

Rubber gasket joints shall conform to ASTM C 1628-06 with the following additions and exceptions:

1. Replace ASTM C 1628-06 5.1.1 with: Circular Cross-Section or "O-Ring" Gaskets for standard use shall meet Class A requirements. Non-Circular Cross-Section or "Profile" Gaskets for standard use shall meet Class E requirements.
2. Replace ASTM C 1628-06 9.4 with: The manufacturer shall conduct concurrently the hydrostatic test described in 9.2 and the structural test described in 9.3. If proven watertight under these combined conditions, hairline cracks that do not leak shall not be cause for rejection. A vacuum test, run in accordance with the current written plant certification procedures of the American Concrete Pipe Association, may be used in lieu of the hydrostatic test referenced above.
3. Joint design details shall be submitted for approval together with design data and test results verifying the adequacy of the joint design.
4. Fine aggregate shall consist of clean natural sand conforming to ASTM C33/C33M. Artificial or manufactured sand will not be approved.

E. Lift Holes

Lift holes are prohibited for all concrete storm sewer pipes.

1. No concrete pipe shall be delivered to the site of the work until concrete control cylinders representing such pipe shall have attained a compressive strength of at least 80% of the specified minimum 28 day strength.

2.02 CORRUGATED METAL PIPE

- A. All corrugated metal pipe shall be fabricated from galvanized iron corrugated metal sheets. The U.S. Gauge number shall, in each case, be as designated on the plans, and as recommended by the manufacturer of the pipe for the depth of installation and classification of soil.
- B. All work shall conform to AASHTO M 36 for base metal and galvanizing. All joints in corrugated metal pipe shall be made using watertight coupling bands, not less than 12 inches wide, fabricated from the same material as the pipe and coated in the same manner. Each coupling band shall be lubricated sufficiently, to insure the corrugation of the band seats into the corrugations of the two (2) pipes being joined, when the bolts are tightened.
- C. Corrugated Metal Pipe manufacturer's certification shall be submitted to the Engineer.

2.03 CONCRETE LINED DITCH

Concrete shall be as specified in "Concrete Construction". Wire fabric shall conform to ASTM A-185. Wire fabric shall be supplied in flat sheet form.

2.04 EMBEDMENT

Embedment materials both below and above the bottom of the pipe, the classes of embedment to be used, and the placement and compaction of embedment materials shall conform to the requirements shown in the current Standard Details and to the supplementary requirements in this section.

2.05 TAMPED BACKFILL

All backfill materials shall be in conformance with the City's Manual of Infrastructure Standards for Right of Way Restoration as promulgated by the City Engineer.

2.06 SPECIAL PIPE

All special pipe sections necessary to complete the storm sewer system as shown on the plans shall be furnished by the Contractor. These sections shall include, but not be limited to, drop joint or radius pipe, bends, tees, and Type III end sections. The pipe manufacturer shall provide shop drawings indicating the exact methods to be used to achieve the lines and grades indicated on the plans, including a pipe laying schedule, and the configuration and number of any special pipe sections. All special pipe sections used shall be subsidiary to other bid items.

PART 3 - EXECUTION

3.01 LOCATION AND GRADE OF SEWERS

The grade and alignment of the pipe shall be determined and maintained from tacked offset stakes located alongside the trench upon which cuts and elevations have been established by the Contractor. Pipe alignment during construction shall be maintained by the use of laser alignment equipment. A minimum of 18 inches of cover shall be maintained over the storm sewer pipe.

3.02 POST CONSTRUCTION VIDEO

Once installation and backfill of the proposed storm sewer has been completed and all grading over and around the storm sewer is completed, the Contractor shall be responsible for videotaping each run of storm sewer pipe, less than 60 inches in diameter, to verify that the segment of pipe is in sound, stable condition and that no failures have occurred during construction. This video shall be delivered to the City Engineer for approval prior to any permanent pavement being placed over any said storm sewer. The development and delivery of this video shall be considered subsidiary to other bid items.

3.03 UNAUTHORIZED EXCAVATION

Except where otherwise authorized, shown or specified, all material excavated below the bottom of concrete walls, footings, slabs on grade, and foundations shall be replaced by and at the expense of the Contractor, with concrete placed at the same time and monolithic with the concrete above.

3.04 REMOVAL OF WATER

The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water entering excavations, trenches, or other parts of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed, therein is completed to the extent that no damage from hydrostatic pressure, flotation, or other causes will result.

All excavations for concrete structures or trenches which extend down to or below the static ground water elevations shall be dewatered by lowering and maintaining the ground water surface beneath such excavations a distance of not less than 12 inches below the bottom of the excavation.

Surface water shall be diverted or otherwise prevented from entering excavated areas or trenches to the greatest extent practicable without causing damage to adjacent property. The Contractor will be held responsible for the condition of any pipe or conduit which he may use for drainage purposes, and all such pipes or conduits shall be left clean and free from sediment.

3.05 SHEETING AND SHORING

Except where banks are cut back on a stable slope, excavation for structures and trenches shall be properly and substantially sheeted, braced, and shored, as necessary, to prevent caving or sliding, to provide protection for the workmen and the work, and to provide protection for existing structures and facilities. Sheeting, bracing and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure, and shall be rigid, maintaining shape and position under all circumstances. The Contractor shall brace and shore all trenches in full accordance with Occupational Safety and Health Standards - Excavations; Final Rule 29 CFR Part 1926.

3.06 STABILIZATION

Trench bottoms and subgrades for concrete structures shall be firm, dense and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen.

3.07 CRUSHED ROCK OR GRAVEL FILLS

Crushed rock or gravel fills shall be placed on a suitably prepared subgrade and tamped to the extent necessary for consolidation. Crushed rock or gravel shall be free from dust, clay, or trash and shall be graded one and one-half inches to No. 4 as defined in ASTM C33/C33M.

3.08 TRENCH EXCAVATION

The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. One (1) block or 400 feet (whichever is the shorter) shall be the maximum length of open trench permitted on any line under construction. Except where tunneling is shown on the plans or is permitted by the City Engineer, all trench excavation shall be open cut from the surface.

3.09 ALIGNMENT, GRADE AND MINIMUM COVER

The alignment and grade or elevation of each pipeline shall be fixed and determined by means of offset stakes. An approved laser beam may be used in addition to offset stakes. Vertical and horizontal alignment of pipes, and the maximum joint deflection used in connection therewith, shall be in conformity with the requirements of the specification covering the installation of the pipe being laid in each case.

Where pipe grades or elevations are not definitely fixed by the contract drawings, trenches shall be excavated to a depth sufficient to provide a minimum depth of backfill cover over the top of the pipe of 18 inches.

3.10 LIMITING TRENCH WIDTHS AND PIPE CLEARANCES

Trenches shall be excavated to a width which will provide adequate working space and pipe clearances for proper pipe installation, jointing, and embedment. However, the limiting trench widths below an elevation six (6) inches above the top of the installed pipe, and minimum permissible clearances between the installed pipe and either trench wall, shall be as shown in the current Standard Details.

The stipulated minimum clearances shown in the table are not minimum average clearances but are minimum clear distances which will be permitted between any part of the pipe as laid and any part, projection or point of rock, shale, stone or boulder.

Where necessary to reduce the earth load on trench banks to prevent sliding and caving, the banks may be cut back on slopes which shall not extend lower than one (1) foot above the top of the pipe.

3.11 UNAUTHORIZED TRENCH WIDTHS

Where for any reason, the width of the lower portion of the trench as excavated at any point exceeds the maximum permitted either pipe of adequate strength, special pipe embedment, or arch concrete encasement, as required by loading conditions and as determined by the City Engineer, shall be furnished and installed.

3.12 MECHANICAL EXCAVATION

The use of mechanical equipment will not be permitted in locations where its operations would cause damage to trees, buildings, or other existing property, utilities, or structures above or below ground; in all such locations, hand-excavating tools and methods shall be used.

Mechanical equipment used for trench excavation shall be of a type, design, and construction, and shall be so operated that the rough trench excavation bottom elevation can be controlled, that uniform trench widths and vertical side walls are obtained at least

from an elevation one (1) foot above the top of the installed pipe to the bottom of the trench, and that the trench alignment is such that the pipe when accurately laid to specified alignment, will be centered in the trench with adequate clearance between the pipe and side walls of the trench. Undercutting of the trench sidewall to obtain clearance will not be permitted.

All mechanical trenching equipment, its operating condition, and the manner of its operation, shall be subject at all times to the approval of the City Engineer.

3.13 EXCAVATION BELOW PIPE SUBGRADE

Except where otherwise required, pipe trenches shall be excavated below pipe subgrade elevations, as shown in the current Standard Details on file in the office of the City Engineer, to provide for the installation of granular foundation material.

3.14 ARTIFICIAL FOUNDATIONS IN TRENCHES

- A. Whenever so ordered by the City Engineer, the Contractor shall excavate to such depth below grade as the City Engineer may direct, and the trench bottom shall be brought to grade with such materials as the City Engineer may order installed. All timber, concrete foundations, wooden inverts, pipes, posts, stringers, and/or saddles, made necessary by quicksand or other treacherous soil, shall be installed as directed by the City Engineer.

3.15 BELL HOLES

Bell holes shall provide adequate clearance for the tools and methods used in installing the pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or the granular fill when the pipe is jointed.

3.16 PLACEMENT AND COMPACTION

- A. All granular fill material beneath the pipe shall be spread and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It will be permissible to slightly disturb the finished subgrade surface by the withdrawal of pipe slings or other lifting tackle.
- B. After each pipe has been graded, aligned, placed in final position on the bedding material, and shoved home, sufficient pipe embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to firmly hold and maintain the pipe in proper position and alignment during subsequent pipe jointing, embedment, and backfilling operations.
- C. Embedment material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement of the pipe. Tamped backfill materials shall be placed in uniform layers and shall have a moisture content ensuring that the maximum density will be obtained with the compaction method used.

3.17 TRENCH BACKFILL

All trench backfill above pipe embedment shall conform to the following requirements.

A. Tamped Backfill

Tamped Backfill is only allowable within unpaved areas of the ROW. It may also be used outside of the ROW and when backfilling Sanitary Sewer installations.

Materials for tamped backfill and the method of placement and compaction thereof shall be as specified for tamped backfill for pipe embedment, Subsection Tamped Backfill.

B. Flowable Fill

Flowable Fill is required within all paved portions of the ROW including future paving, if they are known, per the Manual for Infrastructure Standards for Right-of-Way Restoration and City of Overland Park Standard Details.

C. Structure Backfill

Backfill around structures shall be compacted, to the extent necessary to prevent future settlement, by tamping, placement of flowable fill, or other means approved by the City Engineer. Flowable fill is required around all structures within paved portions of the ROW including future paving, if they are known.

Material for backfill shall be as specified in this Chapter, Section Materials. and shall contain no wood, grass, roots, broken concrete, stones, trash, or debris of any kind. No tamped or otherwise mechanically compacted backfill shall be deposited or compacted in water.

3.18 DRAINAGE MAINTENANCE

Trenches across roadways, driveways, walks, or other trafficways adjacent to drainage ditches or water courses shall not be backfilled prior to the completion of backfilling of the trench on the upstream side of the trafficway to prevent the impounding of water after the pipe has been laid. Bridges and other temporary structures required to maintain traffic across such unfilled trenches shall be constructed and maintained by the Contractor. Backfilling shall be done so that water will not accumulate in unfilled or partially filled trenches. All material deposited in roadway ditches or other water courses crossed by the line of trench shall be removed immediately after backfilling is completed and the section grades and contours of ditches or water courses shall be restored to their original condition. Surface drainage shall not be obstructed longer than necessary.

3.19 PROTECTION OF TRENCH – BACKFILL IN DRAINAGE COURSES

Where trenches are constructed in or across roadway ditches or other watercourses, the backfill shall be protected from surface erosion by adequate means. Where the grade of the ditch exceeds one (2) percent, suitable ditch checks as approved by the City Engineer shall be installed as directed. Ditch checks may be creosote lumber, stone, or concrete as authorized. In any case, the ditch check shall extend not less than two (2) feet below the original ditch or watercourse bottom for the full bottom width and not less than 18 inches into the side slopes thereof.

3.20 DISPOSAL OF EXCESS EXCAVATED MATERIALS

Except as otherwise permitted, all excess excavated materials shall be disposed of away from the site of the work.

Excess earth from excavations located in unimproved property shall be distributed directly over the pipe trench and within the pipe line right-of-way to a maximum depth of six (6) inches above the original ground surface elevation at and across the trench and sloping uniformly each way therefrom. Material thus wasted shall be carefully finished with a drag, blade machine, or other suitable tool to a smooth uniform surface without obstructing drainage at any point. Wasting of excess excavated material in the above manner will not be permitted where the line of trench crosses or is within a railroad, public road, or highway right-of-way.

3.21 MAXIMUM TRENCH WIDTHS

Plans or specifications submitted to the City Engineer for approval shall show the maximum trench width for the sizes and classes of pipe at the various cover depths for the particular project.

3.22 SETTLEMENT

Whenever trenches or other excavations made by the Contractor in the performance of the work have not been properly filled, or where settlement has occurred at any time prior to final acceptance of the entire public improvement project, to the extent that the top of the backfill is below the original ground surface, such trenches shall be refilled and the surface compacted and smoothed to conform to the elevations of the adjacent ground surface. All sod in lawns and parks removed or damaged by reason of such settlement, and the repair thereof shall be restored to their original conditions.

3.23 CONCRETE PIPE

A. Rubber Gasket Joints

Non-Circular Cross-Section or "Profile" Gaskets shall be installed in strict accordance with the pipe and gasket manufacturer's recommendations.

For Circular Cross-Section or "O-Ring" Gaskets, immediately before joining the pipe, the outside of the spigot and gasket and the inside of the receiving bell shall be thoroughly cleaned and coated with a suitable lubricant. The position and conditions of the rubber gasket shall be checked with a feeler gauge after the piping unit is installed.

B. Mastic Joints

Mastic joints will be required for all non-round pipe shapes. Mastic joints shall be constructed to attain a watertight joint. Sufficient mastic will be applied so as to completely fill any space between the spigot end of one pipe and the bell end of the adjoining pipe.

C. Marking

Each pipe, fitting, or special section shall have plainly and permanently marked thereon:

1. Pipe class;
2. Date of manufacture;
3. Manufacturer's name or trademark;
4. On mitered pipe, amount of miter and point of maximum miter.

Markings shall be indented in the pipe or painted thereon with waterproof paint.

Each end of each mitered pipe, fitting or special section shall be marked with a stripe of paint approximately 1 1/2" wide and two (2) feet long, applied along the top center line.

D. Joint Openings

Round pipe shall have rubber gasketed joints in accordance with ASTM C 1628-06 with noted exceptions above in this Chapter, Subsection Rubber Gasket Joints. Other shapes shall use mastic joints as follows. In laying pipe, the maximum mastic joint opening shall not exceed the manufacturers' recommendations, or the following table, whichever is less.

Pipe Size (Round Equivalent)	Maximum Joint Opening
12"-24"	1/4"
27"-84"	1/8"/ft. of equivalent internal diameter, max 5/8"
90" and larger	3/4"

The above maximum openings are for the purpose of compensating for minor irregularities in the manufacture of the pipe joints. The pipe is to be laid to line and grade

so that the sections are pushed completely home at least one (1) point around the circumference of the joint, without spalling the concrete. Permissible openings may exist at other points around the circumference of the pipe.

In laying pipe, the maximum rubber gasket joint pull and deflection shall not exceed the manufacturer recommendations.

E. Bends

When special engineering conditions exist, the City Engineer may allow bends. Bends for concrete pipe shall be fabricated from segments of a steel cylinder with concrete or mortar lining and reinforced concrete exterior covering or from segments of concrete pipe miter cut while the pipe is still green. The deflection angle between adjacent segments shall not exceed 30°.

Steel cylinders shall be at least U.S. 10 gauge and shall be lined with concrete or mortar at least 3/4" thick. Bends fabricated from steel cylinders shall be designed for the same three (3) edge bearing loads as the adjacent pipe.

In bends fabricated from miter cut segments of concrete pipe, the reinforcing steel shall be welded, and the entire bend shall be encased in concrete after installation. Concrete encasement shall be at least eight (8) inches thick all around and shall extend the full length of the bend.

F. Handling

Pipe, fittings, and accessories shall be handled in a manner that will insure installation in sound, undamaged condition.

Concrete pipe and fittings shall be handled carefully and shall not be bumped or dropped. No hooks shall be permitted to come in contact with joint surfaces. Pipe units shall be kept from contact with adjacent units during handling and storage.

Lift holes are prohibited for all concrete storm sewer pipe.

G. Cleaning

The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been approved. All joint contact surfaces shall be kept clean until the jointing is completed.

Every precaution shall be taken to prevent foreign material from entering the pipe during installation. No debris, tools, clothing, or other materials shall be placed in the pipe. Whenever pipe laying is stopped, the open end of the line shall be suitably closed. Culverts, sewers, and drains shall have the upper end closed with an end board closely fitting the end of the pipe and having a number of small holes drilled near the center to prevent the trench from filling with water. All water that may have entered the trench shall be pumped out before the closure is removed. It is essential that no mud, sand or other material shall be placed in the pipe.

H. Alignment

Piping shall be laid to the lines and grades shown on the drawings. Storm sewers shall be designed with straight pipe runs between structures. Where warranted by special engineering conditions, the City Engineer may approve the design of curved sections. Pipe lines or runs intended to be straight shall be laid straight. Curves may be formed by using fittings or mitered joints or by opening the joints for pipe 36 inches in diameter and larger. Complete curve data shall be shown on the plans. The Contractor shall erect hub stakes to determine and check pipe subgrades. Not less than three (3) hub stakes shall be maintained in proper position at all times when trench grading is in progress. If a laser beam is not used, batter boards shall be used at intervals of not more than 25 feet.

I. Laying Pipe

Pipe shall be protected from lateral displacement by pipe embedment material. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or trench conditions.

Pipe shall be laid with the bell ends facing upstream unless an exception is granted by the City Engineer. Prior to assembling each joint, the new pipe section being added to the already installed pipe(s), shall be on line and grade to help insure uniform gasket contact around the entire perimeter of the bell end.

3.24 CORRUGATED METAL PIPE

All pipe, pipe couplings, and accessories therefore shall be unloaded, stockpiled, hauled, distributed, and otherwise handled in a manner which will prevent damage thereto. Care shall be taken to ensure that no damage will occur to coating of pipe and pipe couplings. All hooks or other tools inserted in the ends of the pipe, and slings if used in contact with the outside of the pipe, shall be well padded.

All pipe coating which has been damaged prior to laying the pipe or placing the backfill shall be repaired in strict conformity with the pipe manufacturer's instructions and recommendations, using materials of a type and quality equal to that used in originally coating the pipe.

Special care shall be taken to lay all pipe to exact grade and line. All pipe, when jointed, shall form a true line of sewer. Any pipe that has a grade or joint disturbed after laying shall be taken up and re-laid. All pipes shall be laid with the separate sections joined firmly together, with outside laps of circumferential joints pointing upstream, and the center line of the invert coinciding with the specified alignment of the pipe.

The interior surfaces of all pipe shall be thoroughly cleaned of all foreign matter before being lowered in the trenches and shall be kept clean during laying operations. In addition, the exterior surfaces of the ends of corrugated metal pipe over which the coupling bands are to be installed, and all interior and exterior surfaces of the bands shall be both clean and dry when the pipe is laid, and the joints coupled as required.

Coupled joints shall be made in strict conformity with the corrugated metal pipe manufacturer's recommendations and instructions, using watertight coupling bands and accessories as specified above.

3.25 CONCRETE LINED DITCH

A. Reinforcing

The reinforcing for the concrete shall be designed to withstand all earth and water pressures imposed upon the sides. The minimum amount of reinforcing placed in any section of the concrete paving shall be 6"x6" spacing welded wire fabric, W3 thickness. Wire fabric shall be supplied in flat sheet form. Wire fabric shall be supported on fabricated steel bar supports at three (3) foot maximum spacing.

B. Joints

Transverse expansion joints shall be placed at maximum intervals of 250 feet, and where new construction adjoins existing liners or other structures. Smooth dowel bars, two (2) feet long by 5/8" diameter, sleeved, at 18-inch centers, shall be carried through the expansion joints. Expansion joints shall consist of 1/2" pre-molded, non-extruding expansion joint material. Cut-off walls shall be placed at the downstream side of all expansion joints.

Contraction joints shall be sawed or tooled to a minimum depth of 1 1/2", at 10 foot maximum centers. No longitudinal joints shall be placed at the flow line. Joints shall be filled with an approved joint sealer material.

C. Weep Holes

Two (2) inch diameter plastic weep holes shall be placed at 15 foot centers and backfilled with 3/4" clean rock, 15 inches in all directions above the flow line. Weep holes shall be flush with the face of the concrete and the back screened.

3.26 CONCRETE BOX CULVERTS

A. Lifting Inserts

Embedded lifting inserts shall provide a water tight lift point, which does not require patching or grouting. Insert type, size, and location shall be on the shop drawing.

B. Rigging

Rigging and installation guidelines shall follow the manufacturer's recommendations.

C. Pre-cast Box Joint Openings

In laying pre-cast box culverts, the maximum mastic joint opening shall not exceed the manufacturers' recommendations, or the following table, whichever is less.

<u>Box Size (Internal Span)</u>	<u>Maximum Joint Opening</u>
≤ 7'	1/2"
> 7'	3/4"

D. Handrails

Fabricated steel handrail and guard fence shall be hot dip zinc coated in accordance with the latest edition of ASTM A123/A123M. Hardware for handrail and guard fence shall be hot dip zinc coated in accordance with the latest edition of ASTM A123/A123M.

END OF SECTION