



City of Kansas City, Missouri
Water Services Department
Terry Leeds, P.E., Director

- Contract File
- Finance
- Contractor
- Surety
- City Clerk
- Grant Agency
- Project Manager
- CM/Inspector
- Design Professional
- _____

Project Manual

PROJECT NO. 80001820
CONTRACT NO. 9030

WATER MAIN REPLACEMENT
IN THE AREA OF
ELMWOOD TO BLUE RIDGE CUT-OFF,
47TH ST TO 57TH ST

BIDDER/ADDRESS

Company	_____
Contact	_____
Address	_____

Phone & Fax	_____
Email	_____

Project Manager: Alex Ivanescu
Telephone: 816-513-0445
Email: Alex.Ivanescu@kcmo.org



CERTIFICATION PAGE

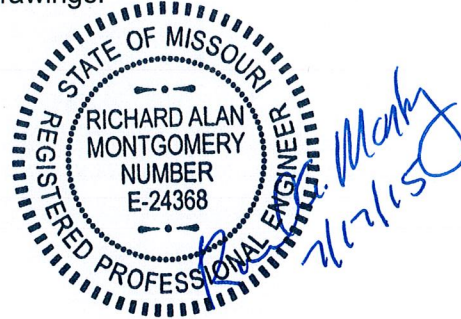
Project Number: 80001820

Project Title: Water Main Replacements in the area of Elmwood to Blue Ridge Cut-off, 47th St. to 57th St.

I am responsible for the following specifications and drawings:

Drawings:
D-20223
Sheets 1- 46

Specifications:
None

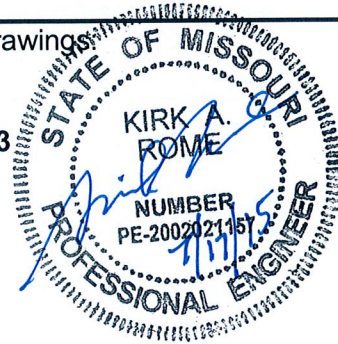


(SEAL)

I am responsible for the following specifications and drawings:

Drawings:
None

Specifications:
Divisions 1, 2, and 3



(SEAL)

I am responsible for the following specifications and drawings:

Drawings:

Specifications:

(SEAL)

EACH PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEARS ABOVE ASSUMES RESPONSIBILITY IN THESE BIDDING DOCUMENTS ONLY FOR WHAT IS LISTED ABOVE AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE SIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT.



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Item	Set /Title /Description /Designation	Drawing No(s).	Dated
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2 of 46	General Notes, Legend & Service Connection Details	D-20223	7/17/2015
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9 of 46	Line 1 Plan & Profile STA 1+00 to STA 5+20	D-20223	7/17/2015
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23 of 46	Line 8 Plan & Profile STA 1+00 to STA 5+00	D-20223	7/17/2015
24 of 46	Line 8 Plan & Profile STA 5+00 to STA 9+00	D-20223	7/17/2015
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INVITATION TO BID

Project No.: 80001820

Project Title: Water Main Replacement in the Area of Elmwood to Blue Ridge Cut-off, 47th St to 57th St (Contract No 9030)

The **General Services Department** of Kansas City, Missouri will receive sealed Bids until 2:00 PM, on **Tuesday, August 11, 2015** at City Hall, 414 East 12th Street, First Floor, Room 102W, Kansas City, Missouri, 64106, for **Project No. 80001820 – Water Main Replacement in the Area of Elmwood to Blue Ridge Cut-off, 47th St to 57th St (Contract No 9030)**. Bids will be opened after that time at the same location.

City desires that Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE) have a maximum opportunity to participate in the performance of City contracts. The goals for this specific Project are **(10%)** MBE participation and **(6%)** WBE participation.

Bidding Documents will be available online to all interested parties at the Kansas City, Missouri Plan Room, <http://www.kcmoplanroom.org>. All addenda will be posted at this location. Any document or plan may be viewed or downloaded from this location.

Forward all questions in writing to the following Project Manager and Contract Administrator.

Alex Ivanescu
Project Manager
Water Services Department
4800 E. 63rd Street
Kansas City, MO 64130
816-513-0445 Phone
816-513-0288 Fax
E-mail: Alex.Ivanescu@kcmo.org

George H. Goodale, CPPO, M.P.A.
Contract Administrator
General Services Procurement
1st Floor, Room 102W, City Hall, 414 E. 12th St
Kansas City, MO 64106
816-513-0808 Phone
816-513-2812 Fax
E-mail: George.Goodale@kcmo.org

View all procurement and contracting opportunities at <http://www.kcmo.gov>



INSTRUCTIONS TO BIDDERS

Project/Contract Number **80001820**

Project Title **Water Main Replacement in the area of Elmwood to Blue Ridge Cut-off, 47th St. to 57th St.**

1. Sealed Bids for **Project No. 80001820 – Water Main Replacement in the Area of Elmwood to Blue Ridge Cut-off, 47th St to 57th St (Contract No 9030)** will be received by the *General Services Department*, at City Hall, 414 East 12th Street, First Floor, Room 102W, Kansas City, Missouri, 64106, until 2:00 P.M., **Tuesday, August 11, 2015**, at which time bidding will be closed.

- a. All Bids will be opened and read aloud. The Bid Envelope must contain all required submissions to be included with the Bid. No Bid may be withdrawn for a period of ninety (90) days after the Bid is opened. Bid security shall likewise continue for the same ninety (90) days unless earlier released by the City. The successful Bidder shall comply with all Bidding and contract requirements. Bids, once opened and read, may not be withdrawn without forfeiture of the Bid security.
- b. All Bids shall be addressed to the **Manager of Contract Administration, Procurement Services**, shall state on the outside of the sealed Bid envelope “Bid Enclosed”, title and Project number, and shall be deposited in the locked Bid box. All Bids must comply with the Bidding Requirements of Kansas City, Missouri (CITY).

2. **Consideration of Bids**

- a. The City will determine the lowest and best Bid. The City may reject any or all bids. If the City rejects all Bids, the City may: (1) resolicit Bids following the City’s normal solicitation procedure; or (2) solicit Bids only from those Bidders that submitted a Bid pursuant to the original solicitation; or (3) use an expedited Bid submission schedule with or without readvertising or issuing any other public notice when the City determines that the delay from the normal City solicitation procedure would not be in the City's best interests.
- b. **Alternates**. If this solicitation includes Bid Alternates, the City, in its sole discretion, may include any, all or none of the Alternates in determining the lowest and best Bid. In determining lowest and best Bid, the City may include the Alternates in any combination and in any order or priority or choose none of the Alternates. The City may make this determination at any time after Bid Closing and prior to Contract award. The City will act in the best interest of the City in determining whether to include any, all or none of the Alternates and the combination and priority of any Alternates selected. If additional funding becomes available after Contract award, City may add any or all of the Alternates to the Contract by change order.

3. **Evidence of Competency to Perform**. Each bidder shall furnish with the bid satisfactory evidence of Bidder’s competency to perform the proposed work. Such evidence of competency shall consist of the following:

- a. Completed Form 00410.01 Experience Reference Summary for similar projects performed within the past 5 years including reference information.
- b. Identify the following Key Personnel proposed for the Project. (**NOTE:** Key Personnel must be committed to the Project for its duration, and may not be removed or substituted without the City's prior written consent.)
 - (1) GC Project Manager
 - (2) On-Site Field Superintendent

- (3) QC/QA Manager
 - (4) Safety Officer
 - c. For each of the Key Personnel, provide the following background information.
 - (1) Years of employment with current employer
 - (2) City of residence
 - (3) Identify any other projects this person will be involved with concurrently with the Project, and state the time commitment for the Project and each other project
 - (4) Discuss professional registrations, education, certifications, and credentials held by this person that are applicable to the Project
 - d. Illustrate clearly and concisely Bidder's understanding of the technical elements that must be addressed for successful completion of the Project.
 - e. Describe key issues that might affect the Project schedule and how Bidder proposes to address them.
 - f. Summary of the Project Safety Plan for the Project.
 - (1) Describe how Bidder proposes to address any unique safety issues for the Project
 - (2) Describe your safety record and environmental compliance record along with your Firm's OSHA reportable accident rates on recent comparable size projects
 - (3) Statement of Bidder's Experience Modification Ratio (EMR)
 - g. Discuss Bidder's understanding of the traffic control required for the Project, if applicable, and how traffic control will impact the Project schedule. Discuss any major traffic control issues that need to be addressed and Bidder's proposed solutions.
 - h. Describe any difficulties Bidder anticipates encountering in serving the City, in light of the City's status as a municipality and public entity. Explain how Bidder plans to manage them.
 - i. Summary of Bidder's Quality Assurance/Quality Control Plan for this project
 - j. Statement regarding all work performed two (2) years immediately preceding the date of the Bid, that contains either (a) a contract by contract listing of any written notices of violations of any federal or state prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder; or (b) a statement that there have been no such written notices of violations or such penalties assessed; and a statement that Bidder is current on payment of Federal and State income tax withholdings and unemployment insurance payments
 - k. Statement regarding all work performed two (2) years immediately preceding the date of the Bid, that contains either (a) a contract by contract listing of any written notices of violations of any federal, state or local DBE/MBE/WBE Program and any damages assessed; or (b) a statement that there have been no such written notices of violations or such penalties assessed; and a statement that Program requirements have been met.
 - l. Statement that the Bidder has not been rescinded or debarred from any bidding, contractual, procurement, or other such programs by federal, state or local entities.
 - m. Statement that Bidder is current on payment of Federal and State income tax withholdings and unemployment insurance payments
 - n. Statement of Bidder's litigation and/or arbitration history over the past five (5) years including final ruling.
 - o. Statement of Bidder's bond history over the past five (5) years including any incidences of failure to perform.
4. Waiver of Bid Requirements The City Manager or his delegate at any time may waive any requirements imposed by this solicitation or by any City regulation when failure to grant the waiver will

result in an increased cost to the City and the requirement waived would be waived for all Bidders for this solicitation and it is in the best interest of the City to grant the waiver. The City Council at any time may waive any requirements imposed in this solicitation by the City's Code of Ordinances when it finds failure to grant the waiver will result in an increased cost to the City and the waived requirement would be waived for all Bidders for this solicitation and it is in the best interest of the City to grant the waiver. The City reserves the right to waive any irregularities and/or formalities as deemed appropriate.

5. Late Bids Bids and modifications of Bids received after the exact hour and date specified for receipt will not be considered unless: (1) the Bid is sent via the U.S. Postal Service, common carrier or contract carrier, by a delivery method that guarantees the Bid will be delivered to the City prior to the submission deadline; or (2) if the Bid is submitted by mail, common carrier or contract carrier it is determined by the City that the late receipt was due solely to an error by the U.S Postal Service, common carrier or contract carrier; or (3) the Bid is timely delivered to the City but is at a different City location than that specified in this IFB; or (4) the City extends the time after the deadline for a force majeure event that could potentially affect any or all Bidders meeting the deadline.

6. Interpretations and Addenda All questions about the meaning or intent of the Bidding Documents may be directed to the Project Manager listed at the end of these Instructions to Bidders. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda to all parties recorded as having received the Bidding Documents. Questions received less than ten (10) days prior to the date for opening 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 the City.

7. Bid Security Requirements All Bids submitted must be accompanied by a Bid deposit in the amount of five percent (5%) of the base Bid which shall be in the form of a Bid Bond (on the form provided in these Bidding Documents), Cashier's Check, Letter of Credit, Certificate of Deposit or other instrument approved in advance by the City. Prior to submittal of the Bid the City Treasurer must approve both the financial institution and text of a Letter of Credit. A Cashier's Check or a Certificate of Deposit shall be payable to the City Treasurer.

8. Forfeiture of Security If a Bidder fails or refuses to execute the Contract when requested by the City, any Bid security given to the City shall immediately become due and payable and forfeited to the City as liquidated damages.

9. Mistake in Bid Security By submitting a Bid, Bidder is agreeing to correct any mistakes on a Bid security submission when requested by the City. When such a mistake occurs and a Bidder fails or refuses to correct the mistake or execute the Contract when requested by the City, any Bid security shall be forfeited to the City and the Bidder shall also be subject to debarment and damages.

10. Bids that Exceed the Engineer's Estimate The City may offer the apparent lowest and best Bidders the option of performing the Work for the Engineer's estimate for the Project with no changes to the Bid requirements or scope of the Project if the Bid is not more than five percent higher than the Engineer's estimate.

11. Post Bid Required Submissions The successful Bidder will be required to submit the following documents with the signed copies of the Bid Form/Contract or within the timeframes specified in the Notice of Intent to Contract letter. Copies of the City's forms that the successful Bidder will be required to sign are bound into this Project Manual for information:

- a. Properly signed, dated, and sealed **Performance and Maintenance Bond** and **Payment Bond**;
- b. Properly completed certificates of insurance;
- c. Copies of licenses required by the City to do the Work;
- d. A copy of CONTRACTOR's current Certificate of Good Standing or Fictitious Name Registration from the Missouri Secretary of State, or other acceptable proof; and

12. Indemnification – City of Kansas City. The contract documents contains a requirement that Contractor shall indemnify, defend and hold harmless the City and any of its agencies, officials, officers,

or employees from and against all claims, damages, liability, losses, costs, and expenses, including reasonable attorneys' fees, arising out of or resulting from any acts or omissions in connection with the contract, caused in whole or in part by Contractor, its employees, agents, or Subcontractors, or caused by others for whom Contractor is liable, including negligent acts or omissions of the City, its agencies, officials, officers, or employees. The contract requires Contractor to obtain specified limits of insurance to insure the indemnity obligation. Contractor has the opportunity to recover the cost of the required insurance in the Contract Price by including the cost of that insurance in the Bid amount.

13. City's Buy American and Missouri Preference Policies It is the policy of the City that any manufactured goods or commodities used or supplied in the performance of any City contract or any subcontract thereto shall be manufactured or produced in the United States whenever possible. When Bids offer quality, price, conformity with specifications, term of delivery and other conditions imposed in the specifications that are equal, the City shall select the Bid that uses manufactured goods or commodities that are manufactured or produced in the United States. The City shall give preference to all commodities manufactured, produced, or grown within the State of Missouri and to all firms, corporations, or individuals doing business as Missouri firms, corporations or individuals, when quality is equal or better and delivered price is the same or less. It is the bidder's responsibility to claim these preferences.

14. Affirmative Action It is the policy of the City that any person or entity entering into a contract with the City, will employ applicants and treat employees equally without regard to their race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age. Bidder will be required to comply with the City's Affirmative Action ordinance if Bidder is awarded a contract from the City totaling more than \$300,000.00. If you have any questions regarding the City's Affirmative Action requirements, please contact HRD at (816) 513-1836 or visit the City's website at www.kcmo.gov.

15. Tax Clearance Bidder will be required to furnish to CITY sufficient proof from City's Commissioner of Revenue, verifying that Bidder is in compliance with the license and tax ordinances administered by City's Revenue Division as a precondition to CITY making its first payment under any CONTRACT over \$150,000.00. Bidder will also be required to obtain proof of City tax compliance from all of its Subcontractors prior to the Subcontractors performing any Work.

16. Substitutions or "Or-Equal" Items The procedure for submission of substitutions or "or-equal" items is set forth in the General Conditions and Supplementary Conditions.

17. Prevailing Wage Requirements The successful Bidder shall pay the prevailing hourly rate of wages as determined by the Missouri Annual Wage Order and/or Federal Wage Determination set forth in the Project Manual. In case of a conflict between Missouri and Federal wage rates, the higher rate shall apply.

Successful Bidder shall be required to use City's Internet web based Prevailing Wage Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided Prevailing Wage Reporting System for all applicable personnel and shall require subcontractors to submit same.

18. MBE/WBE Program Requirements City desires that Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE) have a maximum opportunity to participate in the performance of City contracts. The goals for this specific Project are **10%** MBE participation and **6%** WBE participation. The City's HRD Forms and HRD Instructions for Construction Projects are incorporated into these Bidding Documents and the Contract Documents. The MBE/WBE Directory is available on the City's website at www.kcmo.gov. Please call the Human Relations Department at (816) 513-1836 for assistance.

Successful Bidder shall be required to use City's Internet web based MBE/WBE Program Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided MBE/WBE Program Reporting System for all applicable personnel and shall require subcontractors/subconsultants to submit same.

19. Waiver of MBE/WBE Requirements The City Council may waive any and all MBE/WBE requirements imposed by any Bidding Document or the MBE/WBE Ordinance and Contract with the lowest and best Bidder if the City Council determines a waiver is in the best interests of the City.

20. Forfeiture of Bid Bond for Failure to Make MBE/WBE Submissions By submitting its Bid, Bidder is agreeing to the following: (1) Bidder has made by Bid opening a good faith effort to meet the MBE/WBE goals established for the Project; or Bidder will continue to make during the 48 hours after Bid opening a good faith effort to meet the MBE/WBE goals established for the Project; and (2) Bidder will timely submit its 00450 HRD Construction Contractor Utilization Plan/Request for Waiver (HRD Form 8) and 00450.01 Letter of Intent to Subcontract for each MBE/WBE listed on the 00450 HRD Construction Contractor Utilization Plan/Request for Waiver; and (3) Bidder will submit documentation of its good faith efforts to meet the MBE/WBE goals when requested by the City. Failure to meet these requirements in good faith will result in Bidder being debarred and forfeiting its Bid Bond.

21. Workforce Program Requirements. City desires that minorities and women have a maximum opportunity to practice their trades on city construction projects. The minimum company-wide goals are a ten percent (10%) minority workforce and two percent (2%) women workforce. The City's HRD Forms and HRD Instructions for Construction Projects are incorporated into these Bidding Documents and the Contract Documents.

Successful Bidder shall be required to use City's Internet web based Workforce Program Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided Workforce Program Reporting System for all applicable personnel and shall require subcontractors to submit same.

22. Subcontractors, Suppliers and Others

a. If the Contract Documents require the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to City, the apparent lowest and best Bidder, and any other Bidder so requested, shall submit to City a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. An experience statement shall accompany such list with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier or organization if requested by City. If City has reasonable objection to any proposed Subcontractor, Supplier or other person or organization, City may request the apparent lowest and best Bidder to submit an acceptable substitute without an increase in Bid price.

b. By submitting its Bid, Bidder agrees that it has read and understands all the provisions of General Condition No. 6.07, Concerning Subcontractors, Suppliers and Others, and that it will comply with all those provisions including but not limited to mandatory mediation of disputes and the prohibition against paid-if-paid and paid-when-paid contract clauses. It is the City's expectation that all Subcontractors and Suppliers will be treated fairly and in good faith by the successful Bidders and that the successful Bidder will make all reasonable efforts to resolve contract disputes with a Subcontractor or Supplier in a prompt and fair manner. If the City is notified by a Subcontractor or Supplier of a contract claim with the successful Bidder, City will notify the successful Bidder and will request prompt resolution of the claim. City will provide any such Subcontractor or Supplier information regarding mandatory mediation as well as a copy of the Payment Bond. City may notify the Surety that City has taken cognizance of such claim.

c. In accordance with the Missouri Prompt Payment Act, City reserves the right to withhold payment(s) in good faith from the successful Bidder due to: i)the successful Bidder's failure to comply with any material provision of the contract; ii)third party claims filed or reasonable evidence that a claim will be filed; iii)the successful Bidder's failure to make timely payments for labor, equipment or materials; or iv)for damage to a Subcontractor or Supplier.

d. The provisions of GC 6.07 are a material term of the Contract with the City and failure by the successful Bidder to comply with the provisions of this section will be taken into consideration by City in making the determination of lowest and best bidder in any subsequent City contracts.

23. On-Site Inspection The Project Site will be available for inspection by Bidders. Bidders visiting the Project Site shall be responsible for their own safety.

24. Signatures Each copy of the Bid Form/Contract must be signed and properly dated by the following, as applicable:

Limited Liability Company:

- a member of the limited liability Company authorized to sign on behalf of the company.

Partnership:

- a partner authorized to sign on behalf of the partnership.

Sole Proprietor:

- the proprietor.

Joint Venture:

- the parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture.

Corporation:

- a corporate office authorized to sign on behalf of the corporation. Corporation's seal must be attached to the signature.

25. Forward all questions in writing to the following Project Manager and Contract Administrator. Questions received less than two (2) days prior to the Bid Date may not be answered. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda to all Bidders. Oral or other interpretations or clarifications shall be without legal effect, even if made at a Pre-Bid Meeting.

Alex Ivanescu
Project Manager
Water Services Department
4800 E. 63rd Street
Kansas City, MO 64130
816-513-0445 Phone
816-513-0288 Fax
E-mail: Alex.Ivanescu@kcmo.org

George H. Goodale, CPPO, M.P.A.
Contract Administrator
General Services Procurement
1st Floor, Room 102W, City Hall, 414 E. 12th St
Kansas City, MO 64106
816-513-0808 Phone
816-513-2812 Fax
E-mail: George.Goodale@kcmo.org



For persons with disabilities needing reasonable accommodations please contact Meg Conger at 816-513-6589. If you need to use the Relay Service, please dial 711.

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

BID FORM/CONTRACT

Project No.: 80001820

Project Title: Water Main Replacement in the Area of Elmwood to Blue Ridge Cut-off, 47th St to 57th St (Contract No 9030)

1. Bidder, having examined the Bidding Documents, related documents and the Site of the Work, and being familiar with all the conditions affecting the construction of the proposed Work, including Laws and Regulations and the availability of materials and supplies, agrees, if this Bid is selected by CITY, this Bid Form/Contract will become the Contract between Bidder and CITY for Bidder to furnish all labor and materials, equipment and services necessary for the proper completion of the Work in accordance with the Contract Documents, including general construction work at the price(s) stated below, which stated sums include fees and all other charges applicable to materials, appliances, labor and all things subject to and upon which other charges may be levied.
2. Bidder agrees the Contract Documents will comprise the entire agreement between CITY and Bidder. The Contract Documents are identified in the General Conditions and are incorporated into and made part hereof this Bid Form/Contract by reference.
3. Bidder agrees that if this Bid Form/Contract is executed by CITY, Bidder's offer is accepted and this Bid Form/Contract that incorporates all other Contract Documents shall constitute the Contract between the parties. Bidder authorizes the CITY to fill in the Contract Price on this Bid Form/Contract in accordance with Bidder's Bid. Bidder agrees that this Bid Form/Contract may be executed in one or more counterparts, each of which will be deemed an original copy of this Bid Form/Contract and all of which, when taken together, will be deemed to constitute one and the same Bid Form/Contract. This Bid Form/Contract shall be effective upon the execution of counterparts by both parties, notwithstanding that both parties may not sign the same counterpart. The parties' signatures transmitted by facsimile or by other electronic means shall be proof of the execution of this Bid Form/Contract and shall be acceptable in a court of law. A copy of this Bid Form/Contract shall constitute an original and shall be acceptable in a court of law.
4. The Bid Price(s) shall be shown in numeric figures only.

TOTAL BASE BID IN NUMERIC FIGURES	\$ _____
ALLOWANCE	\$ <u>50,000.00</u>
TOTAL BID IN NUMERIC FIGURES	\$ _____

5. The undersigned Bidder has given CITY'S Project Manager written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by the Project Manager or by the DESIGN PROFESSIONAL is acceptable to Bidder.
6. The undersigned Bidder agrees that this Bid shall remain subject to selection by CITY, and may not be withdrawn for ninety (90) days after the day Bids are opened.
7. The undersigned Bidder certifies that this Bid contains no modifications, deviations, riders or qualifications.
8. The undersigned Bidder acknowledges receipt of the following addenda listed by number and date appearing on each addendum:

Bidder: _____

Addendum Number	Dated	Addendum Number	Dated
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)
(_____)	(_____)	(_____)	(_____)

9. By submitting its bid, Bidder is agreeing to meet or exceed the minimum employment goals of 10% minority and 2% women during the term of its contract with the City, or request a waiver of the goals. If a waiver is requested, Bidder must establish good faith efforts towards meeting the goals as set forth in the HRD Instructions for Construction Contracts and the City's Workforce Ordinance. Should Bidder fail to meet or exceed the minimum employment goals or otherwise establish that Bidder is entitled to a waiver under circumstances in which Bidder has previously failed to meet or exceed the goals on one or more occasions with the twenty-four month period immediately preceding the completion of the Work under this Bid Form/Contract, Bidder may be suspended from participating, either as a contractor or subcontractor, on any future contract with the City for a period ranging from thirty days to six months as further specified in the Contract Documents.
10. By submitting its bid, Bidder warrants that if its bid should exceed \$300,000.00 and Bidder employs fifty (50) or more people, Bidder has an affirmative action program in place and will maintain the affirmative action program in place for the duration of its contract with the City. Bidder further warrants that it will comply with the affirmative action requirements contained in the General Conditions as incorporated by reference into this Bid Form/Contract.
11. Section 13 through Section 17 constitutes the Affidavit of Intended Utilization required to be submitted by Bidders.
12. By submitting its bid, Bidder is agreeing to the following: (1) Bidder has made by bid opening a good faith effort to meet the MBE/WBE/DBE goals established for the project; or Bidder will continue to make during the 48 hours after bid opening a good faith effort to meet the MBE/WBE/DBE goals established for the project; and (2) Bidder will timely submit its **00450 HRD 08 Contractor Utilization Plan/Request for Waiver** and **00450.01 Letter of Intent to Subcontract** for each MBE/WBE listed on the 00450 HRD 08 Construction Contractor Utilization Plan/Request for Waiver;; and (3) Bidder will submit documentation of its good faith efforts to meet the MBE/WBE/DBE goals when requested by the City. Failure to meet these requirements in good faith will result in Bidder forfeiting its bid bond.

PROJECT GOALS: _____ **10%** MBE _____ **6%** WBE _____ % DBE

BIDDER PARTICIPATION: _____ % MBE _____ % WBE _____ % DBE

13. To the best of Bidder's knowledge, the following are names of certified MBEs and/or WBEs with whom Bidder, or Bidder's subcontractors, presently intend to contract with if awarded the Contract on the above project: **(All firms must currently be certified by Kansas City, Missouri Human Relations Department)**

A. Name of M/WBE Firm _____
 Address _____

Bidder: _____

Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____
Subcontract amount _____

B. Name of M/WBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____
Subcontract amount _____

C. Name of M/WBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____
Subcontract amount _____

D. Name of M/WBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____
Subcontract amount _____

E. Name of M/WBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____
Subcontract amount _____

F. Name of M/WBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____
Subcontract amount _____

(List additional MBE/WBEs, if any, on additional pages and attach to this form)

14. By submitting its bid, Bidder is agreeing it will identify and timely submit within 48 Hours after Bid opening those MBE/WBE subcontractors with dollar amounts and scopes of work, which apply to or exceed the MBE/WBE goals for the Project on the **00450 HRD 08 Contractor Utilization Plan/Request for Waiver**.
15. Bidder agrees that failure to meet or exceed the MBE/WBE Goals for the above project will require the Director of Human Relations to recommend disapproval of the bid unless the Director of Human Relations finds the Bidder established good faith efforts towards meeting the goals as set forth in the HRD Forms and Instructions for Construction Projects and the City's MBE/WBE Ordinance.

Bidder: _____

Business Entity Type:

- Missouri Corporation
- Foreign Corporation
- Fictitious Name Registration
- Sole Proprietor
- Limited Liability Company
- Partnership
- Joint Venture
- Other: (Specify) _____

BIDDER

Legal name & address of Bidder, person firm, partnership, corporation, or association submitting Bid:

_____ Phone No: _____

Cell No: _____

Facsimile No: _____

Bidder's E-Mail: _____

_____ Federal ID. No. _____

I hereby certify that I have authority to execute this document on behalf of Bidder, person, firm, partnership, corporation or association submitting Bid.

By: _____
(Signature)

(Print Name)

Title: _____

Date: _____

(Attach corporate seal if applicable)

NOTARY

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

My Commission Expires: _____

Bidder: _____

ACCEPTANCE OF BID

CITY, by executing this Bid Form/Contract, hereby accepts Bidder's Bid and this Bid Form/Contract that incorporates all other Contract Documents shall constitute the Contract between the Parties.

CITY shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents a maximum amount of _____ Dollars, (\$ _____).

00413 Allowances, included in the Bid, a copy of which is attached

By executing this Bid Form/Contract, CITY accepts Bidder's offer for the Contract Price stated above and this Bid Form/Contract that incorporates all other Contract Documents shall constitute the Contract between the parties

City of Kansas City, Missouri (OWNER or City)

Approved as to form:

Assistant City Attorney

I hereby certify that there is a balance, otherwise unencumbered, to the credit of the appropriation to which the foregoing expenditure is to be charged, and a cash balance, otherwise unencumbered, in the treasury, to the credit of the fund from which payment is to be made, each sufficient to meet the obligation hereby incurred.

Director of Finance

(Date)



EXPERIENCE AND REFERENCE SUMMARY

Project Number: _____

Project Title: _____

Firm's Legal Name	
Mailing Address	
Contact – Name & Email	
Contact – Phone & Fax	

NO.	PROJECT & LOCATION	OWNER NAME & ADDRESS CONTACT & PHONE NUMBER	PROJECT DURATION & DATE COMPLETED	\$ VALUE
1.				
2.				
3.				
4				
5				
6				
7				
9				
10				

Bidder: _____

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

ALLOWANCE FORM

Project/Contract Number: 80001820 / 9030

Project Title: Water Main Replacement in the area of Elmwood to Blue Ridge

Cut-off, 47th St. to 57th St

Allowance No.:	Allowance Description:	Allowance in Figures:
1	To complete assigned work orders for replacement of inoperable water valves in the vicinity of the project sites (not identified for replacement on the Contract Drawings)	\$50,000 - To Be Included in the Total Bid Price
	Total Allowances	\$50,000.00



BID BOND

Project No.: 80001820

Project Title: Water Main Replacement in the Area of Elmwood to Blue Ridge Cut-off, 47th St to 57th St (Contract No 9030)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS: That _____ of _____, as Principal, and _____ as Surety, hereby bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents unto KANSAS CITY, MISSOURI, a constitutionally chartered municipal corporation, as Obligee, in the sum of

_____ Dollars (\$_____), lawful money of the United States.

WHEREAS, Principal is herewith submitting its Bid to enter into a contract with Kansas City for the above referenced project,

NOW, THEREFORE the condition of this obligation is such that if the Principal is awarded the contract the Principal will, within the time required, enter into a contract and give a good and sufficient surety bonds to secure the performance of the terms and conditions of the contract and for the prompt payment of all labor and material furnished in the prosecution thereof as required by the contract documents, then this obligation shall be void; otherwise the Principal and Surety will immediately pay unto the Obligee the full amount of this bond as liquidated damages for failure to fulfill the conditions of this obligation, but in no event shall the Surety's liability exceed the penal sum hereof.

Signed, sealed and delivered this _____ day of _____.

BIDDER AND PRINCIPAL

Name, address and facsimile number of Bidder and Principal

I hereby certify that I have authority to execute this document on behalf of Bidder and Principal.

By: _____

Title: _____

(Attach corporate seal if applicable)

SURETY

Name, address and facsimile number of Surety:

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: _____

Title: _____

Date: _____

(Attach seal and Power of Attorney)

**HRD INSTRUCTIONS
FOR CONSTRUCTION CONTRACTS**

PART A. MINORITY/WOMEN BUSINESS ENTERPRISE REQUIREMENTS

I. City's MBE/WBE Program.

- A. The City has adopted a Minority/Women Business Enterprise ("MBE/WBE") Program (Sections 3-421 through 3-469, Code of Ordinances) (the "Program") to implement the City's policy of supporting the fullest possible participation in City contracts and change orders of firms owned and controlled by minorities and women. Each construction contract may have an MBE and/or WBE goal for participation. An MBE or WBE goal is a numerical objective the City has set for the contract that may be awarded pursuant to these bid specifications. Goals are stated as a percentage of contract dollars. For example, if an MBE goal for a contract is 10% and a Bidder submits a bid of \$100,000, the goal for MBE participation would equal \$10,000. The specific MBE/WBE goals on this contract are set forth elsewhere in the bid specifications.
- B. These Human Relations Department ("HRD") Forms & Instructions are part of the BIDDING DOCUMENTS and CONTRACT DOCUMENTS as defined in the General Conditions. By submitting a Bid, the Bidder agrees, as a material term of the contract, to carry out the City's MBE/WBE Program by making good faith efforts to include certified MBE/WBEs in the contract work to the extent of the goals listed for the contract and to the fullest extent consistent with submitting the lowest and best bid to the City. Bidder agrees that the Program is incorporated into this document and agrees to follow the Program. Although it is not a requirement that a Bidder in fact meet or exceed both the MBE and WBE Goals, it is a requirement for approval of the Bid that a Bidder objectively demonstrate to the City that good faith efforts have been made to meet the Goals. Bidders must attempt to meet both the MBE and WBE goals and request a waiver if either is not met.
- C. The following HRD Forms are attached and must be used for MBE/WBE submittals:
1. Contractor Utilization Plan/Request for Waiver (HRD Form 8); and
 2. Letter of Intent to Subcontract (HRD Form 00450.01); and
 3. Timetable for MBE/WBE Utilization (HRD Form 10); and
 4. Request for Modification or Substitution (HRD Form 11); and
 5. Contractor Affidavit for Final Payment (Form 01290.14); and
 6. Subcontractor Affidavit for Final Payment (Form 01290.15).

Warning: The City only gives MBE/WBE credit for a Bidder's use of City certified MBE/WBEs. A certified MBE/WBE firm is a firm that has been certified by the City's Human Relations Department as such. An MBE/WBE firm must be certified before the date on which the bid is due and the MBE/WBE firm must have filed an application for certification no later than forty-five (45) days prior to the Invitation for Bid. Certified MBEs and WBEs are listed in the M/W/DBE Kansas City Mo. Online Directory, which is available on the City's website at www.kcmo.org. Before a Bidder submits a bid, Bidder should contact HRD and consult the directory to make sure any firm proposed for

use for MBE/WBE participation has been certified.

II. Required Submissions Following Bid Opening.

A. Bidder must submit the following documents within forty-eight (48) hours of bid opening:

1. **Contractor Utilization Plan/Request for Waiver (HRD Form 8).** This form states a Bidder's plan to use specific certified MBE/WBEs in the performance of the contract and includes the following:
 - a. The work to be performed by each MBE/WBE and the amounts each is to be paid for the work; and
 - b. The name, address, race or ethnic origin, gender and employer identification number or social security number of each MBE/WBE that will perform the work.
 - c. An automatic request for waiver in the event Bidder has not met or exceeded the MBE and/or WBE goals for the contract but believes that it has made good faith efforts to meet or exceed the goals and desires a waiver of the goals. If a waiver is requested, HRD will examine the Bidder's documentation of good faith efforts and make a recommendation to grant or deny the waiver. HRD will recommend a waiver be granted only if the Bidder has made good faith efforts to obtain MBE/WBE participation.
2. **Letter(s) of Intent to Subcontract (HRD Form 00450.01).** A letter must be provided from each MBE/WBE listed on the Contractor Utilization Plan. These letters verify that the MBE/WBE has agreed to execute a formal agreement for the work and indicate the scope of work to be performed and the price agreed upon for the work.

III. Required Submission when Requested by City.

A. Bidder must submit the following documents when requested by City:

1. **Timetable for MBE/WBE Utilization (HRD Form 10).**
2. **Documentation of good faith efforts.**

IV. Required Monthly Submissions during term of Contract.

A. Bidder must submit the following document on a monthly basis if awarded the contract:

1. **M/WBE Monthly Utilization Report (HRD Form 00485.01).** This report must be submitted to the Director by the 15th of each month. Failure to submit timely reports may result in delays in processing of current and future contract approvals and payment applications.

V. Required Submittals for Final Contract Payment.

A. Contractor must submit the following documents with its request for final payment under the contract:

1. **Contractor Affidavit for Final Payment (Form 01290.14)**

2. Subcontractor Affidavit(s) for Final Payment (Form 01290.15)

VI. Additional Submittals.

- A. Contractor may be required to make additional submittals during the term of the Contract, including **Request for Modification or Substitution (HRD Form 11)**. Refer to Section IX, Modification of the Contractor Utilization Plan or Substitution of an MBE/WBE, for additional instructions on when this form must be submitted.

VII. MBE/WBE Participation Credit.

- A. The following shall be credited towards achieving the goals:
1. The total contract dollar amount that a prime contractor has paid or is obligated to pay to a subcontractor that is a qualified MBE or WBE, except as otherwise expressly provided for herein.
 2. Twenty-five percent (25%) of the total dollar amount paid or to be paid by a prime contractor to obtain supplies or goods from a supplier who is a qualified MBE or WBE.
 3. Ten percent (10%) of the total dollar amount paid or to be paid by a prime contractor to obtain supplies or goods from a supply broker who is a qualified MBE or WBE.
 4. One hundred percent (100%) of the total dollar amount paid or to be paid by a prime contractor to a manufacturer of construction supplies who is a qualified MBE or WBE.
 5. Subcontractor participation with a lower tier MBE/WBE subcontractor using one of the above methods of participation.
- B. **NO CREDIT**, however, will be given for the following:
1. Participation in a contract by a MBE or WBE that does not perform a commercially useful function as defined by the Program; and
 2. Any portion of the value of the contract that an MBE or WBE subcontractor subcontracts back to the prime contractor or any other contractor who is not a qualified MBE/WBE; and
 3. An MBE or WBE prime contractor's own participation in its contract with City; and
 4. Materials and supplies used on the contract unless the MBE/WBE is responsible for negotiating the price, determining quality and quantity, ordering the materials and installing (where applicable) and paying for material itself; and
 5. Work performed by an MBE or WBE in a scope of work other than that in which the MBE or WBE is currently certified.

VIII. Methods for Securing Participation of MBE/WBEs and Good Faith Efforts.

- A. A bidder is required to make good faith efforts to achieve the MBE/WBE goals. Good faith efforts are efforts that, given all relevant circumstances, a Bidder actively and aggressively seeking to meet the goals can reasonably be expected to make. Good faith efforts must be made before the Bidder submits a Contractor Utilization Plan, in other words, within 48 hours of bid opening.

Warning: Efforts to obtain MBE and/or WBE participation made after a Contractor Utilization Plan is submitted cannot be used to show the Bidder made good faith efforts.

B. In evaluating good faith efforts, the Director of HRD will consider whether the Bidder has performed the following, along with any other relevant factors:

1. Advertised opportunities to participate in the contract in general circulation media, trade and professional association publications, small and minority business media, and publications of minority and women's business organizations in sufficient time to allow MBE and WBE firms to participate effectively.
2. Provided notice to a reasonable number of minority and women's business organizations of specific opportunities to participate in the contract in sufficient time to allow MBE and WBE firms to participate effectively.
3. Sent written notices, by certified mail or facsimile, to qualified MBEs and WBEs soliciting their participation in the contract in sufficient time to allow them to participate effectively.
4. Attempted to identify portions of the work for qualified MBE and/or WBE participation in order to increase the likelihood of meeting the goals, including breaking down contracts into economically feasible units. A Bidder should send letters by certified mail or facsimile to those MBE/WBE contractors identified by HRD listed in those categories, which are in those subcontractors' scope of work. The portion of work for which a proposal from an MBE/WBE is being solicited shall be as specific as possible. Letters which are general are not acceptable.
5. Requested assistance in achieving the goals from the Director and acted on the Director's recommendations.
6. Conferred with qualified MBEs and WBEs and explained the scope and requirements of the work for which their bids or proposals were solicited.
7. Attempted to negotiate in good faith with qualified MBEs and WBEs to perform specific subcontracts; not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Documentation of good faith negotiations with MBE/WBEs from whom proposals were received in an effort to reach a mutually acceptable price should include:
 - a. Names, addresses and telephone numbers of MBE/WBEs that were contacted and date of contact;
 - b. The information provided to MBE/WBEs regarding the plans and specifications for portions of the work to be performed by them;
 - c. The reasons no agreement was reached with any MBE/WBE, including the basis for any Bid rejection (i.e., availability, price, qualifications or other);
 - d. Descriptions of attempts to provide technical assistance to MBE/WBEs to obtain necessary insurance and/or to obtain necessary supplies at the best prices available.
8. Within five (5) working days after drawing the bid specifications, sent certified letters,

verifiable e-mails or proof of facsimiles to qualified MBEs and WBEs listed in the M/W/DBE Kansas City Mo. Online Directory.

- C. A Bidder will be required to give the City documentation to prove that it made good faith efforts. The Bidder will be contacted by the City with further instructions about when this documentation must be submitted.

IX. Modification of the Contractor Utilization Plan or Substitution of an MBE/WBE.

A. After bid opening, a Bidder or Contractor may need to substitute an MBE and/or WBE or request that the amount of MBE/WBE participation listed in its Contractor Utilization Plan be modified. Bidder or Contractor must file a **Request for Modification or Substitution (HRD Form 11)** prior to actual substitution and within a reasonable time after learning that a modification or substitution is necessary. The Director may approve substitutions or modifications and upon approval, the modifications and substitutions will become an amendment to the Contractor Utilization Plan. Modifications or substitutions may be approved when:

1. The Director finds that the Bidder or Contractor made and provided evidence of good faith efforts to substitute the MBE/WBE listed on the Contractor Utilization Plan with other certified MBE/WBEs for the scope of work or any other scope of work in the contract; AND
2. The Director also finds one of the following:
 - a. The listed MBE/WBE is non-responsive or cannot perform; or
 - b. The listed MBE/WBE has increased its previously quoted price to the bidder, proposer or contractor without a corresponding change in the scope of the work; or
 - c. The listed MBE/WBE has committed a material default or breach of its contract with the contractor; or
 - d. Requirements of the scope of work of the contract have changed and render subcontracting not feasible or not feasible at the levels required by the goals established for the contract; or
 - e. The listed MBE/WBE is unacceptable to the contracting department; or
 - f. The listed MBE/WBE thereafter had its certification revoked; or
 - g. The Bidder or Contractor has not attempted intentionally to evade the requirements of the Program and it is in the best interests of the City to allow a modification or substitution.

B. A modification shall not be made unless the modification or substitution has first been requested and approved by the Director.

X. Appeals.

A. In conformance with the Act, appeals may be made to the City Fairness in Construction Board on the following:

1. The grant or denial of a Request for Waiver;

2. Substitution for an MBE/WBE listed on a Contractor Utilization Plan;
 3. Modification of the percentage of MBE/WBE participation on a Contractor Utilization Plan;
 4. Liquidated Damages;
 5. The amount of MBE/WBE credit the Contractor may receive for MBE/WBE participation identified in the contractor utilization plan.
- B. Any appeal must be filed in writing with the Director within ten (10) working days of notice of the determination. Mailing, faxing, personal delivery or posting at HRD of determinations shall constitute notice. The appeal shall state with specificity why the Bidder or Contractor believes the determination is incorrect
- C. Failure to file a timely appeal shall constitute a waiver of a Bidder's or Contractor's right to appeal such determination and such person shall be estopped to deny the validity of any determination which could have been timely appealed.

XI. Access to Documents and Records.

- A. By submitting a Bid, each Bidder agrees to permit the City, its duly authorized agents or employees, access at all reasonable times to all books and business records of Bidder as may be necessary to ascertain compliance with the requirements of this document and the Act, within ten (10) days of the date of the written request.
- B. All Bidders agree to cooperate with the contracting department and HRD in studies and surveys regarding the MBE/WBE program.

XII. Miscellaneous.

- A. A Bidder or Contractor shall bear the burden of proof with regard to all issues on appeal.
- B. In the event of any conflict between this document and the Program, the provisions of the Program shall control. The terms used in this document are defined in the Program.
- C. Oral representations are not binding on the City.
- D. The City Council may waive the requirements of this document and the Program and award the contract to the lowest and best bidder if the City Council determines a waiver is in the best interests of the City.
- E. The Director may grant extensions of time to Bidders to submit Letters of Intent to Subcontract (HRD Form 00450.01).

XIII. Liquidated Damages – MBE/WBE Program.

- A. If Contractor fails to achieve the MBE/WBE goals stated in its Contractor Utilization Plan, as amended, the City will sustain damages, the exact extent of which would be difficult or impossible to ascertain. Therefore, in order to liquidate those damages, the monetary difference between the amount of the MBE/WBE goals set forth in the Contractor Utilization Plan, as amended, and the amount actually paid to qualified MBEs and WBEs for performing a commercially useful function will be deducted from the Contractor's payments as liquidated damages. In determining the amount actually paid to qualified MBEs and WBEs, no credit will be given for the portion of participation that was not approved by the Director, unless the Director determines that the Contractor

acted in good faith. No deduction for liquidated damages will be made when, for reasons beyond the control of the Contractor, the MBE/WBE participation stated in the Contractor Utilization Plan, as amended and approved by the Director is not met.

PART B. CONSTRUCTION EMPLOYMENT PROGRAM REQUIREMENTS

(THIS PART IS APPLICABLE TO CITY CONSTRUCTION CONTRACTS ESTIMATED BY THE CITY PRIOR TO SOLICITATION AS REQUIRING MORE THAN 800 CONSTRUCTION LABOR HOURS AND COSTING IN EXCESS OF \$324,000.00.)

I. City's Construction Employment Program.

- A. The City has adopted a Construction Employment Program (Sections 3-501 through 3-525, Code of Ordinances) (the "Program") to implement the City's policy of supporting the fullest possible utilization of minority and women workers in the construction industry. A person or firm who is awarded a contract to construct, reconstruct, improve, enlarge or alter any fixed work that is estimated by the City prior to solicitation as requiring more than 800 construction labor hours, has an estimated costs that exceeds \$324,000.00, and involves the expenditure of public funds, is subject to company-wide construction employment goals. The minimum goals are currently set at 10% for minorities and 2% for women, but public recognition may be provided if the bidder achieves at least twice the minimum participation. The successful bidder may meet these company-wide goals by counting the bidder's utilization of minorities and women throughout the Kansas City metropolitan statistical area.
- B. These Human Relations Department ("HRD") Forms & Instructions are part of the BIDDING DOCUMENTS and CONTRACT DOCUMENTS as defined in the General Conditions. By submitting a Bid, the Bidder agrees, as a material term of the contract, to carry out the City's Construction Employment Program by making good faith efforts to utilize minority and women workers on the Contractor's job sites to the fullest extent consistent with submitting the lowest and best bid to the City. Bidder agrees that the Program is incorporated into this document and agrees to follow the Program. Although it is not a requirement that a Bidder in fact meet or exceed the construction employment goals to receive approval from HRD, a Bidder not doing so is required to objectively demonstrate to HRD that good faith efforts have been made.
- C. The following HRD Forms are to be used for Construction Employment Program submittals:
 1. Project Workforce Monthly Report (HRD Form 00485.02)
 2. Company-Wide Workforce Monthly Report (HRD Form 00485.03)

II. Required Monthly Submissions during Term of Contract.

- A. Bidder must submit the following documents on a monthly basis if awarded the contract:
 1. **Project Workforce Monthly Report (HRD Form 00485.02).** This report is contract specific. Two copies of this report must be submitted to the Director by the 15th of each month. The first copy will be utilized to report the Contractor's own workforce compliance data with regard to the City's construction contract. The second copy will be utilized to report consolidated workforce compliance data for every subcontractor retained by Contractor on the City's construction contract.

Failure to submit timely reports may result in delays in processing of current and future contract approvals and payment applications.

2. **Company-Wide Workforce Monthly Report (HRD Form 00485.03).** This report is not contract specific; it is used to report on the utilization of females and minorities, by trade, company-wide. Two copies of this report must be submitted to the Director by the 15th of each month. The first copy will be utilized to report the Contractor's own workforce compliance data with regard to every contract (both privately and publicly funded) Contractor has in progress throughout the Kansas City metropolitan statistical area. The second copy will be utilized to report consolidated workforce compliance data for every subcontractor retained by Contractor on every contract Contractor has in progress throughout the Kansas City metropolitan statistical area. Failure to submit timely reports may result in delays in processing of current and future contract approvals and payment applications.

III. Submittal Required for Final Contract Payment.

- A. The last Project Workforce Monthly Report(s) and Company-Wide Workforce Monthly Report(s) shall serve as the final reports and must be submitted before final payment will be made and/or retainage released. Contractor shall note the submittal of the final reports by notation in the box entitled "Final Cumulative Report"

IV. Methods for Securing Workforce Participation and Good Faith Efforts.

- A. A bidder is required to make good faith efforts to achieve the construction employment goals. If a Bidder will be unable to secure enough minority and female participation to meet or exceed the construction employment goals, a bidder must, within a reasonable time after so learning, request a waiver or modification of the goals by the Director of HRD. The Director will examine the Bidder's request and the Bidder's documentation of good faith efforts and grant or deny a waiver or modification. The Director will grant a waiver or modification only if the Bidder has made good faith efforts to secure minority and female participation.
- B. In evaluating good faith efforts, the Director will consider whether the Bidder has performed the following:
 1. For those bidders that are not signatories to a collective bargaining agreement with organized labor:
 - a. Requested in writing the assistance of the Director with respect to efforts to promote the utilization of minorities and women in the workforce and acted upon the Director's recommendations; and
 - b. Advertised in minority or women trade association newsletters and/or minority or women owned media at least 15 calendar days prior to the utilization of any construction services on the city construction contract and used terminology that sufficiently describes the work available, the pay scale, the application process, and anything else that one might reasonably be expected to be informed of relevant to the position being advertised; and
 - c. Maintained copies of each advertisement and a log identifying the publication and date of publication; and

- d. Conducted real and substantial recruitment efforts, both oral and written, targeting resident, minority and women community-based organization, schools with a significant minority student population, and training organizations serving the recruitment area; and
 - e. Established and maintained a current list of resident, minority and women recruitment sources, providing written notification to the recruitment sources of available employment opportunities, and maintained records of the notices submitted to the organizations and any responses thereto; and
 - f. Maintained a current file for the time period of the city construction contract with the name, address, and telephone number of each resident, minority and woman job applicant, the source of the referral, whether or not the person was hired, and in the event that the applicant was not hired, the reason therefore; and
 - g. Promoted the retention of minorities and women in its workforce with the goals of achieving sufficient annual hours for minorities and women to qualify for applicable benefits; and
 - h. Required by written contract that all subcontractors comply with the above efforts.
2. For those bidders that are signatories to collective bargaining agreements with organized labor:
- a. Supported the efforts of the Joint Apprenticeship Training Committee (JATC), a joint effort of Labor Unions and contractors, or some other apprenticeship program, whose purpose is to recruit, train and employ new workers for a full time career in the construction industry; and
 - b. Requested in writing from each labor union representing crafts to be employed that:
 - i. the labor union make efforts to promote the utilization of residents of the City, minorities and women in the workforce; and
 - ii. the labor union identify any residents of the City, minorities and women in its membership eligible for employment; and
 - iii. the JATC take substantial and real steps to increase the participation of minorities in the union apprenticeship programs in the aggregate to 30% by 2011 and encourage other labor unions to do the same; and
 - iv. the JATC take substantial and real steps to increase the participation of women in the union apprenticeship programs in the aggregate to 5% by 2011 and encourage other labor unions to do the same; and
 - v. the JATC partner with workforce preparedness programs, community based organizations, employment referral programs and school-sponsored programs to accomplish these goals.
 - c. Collaborated with labor unions in promoting mentoring programs intended to assist minorities and women in increasing retention with the goals of

achieving sufficient annual hours to qualify for applicable benefits; and

- d. Maintained a current file with the name, address, and telephone number of each resident, minority and women worker identified by the labor union, whether or not the person was hired, and in the event the person was not hired, the reason therefore.
 - e. To the extent the good faith efforts applicable to bidders that are signatories to collective bargaining agreements with organized labor conflict with the procedures implemented by the bidder in order to comply with the relevant bargaining agreement, the bidder shall substitute other procedures as may be approved by the Director in writing.
- C. A Bidder will be required to give the City documentation to prove that it made good faith efforts. The Bidder will be contacted by the City with further instructions about when this documentation must be submitted.

V. Appeals.

- A. In conformance with the Program, appeals may be made to the Construction Workforce Board on the following:
 - 1. Determinations by the Director that a contractor did not meet the construction employment goals and did not make a good faith effort to meet the goals;
 - 2. Recommendations by the Director to assess liquidated damages;
 - 3. Recommendation by the Director that a contractor be declared ineligible to receive any city construction contract for a period of time up to one year.
- B. Any appeal must be filed in writing with the Director within ten (10) working days of notice of the recommendation or determination. The appeal shall state with specificity why the Bidder or Contractor believes the recommendation or determination is incorrect.
- C. Failure to file a timely appeal shall constitute a waiver of a Bidder's or Contractor's right to appeal such determination or recommendation and such person shall be estopped to deny the validity of any order, determination, recommendation or action of HRD which could have been timely appealed.

VI. Access to Documents and Records.

- A. By submitting a Bid, each Bidder agrees to permit the City, its duly authorized agents or employees, access at all reasonable times to all books and business records of Bidder as may be necessary to ascertain compliance with the requirements of this document and the Program, within ten (10) days of the date of the written request. Each bidder further agrees to require, if awarded the contract, that every subcontractor permit the City the same access to documents and records.
- B. All Bidders agree to cooperate with the contracting department and HRD in studies and surveys regarding the construction employment program.

VII. Miscellaneous.

- A. A Bidder or Contractor shall bear the burden of proof with regard to all issues on appeal.
- B. The successful bidder may be required to meet with the Director of HRD or the

Director's designee for the purpose of discussing the construction employment program, the bidder's efforts to realize the goals, and any other problems and/or issues affecting the realization of the goals or the program in general.

- C. In the event of any conflict between this document and the Program, the provisions of the Program shall control. The terms used in this document are defined in the Program.
- D. Oral representations are not binding on the City.

VIII. Liquidated Damages; Suspension – Workforce Program.

- A. If Contractor fails to achieve the construction employment goals without having previously obtained a waiver or modification of those goals, the City will sustain damages, the exact extent of which would be difficult or impossible to ascertain. These damages are magnified if the failure to abide by the requirements of the Workforce Program is recurring. Therefore, in order to liquidate those damages, City shall be entitled to deduct and withhold the following amounts:

If Contractor failed to meet or exceed the minimum employment goals or otherwise establish that Contractor is entitled to a waiver under circumstances in which Contractor has failed to meet or exceed the goals on one prior occasion within the twenty-four month period immediately preceding the completion of the work under the Contract, the sum of three thousand dollars (\$3,000.00).

If Contractor failed to meet or exceed the minimum employment goals or otherwise establish that Contractor is entitled to a waiver under circumstances in which Contractor has failed to meet or exceed the goals on two or more prior occasions within the twenty-four month period immediately preceding the completion of the work under the Contract, the sum of seven thousand dollars (\$7,000.00).

- B. In addition, Contractor shall be required to attend mandatory compliance training or be declared ineligible to contract with the City for a term provided herein, and as authorized by City's Code of Ordinances:

If Contractor failed to meet or exceed the minimum employment goals or otherwise establish that Contractor is entitled to a waiver under circumstances in which Contractor has not previously failed to meet or exceed the goals within the twenty-four month period immediately preceding the completion of the work under the Contract, Contractor shall be required to attend a mandatory training class on Workforce Program compliance.

If Contractor failed to meet or exceed the minimum employment goals or otherwise establish that Contractor is entitled to a waiver under circumstances in which Contractor has failed to meet or exceed the goals on one prior occasion within the twenty-four month period immediately preceding the completion of the work under the Contract, Contractor shall be suspended from participating, either as a contractor or subcontractor, on any future contract with the City for a period of thirty (30) days. Contractor waives any right to invoke any proceeding or procedure under Section 3-321 of City's Code of Ordinances with regards to any suspension arising hereunder.

If Contractor failed to meet or exceed the minimum employment goals or otherwise establish that Contractor is entitled to a waiver under circumstances in which Contractor has failed to meet or exceed the goals on two or more prior occasions within the twenty-four month period immediately preceding the completion of the work under the Contract, Contractor shall be suspended from participating, either as a contractor or subcontractor, on any future contract with the City for a period of six (6) months. Contractor waives any right to invoke any proceeding or procedure under Section 3-321 of City's Code of Ordinances with regards to any suspension arising hereunder.

IX. First Source Program

- A. The City has established a labor force recruiting program intended to assist contractors in identifying, interviewing and hiring qualified job applicants residing in Kansas City, Missouri. While the contractor awarded a City construction contract is not prohibited from hiring persons residing outside Kansas City, Missouri, the recruiting resource provided for herein (the "First Source Program") must be utilized by the contractor subject to the construction employment goals as set forth in this **PART B, CONSTRUCTION EMPLOYMENT PROGRAM REQUIREMENTS**.
- B. The City utilizes the services of the Full Employment Council, Inc., to administer the First Source Program. The contractor shall contact the Full Employment Council within 48 hours of contract award, regardless of whether the contractor has any hiring needs at that time, and within 48 hours following any job vacancy which the contractor reasonably anticipates filling during the term of the City construction contract. The contractor shall comply with the First Source Program requirements as implemented by the Full Employment Council unless otherwise excused in writing by the Director of HRD for good cause shown. To ensure compliance with the First Source Program, the contractor shall contact those persons at the Full Employment Council responsible for administering the program, which may be identified by visiting their website at www.feckc.org and clicking on the link for KCMO First Source Hiring Program. The contractor shall not hire any individual to provide construction services on a City construction contract unless the contractor has met the requirements of the First Source Program.
- C. The contractor shall require that its subcontractors utilize the First Source Program to the same extent that the contractor is required to do so, and shall incorporate the requirements of this Section IX into every subcontract. Every subcontractor shall be required to contact the Full Employment Council within 48 hours of subcontract award, regardless of whether the subcontractor has any hiring needs at that time, and within 48 hours following any job vacancy which the subcontractor reasonably anticipates filling during the term of their subcontract on a City construction project.

- b. Name of M/WBE Firm _____
 Address _____
 Telephone No. _____
 I.R.S. No. _____

- c. Name of M/WBE Firm _____
 Address _____
 Telephone No. _____
 I.R.S. No. _____

- d. Name of M/WBE Firm _____
 Address _____
 Telephone No. _____
 I.R.S. No. _____

- e. Name of M/WBE Firm _____
 Address _____
 Telephone No. _____
 I.R.S. No. _____

- f. Name of M/WBE Firm _____
 Address _____
 Telephone No. _____
 I.R.S. No. _____

(List additional M/WBEs, if any, on additional page and attach to this form)

4. The following is a breakdown of the percentage of the total contract amount that Bidder/Proposer agrees to pay to each listed M/WBE:

MBE/WBE BREAKDOWN SHEET

MBE FIRMS:

Name of MBE Firm	Supplier/Broker/Contractor	Subcontract Amount*	Weighted Value**	% of Total Contract
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

TOTAL MBE \$ / TOTAL MBE %: \$ _____ %

WBE FIRMS:

Name of WBE Firm	Supplier/Broker/Contractor	Subcontract Amount*	Weighted Value**	% of Total Contract

TOTAL WBE \$ / TOTAL WBE %: \$ _____ %

*“Subcontract Amount” refers to the dollar amount that Bidder/Proposer has agreed to pay each M/WBE subcontractor as of the date of contracting and is indicated here solely for the purpose of calculating the percentage that this sum represents in proportion to the total contract amount. Any contract amendments and/or change orders changing the total contract amount may alter the amount due an M/WBE under their subcontract for purposes of meeting or exceeding the Bidder/Proposer participation.

**“Weighted Value” means the portion of the subcontract amount that will be credited towards meeting the Bidder/Proposer participation. See HRD Forms and Instructions for allowable credit and special instructions for suppliers.

- Bidder/Proposer acknowledges that the monetary amount to be paid each listed M/WBE for their work, and which is approved herein, is an amount corresponding to the percentage of the total contract amount allocable to each listed M/WBE as calculated in the MBE/WBE Breakdown Sheet. Bidder/Proposer further acknowledges that this amount may be higher than the subcontract amount listed therein as change orders and/or amendments changing the total

contract amount may correspondingly increase the amount of compensation due an M/WBE for purposes of meeting or exceeding the Bidder/Proposer participation

6. Bidder/Proposer acknowledges that it is responsible for considering the effect that any change orders and/or amendments changing the total contract amount may have on its ability to meet or exceed the Bidder/Proposer participation. Bidder/Proposer further acknowledges that it is responsible for submitting a Request for Modification or Substitution if it will be unable to meet or exceed the Bidder/Proposer participation set forth herein.
7. If Bidder/Proposer has not achieved both the M/WBE goal(s) set for this Project, Bidder/Proposer hereby requests a waiver of the MBE and/or WBE goal(s) that Bidder/Proposer has failed to achieve
8. Bidder/Proposer will present documentation of its good faith efforts, a narrative summary detailing its efforts and the reasons its efforts were unsuccessful when requested by the City.
9. I hereby certify that I am authorized to make this Affidavit on behalf of the Bidder/Proposer named below and who shall abide by the terms set forth herein:

Bidder/Proposer primary contact: _____

Address: _____

Phone Number: _____

Facsimile number: _____

E-mail Address: _____

By: _____

Title: _____

Date: _____

(Attach corporate seal if applicable)

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

My Commission Expires: _____

Notary Public



LETTER OF INTENT TO SUBCONTRACT

Project Number _____

Project Title _____

_____ (“Prime Contractor”) agrees to enter into a contractual agreement with _____ (“M/W/DBE Subcontractor”), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., “electrical,” “plumbing,” etc.) or the listing of the NAICS Codes in which M/W/DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

for an estimated amount of \$_____ or _____% of the total estimated contract value.

M/W/DBE Subcontractor is, to the best of Prime Contractor’s knowledge, currently certified with the City of Kansas City’s Human Relations Department to perform in the capacities indicated herein. Prime Contractor agrees to utilize M/W/DBE Subcontractor in the capacities indicated herein, and M/W/DBE Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein, **contingent upon award of the contract to Prime Contractor.**

Signature: Prime Contractor

Signature: M/W/DBE Subcontractor

Print Name

Print Name

Title

Date

Title

Date



REQUEST FOR MODIFICATION OR SUBSTITUTION

(This Form **must** be submitted to HRD to request substitutions for an MBE/WBE listed in the Contractor Utilization Plan or for modification of the amount of MBE/WBE participation listed in the Contractor Utilization Plan. This Form shall be an amendment to the Contractor Utilization Plan.)

BIDDER/PROPOSER/CONTRACTOR: _____

ADDRESS: _____

PROJECT NUMBER OR TITLE: _____

AMENDMENT/CHANGE ORDER NO: (if applicable) _____

Project Goals:	_____ % MBE	_____ % WBE
Contractor Utilization Plan:	_____ % MBE	_____ % WBE

1. I am the duly authorized representative of the above Bidder/Contractor/Proposer and am authorized to request this substitution or modification on behalf of the Bidder/Contractor/Proposer.

2. I hereby request that the Director of HRD recommend or approve: (check appropriate space(s))

a. ____ A substitution of the certified MBE/WBE firm _____,
(Name of new firm)
 to perform _____,
(Scope of work to be performed by new firm)

for the MBE/WBE firm _____ which is currently
(Name of old firm)
 listed on the Bidder's/Contractor's/Proposer's Contractor Utilization Plan to
 perform the following scope of work: _____.
(Scope of work of old firm)

b. ____ A modification of the amount of MBE/WBE participation currently listed on the Bidder's/Contractor's/Proposer's Contractor Utilization Plan from
 _____ % MBE _____ % WBE *(Fill in % of MBE/WBE Participation currently listed on Contractor Utilization Plan)*

TO

_____ % MBE _____ % WBE *(Fill in New % of MBE/WBE Participation requested for Contractor Utilization Plan)*

- c. Attach 00450.01 Letter of Intent to Subcontract letter for each new MBE/WBE to be added.
- d. Attach a copy of the most recent 00485.01 or on-line M/WBE Monthly Utilization Report

3. Bidder/Contractor/Proposer states that a substitution or modification is necessary because: (check applicable reason(s))

- ___ The MBE/WBE listed on the Contractor Utilization Plan is non-responsive or cannot perform.
- ___ The MBE/WBE listed on the Contractor Utilization Plan has increased its previously quoted price without a corresponding change in the scope of work.
- ___ The MBE/WBE listed on the Contractor Utilization Plan has committed a material default or breach of its contract.
- ___ Requirements of the scope of work of the contract have changed and make subcontracting not feasible or not feasible at the levels required by the goals established for the contract.
- ___ The MBE/WBE listed on the Contractor Utilization Plan is unacceptable to the City contracting department.
- ___ Bidder/Contractor/Proposer has not attempted intentionally to evade the requirements of the Act and it is in the best interests of the City to allow a modification or substitution.

4. The following is a narrative summary of the Bidder's/Contractor's/Proposer's good faith efforts exhausted in attempts to substitute the MBE/WBE firm named above which is currently listed on the Contractor Utilization Plan with other qualified, certified MBE/WBE firms for the listed scope of work or any other scope of work in the project:

5. Bidder/Proposer/Contractor will present documentation when requested by the City to evidence its good faith efforts.

Dated: _____

(Bidder/Proposer/Contractor)

By: _____
(Authorized Representative)



HRD Request for Modification or Substitution Approval

Date: _____
 To: _____, Human Relations Department
 From: _____, _____ Department
 Subject: Contract/Project No.: _____
 Project Title: _____

<input type="checkbox"/> Amendment No. _____ <input type="checkbox"/> Change Order No. _____ (See Contract Summary on the next page.) <input type="checkbox"/>	
Funding: <input type="checkbox"/> City (MBE/WBE/DBE) <input type="checkbox"/> Federal (DBE) ¹ <input type="checkbox"/> State (DBE) ¹ - Grant _____ <input type="checkbox"/> Other: _____	
Contract Category: <input type="checkbox"/> Construction <input type="checkbox"/> General Service <input type="checkbox"/> Facility Repair <input type="checkbox"/> Design Professional <input type="checkbox"/> Professional Services <input type="checkbox"/> Concession <input type="checkbox"/> Other: _____	
Company: Contact: Contact Email:	Address: Phone: Fax:
Additional Information: 	

cc: Project Manager

FOR HUMAN RELATIONS DEPARTMENT USE ONLY The attached <u>Request for Modification or Substitution</u> is:		The Request for Best Faith Efforts Waiver is:
<input type="checkbox"/> Approved		<input type="checkbox"/> Approved
<input type="checkbox"/> Disapproved		<input type="checkbox"/> Disapproved
		<input type="checkbox"/> Not Applicable
Contractor Utilization Plan Participation as Amended: _____% MBE & _____% WBE or _____% DBE		
_____ Human Relations Department	_____ Date	

FOR GRANTING AGENCY USE ONLY² <input type="checkbox"/> N/A
Approved by: _____ _____ Date

¹ DBE Programs apply to specific federal or state grant requirements.

² Federal and state grant agreements may require granting agency approval of D/M/WBE participation changes.

CONTRACT SUMMARY³

Approved CUP:

_____ % MBE
_____ % WBE
_____ % DBE

Original Contract Maximum Obligation: \$ _____
Amendment/Change Order No. 1: _____
Amendment/Change Order No. 2: _____
Amendment/Change Order No. 3: _____
Amendment/Change Order No. 4: _____
Amendment/Change Order No. 5: _____

Current Maximum Obligation: \$ _____

*Proposed Amendment/
Change Order No. _____* \$ _____

*Proposed Revised
Contract Maximum Obligation* \$ _____

Attach a copy of the most recent 00485.01 M/WBE Monthly Utilization Report

³ The CONTRACT SUMMARY information should match information and calculations gathered and computed on the Contract Amendment or Change Order Preparation Checklist. The Checklist forms are found on Contract Central.



HRD Contractor Utilization Plan Approval

Date: _____
 To: _____, Human Relations Department
 From: _____, _____ Department
 Subject: Contract/Project No.: _____
 Project Title: _____

Funding: <input type="checkbox"/> City (MBE/WBE/DBE) <input type="checkbox"/> Federal (DBE) ¹ <input type="checkbox"/> State (DBE) ¹ - Grant _____ <input type="checkbox"/> Other: _____	
Contract Category: <input type="checkbox"/> Construction <input type="checkbox"/> General Service <input type="checkbox"/> Facility Repair <input type="checkbox"/> Design Professional <input type="checkbox"/> Professional Services <input type="checkbox"/> Concession <input type="checkbox"/> Other:	
Bid/Proposal Closing Date: 00/00/00	No. of Bidders/Proposers: 00
Recommended Bid/Proposal²: \$ _____	
Company: Contact: Contact Email:	Address: Phone: Fax:
Additional Information: 	

cc: Project Manager

FOR HUMAN RELATIONS DEPARTMENT USE ONLY	
The attached Contractor Utilization Plan is:	
<input type="checkbox"/> Approved	The Request for Best Faith Efforts Waiver is:
<input type="checkbox"/> Disapproved	<input type="checkbox"/> Approved
	<input type="checkbox"/> Disapproved
	<input type="checkbox"/> Not Applicable
Contractor Utilization Plan Participation: _____% MBE & _____% WBE or _____% DBE	
Human Relations Department	Date

FOR GRANTING AGENCY USE ONLY³ <input type="checkbox"/> N/A	
Approved by: _____	
	Date: _____

¹ DBE Programs apply to specific federal or state grant requirements.

² The dollar figure here should match the approved Bid/Proposal recommendation or amendment preparation checklist on file with the requesting department.

³ Federal and state grant agreements may require granting agency approval of contract goals.

HRD MONTHLY REPORTING INSTRUCTIONS

M/WBE Monthly Utilization Report Instructions

1. MBE/WBE Reporting applies to Contracts that have approved MBE/WBE goals assigned.
2. The City will utilize a web based MBE/WBE Reporting System in the administration of this Contract. This web based application database is a collaboration tool selected and provided by City, which will allow Contractors and Consultants/Subcontractors and Subconsultants to enter data and report on compliance.

Prevailing Wage Certified Payroll Report Instructions

1. Prevailing Wage Certified Payroll Report applies to Contracts that include Prevailing Wage or Davis Bacon Provisions.
2. This web based application database is provided by City for reporting certified payrolls and other related prevailing wage data.
3. Computer Requirements: Minimum Intel Pentium® 4 Processor 2.4 GHz or equivalent processor with 512MB of RAM; recommended Centrino Duo® Processors 1.6 GHz or equivalent with 2GB of RAM, or higher.
 - a. Computer Operation System: Windows XP, Windows Vista, or Windows 7
 - b. Web Browser: Google Chrome
 - c. Connection Speed/Minimum Bandwidth: DSL, ADSL or T1 Line for transferring a minimum of 3 Mbps Downstream and 512 Kbps Upstream
4. City will assist Contractor in providing training of personnel and Subcontractor's personnel.
5. Contractor and Subcontractors shall have the responsibility for visiting the web site and entering data in on timely basis, and as necessary to be in compliance with Prevailing Wage Requirements included in their contracts.

Workforce Monthly Report Instructions

1. Workforce Monthly Reporting only applies to Construction Contracts greater than \$300,000 and greater than 800 projected labor hours.
2. The City will utilize a web based Reporting System in the administration of this Contract. This web based application database is a collaboration tool selected and provided by City, which will allow Contractors and Subcontractors to enter data and report on Workforce compliance.



Pre Contract Bidder's Certification

Project Number _____

Project Title _____

STATE OF _____)
) SS
COUNTY OF _____)

Before me, the undersigned authority, personally appeared, who, being by me duly sworn deposed as follows:

I am authorized to make this affidavit on behalf of the named Bidder. I am of sound mind, capable of making this affidavit, and personally acquainted with the facts herein stated:

A. Bidder is current on payment of its Federal and State Income tax withholding and unemployment insurance payments, either in Missouri for companies doing business in Missouri, or in the state in which Bidder has its principal office; and

B. Bidder declares one of the following, regarding all work performed two (2) years immediately preceding the date of the Bid (check one):

Contract by contract listing of all of Bidder's written notices of violations of any Federal or State prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder (Complete and attach additional sheets if necessary):

1. _____
2. _____
3. _____

There have been no written notices of violations of any Federal or State prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder.

C. Bidder is currently in good standing with the Missouri Secretary of State or Bidder has filed a Registration of Fictitious Name with the Missouri Secretary of State.

(Bidder's Name)

(Date)

Signature of Person Making This Affidavit

In witness whereof, I have hereunto subscribed my name and affixed my official seal this ___day
of _____, 20__.



CONTRACT REQUIRED SUBMISSIONS

Project/Contract Number _____

Project/Contract Title/Description _____

These instructions are to assist Contractor in providing all necessary documents to enter into a contract with the City.

MISSOURI SECRETARY OF STATE BUSINESS ENTITY REGISTRATION

- For a corporation, current Certificate of Good Standing from the Missouri Secretary of State ((816) 889-2925 or (816) 889-2926 or a web site print-out, dated no more than ninety (90) days before the date furnished to the City – One Copy.
- For a business that is not a corporation and not doing business in the exact name of the proprietor, a copy from the Secretary of State, ((816) 889-2925 or (816) 889-2926 of the filed Registration of Fictitious Name dated no more than ninety (90) days before the date furnished to the City – One Copy.

EMPLOYEE ELIGIBILITY VERIFICATION AFFIDAVIT [Required if the contract exceeds \$5,000.00]

- 00515.01 Employee Eligibility Verification Affidavit – One Executed Affidavit
- First and last pages of the E-Verify Program Memorandum of Understanding that your company has received from the U.S. Department of Homeland Security verifying enrollment in the program. For assistance, contact E-Verify Operations at 888-464-4218 – One Copy.

SUBCONTRACTORS LISTING [Applicable form provided]

- Non-Construction Subcontractors List – One Copy
- 01290.09 Subcontractors & Major Material Suppliers List – One Copy

PAYMENT BONDS (If applicable)

- Each copy of the Payment bond must be signed and properly dated by the following, as applicable:

Corporation - A corporate officer authorized to sign on behalf of the corporation and the signature must be attested by a witness to the signature; OR

Limited Liability Company - A member of the limited liability company authorized to sign on behalf of the company and a witness to the signature must attest the signature; OR

Partnership - A partner authorized to sign on behalf of the partnership and the signature must be attested by a witness to the signature; OR

Sole Proprietor - By the proprietor and the signature must be attested by a witness to the signature; OR

Joint Venture - The parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture; AND

Surety - A person authorized by the Surety to sign on behalf of the Surety. A power of attorney issued by the Surety Company authorizing its representative to sign the Agreement must be attached to the Agreement and each copy.

PERFORMANCE AND MAINTENANCE BOND (If applicable)

- As applicable, each copy of the Performance and Maintenance bond must be signed and properly dated by:

Corporation - A corporate officer authorized to sign on behalf of the corporation and the signature must be attested by a witness to the signature; OR

Limited Liability Company - A member of the limited liability company authorized to sign on behalf of the company and a witness to the signature must attest the signature; OR

Partnership - A partner authorized to sign on behalf of the partnership and the signature must be attested by a witness to the signature; OR

Sole Proprietor - By the proprietor and the signature must be attested by a witness to the signature; OR

Joint Venture - The parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture; AND

Surety - A person authorized by the Surety to sign on behalf of the Surety. A power of attorney issued by the Surety Company authorizing its representative to sign the Agreement must be attached to the Agreement and each copy.

CERTIFICATES OF INSURANCE [Sample form provided] - If you have any questions regarding requirements for insurance certificates, please contact the City's Risk Management Office, 816 513-1299.

- Provide a certificate of insurance for all insurance that may be required in the contract such as:
 - Commercial General Liability
 - Workers' Compensation and Employers' Liability
 - Commercial Automobile Liability
 - Railroad Protective Liability
 - Environmental Liability
 - Asbestos Liability
 - Longshoremen's Insurance
 - Property Insurance
- List the NAIC Number (National Association of Insurance Commissioners) or A.M. Best Number for each Insurer listed on the Certificate of Insurance.
- Certificate "Kansas City, Missouri" must named as an Additional Insured.
- Check the insurance requirements of the Contract. If Contract Documents require that other entities be included as additional insureds, each entity shall be listed on the certificate(s).
- Description of Operations must include Project/Contract Number and Project/Contract Title/Description as contained in the Contract Documents. The Certificate Holder and address block shall be completed as follows:
 - Kansas City, Missouri
 - [Name of applicable City Department]**
 - [Name of Project Manager, Contract Administrator, or Buyer]**
 - [Department Address]**
 - Kansas City, Missouri **[Zip Code]**
- If your insurance agent prepares an ACORD form, the automobile insurance must be "any auto" or better for acceptance by the City.

AFFIRMATIVE ACTION REQUIREMENTS

- Proposed Affirmative Action Program or a copy of a Certificate of Affirmative Action Compliance – One copy.

PRE-CONTRACT BIDDER'S CERTIFICATION (Prevailing Wage Contracts; Form provided)

- Submit form 00490 - Bidder's Pre-Contract Certification (provided).

HEALTH AND SAFETY PLAN (If applicable)

- Bidder's Health and Safety Plan – One copy or one CD Rom.

EMPLOYEE ELIGIBILITY VERIFICATION AFFIDAVIT

(Required for any contract with the City of Kansas City, Missouri in excess of \$5,000.00)

STATE OF _____)
) ss
COUNTY OF _____)

On this _____ day of _____, 20____, before me appeared _____, personally known by me or otherwise proven to be the person whose name is subscribed on this affidavit and who, being duly sworn, stated as follows:

I am of sound mind, capable of making this affidavit, and personally swear or affirm that the statements made herein are truthful to the best of my knowledge. I am the _____ (title) of _____ (business entity) and I am duly authorized, directed or empowered to act with full authority on behalf of the business entity in making this affidavit.

I hereby swear or affirm that the business entity does not knowingly employ any person in connection with the contracted services who does not have the legal right or authorization under federal law to work in the United States as defined in 8 U.S.C. § 1324a(h)(3).

I hereby additionally swear or affirm that the business entity is enrolled in an electronic verification of work program operated by the United States Department of Homeland Security (E-Verify) or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986, and that the business entity will participate in said program with respect to any person hired by the business entity to perform any work in connection with the contracted services. I have attached hereto documentation sufficient to establish the business entity’s enrollment and participation in the required electronic verification of work program.

I am aware and recognize that unless certain contractual requirements are satisfied and affidavits obtained as provided in Section 285.530, RSMo, the business entity may face liability for violations committed by its subcontractors, notwithstanding the fact that the business entity may itself be compliant.

I acknowledge that I am signing this affidavit as the free act and deed of the business entity and that I am not doing so under duress.

Affiant's signature

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

Notary Public

My Commission expires:



MISSOURI DEPARTMENT OF REVENUE
 CUSTOMER SERVICES DIVISION
PROJECT EXEMPTION CERTIFICATE

FORM 5060 (REV. 1-2008)	TO BE GIVEN TO YOUR CONTRACTOR
--------------------------------------	---

NAME OF EXEMPT ENTITY ISSUING THE CERTIFICATE		MISSOURI TAX EXEMPTION NUMBER	
---	--	-------------------------------	--

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

BEGIN DATE FOR PROJECT	PROJECTED COMPLETION DATE	PROJECT NUMBER
------------------------	---------------------------	----------------

DESCRIPTION OF PROJECT

PROJECT LOCATION	EXPIRATION DATE
------------------	-----------------

THIS EXEMPTION DOES NOT APPLY TO THE PURCHASE OR RENTAL OF MACHINERY, EQUIPMENT, OR TOOLS BY THE CONTRACTOR OR SUB-CONTRACTOR.

Give a signed copy of this certificate, along with a copy of your Missouri Sales/Use Tax Exemption Letter to each contractor and/or subcontractor who will be purchasing tangible personal property for use in this project. It is your responsibility to ensure the validity of the certificate. You must issue a new certificate if any of the information changes.

EXEMPT ENTITY'S AUTHORIZED SIGNATURE	DATE
--------------------------------------	------

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. I also declare under penalties of perjury that I employ no illegal or unauthorized aliens as defined under federal law and that I am not eligible for any tax exemption, credit or abatement if I employ such aliens.

NAME OF PURCHASING CONTRACTOR

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

Contractors present this to your supplier in order to purchase the necessary materials tax exempt.

NOTE: COMPLETE AND SIGN BOTTOM PORTION IF EXTENDING CERTIFICATE TO YOUR SUBCONTRACTOR.

NAME OF PURCHASING SUBCONTRACTOR

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

SIGNATURE OF CONTRACTOR	DATE
-------------------------	------

State of Missouri

EXEMPTION FROM MISSOURI SALES AND USE TAX ON PURCHASES

Issued to:

CITY OF KANSAS CITY
414 E 12TH ST 3RD FLOOR
KANSAS CITY MO 64106

Missouri Tax ID
Number: 12490466

Effective Date:
07/11/2002

Your application for sales/use tax exempt status has been approved pursuant to Section 144.030.1, RSMo. This letter is issued as documentation of your exempt status.

Purchases by your Agency are not subject to sales or use tax if within the conduct of your Agency's exempt functions and activities. When purchasing with this exemption, furnish all sellers or vendors a copy of this letter. This exemption may not be used by individuals making personal purchases.

A contractor may purchase and pay for construction materials exempt from sales tax when fulfilling a contract with your Agency only if your Agency issues a project exemption certificate and the contractor makes purchases in compliance with the provisions of Section 144.062, RSMo.

Sales by your Agency are subject to all applicable state and local sales taxes. If you engage in the business of selling tangible personal property or taxable services at retail, you must obtain a Missouri Retail Sales Tax License and collect and remit sales tax.

This is a continuing exemption subject to legislative changes and review by the Director of Revenue. If your Agency ceases to qualify as an exempt entity, this exemption will cease to be valid. This exemption is not assignable or transferable. It is an exemption from sales and use taxes only and is not an exemption from real or personal property tax.

Any alteration to this exemption letter renders it invalid.

If you have any questions regarding the use of this letter, please contact the Division of Taxation and Collection, P.O. Box 3300, Jefferson City, MO 65105-3300, phone 573-751-2836.



PERFORMANCE AND MAINTENANCE BOND

Project Number _____

Project Title _____

KNOW ALL MEN BY THESE PRESENTS: That _____, as PRINCIPAL (CONTRACTOR), and _____, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Kansas City, Missouri, a constitutionally chartered municipal corporation, (OWNER), as obligee, in the penal sum of _____ Dollars (\$ _____) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into a Contract with OWNER for _____ which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform said Contract including all duly authorized changes thereto, and including any maintenance requirements contained therein, according to all the terms thereof, including those under which CONTRACTOR agrees to pay legally required wage rates including the prevailing hourly rate of wages in the locality, as determined by the Department of Labor and Industrial Relations or by final judicial determination, for each craft or type of workman required to execute the Contract and, further, shall defend, indemnify, and hold harmless OWNER from all damages, including but not limited to, liquidated damages, loss and expense occasioned by any failure whatsoever of said CONTRACTOR and SURETY to fully comply with and carry out each and every requirement of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the ____ day of _____, 20__.

CONTRACTOR

Name, address and facsimile number of Contractor

I hereby certify that I have authority to execute this document on behalf of Contractor.

By: _____
Title: _____

(Attach corporate seal if applicable)

SURETY

Name, address and facsimile number of Surety:

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A-, V, or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies: as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: _____
Title: _____
Date: _____

(Attach seal and Power of Attorney)



PAYMENT BOND

Project Number _____

Project Title _____

KNOW ALL MEN BY THESE PRESENTS: That _____, as PRINCIPAL (CONTRACTOR), and _____, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Kansas City, Missouri, a constitutionally chartered municipal corporation, (OWNER), as obligee, in the penal sum of _____ Dollars (\$_____) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into a contract with OWNER for _____, which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if in connection with the Contract, including all duly authorized modifications thereto, prompt payment shall be made to all laborers, subcontractors, teamsters, truck drivers, owners or other suppliers or for equipment employed on the job, and other claimants, for all labor performed in such work whether done for CONTRACTOR, a subcontractor, SURETY, a completion contractor or otherwise (at the full wage rates required by any law of the United States or of the State of Missouri, where applicable), for services furnished and consumed, for repairs on machinery, for equipment, tools, materials, lubricants, oil, gasoline, water, gas, power, light, heat, oil, telephone service, grain, hay, feed, coal, coke, groceries and foodstuffs, either consumed, rented, used or reasonably required for use in connection with the construction of the work or in the performance of the Contract and all insurance premiums, both for compensation and for all other kinds of insurance on the work, for sales taxes and for royalties in connection with, or incidental to, the completion of the Contract, in all instances whether the claim be directly against CONTRACTOR, against SURETY or its completion contractor, through a subcontractor or otherwise, and, further, if CONTRACTOR shall defend, indemnify and hold harmless OWNER from all such claims, demands or suits by any such person or entity, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Any conditions legally required to be included in a Payment Bond on this Contract, including but not limited to those set out in §107.170 RSMo. are included herein by reference.

SURETY agrees that, in the event that CONTRACTOR fails to make payment of the obligations covered by this Bond, it will do so and, further, that within forty-five (45) days of receiving, at the address given below, a claim hereunder stating the amount claimed and the basis for the claim in reasonable detail, it (a) will send an answer to the claimant, with a copy to OWNER stating the amounts that are undisputed and the basis for challenging any amounts that are disputed, and (b) will pay any amounts that are undisputed. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

While this Bond is in force, it may be sued on at the instance of any party to whom any such payment is due, in the name of OWNER to the use for such party. OWNER shall not be liable for the payment of any costs or expenses of any such suit.

No suit shall be commenced or pursued hereunder other than in a state court of competent jurisdiction in Jackson, Clay or Platte County, Missouri, or in the United States District Court for the Western District of Missouri.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the _____ day of _____, 20____.

CONTRACTOR

Name, address and facsimile number of Contractor

I hereby certify that I have authority to execute this document on behalf of Contractor.

By: _____
Title: _____

(Attach corporate seal if applicable)

SURETY

Name, address and facsimile number of Surety:

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and(4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: _____
Title: _____
Date: _____

(Attach seal and Power of Attorney)



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER AGENT NAME AND ADDRESS	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
E-MAIL ADDRESS:		
INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A : ABC INSURANCE COMPANY		
INSURED CONTRACTOR NAME AND ADDRESS	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS			
A	<input checked="" type="checkbox"/> GENERAL LIABILITY	Y	Y	POLICY NUMBER	1/1/2011	1/1/2012	EACH OCCURRENCE	\$ 1,000,000		
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 50,000		
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person)	\$ 10,000		
							PERSONAL & ADV INJURY	\$ 1,000,000		
							GENERAL AGGREGATE	\$ 2,000,000		
GEN'L AGGREGATE LIMIT APPLIES PER:							PRODUCTS - COMP/OP AGG	\$ 2,000,000		
<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC								\$		
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY	Y	Y	POLICY NUMBER	1/1/2011	1/1/2012	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000		
	<input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS						BODILY INJURY (Per person)	\$		
	<input checked="" type="checkbox"/> HIRED AUTOS						<input checked="" type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS	BODILY INJURY (Per accident)	\$	
								PROPERTY DAMAGE (Per accident)	\$	
									\$	
A	<input checked="" type="checkbox"/> UMBRELLA LIAB	Y	Y	POLICY NUMBER	1/1/2011	1/1/2012	EACH OCCURRENCE	\$ 2,000,000		
	<input checked="" type="checkbox"/> EXCESS LIAB						<input checked="" type="checkbox"/> OCCUR CLAIMS-MADE	AGGREGATE	\$ 2,000,000	
	DED <input checked="" type="checkbox"/> RETENTION \$ 10,000								\$	
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	N/A	Y	POLICY NUMBER	1/1/2011	1/1/2012	<input checked="" type="checkbox"/> WC STATUTORY LIMITS	OTHE-		
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)								E.L. EACH ACCIDENT	\$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below								E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
									E.L. DISEASE - POLICY LIMIT	\$ 1,000,000
A	Leased/Rented/Equip. Owned Equipment	N/A	Y	POLICY NUMBER	1/1/2011	1/1/2012	Limit; Deductible	Limit; Deductible		
	Builders Risk/Installation Floater						Limit; Deductible			

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project No. _____ [Title]. Certholder (City) and _____ (Design Professional) and any other entities named in 00800 SCs are named as primary, noncontributing Additional Insureds including products and completed operations, excluding workers compensation, employers liability and professional liability. Waiver of subrogation applies as allowed by law. [The policies required above shall contain no exclusions for work expressly within the subcontractors scope of work.]

CERTIFICATE HOLDER **CANCELLATION**

City of Kansas City, Missouri	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
_____ [Department]	
_____ [Address]	
Kansas City, MO _____ [Zip]	AUTHORIZED REPRESENTATIVE

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AUTHORIZATION TO RELEASE A REVENUE CLEARANCE LETTER

Revenue Division
414 East 12th Street, 2nd floor, Room 202 W
Kansas City, MO 64106 Phone (816) 513-1135 Fax (816) 513-1077 email: revenue@kcmo.org

I authorize the City of Kansas City, Missouri, Finance Department, Revenue Division, to release a Revenue Clearance Letter for:

Name of Taxpayer: _____ Tax I.D.# _____
(PRINT)

Address: _____

Check this box and the City will send the Clearance Letter to you or the contractor designated.

I authorize the City to provide a copy of the Taxpayer's Revenue Clearance Letter to the following:

NAME <i>(PRINT)</i>	BUSINESS NAME	TITLE
ADDRESS	CITY, STATE, ZIP CODE	
PHONE NUMBER	FAX NUMBER	E-MAIL ADDRESS

I authorize the City to provide the Taxpayer's Revenue Clearance Letter to all City Departments and to publish on the City's internet/intranet website that the Taxpayer is in compliance with the tax ordinances administered by the City's Commissioner of Revenue.

Please send my 1st Revenue Clearance Letter to: _____
(Print Name of City Department/Contact Person/E-mail/Fax Number)

This authorization shall expire one (1) year from the date of the signature.

The City, Commissioner of Revenue and the Revenue Division personnel (hereinafter "the City"), are hereby held harmless from any and all liability relating to unauthorized disclosure of confidential tax information resulting from release of information under all applicable confidentiality laws including federal, state, or local including any damages sustained by wrongful transmission of confidential tax information to any other person.

UNDER PENALTIES OF PERJURY, I DECLARE THAT I HAVE EXAMINED THIS AUTHORIZATION, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT IS TRUE, CORRECT AND COMPLETE.

I hereby certify that I am the Taxpayer named herein or that I have the authority to execute this authorization and hold harmless agreement on behalf of the Taxpayer.

NAME <i>(PRINT)</i>	TITLE <i>(IF APPLICABLE)</i>	
SIGNATURE	PHONE NUMBER	DATE

A FACSIMILE OF THIS DOCUMENT SHALL CONSTITUTE AN ORIGINAL



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

2. Agreement—The written Contract between CITY and CONTRACTOR governing the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

3. Application for Payment—The form accepted by CITY's Representative which is to be used by CONTRACTOR in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. Asbestos - Any material that contains more than one percent (1%) 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.

5. Bid- The offer or proposal of the Bidder submitted on the Bid Form/Contract setting forth the prices for the Work to be performed. A Bidder's Bid becomes a Contract with CITY if the CITY executes the Bid Form/Contract submitted by Bidder. If the CITY executes the Bid Form/Contract submitted by Bidder, the term "Bidder" shall mean CONTRACTOR.

6. Bidder- One who submits a Bid directly to CITY, as distinct from a sub-bidder who submits a bid to a Bidder. If the CITY executes the Bid Form/Contract submitted by Bidder, the term "Bidder" shall mean CONTRACTOR in both the Bidding Documents and Contract Documents unless the context clearly indicates otherwise.

7. Bidding Documents- The advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form/Contract, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

8. Bidding Requirements- The advertisement or invitation to bid, Instructions to Bidders, Bid security, and the Bid Form/Contract with any supplements.

9. Bonds- Payment Bond and Performance and Maintenance Bond and other instruments of security.

10. Calendar Day- Any day shown on the calendar, including Saturdays, Sundays, and holidays.

11. Change Order- A written document issued by CITY that authorizes 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 Contract.

12. CITY/OWNER- Kansas City, Missouri, a constitutionally chartered municipal corporation, with which CONTRACTOR has entered into the Contract and for whom the Work is to be provided.

13. CITY's Representative- Person or agency designated to act for the Director as provided in these Contract Documents.

14. Consultant- Person, firm or corporation having a contract with CITY or DESIGN PROFESSIONAL to furnish services as an independent professional associate or Consultant with respect to the Project and who's identified as such in the Supplementary Conditions.

The Consultant(s) is identified and their seals affixed on the Certification Page(s). The certifications describe the respective responsibilities for the Drawings and Specifications prepared by the Consultant(s) and are incorporated into this Contract.

15. Contract- The entire and integrated written agreement between CITY and CONTRACTOR concerning the Work that incorporates all Contract Documents. The Bid Form/Contract submitted by Bidder is the Contract between CITY and CONTRACTOR upon execution by CITY. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

16. Contract Documents- The Contract Documents establish the rights and obligations of the parties and include the Contract, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid Form/Contract (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Intent to Contract), the HRD Construction Project Instructions, the Contractor's Utilization Plan/Request for Waiver, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Project Manual and the certification page(s) of the DESIGN PROFESSIONAL and Consultant(s), together with approved project baseline schedule and amendments thereto and all Written Amendments, Change Orders, Work Change Directives, and DESIGN PROFESSIONAL's written interpretations and clarifications issued on or after the Effective Date of the Contract, and approved Shop Drawings. Reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this Paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by CITY to CONTRACTOR are not Contract Documents, except project schedules submitted by CONTRACTOR and approved by CITY.

17. Contract Price- The money payable by CITY to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement.

18. Contract Times- The number of days or the dates stated in the Supplementary Conditions: (a) to achieve Substantial Completion, and (b) to complete the Work so that it is ready for final payment as evidenced by CITY's Representative's written recommendation of final payment.

19. CONTRACTOR- The person, firm, partnership, company, corporation or association licensed or otherwise authorized by law to do business in Missouri, with whom CITY has entered into the Agreement.

20. Day- Shall constitute a Calendar Day.

21. DESIGN PROFESSIONAL- Architect, Engineer or other licensed professional who is either employed by or has contracted with CITY to serve in a design capacity and whose Consultants, members, partners, employees or agents have prepared and sealed the Drawings and Specifications.

The DESIGN PROFESSIONAL(s) is identified and their seals affixed on the Certification Page(s). The certifications describe the respective responsibilities for the Drawings and Specifications prepared by the DESIGN PROFESSIONAL and are incorporated into this Contract.

22. DESIGN PROFESSIONAL's Project Representative- The authorized representative of DESIGN PROFESSIONAL who may be assigned to the Site or any part thereof.

23. Director- The term Director shall mean the duly appointed executive officer of a department of City who is empowered by the City Charter or by the City Council to enter into a contract on behalf of City, or to grant a permit for improvements to land owned by City. A Director is authorized to delegate this authority to a City employee so designated in writing.

24. Drawings- The drawings which graphically show the scope, extent and character of the Work to be furnished and performed by CONTRACTOR and which have been prepared by DESIGN PROFESSIONAL and are included in the Contract Documents. Shop Drawings are not Drawings as so defined.

25. Effective Date of the Contract- The date indicated in the Contract on which it becomes effective, but if no such date is indicated it means the date on which the Contract is fully executed by CITY.

26. General Requirements- Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

27. Hazardous Environmental Condition- The presence at the Site of Asbestos, Lead-Based Paint, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

28. 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.

29. Laws or Regulations- Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

30. Lead-Based Paint- Any paint, varnish, stain, or other applied coating that has one (1) mg or more of lead per square centimeter. The terms "leaded paint" and "lead-containing paint" are synonymous with Lead-Based Paint.

31. Liens- Liens, charges, security interests or encumbrances upon real property or personal property.

32. Milestone- A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

33. Notice of Intent to Contract- The written notice by CITY to the apparent successful Bidder stating that upon compliance by that apparent successful Bidder with the conditions in the Bid Documents enumerated, within the time specified, and upon enactment of an appropriate ordinance or resolution, CITY will sign and deliver the Contract.

34. Notice to Proceed- A written notice given by CITY 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.

35. Partial Utilization- Use by CITY of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

36. PCBs- Polychlorinated biphenyls.

37. 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, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

38. 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.

39. Project Manual- The documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual may be issued in one or more volumes and is contained in the table(s) of contents.

40. 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 to time.

41. 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.

42. Shop Drawings- All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

43. Site- Lands or areas indicated in the Contract Documents as being furnished by CITY upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by CITY which are designated for the use of CONTRACTOR.

44. 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.

45. Subcontractor- Any individual, firm, partnership, company, corporation or association licensed or otherwise authorized by law to do business in Missouri, to whom CONTRACTOR, with written notification to CITY, has entered into an agreement to perform a part of the Work.

46. Substantial Completion- When Work (or a specified part thereof) has progressed to the point where, in the opinion of DESIGN PROFESSIONAL as evidenced by DESIGN 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. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

47. Supplementary Conditions- The part of the Contract Documents which amends and/or supplements these General Conditions.

48. Supplier- A manufacturer, fabricator, supplier, distributor, materialman or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated into the Work by CONTRACTOR or any Subcontractor.

49. 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, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

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

51. Work- The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor, and furnishing and incorporating material and equipment into the construction, and furnishing documents, all as required by the Contract Documents.

52. Work Change Directive- A written directive to CONTRACTOR, issued on or after the Effective Date of the Contract, signed by CITY and recommended by DESIGN PROFESSIONAL, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed, or to emergencies. 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.

53. Work Day - Any day during which the CONTRACTOR is able to work a period of six (6) hours or more. Days that are not Work Days are days during which the CONTRACTOR is unable to work for a period of six (6) hours by reason of strikes, boycotts, labor disputes, embargoes, unusual delays in transportation or shortage of material, acts of God, acts of the public enemy, acts of superior governmental authority, weather conditions, riots, rebellion, sabotage, or any other circumstances for which CONTRACTOR is not responsible or which is not within its control. Saturdays, Sundays, and holidays on which the CONTRACTOR's forces engage in Work requiring the presence of an inspector, will be considered as Work Days.

54. Written Amendment- A written statement modifying the Contract Documents, signed by CITY and CONTRACTOR on or after the Effective Date of the Contract and normally dealing with the non-engineering or non-technical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. 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 DESIGN PROFESSIONAL as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to DESIGN PROFESSIONAL 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 Paragraph 9.08 or any other provision of the Contract Documents.

B. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty or deficient, in that it 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 CITY 's Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by CITY at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

C. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

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

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

4. 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.

D. Unless stated otherwise in the Contract Documents, words and phrases which have a well-known technical or construction industry or trade meanings are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. CONTRACTOR shall deliver to CITY such Bonds as CONTRACTOR may be required to furnish.

2.02 Evidence of Insurance

A. CONTRACTOR shall deliver to CITY certificates of insurance or other evidence of insurance that CITY may request, which CONTRACTOR is required to purchase and maintain in accordance with Article 5 or any other applicable provision in the Contract Documents.

2.03 Copies of Documents

A. CITY shall furnish to CONTRACTOR one (1) copy of the Drawings and Specifications, including addenda.

2.04 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the date indicated in the Notice to Proceed.

2.05 Starting the Work

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, unless otherwise indicated in the Notice to Proceed.

2.06 Before Starting Construction

A. CONTRACTOR's Review of Contract Documents: Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to DESIGN PROFESSIONAL any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from DESIGN PROFESSIONAL before proceeding with any Work affected thereby. CONTRACTOR shall not be liable to CITY or DESIGN PROFESSIONAL for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents, unless CONTRACTOR knew or reasonably should have known thereof.

B. Preliminary Schedules: Within ten (10) days after the Effective Date of the Contract, or on such later date as CITY's Representative shall provide in writing, CONTRACTOR shall submit to CITY's Representative for review:

1. Preliminary Project Schedule: CONTRACTOR shall submit a proposed project schedule for CITY's acceptance. The proposed project schedule shall include a detailed and comprehensive construction schedule utilizing a critical path method diagram network that (a) shows all major procurement and construction elements and phases of the Project; (b) breaks down each element or phase by trade; (c) shows early and late starts so that all float time will be accurately identified; (d) all other activities necessary for the timely completion of the Project in accordance with the scheduled dates for Substantial and Final Completion; and (e) highlights the project's critical path. CITY's acceptance is expressly limited to CITY's acknowledgement that, based upon CITY's limited review, the dates of Substantial

Completion and Milestone dates are acceptable. After final acceptance of the preliminary project schedule by the CITY, it shall be considered the project baseline schedule pursuant to Paragraph 2.07(B).

2. Preliminary schedule of Shop Drawings and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal; and

3. Preliminary 01290.02 Schedule of Values for all of the Work which will include quantities and prices of items which when added together equals the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. Preconstruction Conference: Before any Work at the Site may be started, a conference attended by CONTRACTOR, DESIGN PROFESSIONAL and others, as appropriate, will be scheduled by CITY's Representative to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.06 B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, maintaining required records, Claims process, dispute resolution or any other applicable provisions of the Contract Documents.

2.07 Acceptable Schedules

A. Acceptable schedule: The Contractor shall update and submit to the CITY for review the preliminary schedule within seven (7) Calendar Days after the Notice to Proceed.

1. The CITY shall review and make any necessary comments and/or adjustments to the updated preliminary schedule. The Contractor shall incorporate the CITY's comments and resubmit the updated preliminary schedule within seven (7) Calendar Days from receipt of the CITY's comments.

B. Project Baseline Schedule: The accepted updated preliminary schedule shall be considered the project baseline schedule and shall be used by the CONTRACTOR for planning, scheduling, managing, and executing the Work. The project baseline schedule shall not be changed without the written consent of CITY. The project baseline schedule may be further modified by the Supplemental Conditions.

C. CONTRACTOR's schedule of values will be acceptable to CITY's Representative as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 CONTRACT DOCUMENTS : INTENT, AMENDING, REUSE

3.01 Intent

A. The Contract Documents comprise the entire Contract between CITY and CONTRACTOR concerning the Work.

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 CITY. Clarifications and interpretations of the Contract Documents shall be issued by DESIGN PROFESSIONAL as provided in Paragraph 9.03.

C. Correlation and intent of documents: The Drawings and Specifications are intended to supplement each other. Any Work shown on the Drawings and not mentioned in the Specifications (or vice versa) shall be as binding and shall be completed the same as if mentioned or shown on both. In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. Change Orders and Written Amendments
2. Project Baseline Schedule Requirements
3. Approved Shop Drawings
4. Addenda, with those of later date having precedence over those of earlier date
5. The Supplementary Conditions
6. The General Conditions
7. Drawings and Specifications

D. In the case of an inconsistency between Drawings and Specifications, the requirements of the Specifications shall govern. If Drawings are in conflict, larger scale details shall govern over smaller or no-scale Drawings. If Specification sections are in conflict with each other, the conflict shall be resolved by DESIGN PROFESSIONAL in accordance with reasonable interpretation of such documents.

E. The general character of the detailed Work is shown on the Drawings, but minor modifications may be made in the full size or scale details. Where the word "similar" occurs on the Drawings, it shall be used in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to the other parts of the Work. 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.

3.02 Reference to Standards and Specifications of Technical Societies

A. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or on the date of CONTRACTOR's proposal if there are no Bids), except as may be otherwise specifically stated in the Contract Documents.

1. No provision of any such standard, specification, manual, code or instruction of Supplier shall be effective to change the duties or responsibilities of CITY, CONTRACTOR or DESIGN PROFESSIONAL, or any of their Subcontractors, Consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to CITY or DESIGN PROFESSIONAL or any of their 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 inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies: If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Laws or Regulations applicable to the performance of the Work or of any standard, specification, manual, code or any instruction of any Supplier referred to in Paragraph 6.07, CONTRACTOR shall report it immediately to DESIGN PROFESSIONAL in writing. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by Paragraph 6.17) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to CITY or DESIGN PROFESSIONAL for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. Resolving Discrepancies. 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 Laws or Regulations applicable to the performance of the Work.

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

1. a Written Amendment or
2. a Change Order (pursuant to Article 10), whether pursuant to a Work Change Directive or otherwise.

B. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, in one or more of the following ways

1. DESIGN PROFESSIONAL's approval of a Shop Drawing or Sample (pursuant to Paragraph 6.18), or
2. DESIGN PROFESSIONAL's written interpretation or clarification (pursuant to Paragraph 9.03).

3.05 Reuse of Documents

A. CONTRACTOR and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under this Contract:

1. shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of DESIGN PROFESSIONAL or Consultant, and
2. shall not reuse any of such Drawings, Specifications, other documents or copies thereof on extensions of the Project or any other project without written consent of CITY, and of DESIGN PROFESSIONAL or Consultant, as applicable, and specific written verification or adaptation by DESIGN PROFESSIONAL or Consultant.

This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 Availability of Lands

A. CITY shall furnish the Site. CITY shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by CITY, unless otherwise provided in the Contract Documents. If CONTRACTOR and CITY are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times or both as a result of any delay in CITY's furnishing these lands, rights-of-way or easements, CONTRACTOR may make a Claim as provided in Article 16. 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. Reports and Drawings: Reference is made to the Supplementary Conditions for identification of:

1. Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by DESIGN PROFESSIONAL in preparing the Contract Documents; and
2. Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that have been utilized by DESIGN PROFESSIONAL in preparing the Contract Documents.

B. Limited Reliance by CONTRACTOR on Technical Data Authorized: CONTRACTOR may rely upon the general accuracy of the technical data contained in reports and drawings of subsurface or physical conditions, but such reports and drawings are not Contract Documents. The technical data is identified in the Supplementary Conditions. Except for reliance on such technical data, CONTRACTOR may not rely upon or make any Claim against CITY, DESIGN PROFESSIONAL or any Consultant with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings, or
3. any CONTRACTOR interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions or information.

4.03 Differing Subsurface or Physical Conditions

A. Notice of Differing Subsurface or Physical Conditions. If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any technical data on which CONTRACTOR is entitled to rely as provided in Paragraphs 4.02 A and 4.02 B is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.17), notify CITY and DESIGN PROFESSIONAL in writing about such condition(s). CONTRACTOR shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. DESIGN PROFESSIONAL's Review: After receipt of notice as required by Paragraph 4.03 A, DESIGN PROFESSIONAL will promptly review the pertinent conditions, determine the necessity for CITY to obtain additional exploration or tests with respect thereto and notify CITY in writing (with a copy to CONTRACTOR) of DESIGN PROFESSIONAL's findings and conclusions.

C. Possible Contract Documents Change: If CITY concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in Paragraph 4.03 A, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

D. Possible Price or Times Adjustments: An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of a subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

1. the condition must meet any one or more of the categories described in Paragraphs 4.03 A.1 through 4.03 A.4, inclusive;
2. a change in the Contract Documents pursuant to Paragraph 4.03 C will not be an automatic authorization of, nor a condition precedent to, entitlement to any such adjustments;
3. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.06 and 11.04; and
4. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if;
 - a. CONTRACTOR knew, or by the exercise of ordinary care could have known, of such conditions at the time CONTRACTOR made a final commitment to CITY with respect to Contract Price and Contract Times by the submission of a Bid; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or
 - c. CONTRACTOR failed to give the written notice as required by Paragraph 4.03 A.

E. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price pursuant to Article 11 and/or Contract Times pursuant to Article 12, a Claim may be made therefore as provided in Article 16. However, CITY, DESIGN PROFESSIONAL and Consultants shall not be liable to CONTRACTOR for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04. Physical Conditions – Underground Facilities

A. Shown or Indicated: 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 CITY or DESIGN PROFESSIONAL by the owners of such Underground Facilities or by others.

1. CITY and DESIGN PROFESSIONAL shall not be responsible for the accuracy or completeness of any such information or data; and
2. The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for:
 - a. reviewing and checking all such information and data,
 - b. locating all Underground Facilities shown or indicated in the Contract Documents,
 - c. coordination of the Work with the owners of such Underground Facilities during construction, and
 - d. the safety and protection of all such Underground Facilities as provided in Paragraph 6.14 and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the Site, and was not shown or indicated in the Contract Documents, or was

shown or indicated incorrectly in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.17), identify the owner of such Underground Facility and give written notice to that owner and to CITY and DESIGN PROFESSIONAL.

C. DESIGN PROFESSIONAL's Review: After receipt of notice as required by Paragraph 4.04 B, DESIGN PROFESSIONAL will promptly review the consequences of the existence of the Underground Facility and notify CITY in writing (with a copy to CONTRACTOR) of DESIGN PROFESSIONAL's findings and conclusions.

D. Possible Contract Documents Change: If CITY concludes that a change in the Contract Documents is required as a result of the existence of an Underground Facility that either was not shown, or was shown incorrectly, in the Contract Documents, a Work Change Directive or Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

E. Possible Price or Times Adjustments: An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of the Underground Facility causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

1. a change in the Contract documents pursuant to Paragraph 4.04 D will not be an automatic authorization of, nor a condition precedent to, entitlement to any such adjustments;
2. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.06 and 11.04; and
3. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if;
 - a. CONTRACTOR knew, or by the exercise of ordinary care could have known, of the existence of the Underground Facility at the time CONTRACTOR made a final commitment to CITY with respect to Contract Price and Contract Times by the submission of a Bid; or
 - b. the existence of the Underground Facility could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or
 - c. CONTRACTOR failed to give the written notice as required by Paragraph 4.04 B.

F. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price pursuant to Article 11 and/or Contract Times pursuant Article 12, a Claim may be made therefore as provided in Article 16. However, CITY, DESIGN PROFESSIONAL and Consultants shall not be liable to CONTRACTOR for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.05 Reference Points

A. CITY shall provide engineering surveys to establish reference points for construction that in DESIGN PROFESSIONAL's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of CITY. CONTRACTOR shall report to DESIGN PROFESSIONAL whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be

responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Asbestos, Lead-Based Paint, PCBs, Petroleum, Hazardous Waste or Radioactive Material

A. Reports and Drawings: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the DESIGN PROFESSIONAL in the preparation of the Contract Documents.

B. Limited Reliance by CONTRACTOR on Technical Data Authorized: CONTRACTOR may rely upon the general accuracy of the technical data contained in reports and drawings relating to a Hazardous Environmental Condition at the Site, but such reports and drawings are not Contract Documents. Such technical data is identified in the Supplementary Conditions. Except for such reliance on such technical data, CONTRACTOR may not rely upon or make any Claim against CITY, DESIGN PROFESSIONAL or any Consultant with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. any CONTRACTOR interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition 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. CONTRACTOR shall be responsible for all Hazardous Environmental Conditions created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible. CONTRACTOR shall not be entitled to an extension of the Contract Times or an increase in the Contract Price if CONTRACTOR, Subcontractor, Supplier or anyone for whom CONTRACTOR is responsible created any Hazardous Environmental Condition at the Site or in connection with the Work.

D. If CONTRACTOR encounters a Hazardous Environmental Condition at the Site or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition at the Site, CONTRACTOR shall immediately:

1. secure or otherwise isolate such condition;
2. stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6. 15); and
3. notify CITY and DESIGN PROFESSIONAL (and promptly thereafter confirm such notice in writing). CITY shall promptly consult with DESIGN PROFESSIONAL concerning the necessity for CITY to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall neither resume Work nor be required to resume Work in connection with such condition or in any affected area until after CITY has obtained any required permits related thereto and delivered to CONTRACTOR written notice:

1. specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or
2. specifying any special conditions under which such Work may be resumed safely. If CITY and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price pursuant to Article 11 and/or Contract Times to

pursuant to Article 12 as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, a Claim may be made therefore as provided in Article 16.

F. If after receipt of written notice as required in Paragraph 4.06 E, CONTRACTOR does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under special conditions specified in the notice, then CITY may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If CITY and CONTRACTOR cannot agree as to entitlement to or magnitude of an equitable adjustment in Contract Price pursuant to Article 11 and/or Contract Times pursuant to Article 12 as a result of deleting such portion of the Work, then a Claim may be made therefore as provided in Article 16. CITY may have such deleted portion of the Work performed by CITY's own forces or others in accordance with Article 7.

G. The provisions of Paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

H. All materials used, whether new or salvaged, shall be asbestos-free materials. CONTRACTOR shall immediately call to the attention of the CITY's Representative any specified material or product which the CONTRACTOR knows or suspects to contain asbestos, whether new or salvaged.

ARTICLE 5 BONDS AND INSURANCE

5.01 Performance, Payment and Other Bonds

A. CONTRACTOR shall furnish Performance and Maintenance and Payment Bonds, each in an amount at least equal to the Contract Price, as set out in the Contract Documents, as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one (1) year after the date when final payment of the Contract becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations. A certified copy of the agent's authority to act must accompany all Bonds signed by an agent.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirement of Paragraph 5.01 B, CONTRACTOR shall within twenty (20) days thereafter substitute another Bond and surety, both of which must be acceptable to CITY.

5.02 Licensed Sureties and Insurers

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by CITY or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed in the State of Missouri and in the jurisdiction in which the Project is located, if not in Missouri, to issue Bonds or insurance policies for the limits and coverages so required. All surety and insurance companies shall hold an A.M. Best rating of A-, V, or better.

5.03 Certificates of Insurance

A. CONTRACTOR shall deliver to CITY and DESIGN PROFESSIONAL, prior to the start of any Work at the Project Site, properly completed certificates of insurance or other evidence that the required insurance is in full force and effect, in a form acceptable to CITY. The receipt or acceptance of a certificate of insurance that does not incorporate the required terms and coverage shall not constitute a waiver by the City of the insurance requirements contained in the Contract Documents.

B. All policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with Paragraphs 5.04 and 5.06 will contain waiver provisions in accordance with Paragraph 5.07 A. The certificates of insurance will contain a provision stating that should any of the policies described in the certificate be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

C. If the coverage afforded is cancelled or changed or its renewal is refused, CONTRACTOR shall give at least thirty (30) days prior written notice to CITY and to each other additional insured to whom a certificate of insurance has been issued.

5.04 CONTRACTOR's Liability Insurance

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished, and will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;
4. claims for damages insured by customary personal injury liability coverage;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefore; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by Paragraph 5.04 A, to be purchased and maintained shall:

1. with respect to insurance required by Paragraphs 5.04 A.3 through 5.04 A.5 inclusive, include as additional insureds (subject to any customary exclusion for professional liability) CITY, DESIGN PROFESSIONAL, Consultants and any other individuals or entities identified in the Supplementary Conditions to be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in Paragraph 5.04 C or required by Laws or Regulations, whichever is greater;
3. include completed operations insurance;
4. include contractual liability insurance covering CONTRACTOR's indemnity obligations;
5. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with Paragraphs 13.06 and 13.07;

6. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two (2) years after final payment (and CONTRACTOR shall furnish CITY and each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued evidence satisfactory to CITY and any such additional insured of continuation of such insurance);

7. contain a cross-liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance;

8. with respect to commercial automobile liability, commercial general liability, and umbrella liability insurance, CONTRACTOR shall require its insurance carrier(s) to waive all rights of subrogation against CITY, and CITY's officers, directors, partners, employees and agents; and

9. contain a provision or endorsement that the costs of providing the insureds a defense and appeal, including attorneys' fees, as insureds, shall be supplementary and shall not be included as part of the policy limits but shall remain the insurer's responsibility.

C. Specific policies of insurance required by this Paragraph 5.04 shall include:

1. Workers' Compensation and Employers' Liability Insurance. This insurance shall protect CONTRACTOR against all claims under applicable state workers' compensation laws, including coverage as necessary for the benefits provided under the United States Longshoremen's and Harbor Workers' Act and the Jones Act. CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of workers' compensation laws. This policy shall include an "all states" or "other states" endorsement. The liability limits shall be not less than:

Workers' Compensation: Statutory

Employers' liability: \$1,000,000 each occurrence

2. Commercial Automobile Liability Insurance. This insurance shall be occurrence type written in comprehensive form and shall protect CONTRACTOR, and CITY, DESIGN PROFESSIONAL and Consultants against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, either on or off the Project Site, whether they are owned, non-owned, or hired.

The liability limits shall be not less than: \$2,000,000

3. Commercial General Liability Insurance. This insurance shall be occurrence type written in comprehensive form acceptable to CITY. This insurance shall protect CONTRACTOR, and CITY, DESIGN PROFESSIONAL and Consultants as additional insureds, against claims arising from injuries, sickness, disease, or death of any person or damage to property arising out of performance of the Work. The policy shall also include coverage for personal injury liability; contractual liability; completed operations and products liability; and for blasting, explosion, and collapse of buildings; and damage to underground property. The liability limits for bodily injury and property damage shall be not less than:

\$2,000,000 combined single limit for each occurrence

\$2,000,000 general aggregate.

4. The insurer's costs of providing the insureds a defense and appeal as additional insureds, including attorney's fees, shall be supplementary and shall not be included as part of the policy limits but shall remain the insurer's separate responsibility.

5.05 CITY's Liability Insurance

A. In addition to the insurance required to be provided by CONTRACTOR under Paragraph 5.04, CITY, at CITY's option, may purchase and maintain at CITY's expense liability insurance

that will protect CITY against claims which may arise from operations under the Contract Documents.

5.06 Property Insurance

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain property insurance on the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws or Regulations). This insurance shall:

1. include the interests of CITY, CONTRACTOR, Subcontractors, and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, tornado, collapse, debris removal, demolition occasioned by enforcement of Laws or Regulations, water damage, damage caused by frost and freezing, and acts of God;
3. be maintained in effect until final payment is made unless otherwise agreed to in writing by CITY with thirty (30) days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. CITY shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others involved in the Work to the extent of any deductible amounts. The risk of loss within the deductible amounts will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.07 Waiver of Rights

A. CITY and CONTRACTOR intend that all policies purchased in accordance with Paragraphs 5.04 and 5.06 will protect CITY, CONTRACTOR, DESIGN PROFESSIONAL Consultants, Subcontractors, and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. CITY and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees and agents for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work, but only to the extent of insurance coverage; and, in addition, waive all such rights against DESIGN PROFESSIONAL, Consultants, Subcontractors, and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any and each of them) under such policies for losses and damages so caused and covered by insurance. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by CITY as trustee or otherwise payable under any policy so issued. None of the above waivers shall apply if specifically in conflict with Laws and Regulations.

5.08 Receipt and Application of Insurance Proceeds

A. Any insured loss under the property insurance will be adjusted with CITY and made payable to CITY as fiduciary for the insureds, as their interests may appear, subject to the requirements of any indentures of indebtedness entered into by CITY.

B. CITY as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object to CITY's exercise of this power in writing within fifteen (15) days after the occurrence of loss. If such objection is made, CITY as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, CITY as fiduciary shall adjust and settle the loss with the insurers.

5.09 Partial Utilization – Property Insurance

A. If CITY finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with Paragraph 14.05; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

6.01 Indemnification

A. For purposes of this Paragraph 6.01 only, the following terms shall have the meanings listed:

1. Claims means all claims, damages, liability, losses, costs and expenses, including court costs and reasonable attorneys' fees, including attorney's fees incurred by the City in the enforcement of this indemnity obligation.

2. CONTRACTOR'S Agents means CONTRACTOR's officers, employees, sub-consultants, subcontractors, successors, assigns, invitees, and other agents.

3. CITY means CITY, its Program Manager/Construction Advisor and any of their agents, officials, officers, employees and program managers or construction advisors.

B. CONTRACTOR's obligations under this Paragraph with respect to indemnification for acts or omissions, including negligence, of CITY, shall be limited to the coverage and limits of insurance that CONTRACTOR is required to procure and maintain under this Contract. CONTRACTOR affirms that it has had the opportunity to recover the costs of the liability insurance required in this Contract in its contract price.

C. CONTRACTOR shall defend, indemnify and hold harmless CITY from and against all Claims arising out of or resulting from all acts or omissions in connection with this Contract caused in whole or in part by CONTRACTOR or CONTRACTOR's Agents, regardless of whether or not caused in part by any act or omission, including negligence, of OWNER.

D. In any and all Claims against CITY, DESIGN PROFESSIONAL, CONSULTANT, or any of their respective agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any 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, the indemnification obligation under Paragraph 6.01 C shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

E. The indemnification obligations of CONTRACTOR under Paragraph 6.01 C shall not extend to liability arising out of, resulting from, or caused by the professional negligence, errors or omissions of DESIGN PROFESSIONAL, CONSULTANT, or any of their respective agents, officers, directors or employees.

6.02 Supervision and Superintendence

A. CONTRACTOR shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent of the Work, who shall not be replaced without written request to and approval by CITY 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 or received from the superintendent shall be binding on CONTRACTOR.

C. If it is determined to be in the best interest of the Work, CONTRACTOR shall replace the project manager, resident superintendent or any other employee of the CONTRACTOR, Subcontractors, Suppliers or other persons or organizations performing or furnishing any of the Work on the project upon written request by the CITY.

6.03 Services, Working Hours, Labor, Materials and Equipment

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out and construct or perform the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the Site shall be performed during regular working hours. CONTRACTOR shall not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without CITY's written consent given after prior written notice to DESIGN PROFESSIONAL.

B. Unless otherwise specified in Division 1, General Requirements, CONTRACTOR shall furnish and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

C. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of CITY. If required by DESIGN PROFESSIONAL, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

D. It is the policy of the CITY that any manufactured goods or commodities used or supplied in the performance of this Contract and any subcontract hereto shall be manufactured or produced in the United States whenever possible.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with Article 2 as it may be adjusted from time to time as provided below:

1. CONTRACTOR shall provide, at least once every thirty (30) calendar days, updated information on the project schedule, including thirty (30) day look ahead schedules, projected variances per event category and per Subcontractor, identification of all variances and calculation of the number of Days difference between the as-built critical path and the project schedule critical path

2. CONTRACTOR shall, with each application for payment, provide completed monthly updated status report for the previous month on the project schedule and updated information indicating as-built and as-planned conditions. The updated information on the project schedule shall not modify any Milestone dates in the project schedule that CITY has previously approved. The updated information required is a condition precedent to payment pursuant to paragraph 14.02 and shall include at a minimum:

- a. a concise statement of the outlook for meeting project schedule dates and the reasons for any change in outlook from the previous report;
- b. a review of any significant technical problems encountered during the month;
- c. an explanation of any corrective action taken or proposed; and
- d. a summary of any Claims anticipated by CONTRACTOR with respect to the Work, including the anticipated costs and schedule impacts of any such Claims.

6.05 Recovery Schedules

A. If the CONTRACTOR should:

1. fail, refuse or neglect to supply a sufficient number of workers or to deliver the materials or equipment with such promptness as to prevent the delay in the progress of the Work;

2. fail in any respect to commence and diligently prosecute the Work in accordance with the approved baseline project schedule in order to achieve substantial completion;

3. fail to commence, prosecute, finish, deliver or install the different portions of the Work on time as specified in the approved baseline project schedule; or

4. fail in the performance of any of the material covenants of the Contract Documents;

CITY shall have the right to direct the CONTRACTOR, upon seven (7) calendar days notice, to prepare a written recovery plan, for CITY's approval, to accelerate the Work in order to conform to the approved baseline project schedule, including, without limitation, providing additional labor or expediting delivery of materials, performing overtime or re-sequencing the Work without adjustments to the Contract value. Upon CITY's approval of the recovery plan, CONTRACTOR shall accelerate the Work in accordance with the plan.

B. Proposed recovery schedules shall be submitted to the CITY as a separate project plan for review and approval by CITY prior to incorporation into the approved baseline schedule. The recovery schedule shall be submitted in a format compatible with the baseline schedule format. Each proposed revision shall be submitted as a separate schedule, with the following minimum requirements:

1. A critical path method diagram showing revised and affected activities or Milestones.
2. An activity report for all revised and affected activities or Milestones.

C. Upon acceptance of the recovery schedule by CITY, data shall be added or revised for all new or revised activities and incorporated into the approved baseline project schedule.

6.06 Substitutes and “Or-Equal” Items

A. Materials or equipment: Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance and quality required. Unless the specification or description contains, or is followed by, words reading that no like, equivalent or “or-equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to CITY for review by CITY’s Representative under the following circumstances:

1. “Or-Equal”: If, prior to receipt of Bids, Bidder proposes an item of material or equipment as functionally equal to that named and sufficiently similar so that no change in related Work will be required, CITY’s Representative may request DESIGN PROFESSIONAL to consider it as an “or-equal” item. DESIGN PROFESSIONAL will review and recommend the acceptance, or rejection, of the proposed item to the CITY’s Representative. For the purposes of this Paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment DESIGN PROFESSIONAL determines that:

(1) it is at least equal in quality, durability, appearance, strength, and design characteristics; and

(2) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; and

b. Bidder certifies that:

(1) there is no increase in cost to the CITY; and

(2) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

If the CITY’s Representative approves the proposed item, it may be accepted by CITY.

2. Substitute Items: If CONTRACTOR proposes an item of material or equipment as a substitute item, then CONTRACTOR shall submit sufficient information as provided below to allow CITY’s Representative to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by the CITY’s Representative will include the following as supplemented in the General Requirements and as CITY’s Representative may determine is appropriate under the circumstances:

a. Requests for review of proposed substitute items of material or equipment will not be accepted by CITY’s Representative from anyone other than CONTRACTOR.

b. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall first make written application to CITY’s Representative for acceptance thereof.

c. In the application, CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will impact CONTRACTOR’s achievement of Substantial Completion, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with CITY for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty.

d. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by CITY's Representative in evaluating the proposed substitute. CITY's Representative may require CONTRACTOR to furnish additional data about the proposed substitute.

If the CITY's Representative approves the proposed item, CITY may accept it.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to DESIGN PROFESSIONAL. CONTRACTOR shall notify CITY and submit sufficient information to allow DESIGN PROFESSIONAL, in DESIGN PROFESSIONAL's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents.

C. Expenses: Bidder shall provide all data in support of any "or equal" at Bidder's expense, and CONTRACTOR shall provide all data in support of any proposed substitute at CONTRACTOR's expense.

D. Evaluation: DESIGN PROFESSIONAL and CITY's Representative will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.06 A, and 6.06 B. CITY will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without CITY's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. CITY may require CONTRACTOR to furnish at CONTRACTOR's expense, a special performance guarantee or other surety with respect to any "or-equal" substitute. DESIGN PROFESSIONAL will record time required by DESIGN PROFESSIONAL and Consultants in evaluating substitutes proposed or submitted by CONTRACTOR pursuant to Paragraphs 6.06 A and 6.06 B and in making changes in the Contract Documents (or in the provisions of any other direct contract with CITY for work on the Project) occasioned thereby. Whether or not CITY accepts a substitute so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse CITY for the reasonable charges of DESIGN PROFESSIONAL and Consultants for evaluating each such proposed substitute.

6.07 Concerning Subcontractors, Suppliers and Others

A. CONTRACTOR shall not employ or retain any Subcontractor, Supplier or other person or organization (including those acceptable to CITY as indicated in Paragraph 6.07 B), whether initially or as a substitute, against whom CITY has a reasonable objection, including but not limited to debarment by City or another governmental entity or decertification of the Subcontractor from the City's Minority and Women's Business Enterprise Program as a result of the Subcontractor's failure to comply with any of the requirements of the provisions of Chapter 3 of the City's Code as determined by the Director of the Human Relations Department. Contractor shall insert this provision in any subcontractor agreement associated with this Contract. 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. CONTRACTOR shall submit required information for all Subcontractors on Form 01290.09 - Subcontractor and Major Material Suppliers List, provided in these Contract Documents, prior to Subcontractor beginning Work at the Site.

B. 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 or equipment) to be submitted to CITY on or before the date specified in the Supplementary Conditions, for acceptance by CITY. If CONTRACTOR has submitted a list

thereof in accordance with the Supplementary Conditions, CITY may accept (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Contract Documents) any such Subcontractor, Supplier or other person or organization so identified, or may reject same on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier or other person or organization. The Contract Price will be adjusted by the difference in the cost occasioned by such substitution, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by CITY of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of CITY or DESIGN PROFESSIONAL to reject defective Work.

C. CONTRACTOR shall be fully responsible to CITY 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 for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between CITY or DESIGN PROFESSIONAL and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of CITY or DESIGN 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 or Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall contractually require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with CITY and DESIGN PROFESSIONAL through CONTRACTOR.

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

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier shall be pursuant to an appropriate written agreement between CONTRACTOR and the Subcontractor or Supplier that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of CITY. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against CITY, CONTRACTOR, DESIGN PROFESSIONAL, Consultants and all other additional insureds for all losses and damages caused by, arising out of or resulting from any perils, to the extent covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

H. Except as otherwise provided in this subsection H and in accordance with the provisions of subsection C hereof, the agreement between CONTRACTOR and the Subcontractor or Supplier referred to in subsection G, shall provide that the CONTRACTOR and the Subcontractor or Supplier agree not to request CITY or CITY's Representative to intervene in or facilitate the resolution of claims or contract disputes arising out of or related to the agreement between CONTRACTOR and the Subcontractor or Supplier. Furthermore, the Contracts between CONTRACTOR and Subcontractors or Suppliers shall provide that all unresolved claims and disputes between CONTRACTOR and the Subcontractor or Supplier that remain unresolved after thirty (30) calendar days from the notice of claim, shall be subject to mediation as a condition precedent to the institution of legal proceedings by either party. Any such mediation shall be conducted in accordance with the CITY's Code Section 3-467.

I. CONTRACTOR shall not insert any provision in any subcontractor agreement associated with this Contract that explicitly states or implies that the subcontractor shall only be paid for work performed if or when the general CONTRACTOR is paid by the CITY . Contractor's compliance with this provision is a material term of this Contract.

6.08 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 into 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 CITY or DESIGN PROFESSIONAL its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by CITY in the Contract Documents. To the fullest extent permitted by Laws or Regulations, CONTRACTOR shall defend, indemnify and hold harmless CITY, DESIGN PROFESSIONAL, Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation into the Work of any invention, design, process, product or device not specified in the Contract Documents.

6.09 Permits

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. CITY shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Contract. CONTRACTOR shall pay all charges of utility owners for connections to the Work.

B. CONTRACTOR, at its own expense, shall comply with all Federal, State and local laws and regulations, including, but not limited to the Missouri Clean Water Law (Chapter 644 RSMo) together with any accompanying regulation(s) contained in the Missouri Code of State Regulations (CSR Title 10), as well as any implementing permits, together with any CITY Provisions during the life of this Contract including but not limited to:

1. Approvals and permits as required for construction or land disturbance activities.
2. Compliance with the State of Missouri – Department of Natural Resources (“MDNR”) Missouri State Operating Permit (“Land Disturbance Permit”), MO-R100006 for all construction or land disturbance activity.
3. Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).
 - (a) Contractor shall not commence land disturbance activity until the initial SWPPP has been finalized.
 - (b) Preparation and submittal of all applications, documentation and exhibits required to obtain MDNR approvals for uninterrupted Work at the Site.
 - (c) Amending/Updating SWPPP.
 - (d) Site Inspections and submittal of Inspection Reports
 - (e) Proper Operation and Maintenance to achieve compliance with the terms of the Permit.

(f) Maintenance of required records in accordance with MDNR requirements and requirements included in Article 6 of these Contract Documents.

4. In addition to requirements of Article 6, Contractor shall also provide record access to Missouri Department of Natural Resources (MDNR).

5. Failure to control erosion and water pollution is a permit violation. CONTRACTOR shall have 24 hours after receiving notice of the violation to correct the problem. If the CONTRACTOR fails to correct the problem after the time prescribed, the City will hire a remediation expert to fix the problem. In such an event, the CONTRACTOR shall be liable to the City for the remediation costs plus a 10% mark-up of the total contract price. If the CONTRACTOR receives three (3) notices of violation of the erosion control plan and the City's MS4 permit, the Director may issue a stop work order and delay any payment until control measures are properly functioning and stream damage has been mitigated. In such an event, any delay to the project schedule will result in liquidated damages assessed against the CONTRACTOR.

6.10 Compliance with Laws and Regulations

A. CONTRACTOR shall give all notices and comply with all Laws or Regulations applicable to furnishing and performing the Work. Except where otherwise expressly required by applicable Laws or Regulations, neither CITY nor DESIGN PROFESSIONAL shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations. The Laws or Regulations included in this Paragraph shall include, but not be limited to, those set forth in the Supplementary Conditions.

B. Failure to Comply. If CONTRACTOR performs any Work in violation of applicable Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws or Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under Paragraph 3.03.

C. Conflicts of Interest. The provisions of City's Code Sections 2-1015 and 3-301, prohibiting City officers and employees from having a financial or personal interest in any contract with City, and Code Sections 3-307, and 3-309, imposing sanctions for violations, shall apply to this Contract. CONTRACTOR certifies that no officer or employee of City has, or will have, a direct or indirect financial or personal interest in this Contract, and that no officer or employee of City, or member of such officer's or employee's immediate family, either has negotiated, or has or will have an arrangement concerning employment to perform services on behalf of CONTRACTOR on this Contract.

D. Licenses and Permits. CONTRACTOR, at its own expense, shall secure or cause to be secured all licenses and permits from public or private sources necessary for the fulfillment of its obligations under this Contract. All references in this Contract to the "Code" shall mean City's Code of Ordinances, including any amendments thereto or re-codification thereof unless the context clearly indicates otherwise. CONTRACTOR shall obtain copies of all necessary licenses and permits from Subcontractors required for the Work before Subcontractors begin Work at the Site. CONTRACTOR shall retain such evidence in its files and make available to CITY within ten (10) days after CITY's written request.

E. Americans with Disabilities Act. CONTRACTOR agrees to comply, during the course of this Contract, with all provisions of Title II of the 2010 ADA Standards for Accessible Design as amended from time to time.

F. Affirmative Action. If the Contract Price exceeds \$300,000.00 and CONTRACTOR employs fifty (50) or more people, CONTRACTOR shall comply with City's Affirmative Action requirements in accordance with the provisions of Chapter 3 of City's Code, the rules and regulations relating to those sections, and any additions or amendments thereto.

CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age in a manner prohibited by Chapter 3 of City's Code.

CONTRACTOR shall:

1. Submit, in print or electronic format, a copy of CONTRACTOR'S current certificate of compliance to the City's Human Relations Department (HRD) prior to receiving the first payment under the contract, unless a copy has already been submitted to HRD at any point within the previous two calendar years. If, and only if, CONTRACTOR does not possess a current certification of compliance, CONTRACTOR shall submit, in print or electronic format, a copy of its affirmative action program to HRD prior to receiving the first payment under the contract, unless a copy has already been submitted to HRD at any point within the previous two calendar years.

2. Require any Subcontractor awarded a subcontract exceeding \$300,000.00 to affirm that Subcontractor has an affirmative action program in place and will maintain the affirmative action program in place for the duration of the subcontract.

3. Obtain from any Subcontractor awarded a subcontract exceeding \$300,000.00 a copy of the Subcontractor's current certificate of compliance and tender a copy of the same, in print or electronic format, to HRD within thirty (30) days from the date the subcontract is executed. If, and only if, Subcontractor does not possess a current certificate of compliance, CONTRACTOR shall obtain a copy of the Subcontractor's affirmative action program and tender a copy of the same, in print or electronic format, to HRD within thirty (30) days from the date the subcontract is executed.

City has the right to take action as directed by City's Human Relations Department to enforce this provision. If CONTRACTOR fails, refuses or neglects to comply with the provisions of Chapter 3 of City's Code, then such failure shall be deemed a total breach of this Contract and this Contract may be terminated, canceled or suspended, in whole or in part, and CONTRACTOR may be declared ineligible for any further contracts funded by City for a period of one (1) year. This is a material term of this Contract.

G. Minority and Women Business Enterprises and Workforce. City is committed to ensuring that minorities and women participate to the maximum extent possible in the performance of City's construction contracts. If minority and women business enterprise (M/WBE) goals have been set for this Contract, CONTRACTOR agrees to comply with all requirements of City's Minority and Women's Business Enterprise Program as enacted in City's Code, Sections 3-421 through 3-469 and as hereinafter amended. CONTRACTOR shall meet or exceed both the MBE and WBE goals set forth in its Contractor Utilization Plan/Request for Waiver. If workforce utilization goals are applicable to this Contract, CONTRACTOR agrees to comply with all requirements of City's Construction Employment Program as enacted in City's Code, Sections 3-501 through 3-525 and as hereinafter amended. CONTRACTOR shall meet or exceed the construction employment goals unless the same shall have been waived in the manner provided by law. CONTRACTOR's compliance with this provision is a material part of this Contract.

H. Records.

1. For purposes of this section:

(a) "City" shall mean the City Auditor, the City's Internal Auditor, the City's Director of Human Relations, the City Manager, the City department administering this Contract and their delegates and agents.

(b) "Record" shall mean any document, book, paper, photograph, map, sound recordings or other material, regardless of physical form or characteristics, made or received in connection with this Contract and all Contract amendments and renewals.

2. Contractor shall maintain and retain all Records for a term of five (5) years that shall begin after the expiration or termination of this Contract and all Contract amendments. City

shall have a right to examine or audit all Records and Contractor shall provide access to City of all records upon ten (10) days written notice from the City.

I. Prevailing Wage.

1. CONTRACTOR shall comply and require its Subcontractors to comply with;
 - a. sections 290.210 to 290.340, RSMO the State of Missouri Prevailing Wage Law (the "Law"); and
 - b. 8 CSR 30-3.010 to 8 CSR 30-3.060, the Prevailing Wage Law Rules (the "Rules"); and
 - c. the Annual Wage Order (Wage Order) issued by the State of Missouri's Department of Labor and Industrial Relations; and
 - d. any applicable Annual Incremental Wage Increase (Wage Increase) to the Annual Wage Order.

2. The Law, Rules, Annual Wage Order and any Wage Increase are incorporated into and made part hereof this Contract and shall be collectively referred to in this Section as the "Prevailing Wage Requirements."

3. CONTRACTOR shall pay and require its Subcontractors to pay to all workers performing work under this Contract not less than the prevailing hourly rate of wages for the class or type of work performed by the worker in accordance with the Law, Rules, Wage Order and any applicable Wage Increase. CONTRACTOR shall take whatever steps are necessary to insure that the prevailing hourly wage rates are paid and that all workers for CONTRACTOR and each of its Subcontractors are paid for the class or type of work performed by the worker in accordance with the Prevailing Wage Requirements. If CONTRACTOR shall fail to start to perform CONTRACTOR's obligations under the Contract Documents within sixty (60) days from the Effective Date of the Contract, CONTRACTOR and each of its subcontractors shall be obligated to pay all workers in accordance with any new Wage Order, as subsequently amended by any applicable Wage Increase, issued by the Department of Labor and Industrial Relations within the aforementioned sixty (60) day period. The new Wage Order and any applicable Wage Increase shall govern notwithstanding the fact that the Wage Order being replaced might be physically attached or incorporated in the Contract Documents.

4. Prior to each of its Subcontractors beginning Work on the Site, CONTRACTOR shall require each Subcontractor to complete CITY's Form 00490 entitled "Pre-contract Certification" that sets forth the Subcontractor's prevailing wage and tax compliance history for the two (2) years prior to the bid. CONTRACTOR shall retain one (1) year and make the Pre-contract Certifications available to CITY within five (5) days after written request.

5. CONTRACTOR shall:

- a. Keep and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to keep full and accurate records on City's "Daily Labor Force Report" Form indicating the worker's name, occupational title or classification group & skill and the workers' hours. City shall furnish blank copies of the Daily Labor Force Report Form to Contractor for its use and for distribution to Subcontractors. Contractor shall submit its and its Subcontractors Daily Labor Force Reports to City each day; and

- b. Submit, and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to submit electronically, in a format prescribed by the City, Certified Payroll Report Information indicating the worker's name, address, social security number, occupation(s), craft(s) of every worker employed in connection with the public work together with the number of hours worked by each worker and the actual wages paid in connection with the Project and other pertinent information as requested by the City; and

c. Submit, and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to submit, electronically, in format prescribed by the City, a Payroll Certification. The Payroll Certification must be signed by the employee or agent who pays or supervises the payment of the workers employed under the Contract for the Contractor and each Subcontractor; and

d. The Daily Labor Force Report, documents used to compile information for the Certified Payroll Report, and Payroll Certification are collectively referred to in this Section as the "Records."

6. CONTRACTOR shall submit its and its Subcontractors Daily Labor Force Reports to CITY each day. CONTRACTOR shall make all of CONTRACTOR's and Subcontractors' Records open to inspection by any authorized representatives of OWNER and the Missouri Department of Labor and Industrial Relations at any reasonable time and as often as they may be necessary and such Records shall not be destroyed or removed from the State of Missouri for a period of one (1) year following the completion of the public work in connection with which the Records are made. CONTRACTOR shall have its and its Subcontractors Certified Payroll Reports and Payroll Certifications available at the CONTRACTOR's office and shall provide the Records to the City electronically at City's sole discretion. In addition, all Records shall be considered a public record and CONTRACTOR shall provide the Records to the CITY in the format required by the CITY within three (3) working days of any request by CITY at the CONTRACTOR's cost. CITY, in its sole discretion, may require CONTRACTOR to send any of the Records directly to the person who requested the Record at CONTRACTOR's expense.

7. CONTRACTOR shall post and keep posted a clearly legible statement of all prevailing hourly wage rates to be paid to all workers employed by CONTRACTOR and each of its Subcontractors in the performance of this Contract in a prominent and easily accessible place at the Site of the Work by all workers.

8. If the Contract Price exceeds \$250,000.00, CONTRACTOR shall and shall require each Subcontractor engaged in any construction of public works to have its name, acceptable abbreviation or recognizable logo and the name of the city and state of the mailing address of the principal office of the company, on each motor vehicle and motorized self-propelled piece of equipment which is used in connection with the Project during the time the CONTRACTOR or Subcontractor is engaged on the project. The sign shall be legible from a distance of twenty (20') feet, but the size of the lettering need not be larger than two (2") inches. In cases where equipment is leased or where affixing a legible sign to the equipment is impractical, the CONTRACTOR may place a temporary stationary sign, with the information required pursuant to this section, at the main entrance of the Project in place of affixing the required information on the equipment so long as such sign is not in violation of any state or federal statute, rule or regulation. Motor vehicles which are required to have similar information affixed thereto pursuant to requirements of a regulatory agency of the state or federal government are exempt from the provisions of this subsection.

9. CONTRACTOR must correct any errors in CONTRACTOR's or any Subcontractors' Records, or CONTRACTOR's or any Subcontractors' violations of the Law, Rules, Annual Wage Order and any Wage Increase within fourteen (14) calendar days after notice from CITY.

10. CONTRACTOR shall and shall require its Subcontractors to cooperate with the CITY and the Department of Labor and Industrial Relations in the enforcement of this Section, the Law, Rules, Annual Wage Order and any Wage Increase. Contractor shall and shall require its Subcontractors to permit CITY and the Department of Labor and Industrial Relations to interview any and all workers during working hours on the Project at CONTRACTOR's sole cost and expense.

11. CONTRACTOR shall file with CITY, upon completion of the Project and prior to final payment therefore, affidavits from CONTRACTOR and each of its Subcontractors, stating

that each has fully complied with the provisions and requirements of the Missouri Prevailing Wage Law. CITY shall not make final payment until the affidavits, in proper form and order, from CONTRACTOR and each of its Subcontractors, are filed by CONTRACTOR.

12. CONTRACTOR shall forfeit as a statutory penalty to the CITY one hundred dollars (\$100.00) for each worker employed, for each calendar day, or portion thereof, such worker is paid less than the prevailing hourly rates for any work done under this Contract, by CONTRACTOR or by any of CONTRACTOR's Subcontractors. If CONTRACTOR or any of its Subcontractors have violated any section(s) of 290.210 to 290.340, RSMo, in the course of the execution of the Contract, CITY shall when making payments to the CONTRACTOR becoming due under this Contract, withhold and retain therefrom all sums and amounts due and owing as a result of any violation of sections 290.210 to 290.340, RSMo.

J. Prevailing Wage Damages. CONTRACTOR acknowledges and agrees that, based on the experience of CITY, violations of the Missouri Prevailing Wage Act, whether by CONTRACTOR or its Subcontractors, commonly result in additional costs to CITY. CONTRACTOR agrees that additional costs to CITY for any particular violation are difficult to establish and include but are not limited to: costs of construction delays, additional work for CITY, additional interest expenses, investigations, and the cost of establishing and maintaining a special division working under the City Manager to monitor prevailing wage compliance.

1. In the event of the failure by CONTRACTOR or any of its Subcontractors to pay wages as provided in the Missouri Prevailing Wage Act, CITY shall be entitled to deduct from the Contract Price, and shall retain as liquidated damages, one hundred dollars (\$100.00) per day, per worker who is paid less than the prevailing hourly rate of wages, to approximate the additional costs. The sum shall be deducted, paid or owed whether or not the Contract Times have expired.

2. CITY shall give written notice to CONTRACTOR setting forth the workers, who have been underpaid, the amount of the statutory penalty and the amount of the liquidated damages as provided for in this Subparagraph J. CONTRACTOR shall have fourteen (14) calendar days to respond, which time may be extended by CITY upon written request. If CONTRACTOR fails to respond within the specified time, the CITY's original notice shall be deemed final. If CONTRACTOR responds to CITY's notice, CITY will furnish CONTRACTOR a final decision in writing within five (5) days of completing any investigation.

K. Missouri Secretary of State Business Entity Registration. CONTRACTOR shall obtain from all Subcontractors for the Project, a copy of their current certificate of good standing or fictitious name registration from the Missouri Secretary of State before they begin work on the Site. CONTRACTOR shall retain such documents in its files and make available to CITY within ten (10) days after written request.

L. Tropical Hardwoods. The provisions of Code Section 2-1872, restricting the use of tropical hardwoods, shall apply to this Contract.

M. Preference for Missouri Products. Pursuant to Section 71.140 RSMo., preference shall be given to materials, products, supplies and all other articles produced, manufactured, made or grown within the State of Missouri.

N. Guidelines for Open Excavations.

1. CONTRACTOR shall restore required excavations to the level of the adjacent surfaces as soon as practicable. Unsupervised open excavations on public properties are discouraged at all times. If CONTRACTOR, in performance of the Work, makes or causes to be made any excavation in, upon, under, through or adjoining any street, sidewalk, alley, park, boulevard, parkway or any other public properties, and shall leave any part or portion thereof open, CONTRACTOR shall provide effective protection to the public.

2. CONTRACTOR shall protect and secure all excavations in roadways in compliance with existing federal, state and local codes and standards, including, but not limited to the

most current edition of the Manual of Uniform Traffic Control Devices. CONTRACTOR shall protect and secure all unsupervised excavations not within roadways, either by covering or fencing.

a. Covering. A protective cover that can sustain the weight of persons or of objects that are placed upon it may be installed over an unsupervised excavation. The cover shall be secured to the ground to prevent movement. Protective covers shall have no opening(s) or protuberance(s) of sufficient size to cause a fall and/or injury. Advance warning devices shall be installed as necessary.

b. Fencing. Fencing to prevent entry may be installed surrounding an unsupervised excavation not protectively covered in its entirety. The fencing shall be a minimum of 42" in height. The fencing shall be constructed in such a manner that it is adequately secured and will remain upright at all times under normal Site conditions. All protective coverings and fences over and around excavations shall be inspected at least daily to assure integrity. Protective coverings and/or fences in heavily trafficked areas shall be inspected more often as necessary.

O. Notification of Utilities. CONTRACTOR shall adhere to the provisions of Sections 319.010 et seq., RSMo., which requires that a person or firm making an excavation in any public street, road or alley, right of way dedicated to public use, utility easement of record, or within any private street or private property do so only after giving notice to, and obtaining information from, owners of Underground Facilities. The 24-hour, toll-free accident prevention hotline number in Missouri is 1-800-344-7483 (1-800-Digrite).

P. Employee Eligibility Verification. CONTRACTOR shall adhere to the provisions of Sections 285.525 et seq., RSMo., which requires that for any contract exceeding five thousand dollars (\$5,000.00), CONTRACTOR shall execute and submit an affidavit, in a form prescribed by CITY, affirming that CONTRACTOR does not knowingly employ any person in connection with the contracted services who does not have the legal right or authorization under federal law to work in the United States as defined in 8 U.S.C. § 1324a(h)(3). CONTRACTOR shall attach to the affidavit documentation sufficient to establish CONTRACTOR'S enrollment and participation in an electronic verification of work program operated by the United States Department of Homeland Security (E-Verify) or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986. CONTRACTOR may obtain additional information about E-Verify and enroll at <https://e-verify.uscis.gov/enroll/StartPage.aspx?JS=YES>. For those Contractors enrolled in E-Verify, the first and last pages of the E-Verify Memorandum of Understanding that CONTRACTOR will obtain upon successfully enrolling in the program shall constitute sufficient documentation for purposes of complying with this Section. CONTRACTOR shall submit the affidavit and attachments to CITY prior to execution of the Contract, or at any point during the term of the Contract if requested by City.

Q. OSHA 10-Hour Training Requirement. CONTRACTOR and any subcontractor working under this Contract shall require every employee on the Site to complete a ten-hour construction safety program which meets the requirements of Section 292.675, RSMo, except for those employees who shall have previously completed the required program and hold documentation to that effect. CONTRACTOR shall remove or require the removal of any person from the Site who is subject to this requirement and who does not complete or is unable to produce documentation of their successful completion of the required program within the time limitations prescribed by Section 292.675, RSMo. CONTRACTOR shall forfeit the sum of two thousand five hundred dollars (\$2,500.00), in addition to one hundred dollars (\$100.00) per employee each calendar day, or portion thereof, the employee(s) shall continue to be employed without having completed the required program within the time limitations prescribed by Section 292.675, RSMo. CITY shall be entitled to withhold and retain any amounts due and owing hereunder when making payment to CONTRACTOR.

R. Clean Air Act and Clean Water Act. CONTRACTOR shall comply with requirements of the Clean Air Act (42 U.S.C. 7401 *et seq.*); Clean Water Act (33 U.S.C. 1251 *et seq.*), Missouri Clean Water Law (Chapter 644 RSMo), Code of Federal regulations (Title 40: Protection of Environment, Title 33: Navigation and Navigable Waters) and the rules of the Missouri Code of State Regulations (CSR Title 10).

6.11 Taxes

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

B. Tax Compliance.

1. As a condition precedent to CITY making its first payment to CONTRACTOR under this Contract, CONTRACTOR shall furnish to CITY sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year prior to the date provided to CITY, verifying that CONTRACTOR is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department.

2. As a condition precedent to Subcontractors performing any Work under this Contract, CONTRACTOR shall obtain from Subcontractor sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year before the date Subcontractor begins Work, verifying that the Subcontractor is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department. CONTRACTOR shall retain such documentation in its files and make available to CITY within ten (10) days after a written request.

3. As a condition precedent to CITY making final payment under this Contract, if this Contract is longer than one (1) year and exceeds the dollar threshold established by ordinance and included in the Supplementary Conditions, CONTRACTOR shall furnish to CITY sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year before the filing of a final Application for Payment, verifying that CONTRACTOR is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department.

4. If this Contract is longer than one (1) year and exceeds the dollar threshold established by ordinance and included in the Supplementary Conditions, CONTRACTOR shall obtain from Subcontractors sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year before the date of CONTRACTOR's final payment to the Subcontractor, that the Subcontractor was or is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department. CONTRACTOR shall retain such documentation in its files and make available to CITY within ten (10) days after written request.

5. If, at the time of final payment to CONTRACTOR, CONTRACTOR is unable to obtain from all its Subcontractors, if any, and furnish to CITY sufficient proof from City's Commissioner of Revenue that all its Subcontractors are in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department, CITY may approve final payment to CONTRACTOR if CITY determines that CONTRACTOR has made a good faith effort to furnish evidence or that there are other extenuating circumstances which make it impossible for CONTRACTOR to furnish sufficient proof.

C. Missouri Sales Tax Exemption. Pursuant to Section 144.062, RSMo, CITY is a Missouri exempt entity and tangible personal property to be incorporated or consumed in the construction of this Project may be purchased without sales tax. CITY shall furnish CONTRACTOR a Missouri Project Exemption Certificate for Sales Tax at the time of issuance of the Notice to Proceed.

6.12 Use of Site and Other Areas

A. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas identified in and permitted by the Contract Documents and other areas permitted by Laws or Regulations. CONTRACTOR shall not unreasonably encumber the Site and the other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to the Site or the other areas, or to the owner or occupant thereof, or of any adjacent land or areas, resulting from the performance of the Work.

B. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. In case of a failure on the part of the CONTRACTOR to restore such property or to make good such damage or injuries, the CITY may, upon forty-eight (48) hours written notice to the CONTRACTOR, repair, rebuild or otherwise restore such property as the CITY may deem necessary, and the cost thereof will be deducted from any moneys due or which may become due the CONTRACTOR under this Contract.

C. CONTRACTOR shall, to the fullest extent permitted by Laws or Regulations, defend, indemnify and hold harmless CITY, DESIGN PROFESSIONAL, Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against CITY, DESIGN PROFESSIONAL or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

D. During the progress of the Work, CONTRACTOR shall keep the Site and the other areas 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 Site and other areas as well as all tools, appliances, construction equipment and machinery and surplus materials. CONTRACTOR shall leave the Site clean and ready for utilization or occupancy by CITY at Substantial Completion of the Work. CONTRACTOR shall restore to all property not designated for alteration by the Contract Documents to its pre-Work condition.

E. 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.

6.13 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, the Contract, Written Amendments, Change Orders, Work Change Directives, 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 and a counterpart of all approved Shop Drawings, will be available to CITY and DESIGN PROFESSIONAL for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to DESIGN PROFESSIONAL for CITY.

6.14 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 comply with all applicable Laws or Regulations relating to the safety of persons or property to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for safety

and protection. CONTRACTOR shall deliver to CITY a copy of CONTRACTOR'S Health and Safety Plan as provided in the Notice of Intent to Contract.

B. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other 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. All damage, injury or loss to any property referred to in Paragraph 6.14 B.2 or 6.14 B.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 attributable to the fault of Drawings or Specifications or to the acts or omissions of CITY, DESIGN PROFESSIONAL, Consultant, or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR, Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and DESIGN PROFESSIONAL has issued a notice to CONTRACTOR in accordance with Paragraph 14.07 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion). CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of the Work.

6.15 Safety Representative

A. In accordance with OSHA standards, CONTRACTOR shall designate a qualified and experienced safety representative whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. CONTRACTOR's safety representative shall remain at the Site whenever there is Work in progress and shall immediately notify CITY of any emergencies or accidents occurring at the Site

6.16 Hazard Communication Programs

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.17 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 CITY or DESIGN PROFESSIONAL, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give CITY and DESIGN PROFESSIONAL prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If CITY determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to an emergency, a Work Change Directive or Change Order will be issued.

B. A change in the Contract Documents pursuant to Paragraph 6.15 A will not be an automatic authorization of, nor a condition precedent to, entitlement to adjustment in the Contract Price or Contract Times. If CITY and CONTRACTOR are unable to agree on

entitlement to, or magnitude of, an equitable adjustment in the Contract Price or Contract Times, a Claim may be made therefore as provided in Article 16. However, OWNER, DESIGN PROFESSIONAL and Consultants shall not be liable to CONTRACTOR for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

6.18 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to DESIGN PROFESSIONAL for review and approval in accordance with the accepted schedule of Shop Drawings and Sample submittals (see Paragraph 2.07). All submittals shall be identified as DESIGN PROFESSIONAL may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show DESIGN PROFESSIONAL the services, materials and equipment CONTRACTOR proposes to provide and to enable DESIGN PROFESSIONAL to review the information for the limited purposes required by Paragraph 6.18 D.

B. CONTRACTOR shall also submit Samples to DESIGN PROFESSIONAL for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample shall be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as DESIGN PROFESSIONAL may require to enable DESIGN PROFESSIONAL to review the submittal for the limited purposes required by Paragraph 6.18 D. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Submittal Procedures:

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submission, CONTRACTOR shall give DESIGN PROFESSIONAL specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, the notice to be in a written communication separate from the submittal, and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to DESIGN PROFESSIONAL for review and approval of each such variation.

D. DESIGN PROFESSIONAL's Review:

1. DESIGN PROFESSIONAL will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by DESIGN PROFESSIONAL as required by Paragraph 2.06. DESIGN PROFESSIONAL's

review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation into the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. DESIGN PROFESSIONAL's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for 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.

3. DESIGN PROFESSIONAL's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called DESIGN PROFESSIONAL's attention to each such variation at the time of submission as required by Paragraph 6.18 C.3, and DESIGN PROFESSIONAL has given written approval of each such variation by specific written notation thereof incorporated into or accompanying the Shop Drawing or Sample approval; nor will any approval by DESIGN PROFESSIONAL relieve CONTRACTOR from responsibility for complying with the requirements of Paragraph 6.18 C.1.

E. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by DESIGN PROFESSIONAL as required by Paragraph 2.06, any related Work performed prior to DESIGN PROFESSIONAL's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

F. CONTRACTOR shall make corrections required by DESIGN PROFESSIONAL and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by DESIGN PROFESSIONAL on previous submittals.

6.19 Continuing the Work

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with CITY. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as CITY and CONTRACTOR may otherwise agree in writing.

6.20 CONTRACTOR's General Warranty and Guarantee

A. CONTRACTOR warrants and guarantees to CITY, DESIGN PROFESSIONAL and Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers or any other individual or entity for whom CONTRACTOR is responsible; or
2. normal wear and tear under normal usage.

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

1. observations by DESIGN PROFESSIONAL;
2. recommendation of any progress or final payment by DESIGN PROFESSIONAL;

3. the issuance of a certificate of Substantial Completion or any payment related thereto by CITY to CONTRACTOR;
4. use or occupancy of the Work or any part thereof by OWNER;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by DESIGN PROFESSIONAL;
6. any inspection, test or approval by others; or
7. any correction of defective Work by CITY.

C. Nonconforming Work is rejected unless expressly accepted in writing by the CITY's Representative.

ARTICLE 7 OTHER WORK

7.01 Related Work at Site

A. CITY may perform other work related to the Project at the Site by CITY's own forces, or let other direct contracts therefore, or have other work performed by utility owners. If such other work is to be performed and such fact was not noted in the Contract Documents, then:

1. Written notice thereof will be given to CONTRACTOR prior to starting any such other work, and
2. CONTRACTOR may make a Claim therefore as provided in Article 16 if CONTRACTOR believes that such performance involves additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract, and each utility owner (and CITY, if CITY is performing the additional work with CITY'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 other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of CITY 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 to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between CITY and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to CITY and DESIGN PROFESSIONAL in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution or results of CONTRACTOR's Work. CONTRACTOR's failure to report same will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work, except for latent or non-apparent defects and deficiencies in such other work.

7.02 Coordination

A. If CITY contracts with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, CITY shall have sole authority and responsibility in respect of such coordination.

ARTICLE 8 CITY'S RESPONSIBILITIES

8.01 Communications to CONTRACTOR

A. Except as otherwise provided in these General Conditions, CITY shall issue all communications to CONTRACTOR.

8.02 Replacement of DESIGN PROFESSIONAL

A. In case of termination of the employment of DESIGN PROFESSIONAL, CITY shall appoint a DESIGN PROFESSIONAL whose status under the Contract Documents shall be that of the former DESIGN PROFESSIONAL.

8.03 Furnish Data and Prompt Payment

A. CITY shall promptly furnish the data required of OWNER under the Contract Documents and shall make payments to CONTRACTOR when they are due.

8.04 Lands and Easements; Reports and Tests

A. CITY's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to CITY's duty to identify and make available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the Site and drawings of physical conditions in existing structures at or contiguous to the Site that have been utilized by DESIGN PROFESSIONAL in preparing the Contract Documents.

8.05 Insurance

A. CITY's responsibilities, if any, for purchasing and maintaining liability and property insurance are set forth in Article 5 and the Supplementary Conditions.

8.06 Change Orders

A. CITY is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.07 Inspections, Tests and Approvals

A. CITY's responsibility for certain inspections, tests and approvals is set forth in Paragraph 13.02 F.

8.08 Limitations on CITY's Responsibilities

A. The CITY 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 or Regulations applicable to the furnishing or performance of the Work. CITY will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

8.09 Undisclosed Hazardous Environmental Condition

A. CITY's responsibility for an undisclosed Hazardous Environmental Condition uncovered or revealed at the Site is set forth in Paragraph 4.06.

8.10 Evidence of Financial Arrangements

A. CITY will furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract.

8.11 CITY's Representative

A. CITY will provide a representative during the construction period. The duties, responsibilities and the limitations of authority of the CITY "s Representative during construction are set forth in the Contract Documents.

8.12 Visits to Site

A. CITY's Representative will make visits to the Site at intervals appropriate to the various stages of construction as CITY's Representative deems necessary in order to observe the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, CITY's Representative will endeavor to determine, in general, if the Work is proceeding in accordance with the Contract Documents. CITY's Representative will not be required to make exhaustive or continuous on-Site inspections to check the quality or quantity of the Work.

ARTICLE 9 DESIGN PROFESSIONAL's STATUS DURING CONSTRUCTION

9.01 General Scope of DESIGN PROFESSIONAL's Duties

A. DESIGN PROFESSIONAL's efforts will be directed toward providing for CITY a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of visits to the Site and on-Site observations, DESIGN PROFESSIONAL will keep CITY informed of the progress of the Work and will endeavor to guard CITY against defective Work. DESIGN PROFESSIONAL's visits to the Site and on-Site observations are subject to all the limitations on DESIGN PROFESSIONAL's authority and responsibility set forth in Paragraph 9.08.

9.02 Resident Project Representative

A. If CITY and DESIGN PROFESSIONAL agree, DESIGN PROFESSIONAL will furnish a resident Project representative to assist DESIGN PROFESSIONAL in providing more extensive observation of the Work. The responsibilities, authority and limitations thereon of any such resident Project representative and assistants will be as provided in Paragraph 9.08 and in the Supplementary Conditions.

9.03 Clarifications and Interpretations

A. DESIGN PROFESSIONAL will issue with reasonable promptness written clarifications or interpretations (which may be in the form of Drawings) of the requirements of the Drawings and Specifications prepared by the DESIGN PROFESSIONAL as DESIGN PROFESSIONAL may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on CITY and CONTRACTOR. If CITY or CONTRACTOR believes that a written clarification or interpretation justifies an adjustment in the Contract Price pursuant to Article 11 and/ or the Contract Times pursuant to Article 12 and the parties are unable to agree to the amount or extent thereof, if any, a Claim may be made therefore as provided in Article 16.

9.04 Rejecting Defective Work

A. DESIGN PROFESSIONAL will have authority to disapprove or reject Work which DESIGN PROFESSIONAL believes to be defective, that DESIGN PROFESSIONAL believes will not produce a completed Project that conforms to the Contract Documents, or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. DESIGN PROFESSIONAL will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04 B, whether or not the Work is fabricated, installed or completed.

9.05 Shop Drawings, Change Orders and Payments

A. In connection with DESIGN PROFESSIONAL's authority as to Shop Drawings and Samples, see Paragraph 6.18.

B. In connection with DESIGN PROFESSIONAL's authority as to Change Orders, see Article 10.

C. In connection with DESIGN PROFESSIONAL's authority as to Applications for Payment, see Article 14.

9.06 Determinations for Unit Prices

A. DESIGN PROFESSIONAL will initially determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. DESIGN PROFESSIONAL will review with CONTRACTOR the DESIGN PROFESSIONAL's preliminary determinations on such matters before rendering a written opinion thereon (by recommendation of an Application for Payment or otherwise to the CITY). CITY reserves the right to make a final determination of the actual quantities and classifications of Unit Price Work in reviewing an Application for Payment. Within ten (10) days after the date of receipt of any such decision, CONTRACTOR may deliver to CITY and to DESIGN PROFESSIONAL written notice of intention to appeal CITY's decision pursuant to Article 16.

9.07 Decisions on Requirements of Contract Documents and Acceptability of Work

A. DESIGN PROFESSIONAL will be the initial interpreter of the requirements of the Drawings and Specifications prepared by DESIGN PROFESSIONAL and judge of the acceptability of the Work thereunder.

B. When functioning as interpreter and judge under this Paragraph 9.07, DESIGN PROFESSIONAL will not show partiality to OWNER or CONTRACTOR.

C. Claims, disputes and other matters relating to the acceptability of the Work, quantities and classifications of Unit Price Work, or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work will be referred initially to CITY's Representative in writing with a request for a formal decision in accordance with Article 16.

9.08 Limitations on DESIGN PROFESSIONAL's Authority and Responsibilities

A. Neither DESIGN PROFESSIONAL's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by DESIGN PROFESSIONAL in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by DESIGN PROFESSIONAL shall create, impose or give rise to any duty owed by DESIGN PROFESSIONAL to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.

B. DESIGN PROFESSIONAL will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws or Regulations applicable to the furnishing or performance of the Work. DESIGN PROFESSIONAL will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

C. DESIGN PROFESSIONAL will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

D. DESIGN PROFESSIONAL's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, Bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by Paragraph 14.07 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests and approvals, that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.08 shall also apply to DESIGN PROFESSIONAL's Consultants, resident Project representative and assistants as identified in the Supplementary Conditions.

ARTICLE 10 CHANGES IN THE WORK

10.01 Authorized Changes in the Work

A. Without invalidating the Contract and without notice to any surety, CITY 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. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved that will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If CITY and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price pursuant to Article 11 or an adjustment of the Contract Times pursuant to Article 12 or both that should be allowed as a result of a Work Change Directive, a Claim may be made therefore as provided in Article 16.

10.02 Unauthorized Changes in the Work

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.17 or in the case of uncovering Work as provided in Paragraph 13.04.

10.03 Signing of Change Orders

A. CITY and CONTRACTOR, and DESIGN PROFESSIONAL shall sign appropriate Change Orders covering:

1. changes in the Work which are:
 - a. ordered by CITY pursuant to Paragraph 10.01 A; or
 - b. required because of acceptance of defective Work under Paragraph 13.08 or correcting defective Work under Paragraph 13.09; or
 - c. agreed to by the parties;
2. changes in the Contract Price or Contract Times or both which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
3. changes in the Contract Price or Contract Times or both which embody the substance of any written decision recommended by DESIGN PROFESSIONAL and approved by CITY pursuant to Paragraph 9.06, provided that, in lieu of signing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws or Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in Paragraph 6.19.

10.04 Notification 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 or both) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11 CHANGE OF CONTRACT PRICE

11.01 Change of 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.

B. The Contract Price may only be changed by a Change Order. Any request for an adjustment in the Contract Price shall be based on written notice delivered within fourteen (14) calendar days after occurrence of the event giving rise to the request or within fourteen (14) calendar days after first recognition of the conditions giving rise to the request. Prior notice is not required for requests or claims relating to an emergency endangering life or property as described in Paragraph 6.16. Thereafter, the CONTRACTOR shall submit written documentation of its request, including appropriate supporting documentation, within ten (10) calendar days after giving notice, unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted.

C. The value of any Work covered by a Change Order or of any request for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by Unit Prices contained in the Contract Documents, by application of such Unit Prices to the quantities of the items involved (subject to the provisions of Paragraph 11.04); or

2. where the Work involved is not covered by Unit Prices contained in the Contract Documents, by a mutually agreed lump sum; or

3. where the Work involved is not covered by Unit Prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 11.01 C.2, on the basis of the Cost of the Work (determined as provided in Paragraphs 11.02 A and B) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.01 D).

D. The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.02 A.1 and 11.02 A.2, the CONTRACTOR's fee shall be ten percent (10%);

b. for costs incurred under Paragraph 11.02 A.3, the CONTRACTOR's fee shall be five percent (5%);

c. where one or more tiers of subcontracts are on the basis of the Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01 D.2 and 11.02 A.1 through A.3 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of ten percent (10%) of the costs incurred by such Subcontractor under Paragraphs 11.02 A.1 and 11.02 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;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.02 A.4, 11.02 A.5 and 11.02 B;

e. the amount of credit to be allowed by CONTRACTOR to CITY for any change which results in a net decrease in cost will be the amount of the actual net decrease in costs plus a deduction in CONTRACTOR's fee by an amount equal to five percent (5%) of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.01 D.2.a through 11.01 D.2.e, inclusive.

E. Whenever the Cost of the Work is to be determined pursuant to Paragraphs 11.02 A and B, CONTRACTOR shall establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to CITY an itemized cost breakdown together with supporting data.

11.02 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 request 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 request. Except as otherwise agreed to in writing by CITY, costs covered by Change Orders or requests 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 costs itemized in 11.02 B:

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work, using occupational titles and job classifications agreed upon by CITY and CONTRACTOR. Such employees shall include, without limitation, job Site superintendents, foremen and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing the Work after regular working hours, on Saturdays, Sundays 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 into 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 CITY deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to CITY. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to CITY, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed or furnished by Subcontractors. If required by CITY, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to CITY who will then determine, with the advice of DESIGN PROFESSIONAL, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of the Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in Paragraphs 11.01 D and E and 11.02 A and B. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work when such services are approved in advance by CITY in writing.

5. Other costs including the following:

a. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

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

c. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by CITY with the advice of DESIGN PROFESSIONAL, and the costs of transportation, loading, unloading, installation, assembly, dismantling and removal thereof, all in accordance with the terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

d. Applicable sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws or Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses required to perform the Work.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by CITY in accordance with Article 5), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of CITY. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for those services a fee proportionate to that stated in Paragraph 11.01 D.2.

g. The cost of utilities, fuel and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage and similar petty cash items in connection with the Work.

i. Cost of premiums for additional or increased Bonds, or for insurance required because of approved changes in the Work.

B. Costs excluded: 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, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the Site or in CONTRACTOR's principal or a branch office for general administration of the Work (if not specifically included in the agreed upon occupational titles and job classifications referred to in Paragraph 11.02 A.1 or specifically covered by Paragraph 11.02 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. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials, or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 11.02 A.

11.03 Cash Allowances

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to CITY. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued by CITY to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.04 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Contract. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made in accordance with Paragraph 9.06.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

C. CITY or CONTRACTOR may negotiate an adjustment of the price per unit of Unit Price Work stated in the Contract if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs by twenty percent (20%) or more from the estimated quantity of such item indicated in the Contract; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or CITY believes that CITY is entitled to a decrease in Contract Price.

11.05 Dispute Resolution

A. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price in accordance with Article 11 within fourteen (14) calendar days from the receipt of supporting documentation of the request pursuant to 11.01.B., unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted, then a Claim for such adjustment may be made pursuant to Article 16.

ARTICLE 12 CONTRACT TIMES

12.01 Time of the Essence

A. All times stated in the Contract Documents are of the essence of the Contract.

12.02 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order. Any request for an adjustment in the Contract Times shall be based on written notice delivered within fourteen (14) calendar days after occurrence of the event giving rise to the request or within fourteen (14) calendar days after first recognition of the conditions giving rise to the request. Thereafter, the CONTRACTOR shall submit written documentation of its requests, including appropriate supporting documentation, within ten (10) days after giving notice, unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted.

12.03 Proof Required To Justify an Extension of Time For Excusable and Compensable Delays

A. In support of any request for an extension of the Contract Times pursuant to this Article, CONTRACTOR must demonstrate to the reasonable satisfaction of the CITY that the critical path of the approved baseline project schedule was delayed. CONTRACTOR shall be entitled to an increase in contract time for the number of days that the critical path was delayed solely as a result of the compensable or excusable event. A compensable or excusable event includes, but is not limited to:

1. unreasonable delay of issuance of Notice to Proceed by CITY;
2. CITY's unreasonable delay of delivery furnished materials, equipment, or work;
3. unreasonable delay responding to shop drawings and submittals;
4. CITY's unreasonable delay in issuing a Change Order;
5. an order by the CITY to stop the Work where the CONTRACTOR was not at fault;
and
6. other reasonable grounds as determined by the City in its sole discretion.

B. CONTRACTOR shall compare the critical path of the approved baseline project schedule to the actual critical path of the Work, identifying the specific impact of the compensable or excusable event.

C. CONTRACTOR shall submit to the CITY a written time impact analysis illustrating the influence of each compensable or excusable event on the date of Substantial Completion. The time impact analysis shall demonstrate the time impact based on the date of the delay in time and the event time computations or all affected activities.

D. If the critical path of the Work is delayed by "Force Majeure", the CONTRACTOR shall be entitled only to an extension of the Contract Times for the number of days of delay to the critical path. For purposes of this paragraph, "Force Majeure" shall mean fire, tornado, flood, earthquake, war, act of terrorism, civil disturbance, or labor strikes away from the project site.

E. Extensions of contract time pursuant to this section will be granted only to the extent that the time adjustments exceed the total float time available when the event causing the delay occurred.

12.04 Delays Within CONTRACTOR's Control

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 Delays Beyond the CITY's and CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both CITY and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 Delay Damages

A. In no event shall CITY be liable to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR, or
2. delays beyond the control of CITY or CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this Paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inaction of CITY, DESIGN PROFESSIONAL, Consultant or anyone for whom CITY, DESIGN PROFESSIONAL or Consultant is responsible.

12.07 Dispute Resolution

A. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Time in accordance with Article 12 within fourteen (14) calendar days from the receipt of supporting documentation of the request pursuant to 12.02, unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted, then a Claim for such adjustment may be made pursuant to Article 16.

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

13.01 Access to Work

A. CITY, DESIGN PROFESSIONAL, Consultants, other representatives and personnel of CITY, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Site and Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.02 Tests and Inspections

A. CONTRACTOR shall give DESIGN PROFESSIONAL and CITY's Representative timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If any Work (or the work of others at the Site) that is to be inspected, tested or approved is covered by CONTRACTOR without written approval required by Paragraphs 13.02 D or 13.02 E, it must, if requested by CITY's Representative, be uncovered for observation.

C. Uncovering Work as provided in Paragraph 13.02 B, shall be at CONTRACTOR's expense unless CONTRACTOR has given DESIGN PROFESSIONAL and CITY's Representative timely notice of CONTRACTOR's intention to cover the same and DESIGN PROFESSIONAL and CITY's Representative have not acted with reasonable promptness in response to such notice.

D. If Laws or Regulations of any public body (including City) having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other

representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish DESIGN PROFESSIONAL and CITY's Representative the required certificates of inspection or approval.

E. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for CITY's and DESIGN PROFESSIONAL's acceptance of materials or equipment to be incorporated into the Work, or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation into the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to CITY and DESIGN PROFESSIONAL.

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

1. for inspections, tests or approvals covered by Paragraph 13.02 D and E;
2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04 B shall be paid as provided in said Paragraph 13.04 B; and
3. as otherwise specifically provided in the Contract Documents.

13.03 Notice of Defects

A. Prompt notice of all defective Work of which either CITY or DESIGN PROFESSIONAL has actual knowledge will be given to CONTRACTOR. Defective Work may be rejected, corrected or accepted as provided in this Article 13.

13.04 Uncovering Work

A. If any Work (or the work of others at the Site) is covered contrary to the written request of DESIGN PROFESSIONAL or CITY's Representative, it must, if requested by CITY's Representative, be uncovered for DESIGN PROFESSIONAL's or CITY's Representative's observation and replaced at CONTRACTOR's expense.

B. If CITY considers it necessary or advisable that covered Work be observed by DESIGN PROFESSIONAL or CITY's Representative or be inspected or tested by others, CONTRACTOR, at CITY's request, shall uncover, expose or otherwise make available for observation, inspection or testing as may be required, 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 pay all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 16. 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 Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefore as provided in Article 16.

13.05 CITY 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, CITY may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of CITY to stop the Work shall not give rise to any duty on the part of CITY to

exercise this right for the benefit of CONTRACTOR, any Subcontractor, Supplier, other individual or entity or any surety or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. If required by CITY, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by either DESIGN PROFESSIONAL or CITY's Representative, remove it and replace it with Work that is not defective. CONTRACTOR shall pay all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 Correction Period

A. If within one (1) year after the date of Substantial Completion, or such longer period of time as may be prescribed by Laws or Regulations, by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by CITY or permitted by Laws and Regulations as contemplated in Paragraph 6.10 is found to be defective, CONTRACTOR shall promptly, without cost to CITY and in accordance with CITY's written instructions:

1. correct the repair of damages to such land or areas; or
2. correct such defective Work, or if it has been rejected by CITY, remove it from the Site and replace it with Work that is not defective; and
3. satisfactorily correct or remove and replace any damage to other Work or to the work of others or damage to other lands or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in the event of an emergency where delay by CONTRACTOR would cause serious risk of loss or damage, CITY may have the defective Work corrected or the rejected Work removed and replaced, and all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one (1) year, or such longer period of time as may be prescribed within Paragraph 13.07 A, after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, CITY prefers to accept it, CITY may do so. CONTRACTOR shall pay all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to CITY's evaluation of and determination to accept such defective Work and shall pay OWNER for the diminished value of the Work. If any such acceptance occurs prior to DESIGN PROFESSIONAL's recommendation of final payment, a Change Order will be issued

incorporating the necessary revisions into the Contract Documents with respect to the Work and, due to the diminished value of the Work, CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 16. If the acceptance of defective Work occurs after such recommendation, an appropriate amount shall be paid by CONTRACTOR to CITY.

13.09 CITY May Correct Defective Work

A. If CONTRACTOR fails within a reasonable time after written notice from DESIGN PROFESSIONAL or CITY's Representative to correct defective Work or to remove and replace rejected Work as required by CITY in accordance with Paragraph 13.06, 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, CITY may, after seven (7) days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. CITY shall proceed expeditiously when exercising the rights and remedies under this Paragraph 13.09. In connection with such corrective and remedial action, CITY 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 into the Work all materials and equipment stored at the Site or for which CITY has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow CITY, CITY's Representative, agents and employees, CITY's other contractors, DESIGN PROFESSIONAL and Consultants access to the Site to enable CITY to exercise the rights and remedies under this Paragraph 13.09.

C. All costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by CITY in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work; and CITY shall be entitled to an appropriate decrease in the Contract Price. If CITY and CONTRACTOR are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 16. Such Claims for costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal and replacement of CONTRACTOR's defective or rejected Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by CITY of CITY's rights and remedies under Paragraphs 13.06 and 13.09.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. 01290.02 Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into form 01290.01 Application for Payment acceptable to DESIGN PROFESSIONAL and CITY. Progress payments for Unit Price Work will be based on the number of units completed.

14.02 Application for Progress Payments

A. Application for Payment

1. At least twenty (20) days before the date stipulated in the Supplementary Conditions for each progress payment (but not more often than once a month), CONTRACTOR shall submit to DESIGN PROFESSIONAL for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated into the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale,

paid invoice or other documentation warranting that CITY has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect CITY's interest therein, all of which will be subject to CITY's approval.

2. Beginning with the second Application for Payment, each Application shall include:

a. an affidavit of CONTRACTOR stating that all previous progress payments received for the Work have been applied to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment, and

b. a copy of the most recent 00485.01 M/WBE Monthly Utilization Report CONTRACTOR has submitted to the CITY's Human Relations Department.

c. a copy of the most recent 00485.02 Project Workforce Monthly Report and 00485.03 Company-Wide Workforce Monthly Report CONTRACTOR has submitted to the OWNER's Human Relations Department.

d. an update to the approved schedule pursuant to paragraphs 6.04 and 6.05.

3. The amount of retainage with respect to progress payments will be stated in the Supplementary Conditions.

B. Review of Applications

1. DESIGN PROFESSIONAL will, within ten (10) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to CITY, or return the Application to CONTRACTOR indicating in writing DESIGN PROFESSIONAL's reasons for refusing to recommend payment. In the latter case, CONTRACTOR shall make the necessary corrections and resubmit the Application.

a. After presentation of the Application for Payment to CITY, and if CITY's Representative agrees with DESIGN PROFESSIONAL's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02 B.4) become due and will be paid by CITY to CONTRACTOR, subject to the provisions of Laws or Regulations.

b. No payment shall be approved until the CONTRACTOR has submitted with the Application accompanying documentation as required by the Contract Documents, including, but not limited to, the documentation required by paragraphs 6.04 and 6.05.

2. DESIGN PROFESSIONAL's recommendation of any payment requested in an Application for Payment will constitute a representation by DESIGN PROFESSIONAL to CITY, based on DESIGN PROFESSIONAL's observations of the executed Work as an experienced and qualified DESIGN PROFESSIONAL and on DESIGN PROFESSIONAL's review of the Application for Payment and the accompanying data and schedules, that to the best of DESIGN PROFESSIONAL's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.06, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR being entitled to such payment appear to have been fulfilled in so far as it is DESIGN PROFESSIONAL's responsibility to observe the Work.

3. DESIGN PROFESSIONAL's recommendation of any payment, including final payment, shall not mean that DESIGN PROFESSIONAL is responsible for CONTRACTOR's means, methods, techniques, sequence or procedures of construction, safety precautions

and programs incident thereto, or any failure of CONTRACTOR to comply with Laws or Regulations applicable to the furnishing or performance of Work.

4. DESIGN PROFESSIONAL may refuse to recommend the whole or any part of any payment if, in DESIGN PROFESSIONAL's opinion, it would be incorrect to make the representations to CITY referred to in Paragraph 14.02 B.2. DESIGN PROFESSIONAL may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in DESIGN PROFESSIONAL's opinion to protect CITY from loss because:

- a. the Work is defective, or completed Work has been damaged requiring correction or replacement;
- b. the Contract Price has been reduced by Written Amendment or Change Orders;
- c. CITY has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. DESIGN PROFESSIONAL has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.

C. Reduction in Payment

1. CITY may refuse to make payment of the full amount recommended by DESIGN PROFESSIONAL because:

- a. Claims have been made by third parties against CITY on account of CONTRACTOR's performance or furnishing of the Work; or
- b. Claims have been made by CITY against CONTRACTOR in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to CITY to secure the satisfaction and discharge of such Claims;
- c. there are other items entitling CITY to a set-off against the amount recommended; or
- d. CITY has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02 B.4.a through c or 15.02 A.1 through 4; but CITY must give CONTRACTOR written notice (with a copy to DESIGN PROFESSIONAL) stating the reasons for such action and promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by CITY and CONTRACTOR, when CONTRACTOR corrects to CITY's satisfaction the reasons for such action; or
- e. CITY has made a different determination of the actual quantities and classifications of Unit Price Work.

14.03 CONTRACTOR's Warranty of Title

A. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated into the Project or not, will pass to CITY no later than the time of payment, free and clear of all Liens.

14.04 Substantial Completion

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify CITY and DESIGN PROFESSIONAL in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that CITY issue a certificate of Substantial Completion. Within a reasonable time thereafter, CITY, together with CONTRACTOR and DESIGN PROFESSIONAL, shall make an inspection of the Work to determine the status of completion. If DESIGN PROFESSIONAL does not consider the Work substantially complete, DESIGN PROFESSIONAL will notify CONTRACTOR and CITY in writing giving the reasons therefore. If DESIGN PROFESSIONAL considers the Work substantially complete, DESIGN PROFESSIONAL will prepare and deliver

to CITY a recommended certificate of Substantial Completion that shall establish the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. CITY shall have seven (7) days after receipt of the recommended certificate during which to make written objection to DESIGN PROFESSIONAL as to any provisions of the certificate or attached list. At the time of delivery of the recommended certificate of Substantial Completion, DESIGN PROFESSIONAL will deliver to CITY and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between CITY and CONTRACTOR with respect to security, operation, safety, protection of the Work, maintenance, heat, utilities, insurance and warranties and guarantees.

B. CITY shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but CITY shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

A. Use by CITY at CITY's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which CITY, DESIGN PROFESSIONAL and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by CITY for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

1. CITY at any time may request CONTRACTOR in writing to permit CITY to use any such part of the Work which CITY believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to CITY and DESIGN PROFESSIONAL that such part of the Work is substantially complete and request CITY to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify CITY and DESIGN PROFESSIONAL in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request CITY to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, CITY, together with CONTRACTOR and DESIGN PROFESSIONAL, shall make an inspection of that part of the Work to determine its status of completion. If DESIGN PROFESSIONAL does not consider that part of the Work to be substantially complete, DESIGN PROFESSIONAL will notify CITY and CONTRACTOR in writing, giving the reasons therefore. If DESIGN PROFESSIONAL considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of Paragraph 5.09 with respect to property insurance.

14.06 Final Inspection

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

14.07 Final Payment

A. Application for Payment

1. After CONTRACTOR has completed all corrections required by Paragraph 14.06 to the satisfaction of DESIGN PROFESSIONAL and CITY's Representative and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by Paragraph 5.04, certificates of inspection, marked-up record documents (as provided in

Paragraph 6.13) and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation required by the Contract Documents, including but not limited to the evidence of insurance required by Subparagraph 5.04 B.7; and

b. 01290.14 "Contractor Affidavit for Final Payment" from CONTRACTOR and 01290.15 "Subcontractor Affidavit for Final Payment" from all Subcontractors, regardless of tier.

B. Review of Application and Acceptance

1. If, on the basis of DESIGN PROFESSIONAL's and CITY's Representative's observation of the Work during construction and final inspection, and DESIGN PROFESSIONAL's and CITY's Representative's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, DESIGN PROFESSIONAL and CITY's Representative are satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, DESIGN PROFESSIONAL will, within ten (10) days after receipt of the final Application for Payment, indicate in writing DESIGN PROFESSIONAL's and CITY's Representative's recommendation of payment and present the Application to CITY for payment. At the same time DESIGN PROFESSIONAL will also give written notice to CITY and CONTRACTOR that the Work is acceptable subject to the provisions of Paragraph 14.09.

2. Otherwise, DESIGN PROFESSIONAL will return the Application 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 to DESIGN PROFESSIONAL. After the presentation to CITY of the Application and accompanying documentation, in appropriate form and substance, including applicable federal and state prevailing wage provisions, and with DESIGN PROFESSIONAL's recommendation and notice of acceptability, the amount recommended by DESIGN PROFESSIONAL will become due and will be paid by CITY to CONTRACTOR in accordance with Laws and Regulations.

14.08 Final Completion Delayed

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if DESIGN PROFESSIONAL so recommends and CITY concurs, CITY shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of DESIGN PROFESSIONAL, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by CITY for Work not fully completed or corrected is less than the retainage stipulated in the Supplementary Conditions, and if Bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to DESIGN PROFESSIONAL with the Application for Payment. Payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all claims by CITY against CONTRACTOR, except claims previously made in writing and still unsettled, or claims arising from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against CITY other than those previously made in writing pursuant to Paragraphs 16.02 and 16.03 and still unsettled.

14.10 Completion of Work by CITY

A. If CITY must complete the Work, all costs and charges incurred by CITY, together with the cost of completing the Work under the Contract, will be deducted from any monies due or which may become due CONTRACTOR. If such expense exceeds the sum which would have been payable under the Contract, then CONTRACTOR and the surety shall be liable and shall pay to CITY the amount of such excess.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

15.01 CITY May Suspend Work

A. Notwithstanding any other provision of this Contract, at any time and without cause, and at its sole and absolute discretion, CITY, may suspend the Work or any portion of the Work by written notice to CONTRACTOR, which will initially fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed in the notice unless the date is changed by a subsequent written notice from CITY. CONTRACTOR may be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any suspension if CONTRACTOR makes a Claim therefore in accordance with Article 16.

B. CONTRACTOR will not be allowed an adjustment in the Contract Price or an extension of the Contract Times if CITY suspends the Work because CONTRACTOR's acts or omissions create or cause an emergency that CITY believes affects the safety or protection of persons, the Work, or property at the Site or adjacent thereto. CITY may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been adequately addressed by CONTRACTOR; however, this right of CITY to stop the Work shall not give rise to any duty on the part of CITY to exercise this right for the benefit of CONTRACTOR, any Subcontractor, Supplier, other individual or entity or any surety or employee or agent of any of them.

15.02 CITY May Terminate for Default

A. CONTRACTOR may be deemed in default and CITY may terminate the services of CONTRACTOR upon the occurrence of any one or more of the following events:

1. 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 progress schedule established under Paragraph 2.06 and 2.07 as adjusted from time to time pursuant to Paragraphs 6.04, 6.05, 12.02 and 12.03);
2. CONTRACTOR abandons the Work or declares its intention to abandon the Work;
3. CONTRACTOR assigns or attempts to assign its rights or obligations under this Contract or any part thereof to any third party without the prior written consent of CITY;
4. CONTRACTOR fails to make prompt payment duly owing to any subcontractor for Work completed in accordance to the Contract Documents or material supplier for materials delivered for incorporation into the Work within thirty (30) calendar days after payment was due;
5. CONTRACTOR fails to achieve the required dates of substantial and final completion;
6. CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;
7. CONTRACTOR disregards the authority of DESIGN PROFESSIONAL or OWNER;
or
8. CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents.

B. CITY may, after giving CONTRACTOR (and the surety) seven (7) days written notice

and to the extent permitted by Laws or Regulations, terminate the services of CONTRACTOR, 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 and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate into the Work all materials and equipment stored at the Site or for which CITY has paid CONTRACTOR but which are stored elsewhere, and finish the Work as CITY may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CITY arising out of or resulting from completing the Work, such excess may be paid to CONTRACTOR. If such costs, losses and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to CITY within fourteen (14) calendar days of CITY'S demand for payment. When exercising any rights or remedies under this Paragraph CITY shall not be required to competitively bid this work unless required by law.

C. Where CONTRACTOR's services have been so terminated by CITY, the termination will not affect any rights or remedies of CITY against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by CITY will not release CONTRACTOR from liability.

D. If, after a default termination, it is determined that the CONTRACTOR was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the CITY. The CITY shall then be liable to CONTRACTOR for only those costs enumerated in paragraph 15.03.

15.03 CITY May Terminate for Convenience

A. Notwithstanding any other provision of this Contract, upon seven (7) calendar days written notice to CONTRACTOR, CITY may, at its sole and absolute discretion, without cause and without prejudice to any other right or remedy of CITY, elect to terminate the Contract. In such case, CONTRACTOR shall, with thirty (30) calendar days of receiving notice of termination under this paragraph, submit to CITY its statement of costs and expenses and shall be paid:

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
3. for all costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and
4. for reasonable expenses directly attributable to termination if approved in advance by CITY.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

C. CONTRACTOR waives any costs not submitted to CITY pursuant to paragraph 15.03.A.

D. CITY shall, within thirty (30) calendar days after receipt of CONTRACTOR's statement, pay CONTRACTOR all amounts it determines are properly determined.

ARTICLE 16 CLAIMS AND DISPUTES

16.01 Definition

A. A Claim is a demand or assertion by the CONTRACTOR seeking, as a matter of right, the adjustment of Contract price and/or times with respect to the terms of the Contract.

16.02 Written Notice and Burden of Proof

A. Claims must be made by written notice pursuant to Paragraph 17.01. The written notice shall clearly indicate that the CONTRACTOR is making a claim. The responsibility to substantiate Claims shall rest with the CONTRACTOR. No Claim may be made under this Contract except as provided in this Article.

B. Certification of Claim: The written notice of Claim shall include the following statement signed by the CONTRACTOR's representative: "The CONTRACTOR certifies that all statements made and the facts set out in this claim are true and correct and that no false records have been submitted in support of this claim." **Strict compliance with this paragraph shall be a condition precedent to the creation, existence or validity of any Claim.**

16.03 Time Limits on Claims

A. The CONTRACTOR must give notice to the CITY within fourteen (14) calendar days after the denial of a request for or failure to reach an agreement on a change in Contract Price and/or change in Contract Time pursuant to Article 11 and Article 12 respectively. After the fourteen (14) day period for making Claims has expired, the Claim shall be considered waived.

B. The CONTRACTOR shall submit the Claim to the CITY's Representative.

16.04 Continuing Contract Performance

A. Pending final resolution of a Claim, unless otherwise agreed in writing, the CONTRACTOR shall proceed diligently with performance of the Work and the CITY shall continue to make payments in accordance with the Contract Documents. The CITY may, but is not obligated to, notify the Surety of the nature and amount of the Claim.

16.05 Injury or Damage to Person or Property

A. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts that party is legally liable, written notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding thirty (30) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter.

16.06 Initial Resolution of Claims and Disputes

A. After the CONTRACTOR has submitted the Claim to the CITY's Representative, the CITY'S Representative and CONTRACTOR'S Representative shall conduct a settlement conference within fourteen (14) calendar days from the date of receipt of the Claim. If the Claim is not settled within seven (7) calendar days following the date of the settlement conference, the CITY'S Representative and the CONTRACTOR's Representative shall state, in writing, following the conclusion of the seven (7) calendar day period, their respective position as to the matters in dispute.

B. The CITY'S and CONTRACTOR'S statement of positions shall state all known factual grounds for each party's position. If the dispute remains unresolved at the end of the seven (7) calendar days from submission of the parties' written position statements, the CONTRACTOR shall have the right to proceed with the pursuit of Claims pursuant to paragraph 16.07.

C. If a Claim has been resolved, the OWNER will prepare or obtain appropriate documentation.

16.07 Final Resolution of Claims and Disputes

A. All administrative procedures set forth in this contract must first be exhausted before suit is filed.

B. If the CITY'S Representative and the CONTRACTOR'S Representative are unable to resolve the dispute pursuant to 16.06, the parties must submit their statements of position to the Director, who shall review the Claim and make a decision within fourteen (14) calendar days.

C. Absent fraud, gross mistake or bad faith, the Director's decision shall be final and binding on CITY and CONTRACTOR within fourteen (14) calendar days after issuance. The CONTRACTOR shall give written notice to the CITY stating its intent to submit its Claim to a court of law pursuant to paragraph 17.05.A. within thirty (30) calendar days after notice of Director's decision.

D. The time frames for the Director's decision and for CONTRACTOR'S written notice of intent may be tolled by participation in voluntary mediation. Mediator selection and the procedures to be employed in voluntary mediation shall be mutually acceptable to the parties. Costs of the mediator shall be shared equally among the parties participating in the mediation. In no event shall any time frame be tolled more than 30 days for mediation. However, mediation may be employed at any time at the discretion and mutual agreement of the parties.

E. If the dispute is not resolved during voluntary mediation, The CONTRACTOR agrees that it will file no suit based on facts or evidentiary materials that were not presented for consideration to the CITY during the mediation process or of which the CONTRACTOR had knowledge and failed to present during the administrative procedures.

ARTICLE 17 MISCELLANEOUS

17.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be given by personal delivery, by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice or by confirmed electronic facsimile transmission. Notice is effective on the date of personal delivery, deposit of registered or certified mail, postage prepaid, or confirmed electronic facsimile transmission.

17.02 Computation of Times

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

17.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR and all of the rights and remedies available to CITY and DESIGN PROFESSIONAL hereunder are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

17.04 Survival of Obligations

A. 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 or termination or completion of the Contract.

17.05 Controlling Law

A. This Contract shall be construed and governed in accordance with the laws of the State of Missouri without giving effect to Missouri's choice of law provisions. The CITY and CONTRACTOR: (1) shall submit exclusively to the jurisdiction of the state and federal courts

located in Jackson County, Missouri and no other; (2) shall waive any and all objections to jurisdiction and venue; and (3) shall not raise forum non conveniens as an objection to the location of any litigation.



SUPPLEMENTARY CONDITIONS

Project Number 80001820

Project Title Water Main Replacement in the area of Elmwood to Blue Ridge Cut-off, 47th St. to 57th St.

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

SC-1.01 Article 1, Paragraph 1.01 Defined Terms, is amended by adding the following new Subparagraph 1.01 A.55.

55. Water Services Department – Water Services Department of Kansas City, Missouri.

SC-2.03 A. Article 2, Paragraph 2.03, Copies of Documents, is amended by deleting Paragraph 2.03 A and replacing it with the following:

A. CITY shall furnish to CONTRACTOR up to one (1) copies of the Drawings and Specifications, including Addenda.

SC-4.02 Article 4, Paragraph 4.02, Subsurface and Physical Conditions; Subparagraphs A and B are supplemented as follows:

In the preparation of the Contract Documents, no reports of explorations and tests of subsurface conditions at or contiguous to the Site of the Work have been prepared.

In the preparation of the Contract Documents, no drawings of physical conditions in or relating to existing surface or subsurface structures which are at or contiguous to the Site of the Work are available.

SC-4.06 Article 4, Paragraph 4.06, Asbestos, Lead-Based Paint, PCBs, Petroleum Waste or Radioactive Material, Subparagraphs A and B are supplemented as follows:

In the preparation of the Contract Documents, no reports of explorations and tests of any Hazardous Environmental Condition(s) at the Site of the Work have been prepared.

SC- 5.01 A. Article 5, Paragraph 5.01, Performance, Payment and Other Bonds, Subparagraph A, second sentence, is revised as follows:

These Bonds shall remain in effect at least until three (3) years after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents.

SC-5.03 A. Article 5, Paragraph 5.03 Certificates of Insurance, Subparagraph A is amended by adding the following Subparagraph 1:

1. CONTRACTOR shall obtain evidence that all Subcontractors have in force the required coverage in the amounts required by these Contract Documents, and evidence that each is current on its unemployment insurance payments before Subcontractors begin Work at the Site. CONTRACTOR shall retain such evidence in its files and make available to CITY within ten (10) days after written request.

SC-5.06 A. Article 5, Paragraph 5.06, Property Insurance, Paragraph A, is amended by adding the following after the first sentence:

Property Insurance on the Work at the Site shall be written with a deductible amount not to exceed \$10,000.00.

SC-6.06 A.1 Article 6, Paragraph 6.06 Substitutes and "Or-Equal" Items, Paragraph A is amended by adding the following at the end of Paragraph A.1:

Proposed "or-equal" items must be submitted to CITY at least 10 days prior to Bid date at the following address:

Water Services Department
4800 E 63rd Street
Kansas City, Missouri 64130
Attn: Alex Ivanescu, Project Manager

Only Bidders may submit proposed "or-equal" items and such items must require no change in related Work. Acceptance by CITY of any proposed "or-equal" items will be made by Addendum only.

SC-6.06 A.2. Article 6, Paragraph 6.06 Substitutes and "Or-Equal" Items, Paragraph A is amended by adding the following at the end of Paragraph A.2:

Proposed substitute items must be submitted to CITY's Representative not later than 10 days prior to the time the item is to be incorporated into the Work. Only CONTRACTOR may submit proposed substitute items, and such items must be submitted to CITY's Representative on the standard City form 01630 - Substitution Request. Acceptance by CITY of any proposed substitute item will be made by Change Order.

SC-6.10. Article 6, Paragraph 6.10, Compliance with Laws and Regulations, is amended by adding the following new Subparagraphs immediately following Subparagraph 6.10 I 2:

a. CONTRACTOR will be required to comply with wage rates as follows:

County – Jackson

Work Type: State – Heavy

SC-6.10. Article 6, Paragraph 6.10, Compliance with Laws and Regulations, is amended by adding the following new Subparagraph 6.10 S:

1. "Resident Laborers" means laborers who have been residents of the State of Missouri for at least thirty days and who intend to remain Missouri residents, and residents of Nonrestrictive States.

2. "Nonrestrictive States" means states identified by the Missouri Department of Labor and Industrial Relations Division of Labor Standards that have not enacted state laws restricting Missouri laborers from working on public works projects. A list of Nonrestrictive States can be found on the Division web site at <http://www.dolir.mo.gov/ls/index.htm>.

3. A period of Excessive Unemployment is declared when the Missouri Department of Labor and Industrial Relations Division of Labor Standards provides notice of such declaration. When in effect, notice will be provided on the Division web site at <http://www.dolir.mo.gov/ls/index.htm>. It is CONTRACTOR's obligation to determine whether a period of Excessive Unemployment is in effect when this Contract is let.

4. CONTRACTOR agrees to follow the provisions of Section 290.560 - 290.575 RSMo and agrees that if a period of Excessive Unemployment has been declared at any point during the term of this Contract, it will employ and require all Subcontractors of whatever tier

to employ only Resident Laborers for the Work to be performed under this CONTRACT. Provided, however, CONTRACTOR may use laborers who are not Resident Laborers when Resident Laborers are not available or are incapable of performing the particular type of work involved if CONTRACTOR so certifies in writing to CITY and CITY issues a written approval. This provision does not apply to regularly employed nonresident executive, supervisory or technical employees.

SC-6.11. Article 6, Paragraph 6.11, Taxes, is amended by adding the following sentence to Subparagraph 6.11 B:

B. Tax Compliance. The following subparagraphs apply if the Contract is over \$150,000.00.

SC-12.01 Article 12, Paragraph 12.01, Time of the Essence is amended by adding the following new Subparagraphs immediately following Subparagraph 12.01 A:

B. Starting and Completion

1. The Work to be performed under this Contract shall begin on the date specified in the written Notice to Proceed issued by the Director of Water Services, and the Work shall be substantially complete, in accordance with Paragraph 14.04, within **180** Calendar Days thereafter. Once the Work starts, CONTRACTOR shall continuously pursue completion of the Work.
2. The Work shall be completed and ready for final payment in accordance with Paragraph 14.07 within 60 Calendar Days after the date of Substantial Completion of the Work.

C. Liquidated Damages

1. If the Work is not substantially completed, in accordance with Paragraph 14.04, within the period stated in Paragraph 12.01 B.1, CONTRACTOR shall pay to CITY the amount of *SIX HUNDRED DOLLARS* (\$600) as liquidated damages and not as a penalty for each Calendar Day until the Work is substantially complete. The amount of liquidated damages shall be deducted from any payments due or to become due CONTRACTOR.
2. If the Work is not completed and ready for final payment in accordance with Paragraph 14.07, within the period stated in Paragraph 12.01 B.2, CONTRACTOR shall pay to CITY the amount of *TWO HUNDRED DOLLARS* (\$200) as liquidated damages and not as a penalty for each Calendar Day until the Work is completed and ready for final payment. The amount of liquidated damages shall be deducted from any payments due or to become due CONTRACTOR.

SC-13.07 Article 13, Paragraph 13.07, Correction Period, Subparagraph A is amended as follows:

The correction period set forth in Paragraph 13.07 A shall be three (3) years instead of one (1) year, which longer period of time shall also be applicable to the correction period set forth in Paragraph 13.07 C. All other provisions of Paragraph 13.07 remain unchanged except as necessary to accommodate the revised length of the correction period.

SC-14.02 A. Article 14, Paragraph 14.02, Application for Progress Payments, Subparagraph A is amended by deleting Item 3 and adding the following:

3. CITY shall make payments to CONTRACTOR monthly on or about the 15th day of each month. Payments to CONTRACTOR will be made on the basis of ninety-five percent (95%) of the value of the Work satisfactorily completed plus ninety-five percent (95%) of

the value of properly stored and insured, unused materials on hand on the Site of the Work. CITY shall retain five percent (5%) of each partial payment until completion and acceptance of the Work covered by the Contract and final payment is due. All Work covered by a payment becomes CITY's property, provided that the Work paid for remains the sole responsibility of CONTRACTOR until all terms and conditions of the Contract have been met.

SC-14.04. Article 14, Paragraph 14.04, Substantial Completion, Subparagraph A is supplemented as follows:

- A. To be considered substantially complete, the following items of the Work must be operational and ready for CITY's continuous use as intended:
 1. Water distribution mains installed and successfully tested, disinfected, and connected to existing water distribution system.
 2. All service lines and appurtenances transferred.
 3. Restoration of pavement surface construction completed.
 4. All wastes and debris shall be removed from the site and properly disposed.
 5. All grading and surface restoration, including seeding and sodding, riprap, and road replacement work.
 6. All fencing, gates, and landscaping installed.
 7. All cleanup and miscellaneous repair work.

The intent is for all restoration, repair, and cleanup work to be completed as the water main work progresses. The additional time to the specified Completion Date for all Work is to allow time if needed for determination of acceptance of seeding and sodding work and for completing any final seeding and sodding work and pavement replacement work that may not be able to be completed as a result of seasonal and weather limitations.

SC-14.05 Article 14, Paragraph 14.05, Partial Utilization is amended by adding the following new Subparagraph A.3. immediately following Subparagraph 14.05 A.2:

3. CITY at any time may make a written request to CONTRACTOR to permit CITY to take over operation of any part of the Work although it is not substantially complete. A copy of the request will be sent to DESIGN PROFESSIONAL, and within a reasonable time thereafter CITY, CONTRACTOR and DESIGN PROFESSIONAL shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not make written objection to CITY and DESIGN PROFESSIONAL that such part of the Work is not ready for separate operation by CITY, DESIGN PROFESSIONAL will finalize the list of items to be completed or corrected and will deliver such lists to CITY and CONTRACTOR. DESIGN PROFESSIONAL will also make a written recommendation as to the division of responsibilities pending final payment between CITY and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work, which recommendation will become binding upon CITY and CONTRACTOR at the time when CITY takes over such operation (unless they shall have otherwise agreed in writing and so informed DESIGN PROFESSIONAL). During such operation and prior to Substantial Completion of such part of the Work, CITY shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.



WAGE RATE REQUIREMENTS

Project No.: 80001820

Project Title: Water Main Replacement in the Area of Elmwood to Blue Ridge Cut-off, 47th St to 57th St (Contract No 9030)

1. Annual Wage Order (attached)
2. **0830.03 Division of Labor Standards Rules & Regulations** are incorporated into and made part of this Contract and are available at <http://www.sos.mo.gov/adrules/csr/current/8csr/8c30-3.pdf>



**DIVISION OF
LABOR
STANDARDS**

3315 West Truman Boulevard, Room 205
P.O. Box 449
Jefferson City, MO 65102-0449
Phone: 573-751-3403
Fax: 573-751-3721
www.labor.mo.gov/DLS
E-mail: laborstandards@labor.mo.gov

JEREMIAH W. (JAY) NIXON
GOVERNOR

RYAN MCKENNA
DEPARTMENT DIRECTOR

JOHN E. LINDSEY
DIVISION DIRECTOR

June 9, 2015

BEFORE THE
DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
DIVISION OF LABOR STANDARDS
Jefferson City, Missouri

RECEIVED & FILED

JUN 09 2015

Re: Annual Wage Order No. 22

SECRETARY OF STATE
COMMISSIONS DIVISION

Annual Incremental Wage Increase to Annual Wage Order No. 22

Missouri's Prevailing Wage Law [Section 290.262.9 RSMo (2000)], provides for Annual Incremental Wage increases in **Adair, Andrew, Atchison, Audrain, Barry, Barton, Bates, Benton, Bollinger, Boone, Buchanan, Butler, Caldwell, Callaway, Camden, Cape Girardeau, Carroll, Carter, Cass, Cedar, Chariton, Christian, Clark, Clay, Clinton, Cole, Cooper, Crawford, Dade, Dallas, Daviess, DeKalb, Dent, Douglas, Dunklin, Franklin, Gasconade, Gentry, Greene, Grundy, Harrison, Henry, Hickory, Holt, Howard, Howell, Iron, Jackson, Jasper, Jefferson, Johnson, Knox, Laclede, Lafayette, Lawrence, Lewis, Lincoln, Linn, Livingston, McDonald, Macon, Madison, Maries, Marion, Mercer, Miller, Mississippi, Moniteau, Monroe, Montgomery, Morgan, New Madrid, Newton, Nodaway, Oregon, Osage, Ozark, Pemiscot, Perry, Pettis, Phelps, Pike, Platte, Polk, Pulaski, Putnam, Ralls, Randolph, Ray, Reynolds, Ripley, St. Charles, St. Clair, Ste. Genevieve, St. Francois, the City of St. Louis City, St. Louis County, Saline, Schuyler, Scotland, Scott, Shannon, Shelby, Stoddard, Stone, Sullivan, Taney, Texas, Vernon, Warren, Washington, Wayne, Webster, Worth and Wright Counties.** The effective date of change is shown in the column labeled "Effective Date of Increase" by the craft (Occupational Title). These updated files have been posted to the Division's website referenced by the effective date of AWO 22 – 6/9/15. The new rates should be included in the contract specifications for all future public works projects.

The rest of Annual Wage Order No. 22 remains in full force and effect.

Given at Jefferson City, Missouri June 9, 2015, by direction of the Division of Labor Standards of Missouri.

John E. Lindsey
Division Director

(SEAL) *Missouri Department of Labor and Industrial Relations is an equal opportunity employer/program.*
TDD/TTY: 800-735-2966 Relay Missouri: 711

**MISSOURI
DEPARTMENT OF LABOR
& INDUSTRIAL RELATIONS**

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



JEREMIAH W. (JAY) NIXON, Governor

Annual Wage Order No. 22

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

John E. Lindsey, Director
Division of Labor Standards

This Is A True And Accurate Copy Which Was Filed With The Secretary of State: **March 10, 2015**

Last Date Objections May Be Filed: **April 9, 2015**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	** Date of Increase	*	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Asbestos Worker (H & F) Insulator			\$35.24	52	53	\$24.48
Boilermaker			\$33.36	57	7	\$27.95
Bricklayer and Stone Mason	6/15		\$34.06	58	39	\$18.07
Carpenter	6/15		\$36.55	63	68	\$15.55
Cement Mason			\$31.24	65	4	\$17.79
Communication Technician			\$33.65	47	72	\$16.26 + 10%
Electrician (Inside Wireman)			\$36.14	13	72	\$16.26 + 10%
Electrician (Outside-Line Construction/Lineman)			\$39.95	125	65	\$5.00 + 34.5%
Lineman Operator			\$37.27	125	65	\$5.00 + 34.5%
Groundman			\$26.47	125	65	\$5.00 + 34.5%
Elevator Constructor	6/15	a	\$43.620	26	54	\$29.956
Glazier			\$30.97	88	32	\$16.63
Ironworker	6/15		\$31.25	50	4	\$27.90
Laborer (Building):						
General	6/15		\$26.70	30	4	\$15.15
First Semi-Skilled	6/15		\$27.10	30	4	\$15.15
Second Semi-Skilled	6/15		\$27.50	30	4	\$15.15
Lather			USE CARPENTER RATE			
Linoleum Layer and Cutter	6/15		\$34.32	46	67	\$15.55
Marble Mason			\$33.76	25	4	\$14.66
Marble Finisher			\$23.78	25	4	\$9.18
Millwright			USE CARPENTER RATE			
Operating Engineer						
Group I	6/15		\$37.85	85	4	\$15.56
Group II	6/15		\$37.04	85	4	\$15.56
Group III	6/15		\$31.49	85	4	\$15.56
Group III-A	6/15		\$35.70	85	4	\$15.56
Group IV						
Group V	6/15		\$33.09	85	4	\$15.56
Painter			\$28.13	37	4	\$15.42
Pipe Fitter			\$41.83	2	33	\$19.32
Plasterer			\$31.18	68	4	\$15.57
Plumber	6/15		\$41.64	45	33	\$20.34
Pile Driver			USE CARPENTER RATE			
Roofer \ Waterproofer	6/15		\$32.55	95	2	\$16.24
Sheet Metal Worker			\$39.28	17	22	\$19.40
Sprinkler Fitter - Fire Protection			\$34.35	14	4	\$18.77
Terrazzo Worker			\$33.76	25	4	\$14.66
Terrazzo Finisher			\$23.78	25	4	\$9.18
Tile Setter			\$33.76	25	4	\$14.66
Tile Finisher			\$23.78	25	4	\$9.18
Traffic Control Service Driver			\$15.35	48	49	\$2.71
Truck Driver-Teamster						
Group I			\$30.09	100	4	\$10.90
Group II			\$30.09	100	4	\$10.90
Group III			\$30.29	100	4	\$10.90
Group IV			\$30.29	100	4	\$10.90

Fringe Benefit Percentage is of the Basic Hourly Rate

**Annual Incremental Increase

**JACKSON COUNTY
BUILDING CONSTRUCTION OVERTIME SCHEDULE**

FED: Minimum requirement per Fair Labor Standards Act means time and one-half (1 ½) shall be paid for all work in excess of forty (40) hours per work week.

NO. 2: Means the maximum of eight (8) hours shall constitute a day's work beginning at 8:00 a.m. to 12:00 noon, 12:30 p.m. to 4:30 p.m. The maximum work week shall be forty (40) hours beginning Monday at 8:00 a.m. and ending Friday at 4:30 p.m. Because of traffic, parking or other circumstances, the hours of work on any project may be any continuous 8½ hours period (8 hours of work plus 30 minutes for lunch) between 7:00 a.m. and 4:30 p.m. When circumstances warrant and when it is mutually beneficial and agreed to, the Employer may institute a work week consisting of four (4) consecutive ten (10) hour days, between the hours of 7:00 a.m. and 6:00 p.m. Monday through Thursday, with one-half (½) hour allowed for a lunch period each day. Friday may be used as a make-up day. After ten (10) hours in a workday, or forty (40) hours in a workweek, overtime shall be paid at a rate of one and one-half (1½) times the regular rate of pay. Overtime performed Monday through Saturday shall be paid at the rate of one and one-half (1½) times the regular rate of pay. Sundays and recognized holidays shall be paid at the double (2) time rate of pay. Labor Day shall be paid at triple (3) time. Shift work may be performed at the option of the Contractor. However, whenever shift work is performed it must cover a period not less than (5) consecutive working days. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. In the event a first shift is not required, a second and third shift employee shall receive an additional 15% of the base rate and receive pay for actual hours worked.

NO. 13: Means a regular workday shall consist of eight (8) hours between 8:00 a.m. and 4:30 p.m. Forty (40) hours, within five (5) days -- Monday through Friday inclusive -- shall constitute the regular workweek. The Employer may alter the above stated hours by two (2) hours for an early starting and quitting time only, not to exceed eight (8) hours of work in any one day. When job conditions dictate and as required by the customer, the Employer shall be allowed to establish a four (4) day, ten (10) hour per day work week. This work week is defined as Monday through Thursday, with a Friday make-up day. The normal work day under a ten (10) hour four (4) day work week shall be from 7:00 a.m. to 6:00 p.m., with a one hour starting variance. The make-up day of Friday shall be instituted for specific reasons such as loss of production due to weather and/or holidays. All hours worked in excess of ten (10) hours per day or forty (40) hours per week or hours worked outside the normal work week shall be paid at the applicable overtime rate. The first four (4) hours of overtime after the normal workday, each day Monday through Friday and the first ten (10) hours of overtime on Saturdays shall be paid for at one and one-half (1½) times the regular straight time rate of pay. All other work performed outside of the regularly scheduled working hours and outside of the first ten (10) hours worked on Saturdays shall be paid for at double (2) the regular straight time rate of pay. Sundays and the recognized holidays shall be paid for at double (2) the regular straight time rate of pay, if worked. When so elected by the contractor, multiple shifts of at least five (5) days duration may be worked. When two (2) or three (3) shifts are worked: The first shift (day shift) shall be worked between the hours of 8:00 a.m. and 4:30 p.m. Workmen on the "day shift" shall receive eight (8) hours pay at the regular hourly rate for eight (8) hours work. The second shift (swing shift) shall be worked between the hours of 4:30 p.m. and 12:30 a.m. Workmen on the "swing shift" shall receive eight (8) hours pay at the regular hourly rate plus 10% for seven and one-half (7 ½) hours work. The third shift (graveyard shift) shall be worked between the hours of 12:30 a.m. and 8:00 a.m. Workmen on the "graveyard shift" shall receive eight (8) hours pay at the regular hourly rate plus 15% for seven (7) hours work. A lunch period of thirty (30) minutes shall be allowed on each shift. All overtime work required after the completion of a regular shift shall be paid at one and one-half (1½) times the "shift" hourly rate.

NO. 14: Means eight (8) hours per day shall constitute a day's work. The regular starting time shall be 8:00 a.m., and the regular quitting time shall be 4:30 p.m.; lunch time shall be twelve (12) o'clock noon to 12:30 p.m. The regular starting time may, by mutual consent of employees on the job site, and the employer, be between 7:00 a.m. and 9:00 a.m. with appropriate adjustments made to the regular quitting time and lunch time. All time worked before the regular starting time and after the regular quitting time, Monday through Friday, shall be paid at the rate of time and one-half (1½). Four (4) days at ten (10) hours a day may be worked at straight time. All work commencing with the beginning of the established work day on Saturday shall be paid at the rate of time and one-half (1½). All work commencing with the beginning of the established work day on Sundays and/or Holidays shall be paid at the rate of double (2) time.

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NO. 17: Means the regular working day shall consist of eight (8) hours of labor between 7:00 a.m. and 3:30 p.m. and the regular work week shall consist of five (5) consecutive eight (8) hour days of labor beginning on Monday and ending with Friday of each week. All full-time or part-time labor performed during such hours shall be recognized as regular working hours and paid for at the regular hourly rate. Except as otherwise provided, all work performed outside of regular working hours during the regular work week, shall be at double (2) times the regular rate. Working hours may be varied by two (2) hours. When circumstances warrant and when it is mutually beneficial and agreed to by interested parties, the Employer may institute a work week consisting of four (4) consecutive ten (10) hour days, between the hours of five (5) a.m. and six (6) p.m., Monday through Thursday, with one-half (1/2) hour allowed for a lunch period each day. Friday may be used as a make-up day. The make-up day will be voluntary, and a decision not to work may not be held against the employee. When working four (4) ten (10) hour day's overtime will be paid at the time and one-half (1½) rate for the eleventh (11th) and twelfth (12th) hour, all other work will be paid at the double (2) time rate of pay. The first two (2) hours of overtime, Monday through Friday, and the first eight (8) hours on Saturday shall be at time and one-half (1½) for all work. All other overtime shall be at double (2) time. The first two (2) hours of overtime must be concurrent with the regular work day, two (2) hours prior to or following the regular work day are at time and one-half (1½). The regular workday (as previously defined) on Saturday is paid at time and one-half (1½). Work performed outside of the regular Saturday work day is at double (2) time. All work performed on recognized holidays, or days locally observed as such, and Sundays shall be paid at the double (2) time rate of pay.

NO. 25: Means regular working hours of eight (8) hours shall constitute a working day between the hours of 8:00 a.m. to 4:30 p.m. in a forty (40) hour working week of Monday through Friday. Employment on Saturday, Sunday and legal holidays, and employment before or after the regular working hours shall be considered overtime. Employment on Saturday, Sunday and legal holidays shall be paid for at twice (2) the regular hourly rate. Employment from 4:30 p.m. to 12:00 midnight, Monday through Friday, shall be paid for at one and one-half (1½) times the regular hourly rate. From 12:00 midnight until 8:00 a.m. on any day shall be paid for at twice (2) the regular hourly rate.

NO. 26: Means that the regular working day shall consist of eight (8) hours worked between 6:00 a.m., and 5:00 p.m., five (5) days per week, Monday to Friday, inclusive. Hours of work at each jobsite shall be those established by the general contractor and worked by the majority of trades. (The above working hours may be changed by mutual agreement). Work performed on Construction Work on Saturdays, Sundays and before and after the regular working day on Monday to Friday, inclusive, shall be classified as overtime, and paid for at double (2) the rate of single time. The employer may establish hours worked on a jobsite for a four (4) ten (10) hour day work week at straight time pay for construction work; the regular working day shall consist of ten (10) hours worked consecutively, between 6:00 a.m. and 6:00 p.m., four (4) days per week, Monday to Thursday, inclusive. Any work performed on Friday, Saturday, Sunday and holidays, and before and after the regular working day on Monday to Thursday where a four (4) ten (10) hour day workweek has been established, will be paid at two times (2) the single time rate of pay. The rate of pay for all work performed on holidays shall be at two times (2) the single time rate of pay.

NO. 30: Means Monday through Sunday shall constitute the work week. Regular starting time shall be 8:00 A.M., except when the work week is scheduled as a week with starting time advanced or delayed. Starting time may be advanced or delayed by the employer up to two (2) hours from the regular starting time. Eight (8) hours shall constitute the work day. All work performed prior to or after the regular eight (8) hour work day, as described above, and all work performed on Saturday shall be paid at time and one-half (1½) the regular rate. In the event that a scheduled eight (8) hour work day is missed (not to include holidays) because of events out of the control of the contractor, then that missed work day may be made up at straight time the following Saturday. It is recognized that not all employees working on a Saturday make-up day will have worked the same number of hours during the regular work week. It is further recognized that any work after the forty (40) hours in a week must be paid at time and one-half (1½). Saturday make-up day shall not be used to make up for time lost due to recognized holidays. The employer may establish a 4-10's schedule on projects (4 days with 10 hours per day). If using a 4-10's schedule, a Friday make-up day is allowed. If using a 4 (10) schedule, any work more than ten (10) hours in a day or forty (40) hours in a work week shall be paid at the time and one-half (1½) rate. Friday make-up day shall not be used to make up for time lost due to recognized holidays. All work performed on Sundays or holidays shall be paid at the double (2) time rate.

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NO. 37: The Employer may choose, at his discretion, to work five eight hour days or four ten hour days with a Friday make-up day, Monday through Friday at straight time. Overtime shall be paid after eight (8) hours when working "five eights" and after ten hours when working "four tens". All work performed on Sundays and recognized holidays shall be paid for at the rate of double (2) time. All Saturday work shall be paid for at the rate of time and one-half (1½) the regular wage rate. All night work during the regular work week other than the above-mentioned days shall be paid for at the rate of time and one-half (1½) the regular wage scale until midnight and double (2) time after midnight except make-up time will be allowed under the following condition: In the event of inclement weather on exterior projects which prevents working the full regular eight (8) hour day, forty (40) hour work week schedule, a Saturday make-up day can be granted. Then said work on Saturday shall be paid at the straight time rate of pay up to a maximum total of forty (40) hours per week.

NO. 45: Means eight (8) hours shall constitute a day's work, beginning at 8:00 a.m. and ending at 4:30 p.m. The regular work week shall be forty (40) hours, beginning Monday, 8:00 a.m. and ending at 4:30 p.m. Friday. Because of traffic, parking and other circumstances, the hours of work on any project may begin as early as 6:00 a.m. with eight (8) hours worked between 6:00 a.m. and 4:30 p.m. When circumstances warrant and when it is mutually beneficial and agreed to, the employer may institute a work week consisting of four (4) consecutive ten (10) hour days, between the hours of 7:00 a.m. and 6:00 p.m., Monday through Thursday. Friday may be used as a make-up day. After ten (10) hours in a workday, or forty (40) hours in a workweek, overtime shall be paid at a rate of one and one-half (1½) times the regular rate of pay. All overtime Monday through Saturday shall be paid at the rate of time and one-half (1½) the regular rate of pay. Sunday and recognized holidays shall be paid at double (2) time. Labor Day shall be paid at triple (3) time. Shift work may be performed at the option of the Contractor. However, whenever shift work is performed it must cover a period not less than (5) consecutive working days. The day shift shall work a regular eight (8) hours shift as outlined above. The hourly rate for second shift (seven and one-half hours worked for eight hours paid) shall be twenty-five cents (\$0.25) over and above the hourly rate. The hourly rate for third shift (seven hours worked, eight hours paid) shall be fifty cents (\$0.50) above the hourly rate. If no first shift is worked, second and third shift employees shall receive an additional fifteen percent (15%) over and above the hourly rate for actual hours worked.

NO. 46: Means the regular work day shall be eight (8) hours from 6:00 a.m. to 6:30 p.m. Starting time may be between 6:00 a.m. and 10:00 a.m. The regular work week shall be forty (40) hours, beginning between 6:00 a.m. and 10:00 a.m. on Monday and ending between 2:30 p.m. and 6:30 p.m. on Friday. All hours in excess of the regular work day and work week shall be considered overtime. Overtime on days recognized as regular work days and on Saturday shall be paid for at the rate of time and one-half (1½) the regular rate. Sunday and recognized holidays shall be paid for at the rate of double time (2) for time worked. The Employer may establish a work week consisting of four (4) days, Monday through Thursday, each day consisting of ten (10) hours at straight time rate of pay. The 4-10's must run for a period of at least four (4) days.

NO 47: Means a regular workday shall consist of eight (8) hours between 6:00 a.m. and 6:30 p.m. Forty (40) hours, within five (5) days – Monday through Friday or Tuesday through Saturday inclusive – shall constitute the regular workweek. The Employer may alter the above stated hours by two (2) hours for an early starting and quitting time only, not to exceed eight (8) hours of work in any one day. The Employer shall be allowed to establish a four (4) day, ten (10) hour per day work week. This work week is defined as Monday through Thursday, with a Friday make-up day. The normal work day under a ten (10) hour four (4) day work week shall be from 7:00 a.m. to 6:00 p.m. All hours worked in excess of ten (10) hours per day or forty (40) hours per week or hours worked outside the normal work week shall be paid at the applicable overtime rate. The first four (4) hours of overtime after the normal workday, each day Monday through Friday and the first ten (10) hours of overtime on Saturdays shall be paid for at one and one-half (1½) times the regular straight time rate of pay. All other work performed outside of the regularly scheduled working hours and outside of the first ten (10) hours worked on Saturdays shall be paid for at double (2) the regular straight time rate of pay. Sundays and the recognized holidays shall be paid for at double (2) the regular straight time rate of pay, if worked. When so elected by the contractor, multiple shifts of at least five (5) days duration may be worked. When two (2) or three (3) shifts are worked: The first shift (day shift) shall be worked between the hours of 8:00 a.m. and 4:30 p.m. Workmen on the "day shift" shall receive eight (8) hours pay at the regular hourly rate for eight (8) hours work. The second shift (swing shift) shall be worked between the hours of 4:30 p.m. and 12:30 a.m. Workmen on the "swing shift" shall receive eight (8) hours pay at the regular hourly rate plus 10% for seven and one-half (7 ½) hours work. The third shift (graveyard shift) shall be worked between the hours of 12:30 a.m. and 8:00 a.m. Workmen on the "graveyard shift" shall receive eight (8) hours pay at the regular hourly rate plus 15% for seven (7) hours work. A lunch period of thirty (30) minutes shall be allowed on each shift. All overtime work required after the completion of a regular shift shall be paid at one and one-half (1½) times the "shift" hourly rate.

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NO. 48: Means the regularly scheduled work week shall be five (5) consecutive days, Monday through Friday or Tuesday through Saturday. Eight (8) hours shall constitute a day's work. Starting time shall not be earlier than 7:00 a.m. nor later than 10:00 a.m. Forty (40) hours shall constitute a week's work. Overtime at the rate of time and one-half (1½) will be paid for all work in excess of forty (40) hours in any one work week. On the Monday through Friday schedule, all work performed on Saturday will be time and one-half (1½) unless time has been lost during the week, in which case Saturday will be a make up day to the extent of the lost time. On the Tuesday through Saturday schedule, all work performed on Monday will be time and one-half (1½) unless time has been lost during the week, in which case Monday will be a make-up day to the extent of the lost time. Any work performed on Sunday will be double (2) time. If employees work on any of the recognized holidays, they shall be paid time and one-half (1½) their regular rate of pay for all hours worked.

NO. 50: Means eight (8) hours constitute a normal day's work Monday through Friday. Any time worked over eight (8) hours will normally be paid at time and one-half (1½) except for exclusions stated in some following additional sentences. The Employer, at his discretion, may start the work day between 6:00 a.m. and 9:00 a.m. Any schedule chosen shall be started at the beginning of the work week (Monday) and used for at least five days. Work may be scheduled on a four (4) days a week (Monday through Thursday) at ten (10) hours a day schedule. If such a schedule is employed, then Friday may be used as a make-up day when time is lost due to inclement weather. Time and one-half (1½) shall be paid for any work in excess of eight (8) hours in any regular work day Monday through Friday unless working 4-10's, then time and one-half (1½) after ten (10) hours. All work performed on Saturday will be time and one-half (1½). Double (2) time shall be paid for all work on Sundays and recognized holidays.

NO. 52: Means the regular workweek shall consist of five (5) eight (8) hour days, Monday through Friday. The regular workday shall consist of an eight (8) hour period, to be worked between the agreed upon starting time, and ending no later than 4:30 p.m. The agreed upon starting time shall be any time between the hours of 6:00 a.m. and 8:00 a.m. The option exists for the employer to use a four (4) day, ten (10) hour work week. Days worked shall be Monday through Thursday or Tuesday through Friday. If the job requires men on duty all five (5) days, then part of the crew may work the first four (4) days and the remainder of the crew may work the last four (4) days. Hours each day shall be from 7:00 a.m. to 5:30 p.m. Interested parties on the project must agree to this clause before it may be used. Once this clause has been put into effect, it shall remain as long as the majority of the Employees on the project and the Employer agree to keep it. The four (4) day clause shall not be used to circumvent a Holiday. Except as otherwise provided, all work performed outside the regular working hours and performed during the regular work week (Monday through Friday) shall be at the following rates of pay:

Holidays-New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, Christmas Day (or days observed as such) shall be recognized as Holidays that shall be paid at two (2) times the regular rate of pay.

Labor Day-No work shall be performed on Labor Day except in special cases of emergency. Rate of pay shall be at three (3) times the regular rate of pay.

Overtime-Work performed outside of the regular work day (the regular work day shall consist of an eight (8) hour period, to be worked between the agreed upon starting time, and ending not later than 4:30 p.m. The agreed upon starting time shall be any time between the hours of 6:00 a.m. and 8:00 a.m., by mutual consent of the interested party's.), shall be:

- A. Hours worked Monday through Friday, the first two (2) hours of overtime will be paid at time and one-half (1½). All other overtime will be paid at the double (2) time rate.
- B. The first ten (10) hours worked on Saturday will be paid at time and one-half (1½), with all other hours to be paid at the double (2) time rate.
- C. Sundays and Holidays (except Labor Day) shall be paid at the double (2) time rate.

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NO. 57: Means eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday through Friday, shall constitute a week's work. The regular starting time shall be 8:00 a.m. If a second or third shift is used, the regular starting time of the second shift shall be 4:30 p.m. and the regular starting period for the third shift shall be 12:30 a.m. These times may be adjusted by the employer. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. All time worked before and after the established workday of eight (8) hours, Monday through Friday, and all time worked on Saturday shall be paid at the rate of time and one-half (1½) except in cases where work is part of an employee's regular Friday shift. All time worked on Sunday and recognized holidays shall be paid at the double (2) time rate of pay except in cases where work is part of an employee's previous day's shift. For all overtime hours worked \$25.65 of the fringe benefits portion of the prevailing wage shall be paid at the same overtime rate at which the cash portion of the prevailing wage is to be paid. The remaining \$1.24 of the fringe benefit portion of the prevailing wage may be paid at straight time.

NO. 58: Means eight (8) consecutive hours, between 6:00 a.m. and 5:30 p.m., shall constitute a day's work. Five (5) days work, Monday through Friday, shall constitute a normal work week. Work performed in excess of eight (8) hours per day or eight hours beyond normal starting time for that project excluding lunch Monday through Friday, and all work performed on Saturday, shall be paid for the rate of time and one-half (1½). When Sundays and recognized holidays are worked, the worker(s) shall be paid at the rate of double (2) time. Work may be scheduled on a four (4) days a week (Monday through Thursday) at ten (10) hours a day schedule at straight time. A Friday make-up day is available if time is lost due to inclement weather and at least sixteen (16) hours, but not more than thirty (30) hours, were worked during the week.

NO. 63: Means eight (8) hours shall constitute the regular work day between time that may be advanced or delayed by two (2) hours on either side of 8:00 AM. The Employer may establish a work week consisting of four (4) days, Monday through Thursday, each day consisting of ten (10) hours straight time. The four (4) tens (10s) must run for a period of at least four (4) days, Monday through Thursday. All work on Friday on a four (4) tens (10) project will be paid at the rate of time and one-half (1½). All work performed on Saturday shall be paid at time and one-half (1½). All work performed on Sundays and recognized holidays must be paid at double (2) time. All work performed prior to or after the regular eight (8) hour work day, or ten (10) hour work day, as described above shall be paid at time and one-half (1½) the regular rate.

NO. 65: Means Monday through Sunday shall constitute the work week. Regular starting time shall be 8:00 a.m., with one half hour for lunch between three and one-half (3½) and five (5) hours after starting time. The starting time may be advanced by two (2) hours or delayed one (1) hour by the employer from the regular starting time. All work performed before the advanced starting time and during the half hour lunch shall be paid at the overtime rate of time and one-half (1½). Work performed outside these hours shall be paid at the overtime rate of time and one-half (1½), except as provided otherwise below. All work performed on Sundays or recognized holidays shall be paid at the double (2) time rate. When the start time is delayed past 9:00 a.m., the employee's pay shall start at 9:00 a.m. and all time, after the normal quitting time (5:30 p.m.), shall be paid at the overtime rate. Eight (8) hours shall constitute the work day. All work performed prior to or after the regular eight (8) hour work day, as described above, and all work performed on Saturday shall be paid at time and one-half (1½) the regular rate. In the event that a scheduled eight (8) hour work day is missed (not including recognized holidays) because of inclement weather, then that missed work day may be made up at straight time on the following Saturday. It is recognized that not all employees working on a Saturday make-up day will have worked the same number of hours during the regular work week. It is further recognized that any work after forty (40) hours must be paid at time and one-half (1½). The employer may establish a 4-10's schedule on projects (4 days with 10 hours per day at straight time). In order to use the 4-10's schedule, the employer must schedule the 4-10's for a minimum of one (1) week. If using a 4-10's schedule, a Friday make-up day is allowed.

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NO. 68: Means Monday through Sunday shall constitute the work week. Regular starting time shall be 8:00 a.m., with one half hour for lunch between three and one-half and five hours after starting time. The starting time may be advanced or delayed by the employer up to one hour from the regular starting time. All work performed before the advance starting time and during the half hour lunch shall be paid at the overtime rate of time and one-half (1½). Work performed outside these hours shall be paid at the overtime rate of time and one-half (1½), except as provided otherwise below. All work performed on Sundays or holidays shall be paid at the double (2) time rate. Eight (8) hours shall constitute the work day. All work performed prior to or after the regular eight (8) hour work day, as described above, and all work performed on Saturday shall be paid at time and one-half (1½) the regular rate, except as hereinafter described. In the event that a scheduled eight (8) hour work day is missed (not including recognized holidays) because of inclement weather, then that missed work day may be made up at straight time on the Saturday in the week of the pay period. It is recognized that not all employees working on a Saturday make-up day will have worked the same number of hours during the regular work week. It is further recognized that any work after forty (40) hours must be paid at time and one-half (1½). The employer may establish a 4-10's schedule on projects (4 days with 10 hours per day at straight time). In order to use the 4-10's schedule, the employer must schedule the 4-10's for a minimum of one (1) week. If using a 4-10's schedule, a Friday make-up day is allowed.

NO. 85: Means the work week shall be Monday through Sunday. Eight (8) hours shall constitute a day's work to begin between 6:00 a.m. and 9:00 a.m. and end between 2:30 p.m. to 5:30 p.m. Employees required to work during their lunch period shall receive the overtime rate. Employees shall receive time and one-half (1½) for all time they are required to work prior to their normal starting time or after eight (8) hours or normal quitting time Monday through Friday, or all day on Saturday. If an Employer has started the work week on a five day, eight hours a day schedule, and due to inclement weather misses any time, then he may switch to a nine or ten hours a day schedule, at straight time, for the remainder of that work week in order to make up for the lost time (10-hour make-up day). All work over ten (10) hours a day or over forty (40) hours a week must be paid at time & one-half (1½). Sundays and recognized holidays shall be paid at the double (2) time rate of pay. A contractor may alter the regular work week to four (4) ten (10) hour days at straight time rate of pay. To do this the scheduled 4-10's must be worked at least one full week and the regular workweek shall be Monday through Thursday with Friday being a make-up day at straight time for days missed in the regular workweek due to inclement weather. If 5-8's are being worked, Saturday may be used as a make-up day at straight time if inclement weather prevents work during the normal work week.

NO. 88: Means the regular work week shall consist of five (5) eight (8) hour days, 7:00 a.m. to 3:30 p.m., Monday through Friday, except when the work week is scheduled as a 4-10's week or as a week with start time advanced or delayed as described below. The starting time may be advanced or delayed by one hour on either side of 7:00 a.m. The advanced or delayed starting time must run for a period of at least five (5) days. The Employer may establish a work week consisting of four (4) days, during the regular work week, each day consisting of ten (10) hours at straight time. The 4-10's must run for a period of at least four (4) days. Time and one-half (1½) shall be paid for any work in excess of eight (8) hours in any regular work day Monday through Friday (or ten hours in a 4-10's week), the first eight (8) hours of a Saturday, and it shall be at time and one-half (1½) for the Friday and Saturday following Thanksgiving. Double (2) time shall be paid for the following time worked on Sunday, New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day, as well as any work in excess of eight (8) hours on a Saturday and the Saturday of a three-day weekend (except the Saturday following Thanksgiving).

NO. 95: Means a regular workday shall consist of eight and one-half (8½) hours elapsed time, including one-half hour for lunch. The crew starting times shall be flexible within the period of daylight to 8:00 a.m. Any work performed over ten (10) hours of elapsed time per day including one-half hour for lunch and/or any work performed over forty (40) hours at the straight time rate in one week shall be paid at time and one-half (1½) the straight time rate. Saturday shall be a voluntary make-up day at straight time at the discretion of the contractor and with the consent of the employees. Sunday and recognized holidays shall be paid for at double (2) time.

**JACKSON COUNTY
BUILDING CONSTRUCTION OVERTIME SCHEDULE**

NO. 100: Means eight (8) hours shall constitute a day's work, and five (5) continuous eight-hour days shall constitute a week's work, Monday through Friday. Time and one-half (1½) the regular hourly rate shall be paid for all work performed in excess of eight (8) hours in any one day or forty (40) hours in any one week. Starting time shall be between 6:00 a.m. and 9:00 a.m. All work over eight (8) hours in a regular 5-day 8-hour schedule shall be at the appropriate overtime rate. All time worked before the regular scheduled starting time shall be paid for at the rate of time and one-half (1½) and shall not apply to regular shift. All time worked after eight (8) hours in any one day or after 5:30 p.m., whichever comes first, shall be paid at the time and one-half (1½) rate. An Employer, at his option, may elect to work four (4) ten (10) hour days, Monday through Thursday, at straight time. All such work must be done at least one week in duration. All work over ten (10) hours in one day or forty (40) hours in a week shall be at the overtime rate. Any employee who is scheduled to work on any regular work day but is prevented from working because of weather conditions, shall be permitted to work on Saturday (Friday if working 4-10's) as a make-up day at the straight time rate of pay. When an employee is required to work on any recognized holiday they shall receive the double (2) time rate for all time that they are required to perform work. All time worked from 12:00 Midnight Saturday to 12:00 Midnight Sunday shall be paid for at the rate of double (2) time on single shift.

NO. 125: Eight (8) hours of work between the hours of 8:00 a.m. and 4:30 p.m. shall constitute a work day. Forty (40) hours within the five (5) days, Monday through Friday inclusive, shall constitute the work week. Starting time may be adjusted not to exceed two (2) hours. Work performed outside of the aforementioned will be paid at the applicable overtime rate. When starting time has been adjusted, all other provisions concerning the work day shall be adjusted accordingly. The overtime rate of pay shall be one and one-half (1½) times the regular rate of wages, other than on Sundays, holidays and from Midnight until 6:00 a.m., which will be paid at double (2) the straight time rate.

**JACKSON COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 2: All work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day, or the days observed as such, shall be paid at the double time rate of pay.

NO. 4: All work done on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas Day shall be paid at the double time rate of pay. If any of the above holidays fall on Sunday, Monday will be observed as the recognized holiday. If any of the above holidays fall on Saturday, Friday will be observed as the recognized holiday.

NO. 7: The following days are assigned days and are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. If a holiday falls on a Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This is applied to protect Labor Day. When a holiday falls during the normal workweek, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week. However, no reimbursement for these eight (8) hours is to be paid to the workman unless worked. If workman are required to work the above enumerated holidays or days observed as such, or on Sunday, they shall receive double (2) the regular rate of pay for such work.

NO. 22: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, or days locally observed as such, and Sunday shall be recognized as holidays. If a holiday falls on Saturday, Friday shall be observed; if it falls on Sunday, Monday shall be observed. All work performed on holidays shall be paid at the double (2) time rate of pay.

NO. 32: All work performed for the Friday and Saturday following Thanksgiving shall be paid at the time and one-half (1½) rate of pay. All work performed on Sundays, New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day shall be paid at the double (2) time rate of pay. When one of the above holidays falls on Sunday, the following Monday shall be observed and when one of the above holidays falls on Saturday, the preceding Friday shall be observed.

NO. 33: All work done on New Year's Day, Memorial Day, Fourth of July, Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. Labor Day shall be paid at the triple (3) time rate of pay. If the holiday falls on Sunday, the following Monday will be observed; if the holiday falls on Saturday, the preceding Friday will be observed.

NO. 39: No work shall be done on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas. Any of these holidays falling on Sunday, the following Monday shall be a holiday, and any of these holidays falling on Saturday, the preceding Friday shall be a holiday.

NO. 49: The following days shall be observed as legal holidays: New Year's Day, Decoration Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day, Employee's birthday and two (2) personal days. The observance of one (1) of the personal days to be limited to the time between December 1 and March 1 of the following year. If any of these holidays fall on Sunday, the following Monday will be observed as the holiday and if any of these holidays fall on Saturday, the preceding Friday will be observed as the holiday. If employees work on any of these holidays they shall be paid time & one-half (1½) their regular rate of pay for all hours worked.

NO. 53: All work done on New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, Christmas Day or days observed as such for these holidays shall be paid at the double (2) time rate of pay. No work shall be performed on Labor Day except in special cases of emergency, and then the rate of pay shall be at three (3) times the regular rate of pay. When a holiday falls on a Sunday, the following Monday shall be observed as the holiday. When a holiday falls on Saturday, the preceding Friday shall be observed as the holiday.

NO. 54: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day shall be paid at the double (2) time rate of pay. When a holiday falls on Saturday, it shall be observed on Friday. When a holiday falls on Sunday, it shall be observed on Monday.

**JACKSON COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 65: Work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day, or days celebrated as such, shall be paid at the double time rate of pay. If the holiday falls on Saturday, it will be observed on Friday; if the holiday falls on Sunday, it will be observed on Monday, and shall be paid for at double (2) the regular straight time rate of pay.

NO. 67: All work performed on New Year's Day, Memorial Day, Christmas Day, Fourth of July and Thanksgiving Day, from midnight to midnight, shall be paid for at the rate of double time (2) the basic rate of pay if required to work in addition to any other pay otherwise required hereunder as holiday pay. Positively no work shall be performed on Labor Day. Martin Luther King's Birthday, Veteran's Day, and the day after Thanksgiving Day shall be considered optional holidays, and if the Employer and employees agree that work will be performed on that day, no premium pay will be required. Should any of the above holidays fall on Saturday, the holiday will be observed on Friday. Should any of the above holidays fall on Sunday, the holiday will be observed on Monday.

NO. 68: All work performed on New Year's Day, Decoration Day (Memorial Day), Independence Day (Fourth of July), Labor Day, Thanksgiving Day, Christmas Day, or days observed as such, shall be paid at the rate of double (2) time. When a holiday falls on a Saturday, Friday shall be observed. When a holiday falls on a Sunday, Monday shall be observed. No work shall be performed on the Fourth of July or Labor Day except to save life or property. Where one of the holidays specified falls or is observed during the work week, then all work performed over and above thirty-two (32) hours in that week shall be paid at the rate of time and one-half (1½).

NO. 72: All work performed on New Year's Day, Memorial Day (last Monday in May), Independence Day, Labor Day, Thanksgiving Day and Christmas Day shall be paid for at double (2) the regular straight time rate of pay. Any one of the above listed holidays falling on Sunday shall be observed on the following Monday and paid for at double (2) the regular straight time rate of pay, if worked. Any one of the above listed holidays falling on Saturday shall be observed on the prior Friday and paid for at double (2) the regular straight time rate of pay, if worked. No work shall be performed on Labor Day except in case of emergency.

OCCUPATIONAL TITLE	* Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Carpenter	6/15	\$36.55	1	17	\$15.55
Cement Mason		\$30.57	3	2	\$15.80
Electrician (Outside-Line Construction\Lineman)		\$39.95	18	24	\$5.00 + 34.5%
Lineman Operator		\$37.27	18	24	\$5.00 + 34.5%
Lineman - Tree Trimmer		\$20.90	31	30	\$6.01 + 23.5%
Groundman		\$26.47	18	24	\$5.00 + 34.5%
Groundman - Tree Trimmer		\$16.90	31	30	\$6.01 + 23.5%
Laborer					
General Laborer	6/15	\$28.54	3	2	\$14.57
Skilled Laborer	6/15	\$29.75	3	2	\$14.57
Millwright	6/15	\$36.55	1	17	\$15.55
Operating Engineer					
Group I	6/15	\$35.23	3	2	\$15.53
Group II	6/15	\$34.19	3	2	\$15.53
Group III	6/15	\$34.19	3	2	\$15.53
Group IV	6/15	\$29.72	3	2	\$15.53
Oiler-Driver	6/15	\$33.07	3	2	\$15.53
Pile Driver	6/15	\$36.55	1	17	\$15.55
Traffic Control Service Driver		\$15.35	27	26	\$2.71
Truck Driver-Teamster					
Group I		\$29.74	3	2	\$13.30
Group II		\$29.74	3	2	\$13.30
Group III		\$29.74	3	2	\$13.30
Group IV		\$29.74	3	2	\$13.30

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.

**JACKSON COUNTY
OVERTIME SCHEDULE - HEAVY CONSTRUCTION**

FED: Minimum requirement per Fair Labor Standards Act means time and one-half (1 ½) shall be paid for all work in excess of forty (40) hours per work week.

NO. 1: Means (8) hours shall constitute the regular work day between time that may be advanced or delayed by two (2) hours on either side of 8:00 AM. The Employer may establish a work week consisting of four (4) days, Monday through Thursday, each day consisting of ten (10) hours straight time. The four (4) tens (10s) must run for a period of at least four (4) days, Monday through Thursday. All work on Friday on a four (4) tens (10) project will be paid at the rate of time and one-half (1½). All work performed on Saturday shall be paid at time and one-half (1½). All work performed on Sundays and recognized holidays must be paid at double (2) time. All work performed prior to or after the regular eight (8) hour work day, or ten (10) hour work day, as described above shall be paid at time and one-half (1½) the regular rate.

NO. 3: Means a regular work week shall consist of not more than forty (40) hours of work and all work performed over and above ten (10) hours per day or forty (40) hours per week shall be paid at the rate of time & one-half (1½). Workers shall receive time and one-half (1½) for all work performed on Sundays and recognized holidays. Double (2) time shall be paid for work performed on Sundays or recognized holidays when and only if any other craft employees of the same employer at work on that same job site are receiving double (2) time pay for that Sunday or Holiday work. A work day is to begin between 6:00 a.m. and 9:00 a.m. at the option of the Employer except when inclement weather or other conditions beyond the reasonable control of the Employer prevents work, in which event, the starting time may be delayed, but not later than 12:00 noon. Where one of the recognized holidays falls or is observed during the work week, then all work performed over and above thirty-two (32) hours in that week shall be paid at the rate of time and one-half (1½).

NO: 18: Eight (8) hours of work between the hours of 8:00 a.m. and 4:30 p.m. shall constitute a work day. Forty (40) hours within the five (5) days, Monday through Friday inclusive, shall constitute the work week. Starting time may be adjusted not to exceed two (2) hours. Work performed outside of the aforementioned will be paid at the applicable overtime rate. When starting time has been adjusted, all other provisions concerning the work day shall be adjusted accordingly. The overtime rate of pay shall be one and one-half (1½) times the regular rate of wages, other than on Sundays, holidays and from Midnight until 6:00 a.m., which will be paid at double (2) the straight time rate.

NO. 27: Means the regularly scheduled work week shall be five (5) consecutive days, Monday through Friday or Tuesday through Saturday. Eight (8) hours shall constitute a day's work. Starting time shall not be earlier than 7:00 a.m. nor later than 10:00 a.m. Forty (40) hours shall constitute a week's work. Overtime at the rate of time and one-half (1½) will be paid for all work in excess of forty (40) hours in any one work week. On the Monday through Friday schedule, all work performed on Saturday will be time and one-half (1½) unless time has been lost during the week, in which case Saturday will be a make up day to the extent of the lost time. On the Tuesday through Saturday schedule, all work performed on Monday will be time and one-half (1½) unless time has been lost during the week, in which case Monday will be a make-up day to the extent of the lost time. Any work performed on Sunday will be double (2) time. If employees work on any of the recognized holidays, they shall be paid time and one-half (1½) their regular rate of pay for all hours worked.

NO. 31: Means the overtime rate shall be time and one-half the regular rate for work over forty (40) hours per week. Sundays and Holidays shall be paid at double the straight time rate. All employees performing work on affected properties during or following emergencies shall receive the applicable rate of pay for the first sixteen (16) consecutive hours and all hours worked in excess of sixteen (16) consecutive hours shall be paid at double time until broken by an eight (8) hour rest period. Should an employee be called back to work within two hours of his normal quitting time, the previous hours worked shall count toward the above sixteen (16) hour provision.

**JACKSON COUNTY
HOLIDAY SCHEDULE – HEAVY CONSTRUCTION**

NO. 2: All work performed on New Year's Day, Decoration Day (Memorial Day), Independence Day (Fourth of July), Labor Day, Thanksgiving Day and Christmas Day, or days observed as such, and Sundays shall be paid at the rate of time and one-half (1½). Double (2) time shall be paid for work on Sundays or recognized holidays when and only if other craft employees of the same employer at work on that same job site are receiving double (2) time pay for that Sunday or holiday work. No work shall be performed on Labor Day, except in case of jeopardy of life or property. This rule is applied to protect Labor Day. When one of the above holidays falls on a Saturday, the preceding Friday shall be observed; when the holiday falls on a Sunday, the following Monday shall be observed. Where one of the specified holidays falls or is observed during the work week, then all work performed over and above thirty-two (32) hours in that week shall be paid at the rate of time and one-half (1½).

NO. 17: All work performed on New Year's Day, Decoration Day (Memorial Day), Independence Day (Fourth of July), Labor Day, Thanksgiving Day, Christmas Day, or days observed as such, shall be paid at the rate of double (2) time. When a holiday falls on a Saturday, Friday shall be observed. When a holiday falls on a Sunday, Monday shall be observed. No work shall be performed on the Fourth of July or Labor Day except to save life or property. Where one of the holidays specified falls or is observed during the work week, then all work performed over and above thirty-two (32) hours in that week shall be paid at the rate of time and one-half (1½).

NO. 24: Work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day, or days celebrated as such, shall be paid at the double time rate of pay. If the holiday falls on Saturday, it will be observed on Friday; if the holiday falls on Sunday, it will be observed on Monday, and shall be paid for at double (2) the regular straight time rate of pay.

NO. 26: The following days shall be observed as legal holidays: New Year's Day, Decoration Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day, Employee's birthday and two (2) personal days. The observance of one (1) of the personal days to be limited to the time between December 1 and March 1 of the following year. If any of these holidays fall on Sunday, the following Monday will be observed as the holiday and if any of these holidays fall on Saturday, the preceding Friday will be observed as the holiday. If employees work on any of these holidays they shall be paid time & one-half (1½) their regular rate of pay for all hours worked.

NO. 30: All work performed on New Year's Day, Decoration Day, Fourth of July, Labor Day, Christmas Day, Thanksgiving Day and Day after Thanksgiving or days celebrated for the same.



ADDENDUM NUMBER _____

Project Number _____

Project Title _____

[NOTE: Add Month/Date/Year for which this Addendum is officially posted by City. Be certain to remove this note before final document is printed.]

ISSUE DATE: _____

[NOTE: Addenda are used to clarify, revise, add to, or delete information in the original bidding documents or in previous addenda prior to opening of bids. Items should be organized in the same order as the original bidding documents Table of Contents. Cite the specific bidding document and the specific location within it where each change is to be made followed by the detailed change. If entire pages or documents are replaced or added as accompanying attachments, state the title of the document and the specific page number(s) removed and/or added. (e.g., Delete Section 01011 - Summary pages 1-6 and add the attached Section 01011 - Summary pages 1-10.). Be certain to remove this note before final document is printed.]

[NOTE: Add Month/Date/Year. Be certain to remove this note before final document is printed.]

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on _____, are amended as follows:

[NOTE: If the bid date is being changed add Month/Day/Year; if not, delete this sentence. Be certain to remove this note before final document is printed.]

The Bid date for this Project stated in Document 00130 - Invitation to Bid shall be changed to: 2:00 PM, on _____.

Information to Bidders The following is provided to Bidders for information only:

[NOTE: Include items under this heading such as Pre-bid meeting attendance list, soils report, etc.; items that should not be contractual, but are useful information to Bidders. Delete this heading and introduction if not applicable for this Addendum. Be certain to remove this note before final document is printed.]

1.

2.

[NOTE: Include Bidder/Proposer questions and answers to those questions. If questions are resolved by a contractual change, reference the contract section and make the appropriate change in one of the sections below. Delete this heading and table if not applicable for this Addendum. Be certain to remove this note before final document is printed.]

Q1.	
A1.	
Q2.	
A2.	

Q3.	
A3.	

[NOTE: Under the following sections, include changes to those documents under the heading with this same title found in Document 00010 - Table of Contents, (including changes to previous addenda). Format for revisions provided below. Delete sections if not applicable to this addendum. Be certain to remove this note before final document is printed.]

Bidding Requirements

1. Add the following section(s):

- a. Document, Sec. __, Subparagraph __, Page ____
- b. Document, Sec. __, Subparagraph __, Page ____

[OR]

2. Delete the following section(s):

- a. Document, Sec. __, Subparagraph __, Page ____
- b. Document, Sec. __, Subparagraph __, Page ____

[OR]

3. Delete and replace the following section(s):

- a. Delete Document, Sec. __, Subparagraph __, Page ____ and replace with the following Document, Sec. __, Subparagraph __, Page ____:
- b. Delete Document, Sec. __, Subparagraph __, Page ____ and replace with the following Document, Sec. __, Subparagraph __, Page ____:

Contracting Requirements

- 1.
- 2.

Specifications

- 1.
- 2.

Drawings:

- 1.
- 2.

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.



REQUEST FOR INTERPRETATION

Project Number _____

Project Title _____

Contractor _____

RFI Number _____ Date _____

From: _____

To: _____

Re: _____

Spec. Sec. Ref: _____ Paragraph: _____ Drawing Ref: _____ Detail: _____

Signed: _____

Response: _____

Attachments

Response From: _____ To: _____ Date Transmitted: _____ Date Rec'd: _____

Signed: _____
Design Professional

Signed: _____
Owner's Representative

- Distribution:
- Owner
 - Contractor
 - Construction Manager
 - Design Professional
 - Consultant _____
 - Other _____



SUPPLEMENTAL DESIGN INSTRUCTION

Project Number _____

Project Title _____

To Contractor _____

From: _____ SDI No _____ Issue Date: _____

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Price or Contract Times. Proceeding with the Work in accordance with these instructions indicates your acknowledgement that there will be no change in the Contract Price or Contract Times.

Description:

Attachments (*List*)

(Signature) Design Professional

Date

- Distribution:
- Owner
 - Contractor
 - Construction Manager
 - Design Professional
 - Consultant _____
 - Other _____



REQUEST FOR PROPOSAL

Project Number _____

Project Title _____

To Contractor _____

From: _____ RFP No _____ Issue Date: _____

Please submit an itemized proposal for changes in the Contract Price and Contract Times for proposed modifications to the Contract Documents described herein. Submit proposal within _____ days, or notify the Owner in writing of the date on which you anticipate submitting your proposal.

This is NOT a Change Order, a Work Change Directive or a direction to proceed with the work described in the proposed modifications.

Description: _____

Attachments _____

Prepared by Design Professional _____

Prepared by Construction Manager _____

REQUESTED by OWNER'S Representative _____

- Distribution:
- Owner
 - Contractor
 - Construction Manager
 - Design Professional
 - Consultant _____
 - Other _____



CHANGE ORDER

Project Number _____

Project Title _____

Change Order No: _____ Date of Issuance: _____

Ordinance No: _____ Ordinance Effective Date: _____

Contract Notice To Proceed Date: _____

To CONTRACTOR:

The Contract is changed as follows: _____

This Change Order constitutes compensation in full on behalf of the Contractor and its subcontractors and suppliers for all costs, including impact costs and extended general conditions, and markups directly and indirectly attributable to the Work changes ordered herein, for all delays related thereto and for performance of the changes within the time stated. Contractor hereby releases all claims for delay, interruption, extended general conditions, impact and cumulative impact claims for this Work.

[Note: Identify the specific attachments; example: "Attachment A, Additional Scope of Services." Delete all notes before printing final]

See Attached Document(s).

[Note: If the CO does not change the Contract Price, use "Director" instead of "Director of Finance"]

Not valid until signed by the Director of Finance.

The original Contract Price was _____ \$0.00

Net change by previously authorized Change Orders _____ \$0.00

The Contract Price prior to this Change Order was _____ \$0.00

The Contract Price will be (increased by) (decreased by) (unchanged) _____ \$0.00

The new Contract Price including this Change Order will be _____ \$0.00

[Note: If revised, establish and enter new dates. If unchanged, enter current contract dates.

If you are only changing the Final Completion date, add the following reference:

"The Contract Time for Final Completion will be . . ."]

The Contract Time will be (increased by) (decreased by) (unchanged) _____ () calendar days

The date of Substantial Completion as of the date of this Change Order therefore is _____ Enter Date

The date of Final Completion as of the date of this Change Order therefore is _____ Enter Date

Project No. & Title
 Change Order No.

[Note: Include any required additional signatures.]

DESIGN PROFESSIONAL:	By: Title:	Date:
CONTRACTOR:	By: Title:	Date:
CITY:	By: Title:	Date:

Approved as to form: _____
 Assistant City Attorney

[Note: If this CO does not change the Contract Price, delete the cert. of funds by Finance Director but send signed copy to Finance.]

I certify there is a balance otherwise unencumbered to the credit of the appropriation to which the above amount is chargeable, and a cash balance otherwise unencumbered in the treasury to the credit of the fund from which payment is to be made, each sufficient to meet the above obligation.

 Director of Finance By: _____ Date _____

- Distribution: CITY
 CONTRACTOR
 DESIGN PROFESSIONAL

REMINDER: CONTRACTOR is responsible for considering the effect this Change Order may have on its ability to meet or exceed the D/M/WBE participation amounts in its Contractor Utilization Plan (CUP) as amended by any previously approved Request for Modification/Substitution. If CONTRACTOR will not be able to achieve the approved participation amounts in performing the work included within this Change Order, or if CONTRACTOR needs to retain the services of additional D/M/WBEs not previously listed in its CUP, CONTRACTOR is advised to submit a Request for Modification/Substitution.



WORK CHANGE DIRECTIVE

Project Number _____

Project Title _____

No.: _____ Date of Issuance: _____

TO:
(CONTRACTOR)

You are directed to proceed promptly with the following work:

Description:

Purpose of Work Change Directive:

Attachments: *(List documents supporting change)*

If the above work results on a change in the Contract Price or Contract Times, any request for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in
Contract Price:

Method of determining change in
Contract Times:

- Unit Prices
- Lump Sum
- As Stipulated in General Conditions
- Other _____

- CONTRACTOR's Records
- DESIGN PROFESSIONAL's Records
- City's Records
- Other _____

Estimated increase (decrease) in Contract Price:
\$ _____

Estimated increase (decrease) in Contract Times:
Substantial Completion: _____ days;

If the change involves an increase, the estimated Amount is not to be exceeded without further authorization.

Final Completion: _____ days.
If the change involves an increase, the estimated times are not to be exceeded without further authorization.

Recommended:

Recommended:

Recommended:

DESIGN PROFESSIONAL

Construction Manager

City

By (Authorized Signature)

By (Authorized Signature)

By (Authorized Signature)

- Distribution:
- City
 - Contractor
 - Construction Manager
 - Design Professional
 - Consultant
 - Other

WORK CHANGE DIRECTIVE (“WCD”) INSTRUCTIONS

[Note: Do not attach these instructions to the WCD Form]

A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order. If the WCD may result in an increase in the Contract Price, a contract impact cost analysis must be performed prior to issuing the WCD. Availability of funds and authorization to expend funds must be part of the analysis.

For supplemental instructions and minor changes not involving a possible change in the Contract Price or the Contract Times a Supplemental Design Instruction may be used.

B. COMPLETING THE WORK CHANGE DIRECTIVE FORM

Based on conversations between Design Professional, City’s Representative and CONTRACTOR, Design Professional must complete the following:

DESCRIPTION: shall include a summary of the Work included in the WCD. Additional information may be attached to the WCD to further define the scope.

PURPOSE OF WORK CHANGE DIRECTIVE: will identify clearly if the Work included in the WCD is an addition, deletion, revision, or some combination.

ATTACHMENTS: shall identify all attachments included in and made a part of the WCD. Be certain that attachments are clearly labeled.

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE: Mark the method to be used in determining the final cost of Work involved and the estimated net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another WCD must be issued to change the estimated price. Do not leave blank spaces or write “To be determined” (or “TBD”). An estimated dollar figure must be assigned to the Work. If the WCD is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked “No Change in Price”.

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIMES: Mark the method to be used in determining the change in Contract Times and the estimated increase or decrease in Contract Times. If the change involves an increase in the Contract Times and the estimated times are approached before the additional or changed Work is completed, another WCD must be issued to change the times or CONTRACTOR may stop the changed Work when the estimated times are reached. Do not leave blank spaces or write “To be determined” (or “TBD”). If the WCD is not likely to change the Contract Times, the space for estimated increase (decrease) should be marked “No Change in Times”.

Once Design Professional has completed and signed the form, all copies should be sent to CITY for authorization because Design Professional does not have authority to authorize changes in Price or Times. Once authorized by CITY, a copy must be sent by Design Professional to CONTRACTOR. Price and Times may only be changed by Change Order signed by CITY, Design Professional, and CONTRACTOR. If the value of the work included in the WCD exceeds the contingency or budget available for the contract, staff must obtain written approval from the Director or his or her designee before the WCD is issued. A Director or his or her designee may not approve a WCD that will exceed City Council authorization. If the work included in the WCD is needed as a result of an emergency, staff may proceed with the issuance of the WCD without

prior written approval even if the value of the work added is expected to exceed the contract contingency balance.

Once the Work covered by this directive is completed or final cost and times are determined. CONTRACTOR must submit proper documentation for inclusion in a Change Order.

IF THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIMES A CHANGE ORDER, IF ANY, MUST BE PROCESSED PROMPTLY.

SECTION 01015

PROJECT REQUIREMENTS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for certain administrative and construction requirements relating to this project.
- B. The work to be performed under this Contract consists of furnishing all labor, materials, equipment, tools, superintendence, and all services necessary to perform the following work complete with all appurtenances:

Water Main Replacement in the area Water Main Replacement in the area of Elmwood to Blue Ridge Cut-off, 47th St. to 57th St. and the transfer of all services on existing mains to the new mains, including complete restoration and all appurtenances, all in Kansas City, Jackson County, Missouri.

- C. All materials furnished and all work done shall be in complete conformance with the Plans and Specifications.

1.2 Section Includes:

- 1.3. Prevailing Wage Rate
- 1.4 Contract Drawings
- 1.5 Contract Specifications
- 1.6 Water Service Permits and Fees
- 1.7 Rights-of-Way
- 1.8 Position, Line or Grade
- 1.9 Crossing State Highways
- 1.10 Construction Sequence
- 1.11 Erosion and Sediment Control
- 1.12 Traffic Control
- 1.13 Sanitary Provisions
- 1.14 Facilities
- 1.15 Clearing, Grubbing, and Tree Removal

- 1.16 Cutting Existing Pavement
- 1.17 Guidelines for Open Excavations
- 1.18 Backfill
- 1.19 Connections to Existing Mains
- 1.20 Water Services and Reconnections
- 1.21 Setting Fire Hydrants
- 1.22 Testing & Disinfection
- 1.23 Offsite Storage
- 1.24 Stream Crossings
- 1.25 Mail Boxes
- 1.26 Preconstruction Conference
- 1.27 Progress Meetings
- 1.28 Route Photographs
- 1.29 Cleanup
- 1.30 Project Records Documents
- 1.31 Abandoned Water Mains

1.3 Prevailing Wage Rate

- A. The prevailing wage rate provisions have been reviewed with respect to this work and it has been determined that the following classifications apply.

Wage Rates: **County – Jackson** **State - Heavy**

- B. The Contractor is required to pay the higher hourly rate for each occupational title.

1.4 Contract Drawings

- A. Project Drawings or “Plans” on which the Bid and Contract are to be based and which are to be supplemented by additional shop and dimension drawings of materials and equipment and other drawings where specified, are Water Services Department drawings entitled

Water Main Replacement in the area of

Elmwood to Blue Ridge Cut-off,
47th St. to 57th St.
Kansas City, Jackson County, Missouri
PN-80001820 D-20223

- B. Sheet numbers and titles are listed on the cover sheet.

1.5 Contract Specifications

- A. The work shall conform to these Project Specifications, contained within the Project Manual, and to the latest revision of the KCMO Standards and Specifications for Water Main Extensions and Relocations and the Rules and Regulations for Water Service Lines, which are made a part hereof by reference. These Standards and Specifications in pdf format are available for viewing and printing from the City website at <http://www.kcmo.gov>.
- B. The term "Engineer" as used in the aforesaid Standards and Specifications shall mean the Engineering Services Division of the Water Services Department of the City, or any engineer or agent designated by the Director in responsible charge of the work.
- C. In cases where the KCMO Standards and Specifications for Water Main Extensions and Relocations and Rules and Regulations for Water Service Lines, as referenced, conflict with these Project Specifications or the Project Drawings, the Project Specifications or the Project Drawings shall govern.

1.6 Water Service Permits and Fees

- A. The Contractor shall obtain Water Service Permits as required in the KCMO Rules & Regulations for Water Service Lines. However, the Contractor will not be required to pay any permit fees for service permits or water taps.
- B. The Contractor will be required to pay all permit fees of other City Departments.

1.7 Rights-of-Way

- A. The Owner will provide right-of-way necessary for construction of the water main where it is in public thoroughfares, city streets, Park Board property, county roads, state highways, or where it crosses private property. The Contractor shall confine his construction operations to the immediate vicinity of the location shown on the Plans, and shall use due care in placing construction tools, equipment, excavated materials, and pipeline materials and supplies so as to cause the least possible damage to property and interference with public traffic.
- B. Should it become necessary that the Contractor use or occupy the land outside the City's right-of-way, the Contractor shall obtain written consent from or execute a written agreement with the property owner and tenant permitting operation. The Contractor shall not enter or occupy for any other purpose with men, tools, equipment, construction or excavated materials on any private property outside the

right-of-way boundaries without written permission from the owner and tenant of the entered or occupied property. Each owner and tenant of land or other property so occupied shall be notified by the Contractor not less than five (5) days prior to such occupation.

1.8 Position, Line or Grade

- A. A Registered Land Surveyor must set control points for the work. Horizontal and vertical control points shall be established using State Plane Coordinates, "Missouri Coordinate System of 1983, West Zone" and NAVD 88 Datum. The Contractor is responsible for hiring a Registered Land Surveyor for this work. All additional survey, layout, and measurement work shall be the responsibility of the Contractor.
- B. Contractor shall provide qualified and experienced staff, equipment and materials required to complete the survey, layout, and measurement work. Contractor shall also furnish necessary labor, equipment, and materials to establish or designate control points when required, establish construction easement boundaries, and check survey, layout, and measurement work. Offset stakes shall be provided at a minimum of 100 feet along the water line and at all appurtenances and fittings. Offset stakes will be at 50 foot intervals if curbs are not in place.
- C. Contractor shall coordinate survey work and shall inform Engineer and WSD in advance of the location and schedule of all survey work.
- D. Contractor shall provide to WSD complete survey cut sheets containing Water Main Stationing, State Plane Coordinates in U.S. Survey Feet (expressed in feet and decimals of a foot). These coordinates must conform to the "Missouri Coordinate System of 1983, West Zone". Cut notes must also include, Top of Pipe Elevations, Off-Set Hub distances with elevations of hub, Finish Grade at Hydrant Sets, Benchmark Elevations, Height of Instrument, and all main shots, in NAVD 88 datum. Stationing coordinates, and elevations must match drawings "approved for construction" by WSD, and shall be indicated for every fitting and every station at maximum distances of 50 feet along the water line. Water mains to be installed with deflections shall have coordinate points established at the beginning point of deflection and at the ending point of deflection.
- E. The cut sheets shall be sealed by a Registered Land Surveyor and must be submitted to WSD for approval a minimum of 2 working days prior to commencement of any Work included on the cut sheets. Saturdays, Sundays, or any Legal Holiday observed by the WSD are not to be included in the 2 working days period. Work shall not proceed if survey cut sheets are not approved by WSD.
- F. The Contractor shall maintain one set of approved cut sheets at the project site and shall keep them continually updated for record purposes.

1.9 Crossing State Highways

- A. The Owner has obtained permission from the Missouri Department of Transportation to construct the proposed water mains across state highways, indicated on the Drawings.
- B. The Contractor shall secure the necessary permit and post bond as required for the construction within the limits of the highway right-of-way. All work within the right-of-way shall be strictly in conformance with the Missouri State Highway Department Regulations. The permit must be secured before any construction is started.

1.10 Construction Sequence

- A. No pipeline will be considered substantially complete until the trenching, pipe laying, bedding, backfill, compaction, and clean up are complete. In addition the pipeline must be pressure/leakage tested and disinfected, flushed and services transferred. Service transfers, if any, are to be undertaken as soon as the line is accepted, and are to be completed before another line is started, unless multiple crews are working on the project simultaneously.
- B. Water Main Construction must be sequenced as follows to reduce the amount of disruption to the Department's customers.
 - 1. If the Contractor has only one crew working on the construction project, construction cannot commence on a second designated water main (i.e. Line A, Line B, Line C, etc.) on the construction plans until all work has been completed on the designated water main currently under construction, which includes laying pipe, performing the required testing on the water main and receiving satisfactory test results, transferring services in this designated water main segment, and cleaning up the area of all debris and excess materials and grading the disturbed soil such that the main area is ready for seed or sod. If seeding and sodding cannot be accomplished due to the time of year based on the contract documents, the Contractor must install and maintain erosion control and hydro mulch until seeding and sodding can be established in disturbed areas. The only way work can commence on a second designated water main is through written permission from the Water Services Department Project Manager.
 - 2. If the Contractor has multiple crews working on the construction project, one crew may commence laying pipe on a second designated water main while the other crew is completing work on the first designated water main under construction. However, no additional work can occur on a subsequent designated water main until all work on the first designated water main under construction has been completed including restoration (pavement, driveways, sidewalks, seeding and sodding) and/or temporary stabilization (erosion control and hydro mulch). The only exception is if the Water Services Department Project Manager provides written permission to the Contractor to commence laying pipe for additional designated water main(s).

1.11 Erosion and Sediment Control

- A. The Contractor shall be responsible for constructing, operating, and maintaining soil erosion and sediment control measures for the construction areas and any stockpile areas used by the Contractor. The Contractor also shall remove such measures and restore the sites of erosion and sediment control facilities upon completion of construction.

- B. The Contractor shall develop and submit a Stormwater Pollution Prevention Plan (SWPP) to the Engineer for review prior to start of the work. The plan shall comply with the current Missouri State General Operating Permit, Water Pollution Control Program, for construction or land disturbance activity. The plan shall include, but shall not be limited to, the following:
 - 1. Watershed Information and storm drainage routes through construction areas.
 - 2. There will be no direct discharges to valuable resource waters from the project site.
 - 3. Erosion control may be removed only after vegetation is established on at least 85% of the seeded areas and with the Engineer's verification.
 - 4. Description of non-structural Best Management Practices (BMPs), including but not limited to the following:
 - a. Conduct operations to preserve existing vegetation in the public right-of-way to the maximum extent practicable.
 - b. Conduct operations to preserve existing pavement and curbs to the maximum extent practicable.
 - c. Provide temporary or permanent stabilization of disturbed areas of the site 14 days after construction activity has temporarily or permanently ceased. On areas with slopes greater than 3%, stabilization must be established within 7 days.
 - d. Minimize stockpiling of job-excavated materials on site. Remove and haul excavated materials from site as soon as practicable, which will not be reused for backfill.
 - e. Conduct operations to minimize deposition of earth and sediment onto adjacent paved surfaces. Clean dirt and sediment from paved surfaces adjacent to project site on a daily basis using brush attachments, shovels, brooms, or other tools.
 - f. Contain all concrete truck washout and remove from project site for proper disposal.

- g. Do not store fuel or chemicals on the project site.
- 5. Description of structural Best Management Practices (BMPs), including but not limited to the following:
 - a. Provide stabilized construction site entrances at locations typically used to enter the site as shown on APWA Standard Drawing No. ESC-01. Provide sediment fences as sediment traps, installed perpendicular to pipeline trench and parallel to trench on slopes susceptible to erosion. Temporary sediment fence shall be as shown on APWA Standard Drawing No. ESC-10.
 - b. Provide temporary inlet protection for curb inlets susceptible to stormwater runoff from construction activities due to topography and drainage pathways from the site
- C. This SWPPP shall be subject to amendment and updated as appropriate during the term of the land disturbance activity. Maintain copy of the SWPPP on the construction site during normal working hours and make it available to a department representative upon request.
- D. Inspections: Regularly scheduled inspections shall be at a minimum of once per seven calendar days. For disturbed areas that have not been finally stabilized, all installed BMPS and other pollution control measures shall be inspected for proper installation, operation, and maintenance. A log of each inspection shall be kept. A separate inspection shall be conducted within 48-hours after a rainfall event, which causes runoff to occur on the site.

All SWPPP documents can be found in the Appendix.

1.12 Traffic Control

- A. The Contractor shall be responsible to provide all necessary traffic control devices to safely construct this project. The contractor shall furnish and erect all traffic control signs, barricades, markings, and other traffic control devices that are required to control vehicular and pedestrian traffic. The size, shape, color and placement of all signs, barricades, markings, and other traffic control devices signs shall comply with the latest revision of the Manual of Uniform Traffic Control Devices and specific requirements of the KCMO Street and Traffic Division of Public Works Department.
- B. The Contractor shall prepare and submit for approval a specific traffic control plan related to his proposed approach to constructing the work. The Contractor shall secure approval of the traffic control plan from the KCMO Public Works Department, Water Services Department, and all other governing authorities.

1.13 Sanitary Provisions

- A. The Contractor shall provide sanitary conveniences for use of all persons employed on the Work. All sanitary conveniences shall be satisfactory to the Owner and shall conform to the regulations of the Health Department of City, County, and State. At the completion of the Work, all signs and traces of such sanitary provisions shall be removed.

1.14 Facilities

- A. Water: The Owner will furnish to the Contractor without charge all necessary water for filling, flushing, and testing the completed line and other construction requirements. The Contractor shall make arrangements with the Owner for all water used. Use of City's water facilities shall be at the direction of the Water Services Department so that water service to customers served by the facilities is not impaired or wasted. Any water furnished by the Owner must be obtained from the Owner's existing main. All material, labor and equipment needed to obtain water for construction purposes and to comply with Water Services Department's requirements shall be provided by the Contractor at his sole cost and expense.
- B. Operation of Existing Valves:
 - a. Valves on Transmission Mains
The operation of all valves on the City's existing transmission system shall be performed or supervised by the City. The Contractor shall not operate any valves on the Water Services Department's transmission mains (any main larger than 12") without supervision of the City. If the Contractor desires the operation of any valves, he shall make a request to Water Services Department for such operations. For transmission main shuts, Contractor shall give Owner at least one week's notice so a temporary test shut can be scheduled and conducted to ensure a tight shut. Contractor shall assist with test shuts and main shuts as requested by City including, but not limited to, filling out and distributing shut notices and operation of valves under direct supervision of the City. The hydrant branch valves may be operated in the presence of a representative of the Water Services Department with no official advance notification.
 - b. Distribution Mains
The Contractor will perform test shuts and main shuts on the Water Services Department's distribution mains (any main 12" or smaller) without direct supervision at no extra cost to the Water Services Department. All test shuts and main shuts require the Water Services Department's approval. The request form for test shuts and main shuts shall be sent to the Project Manager and Area Supervisor at least one week prior to needing the shut. The Contractor will be responsible for notifying all residents who will be affected by construction activities which includes, but is not limited to, filling out and distributing shut notices. The Contractor must still coordinate with both the resident inspector and the project manager. The Contractor must follow the City's standard procedures when filling and flushing distribution mains including but not limited to, notifying City's Dispatch Office.

- C. Power: All power for lighting, operation of the Contractor's plant or equipment, or for any other use which may be required for the proper completion of the Work shall be provided by the Contractor at his sole cost and expense.

1.15 Clearing, Grubbing, and Tree Removal

- A. The Contractor shall perform all clearing and grubbing as required to complete and install new water mains.
- B. The Contractor shall dispose of all cleared and grubbed materials, and such clearing, grubbing, and tree removal shall be considered as an obligation of the Contractor and covered in the Lump Sum Price bid for the water main installation.

1.16 Cutting Existing Pavement

- A. When pavement cuts are required for the installation of the water mains or for access to the existing mains, the Contractor shall make the cuts and repair the same, furnishing all necessary labor and materials.
- B. Care and caution shall be taken and observed when cutting the existing pavement for the installation of the water mains. The openings shall be made with tools designed for cutting the pavement with the minimum of damage to the surrounding area.
- C. Pavement areas cut or damaged shall be restored and repaired to a condition equal to the original quality and finish in strict conformance with the KCMO Public Works Department "Street Cut Restoration Standard, SR-1".
- D. Installation of water lines beneath concrete driveways shall be done by directional drilling or approved trenchless methods unless rock or other site conditions require open cut excavation.
- E. Any curbs removed or damaged shall be replaced by the Contractor at no extra cost to the Owner.

1.17 Guidelines for Open Excavations

- A. Required excavations shall be restored to the level of the adjacent surfaces as soon as practicable. Unsupervised open excavations on public properties are discouraged at all times. Every person who for any purpose makes or causes to be made an excavation in, upon, under, through or adjoining any street, sidewalk, alley, park, boulevard, parkway, or any other public properties, and shall leave any part or portion thereof open, shall provide effective protection to the public.
- B. All excavations in roadways shall be protected and secured in compliance with existing federal, state, and local codes and standards, including, but not limited to, the most current editions of the Manual of Uniform Traffic Control Devices.

- C. All street plates shall be placed in a secure manner and to minimize noise generated by traffic traveling over them and to minimize the effect on traffic. Street Plates, used by the Contractor over roadway excavations, shall comply with regulations of the KCMO Public Works Department and its standard Street Plate Details.
- D. All unsupervised excavations not within roadways shall be protected and secured. A protective cover over an excavation shall be installed so that it can sustain the weight of any persons and/or objects placed upon it. The cover shall be fixed to the ground so it cannot be moved. Protective covers shall have no opening(s) or protuberance(s) of sufficient size to cause a fall and/or injury. Advance warning devices shall be installed as necessary.
- E. Any excavation that is not covered shall be fenced in such a way that it surrounds the entire area under excavation so as to prevent entry by any persons. The fencing shall be a minimum of 42" in height. The fence shall be constructed in such a manner that it is adequately secured and will remain upright at all times under normal site conditions.
- F. All protective coverings and/or fences on excavations shall be inspected at least daily to assure integrity. Protective coverings and/or fences in heavy traffic areas shall be inspected more often as necessary.
- G. All necessary and applicable permits shall be secured for any work contemplated on public properties before commencing any activity. In all instances the applicant agrees to perform all work in accordance with the permit and to indemnify and hold harmless the City from all liability, judgments, costs, expenses, and claims growing out of damages or alleged damages, of any nature to any person or property arising out of performance or non-performance of said work or the existence of facilities and/or appurtenances thereof.

1.18 Backfill

- A. All backfill in sidewalk and street areas shall be thoroughly compacted in strict conformance with Section 02200, Earthwork, of the Project Specifications and KCMO Public Works Department "Street Cut Restoration Standard", SR-1.

1.19 Connections to Existing Mains

- A. The Contractor shall furnish and install all fittings necessary for connections to the existing water mains at the locations shown on the Plans. No connections to existing mains shall be started without prior approval of the Director of Water Services Department. Scheduling of water main shuts and connections to existing water main shall be at the discretion of Water Services Department.
- B. It shall also be the responsibility of the Contractor to make any and all excavations and backfill as required, and furnish all labor, equipment, and material necessary to complete the connections as detailed on the Plans. The Contractor shall maintain, barricade, repair, restore, and protect all excavations and disturbed areas. All bends, tees, etc., shall be provided with adequate backing by the

Contractor as required in Section 02669 – Thrust Restraints of the Standards and Specifications.

- C. All water mains must be maintained in service except for shuts of limited duration in accordance with the OWNER's Water Services Water Main Shut Procedures. When mains are taken out of service, CONTRACTOR shall work continuously to bring the existing or new replacement mains back into service as quickly as possible.
- D. All existing water transmission mains, 16-inch in diameter or larger, cannot be taken out of service at any time during the peak water demand season of May 15th to September 15th.
- E. Temporary Service
 - 1. The Contractor shall notify all Water Services Department customers affected by the Work of making the connections as to the time of day and the span of time required to make said connections. When the closing of a valve to make the connections will terminate water service to a customer(s), the Contractor shall arrange to supply temporary service and schedule the time which is most convenient to the customer(s) for making the connection. No extra compensation will be allowed for providing temporary service or making the connection at a time other than normal working hours.
 - 2. When temporary water supply is not possible, valve shut duration shall be less than 4 hours.
- F. Contractor must be prepared for and be able to handle moderate leakage when making connections to the existing water distribution system. Contractor must make provisions for dewatering existing trenches and piping to enable construction work to proceed. Should temporary taps or drain valves be required on existing piping, Contractor shall provide and install as required subject to the approval of the Engineer. Moderate leakage, for the purposes of this paragraph, shall be defined as a valve or valves that leaks no more than what can be handled by a single 3-inch trash or dewatering pump. Should more than one connection be made to the existing system at the same time and in different excavations, the Contractor shall price and include in his bid the cost of providing a dewatering pump at each excavation location, including all fuel and consumables required to run said pump for the duration of the connection work. Owner shall not be liable for delay damages or claims as a result of leaking or inoperable valves.

1.20 Water Services and Reconnections

- A. All existing service lines connected to existing water mains to be abandoned shall be disconnected from said mains and reconnected to the new mains by the Contractor. The Contractor shall furnish all material, equipment, and labor for the complete installation in accordance with the KCMO Rules & Regulations for Water Service Lines. All service line reconnections will be made by the Contractor with his own work forces, including all main taps. No connection to the new mains will

be permitted until the new mains have been accepted by Water Services Department and put in service.

- B. Service taps to the main shall be made in accordance with KCMO Rules & Regulations for Water Service Lines with the following exception:

Delete Section 4.02(a) and replace with the following: "Tapping shall be performed by the Contractor".

- C. The connection of the tap service line to the corporation stop shall be made by means of a dielectric flared fitting or approved dielectric compression coupling.
- D. No corporation tap shall be larger than 1" in diameter. On all service piping larger than 1", up to and including 4" in diameter, provide a 4" branch tee on the new main and a reducer as required for the connection. Service lines larger than 2" in diameter shall be ductile iron.
- E. Contractor shall replace all non-copper service lines (2" and smaller) with Type "K" copper with like size ($\frac{3}{4}$ " minimum) from the main to the property line, shut off valve, or meter pit, whichever occurs first, unless otherwise indicated on the Project Drawings. If no shut off valve exists within the street right-of-way, a curb stop and box shall be installed at a location selected by the Water Services Department. Existing copper service connections may be spliced to extend the existing service to the new main with an approved fitting or coupling, provided the coupling is not located under pavement.
- F. Installation of water service lines beneath streets and driveways shall be done by drilling or approved trenchless methods unless rock or other site conditions require open cut excavations.
- G. After the reconnection, the immediate area will be prepared for surface restoration. Cleanup must be completed on all water service transfers at the end of each work day. No open excavation for service transfers will be allowed during non-working hours unless specifically approved by the Owner's Representative.
- H. Existing water meters and tiles or curb stops, located in a position that will require their adjustment, either vertically or horizontally, because of proposed construction, shall be relocated or adjusted by the Contractor. All materials shall be new. No additional payment to the Contractor shall be allowed for any water service and meter adjustments.

1.21 Setting Fire Hydrants

- A. When installing hydrants, reaction backing shall be placed between the back of the elbow and the end of the trench as shown on the KCMO standard details. The bottom of the hydrant shall be placed on a flat stone slab approximately two (2) feet square. Before backfilling the trench, one (1) cubic yard of coarse stone approximately six (6) inches in size shall be placed around the hydrant in conformance with the standard details.

- B. The weep holes of the hydrant shall stand plumb with the center of the steamer nozzle maintained at least eighteen (18) inches to twenty (20) inches above the existing ground grade at each hydrant location unless otherwise specified; and when placed behind curbs, the centerline of the hydrant shall be at least thirty-six (36) inches from the back of the curb.
- C. Hydrants shall be rotated so as to have steamer nozzle facing the street or rotated to face any direction as required by the Director.
- D. All new hydrant settings shall be as shown on the KCMO standard details and shall include all necessary excavation and backfill to make the installation complete. The area around each hydrant and hydrant valve cover shall be thoroughly compacted to prevent settlement in these areas.
- E. The Contractor will locate the installation point of each hydrant as shown on the Drawings. The Contractor shall furnish all labor and material in laying out the work. The Contractor shall be responsible for setting any offset stakes he may require. The Owner's Representative shall approve the staked location of each hydrant before its installation.

1.22 Testing & Disinfection

- A. All disinfection work shall be in strict conformance with Section 02675 – Water Main Testing, Disinfection, and Dechlorination of the KCMO Standards and Specifications for Water Main Extensions and Relocations.
 - 1. After the mains have been properly prepared, the Contractor shall disinfect the mains, at no additional cost to the Water Services Department. The Contractor will furnish all necessary assistance for the operation of valves, etc.
 - 2. After dechlorination and final flushing, and prior to putting the main into service, a passing BAC-T test shall be made on the main by the City. If the BAC-T test fails, the Contractor shall disinfect the main again.
- B. Pressure Test:
 - 1. For 12-inch or smaller: After the trench has been backfilled, the test connections made and the main filled with water, a minimum pressure of not less than the normal operating pressure (for the lowest point on the line) plus 50% for surge but in no case less than 160 psi, unless otherwise stated, shall be maintained on the new water main for at least two (2) hours.
 - 2. For 16-inch or larger: After the trench has been backfilled, the test connections made and the main filled with water, a minimum pressure of not less than the normal operating pressure (for the lowest point on the line) plus 50% for surge but in no case less than 225 psi, unless otherwise stated, shall be maintained on the new water main for at least two (2) hours.

C. Leakage Test:

1. For 12-inch or smaller: An allowable leakage test shall be conducted after the pressure test has been satisfactorily completed. The Contractor shall maintain a minimum pressure in the new water main of 160 psi (or a minimum of 10 psi greater than the normal operating pressure of the system, if the normal operating pressure is lower than 140 psi) for the lowest point on the line for at least two (2) hours.
2. For 16-inch for larger: An allowable leakage test shall be conducted after the pressure test has been satisfactorily completed. The Contractor shall maintain a minimum pressure in the new water main of 225 psi (or a minimum of 10 psi greater than the normal operating pressure of the system, if the normal operating pressure is lower than 215 psi) for the lowest point on the line for at least two (2) hours.

1.23 Offsite Storage

- A. Offsite storage arrangements shall be approved by the Owner for all materials and equipment not incorporated into the Work but included in Applications for Payment. Approval of offsite storage arrangements and payment for stored materials is solely at the discretion of the Owner. If approved for payment, stored materials shall only be paid for as included on the itemized supplier's invoice.
- B. Such offsite storage arrangements shall be presented in writing and shall afford adequate and satisfactory security and protection as provided in Subsection 14.02A of Section 00700, Construction General Conditions. Offsite storage facilities shall be accessible to Owner.

1.24 Stream Crossings

- A. Stream and drainage ditch crossings shall be made in accordance with the applicable Specifications and details shown on the Plans. The Contractor shall furnish all labor, equipment, and materials, and perform all work necessary to construct water main stream crossings as required. No extra payment will be allowed for shoring, forming, dewatering, trenching, backfilling, rip-rap, concrete or steel, or any other items necessary in the completed work.
- B. The trench width shall be as required for proper pipe installation and the trench depth shall be as required to give minimum cover shown on the Plans. Pipe encasement, where required, shall be in accordance with the Specifications and placed as indicated on the Plans.
- C. The construction of riprap for erosion prevention of ditch slopes will be required at locations shown on the Plans. The rock used for riprap shall be hard durable stone, not less than fifteen (15) inches thick, and shall be placed in mortar to provide a neat, uniform surface.

1.25 Mail Boxes

- A. The U.S. Post Office Department's regulations prohibit the delivery of mail to addresses where there are no mail boxes or where the mail boxes are not readily accessible because of construction excavation. Hence, in areas where it is necessary to remove mail boxes to facilitate water main construction, it shall be the obligation of the Contractor to install any mail boxes so removed to their original position and elevation within 24 hours and the area stabilized and restored to the original condition.
- B. Any and all excavated material should be removed as soon as possible from the vicinity of all mail boxes so as to minimize mail delivery inconveniences.

1.26 Preconstruction Conference

- A. Prior to the commencement of Work at the site, a preconstruction conference will be held at a mutually agreed upon time and place. The conference shall be attended by:
 - 1. Contractor and his superintendent(s)
 - 2. Owner's Representative
 - 3. Principal Subcontractors
 - 4. Representative of principal Suppliers and manufacturers as appropriate
 - 5. Design Professional or his representative
 - 6. Governmental, City or County representatives as appropriate
 - 7. Others as requested by Contractor, Owner, or Design Professional.
- B. Unless previously submitted to Water Services Department or the Design Professional, Contractor shall bring to the conference a preliminary schedule for each of the following:
 - 1. Progress
 - 2. Procurement
 - 3. Sequencing of Work
 - 4. Values for progress payment purposes
 - 5. Shop Drawings and other submittals.
- C. The purpose of the conference is to designate responsible personnel and establish a working relationship, review schedules and project requirements, and clarify responsibilities and operating procedures. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include (but not be limited to):
 - 1. Contractor's preliminary schedules
 - 2. Transmittal, review and distribution of Contractor's submittals.
 - 3. Processing Applications for Payment
 - 4. Maintaining record documents
 - 5. Critical Work sequencing
 - 6. Field decisions and Change Orders
 - 7. Use of premises, office and storage areas, security, housekeeping, and Owner's needs

8. Major material deliveries and priorities
 9. Easements and rights-of-way status
 10. Traffic control during construction
 11. Contractor's assignments for safety and first aid.
- D. Design Professional or his representative will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

1.27 Progress Meetings

- A. Contractor shall schedule and hold regular progress meetings at least monthly and at other times as requested by Owner or Owner's Representative or required by progress of the Work. Owner, Contractor, and all Subcontractors active on the site shall be represented at each meeting. Contractor may at its discretion request attendance by representatives of its Suppliers, manufacturers, and other Subcontractors. Representatives of utilities and others should be requested to attend, as appropriate, if the work affects them.
- B. Contractor shall prepare an agenda for and preside at the meetings. Meeting minutes shall be prepared and distributed by Contractor. The purpose of the meeting will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, resolve any problems which may develop, and discuss other matters as appropriate.

1.28 Route Photographs

- A. The Contractor shall have suitable digital color photographs taken along the entire construction area showing the condition of the terrain previous to any alteration by the Contractor and before construction is started. Photographic images shall be captured in digital format, with a minimum of 10-megapixel resolution, using minimal JPG compression. The photographs shall be taken at intervals necessary to record possible field conflicts. Each photo should be time stamped with the date and time the picture was taken.
- B. The principal reason for obtaining good photographs is so existing items such as cracked curbs, shrubs and sodded areas, broken pavement areas, or plugged culverts in driveways, etc., lying along the construction route may be more clearly shown and recorded. This will to some degree prevent the possibility of post construction litigation with property owners adjacent to the Work.
- C. 2 Non-rewriteable CD-ROMs, DVD-ROMs or other approved electronic storage device shall be submitted to the Owner without charge as soon as is practicable after the photographs are taken. The Contractor should keep a copy of the pictures. Each photograph shall show title of the project, name of the Contractor, date of photograph, location of the view, etc. Polaroid photographs will not be acceptable.

1.30 Cleanup

- A. The Contractor shall replace all surface material and shall restore paving, curbing, sidewalks, gutters, shrubbery, fences, sod, and other surfaces disturbed to a condition equal to that before the work began, furnishing all material and labor incidental thereto.
- B. All excavated material in excess of that necessary to fill the trench shall be removed and disposed of by the Contractor so that the ground will be left as nearly as possible its original state. Any deficiency in the quantity of material for backfilling the trenches or for filling depressions caused by settlement shall be supplied by the Contractor.
- C. Surplus pipeline materials, tools, and temporary structures shall be removed by the Contractor; all rubbish shall be hauled away by the Contractor and the construction site shall be left clean to the satisfaction of the Owner.

1.31 Project Records Documents

- A. Contractor shall maintain in a safe place at the project site one continually updated record copy of all Drawings, Standards and Specifications, Addenda, Shop Drawings, Written Amendments, Change Orders, Work Change Directives, written interpretations or clarifications of the contract documents, survey information (including approved cut sheets), and all other documents relevant to the Work. All such documents shall be kept in good condition and order, and shall be continuously updated to indicate all changes made during construction. No work shall be allowed in the absence of these record documents.
- B. Upon completion of the work at the project site, the Contractor shall submit to the WSD all Record Documents. Record drawing submittals, that are a part of the Record Documents, shall include one paper copy, one reproducible copy (on Mylar or vellum), and one electronic copy on computer disc of the updated drawings in the latest version of Microstation® or AutoCAD®. The disc shall include all information necessary to edit and plot the drawings, and shall be labeled with the Project Name, WSD Project Number, WSD Work Order Number, WSD Drawing Number, and date of publication. All measurements on the Record Drawings must be updated to indicate the true location of the work as it was actually constructed in the field. The Record Drawings for water mains must include references for all beginning and ending points, bends, hydrants, valves, tees, fittings, and beginning and ending points of deflection of water mains indicated in State Plane Coordinates in U.S. feet (expressed in feet and decimals of a foot). The coordinates must conform to the "Missouri Coordinate System of 1983, West Zone". State wide Missouri Geographical Reference System monuments, Kansas City Metro Control Project monuments, Certified Land corners used as references to determine State Plane coordinates, and all control monuments used in the survey work must be listed with reference ties shown on the Record Drawings. The Record Drawings must indicate the elevations of the finished grade or improvements and the top of the water main at every fitting and Station at maximum spacing of 50' along the water main. All elevations shall be indicated in NAVD 88 Datum (in feet and decimals of a foot). Every sheet of the Record

Drawings must be reviewed and **sealed by a Registered Land Surveyor, licensed in the state of Missouri** and must include the following statement on the title block inside the box marked "for WSD use" and in close proximity to the Registered Land Surveyor's seal::

"Each sheet of these Record Drawings and attached Survey Cut Sheets for the Work have been reviewed and approved by the Registered Land Surveyor whose seal is affixed to this Record. The horizontal control, coordinates, and elevations shown on these Records are accurate and are based on the Missouri Coordinate System of 1983, West Zone and NAVD88 datum. These Records have been revised, as required in Section 01000, 1.20 of the Standards and Specifications for Water Main Extensions and Relocations, under my personal supervision to show the true and accurate measurements of the work as it was actually constructed."

The Contractor must also sign each sheet of the documents with the following certification:

"I hereby certify that this Record correctly depicts the Work constructed as to size, horizontal and vertical location, and grade as shown on the approved construction drawings or their revision. The Work was done in accordance with these Records and the current version of the Standards and Specifications for Water Main Extensions and Relocations."

Contractor: _____ Date: _____
Name (print): _____ Title: _____
Signature: _____

- C. As part of the Project Record Documents, Contractor shall compile specific information about each valve and hydrant installed in the project, and complete forms provided by the WSD. Information for each valve and hydrant shall include surveyed location (state plane coordinates and elevation) and ties, number of turns (valves) make and type, date of installation, and other descriptive information on the standard WSD forms. The completed valve and hydrant forms are a part of the Record Documents to be provided by Contractor to the WSD.
- D. The Water Services Department will review the submitted Record Documents and determine their adequacy prior to final acceptance of the Work. Record Documents determined to be inadequate will be returned to the Contractor for required revisions or additions. The Contractor will correct all inadequacies and make all additions required to make the Record Documents acceptable to the WSD. The Record documents shall be an integral part of the work guaranteed by the Contractor's Performance and Maintenance Bond. If during the three year maintenance period WSD determines that further revisions or corrections are necessary to make the Record Documents accurate, the Contractor, at no cost to WSD will make or cause the revisions or corrections to be made.

1.32 Abandoned Water Mains

- A. Water service lines connected to mains being abandoned shall be reconnected to new mains in accordance with the Rules and Regulations for Water Service Lines, unless shown otherwise. The end of all abandoned water mains shall be plugged with sufficient concrete to prevent backfill material from entering the pipe.
- B. Covers, lids, and standpipes on all abandoned valves shall be removed to at least two feet (2') below grade and the area shall be properly backfilled and restored in accordance with the specifications.
- C. Existing fire hydrants that are removed shall be returned to the Water Services Department store yard at 2409 East 18th Street.

END OF SECTION

SECTION 01016

WATER MAINS NEAR SEWERS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the required procedures where the Work is in close proximity to existing sewers.

1.2 Section Includes

- A. Horizontal Separation
- B. Vertical Separation

1.3 Related Sections

- A. Section 02200 - Excavation and Trenching

1.4 Horizontal Separation

- A. Water mains shall be laid at least 10 feet, horizontally, from any sewer. When local conditions prevent a horizontal separation of 10 feet, a water main may be laid closer than 10 feet to a sewer, provided that the water main is laid in a separate trench, or on an undisturbed earth shelf located on one side of the sewer, at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer. Water mains shall be laid such that there is a minimum of 18" clearance between the pipe wall and the exterior of any manhole and/or inlet on the sewer line. When it is impossible to obtain proper horizontal separation as stipulated above, the sewer must be reconstructed of ductile iron pipe meeting the requirements of Section 02618, prestressed concrete cylinder pipe meeting the requirements of Section 02619, or PVC pressure pipe and shall be pressure-tested to assure water-tightness before backfilling. PVC pipe will conform to AWWA C-900 or C-905.
- B. The required length of sewer to be replaced or constructed of pressure pipe will be the length necessary to achieve 10 feet horizontal separation.

1.5 Vertical Separation:

- A. Whenever water mains must cross above sewers, the water main shall be laid at such an elevation that the bottom of the water main is at least 18" above the top of the sewer. A full length of pipe shall be centered over the sewer to be crossed so that the joints will be equally distant from the sewer and as far away as possible. This vertical separation shall be maintained for that portion of the water main located within 10 feet, horizontally, of any sewer it crosses.

When it is impossible to obtain minimum vertical separation set forth above the sewer must be reconstructed of ductile iron, prestressed concrete cylinder, or PVC pipe, and shall be pressure tested to assure water tightness, before backfilling. PVC pipe will conform to AWWA C-900 or C-905.

- B. Whenever a water main must cross under a sewer, a vertical separation of 18 inches between the bottom of the sewer and the top of the water main shall be achieved. A full length of pipe shall be centered under the sewer to be crossed so that the joints will be equally distant from the sewer and as far away as possible. This vertical separation shall be maintained for that portion of the water main located within 10 feet, horizontally, of any sewer it crosses. The sewer shall be reconstructed of ductile iron pipe, prestressed concrete cylinder pipe, or PVC pressure pipe for a distance of 10 feet on either side of the crossing, and shall be pressure tested to assure water tightness before backfilling. PVC pipe will conform to AWWA C-900 or C-905. Where these conditions cannot be met, the CITY shall be consulted as to the precautions to be taken for protection of the public water supply.
- C. When PVC pipe is used for sewer reconstruction, the following guide shall apply:

<u>Depth of cover over sewer</u>	<u>Use</u>
Up to 22'	SDR-26
22' up to 30'	SDR-21

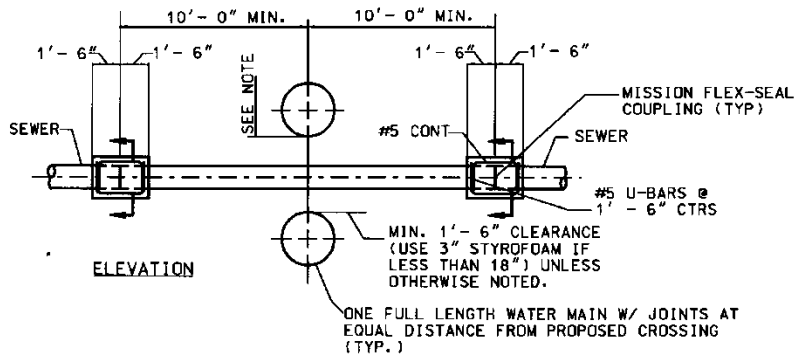
PART 2 PRODUCTS

- A. Not Used

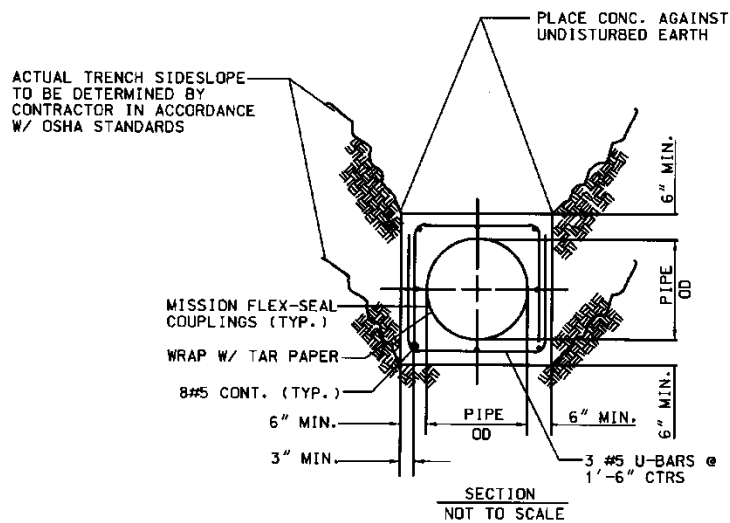
PART 3 EXECUTION

- A. Reconstruction of sewer lines included in this Work shall be done in accordance with Construction Detail Drawing No. 01016-1.

END OF SECTION



NOTE:
 IF WATER MAIN CROSSES BELOW SEWER,
 OR IF WATER MAIN CROSSES LESS THAN 18" ABOVE SEWER.
 SEWER IS TO BE REPLACED W/ CL 52 DIP
 OR PCCP OR PVC, AND JOINTS ENCASED AS
 DETAILED ABOVE.
 PVC PIPE SHALL CONFORM TO AWWA C-900 OR C-905



SEWER CROSSING DETAIL

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: JULY, 2006 CONSTRUCTION DETAIL DRAWING NO. 01016-1

SECTION 01210
ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including 00700 General and 00800 Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Form 00413 Allowance Form
- C. Form 01210.01 Allowance Authorization.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
- B. The allowance is for replacements of inoperable water valves in the vicinity of the project site, not otherwise identified for replacement on the Contract Drawings. Each valve replacement shall be made in accordance with Section 02641 of the Standards and Specifications for Water Extensions and Relocations and the Owner's Standard Operating Instructions Repairing Water Mains by removing the old valve and enough of the existing piping to facilitate the installation of the pre-chlorinated new valve, closure piece of new, pre-chlorinated DIP, spacer, long style solid sleeve(s), and restraining glands as necessary. Installed pipe, valves, fittings, and other appurtenances shall be entirely polywrapped. Job excavated materials may be used for backfill in parkway (grassy) areas when material is suitable for such (i.e. not saturated). Job excavated materials not suitable for use as backfill or surplus job excavated materials shall be removed from the jobsite. Pavement areas shall be backfilled and a concrete pavement base constructed according to the Public Works SR-1 standard for pavement restoration.
- C. Funds will be drawn from the allowance by issuance of document 01210.01 Allowance Authorization.
- D. At Project closeout, unused amounts remaining in the allowance will be credited to the Owner by Change Order.

1.3 PROPOSALS

- A. At Owner's request, the Contractor shall prepare a written proposal with cost breakdown for each proposed work assignment under the allowance. Include recommendations that are relevant to performing the Work.
- B. Contractor shall not proceed with allowance work until Owner issues an Allowance Authorization.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Contractor shall complete each authorized valve replacement in accordance with Section 02641 of the Standards and Specifications for Water Extensions and Relocations and the Owner's Standard Operating Instructions Repairing Water Mains.
- B. Coordinate with Pipeline Division of Water Services for water valve replacements under the allowance.

3.2 SCHEDULE OF ALLOWANCES

- A. Allowance No.1: To complete assigned Work Orders for replacement of inoperable water valves in vicinity of project sites (not identified for replacement on the Contract Drawings) - \$50,000.00.

END OF SECTION



ALLOWANCE AUTHORIZATION

Project / Contract Number: 80001820 / 9030

Project Title: Water Main Replacement in the area of Elmwood to Blue Ridge Cut-off, 47th St. to 57th St.

To: _____

Authorization Number: _____

Re: _____

From: _____

Date: _____

Contract For: _____

You are authorized to perform the following item(s) of work and to adjust the Allowance Sum accordingly:

This is NOT a CHANGE ORDER and does NOT INCREASE OR DECREASE the CONTRACT AMOUNT.

Original Allowance	\$ _____
Allowance Expenditures prior to this Authorization	\$ _____
Allowance Balance prior to this Authorization	\$ _____
Allowance will be [<input type="checkbox"/> increased] [<input type="checkbox"/> decreased] by this Authorization	\$ _____
New Allowance Balance	\$ _____

APPROVAL RECOMMENDED

CITY APPROVAL

Design Professional Date

City's Representative Date

CONTRACTOR ACCEPTANCE

Construction Manager Date

Contractor Date

Attachments:

- Distribution:
- City
 - Contractor
 - Construction Manager
 - Design Professional
 - Consultant
 - Other



APPLICATION FOR PAYMENT

Project Number _____

Project Title _____

Final Payment⁵

CONTRACTOR _____

Address _____

Application Number²: _____

Date: _____

Ordinance/Resolution Number: _____

Effective: _____

PO Number _____

Vendor Number _____

Application for Work Accomplished from _____

to _____

Original Contract Price	[1]		\$	-
Net by Change Orders through _____		[2]	\$	-
Current Contract Price (1+2)		[3]	\$	-
Completed Work	[4]	\$	-	
Disputed Amounts ³	[-]	[4a]	\$	-
Stored Material ⁴	[5]	\$	-	
Disputed Amounts ³	[-]	[5a]	\$	-
Total Completed and Stored to Date (4+5)		[6]	\$	-
Previous Payments	[7]	\$	-	
Previous Retainage	[8]	\$	-	
Total Previous Applications (7+8)		[9]	\$	-
Amount This Application (6-9)		[10]	\$	-
Less Retainage This Application (5%)		[-]	[11]	\$ -
Release of Retainage		[12]	\$	-
Total Due This Application (10-11+12)		[13]	\$	-
Liquidated Damages				
Completion of Work	[14]	\$	-	[-] \$ -
Prevailing Wage ⁷	[15]	\$	-	[-] \$ -
MBE/WBE Program ⁷	[16]	\$	-	[-] \$ -
Workforce Program ⁷	[17]	\$	-	[-] \$ -
Total Amount Due Contractor (13 - 14 through 17)		[18]	\$	-

Accompanying Documentation: ^{1, 2, 3, 4, 5, & 6} and any other information as necessary.

NOTE: Initial all figures on this Application and on the Schedule of Values that are changed to correct errors or conform to the amount recommended. Attach explanation of changes that have been made.

CONTRACTOR's Certification:

The undersigned CONTRACTOR certifies that (a) all previous progress payments received from OWNER on account of Work done under this Contract have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by all prior Applications for Payment; (b) at time of payment, title of all Work, materials and equipment incorporated into said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (c) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (d) all manufactured goods or commodities used or supplied for this Project are in compliance with Kansas City's Buy America ordinance.

By _____
 Contractor Authorized Representative (Print) Signature

Date _____

State of _____)
)SS
 County of _____)

Subscribed and Sworn to before me this _____ day of _____, _____.

My commission expires:

Notary Public: _____

DESIGN PROFESSIONAL's Recommendation of Payment:

In accordance with the Contract Documents, based on on-Site observations and the data comprising this application, the DESIGN PROFESSIONAL recommends to the OWNER that to the best of the DESIGN PROFESSIONAL's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the CONTRACTOR is entitled to payment of the Amount above listed in this application.

Name of firm (Print) DESIGN PROFESSIONAL (Print) (Signature)

Date: _____

Construction/Program Manager's Recommendation of Payment: (if applicable)

In accordance with the Contract Documents, based on on-Site observations and the data comprising this application, the Construction/Program Manager recommends to the OWNER that to the best of the Construction/Program Manager's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the CONTRACTOR is entitled to payment of the Amount above listed in this application.

Construction/Program Manager firm (Print) Authorized Representative (Print) (Signature)

Date: _____

City's Representative's Agreement with Recommendation of Payment

City's Representative(print) (Signature) (Date)

City's Approval

The amount previously recommended is approved for payment.

Director or Designee (Print) (Signature) (Date)

¹See General Conditions Article 14.02 A and B

²Proof of tax compliance if 1st payment and if Contract amount exceeds \$150,000.00

³Schedule of Values—Denote any amounts currently disputed in this application. Attach additional dispute documentation if required.

⁴If requesting payment for stored materials, see General Conditions Article 14.02 A.1

⁵If final payment, current proof of tax compliance if Contract is longer than 1 year and amount exceeds \$150,000.00.

⁶ Per General Conditions Sec. 14.02 attach a copy of the most recent 00485.01 M/WBE Monthly Utilization Report, 00485.02

Project Workforce Monthly Report and 00485.03 Company-Wide Workforce Monthly Report CONTRACTOR has submitted to the City's Human Relations Department

⁷Applicable only if final payment

REMINDER: CONTRACTOR is responsible for meeting or exceeding the the D/M/WBE participation amounts in its Contractor Utilization Plan (CUP) as amended by any previously approved Request for Modification/Substitution. Any Change Orders or amendements modifying the amount CONTRACTOR is to be compensated will have correspondingly impacted the amount of compensation due D/M/WBEs for purposes of meeting or exceeding the Bidder/Proposer participation. CONTRACTOR is again reminded to consider the effect of any Change Order or amendment, and to submit a Request for Modification/Substitution if appropriate.

Distribution: Owner Project Manager
 Contractor Design Professional
 Construction Manager _____



SUBCONTRACTORS AND MAJOR MATERIAL SUPPLIERS LIST

Project Number _____ Project Title _____

From Contractor _____ To _____ Date _____

Spec. No.	Section Title	4	Firm, Address (Check box if Supplier)	Phone, FAX and e-mail	Contact

Attachments:

Signed by: _____ Date _____

Distribution: Owner Contractor Construction Manager Design Professional Consultant Other



DAILY LABOR FORCE REPORT

Project Number _____ Day _____ Date _____

Project Title _____

Contractor _____

Subcontractor _____

Weather: (Indicate if weather prevented work and why) _____

Shift: (circle) 5-8 hr Days 4-10 hr Days Other _____

* This report *MUST* be completed and turned in for EACH DAY until FINAL COMPLETION.

Worker's Full Legal Name	Occupational Title or Classification Group & Skill	Hours Worked & Time (i.e. 10AM – 4PM)	Race & Gender

I CERTIFY THAT ALL OF THE INFORMATION PROVIDED ABOVE IS TRUE AND COMPLETE.

Contractor/Subcontractor Representative:

Complete Name: (print) _____ Title: (print) _____

Signature: _____

Page ____ of ____

Distribution: City Department Contractor Subcontractor Other



CERTIFICATE OF SUBSTANTIAL COMPLETION

Project Number _____

Project Title _____

CONTRACT FOR: _____

CONTRACTOR: _____

DATE OF ISSUANCE: _____

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Design Professional's and/or Construction Manager's best knowledge, information and belief, to be substantially complete. Substantial Completion is the state in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of Project or portion thereof designated above is hereby established as _____ which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

CONSTRUCTION MANAGER BY _____ DATE _____

DESIGN PROFESSIONAL BY _____ DATE _____

The Contractor will complete or correct the Work on the list of items attached hereto within _____ days from the above date of Substantial Completion.

CONSTRUCTION MANAGER BY _____ DATE _____

DESIGN PROFESSIONAL BY _____ DATE _____

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at _____ (time) on _____ (date).

OWNER'S REPRESENTATIVE BY _____ DATE _____

Distribution: Owner
 Contractor
 Construction Manager
 Design Professional
 Consultant _____
 Other _____



PUNCH LIST

Project Number _____

Project Title _____

CONTRACTOR _____

From _____ Site Visit Date _____

The following items require the attention of the CONTRACTOR for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.

Item No.	Location (Area)	Description	Correction/Completion Date	Verification Check
----------	-----------------	-------------	----------------------------	--------------------

Attachments

Signed by: _____

Date: _____

DESIGN PROFESSIONAL (Firm/In House)

- Distribution:
- OWNER
 - CONTRACTOR
 - DESIGN PROFESSIONAL
 - Consultant _____
 - Other _____



CONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Project Number _____

Project Title _____

STATE OF _____)
)SS
COUNTY OF _____)

The Undersigned, _____ of lawful
(Name)

age, being first duly sworn, states under oath as follows:

1. I am the _____ of _____ who is the general
(Title) (CONTRACTOR)
CONTRACTOR for the OWNER on Project No. _____ and Project Title _____.

2. All payrolls, material bills, use of equipment and other indebtedness connected with the Work for this Project have been paid and all Claims of whatever nature have been satisfied, as required by the Contract.

3 (✓) ___ Prevailing wage does not apply; or

(✓) ___ All provisions and requirements set forth in Chapter 290, Section 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with these provisions and requirements and the Annual Wage Order contained in the Contract in carrying out the Contract and Work. CONTRACTOR has fully complied with the requirements of the prevailing wage law as required in the Contract and has attached affidavits from all Subcontractors on this Project, regardless of tier, affirming compliance with the prevailing wage law as stipulated in the Contract.

4. I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved (____%) Minority Business Enterprise (MBE) participation and (____%) Women Business Enterprise (WBE) participation on this contract, and (b) listed herein are the names of all certified M/WBE subcontractors, regardless of tier, with whom I, or my subcontractors contracted.

1. Name of MBE/WBE Firm _____
Address _____

Telephone Number (_____) _____
IRS Number _____
Area/Scope*of Work _____
Subcontract Final Amount _____

2. Name of MBE/WBE Firm _____
Address _____

Telephone Number (_____) _____
IRS Number _____
Area/Scope*of Work _____
Subcontract Final Amount _____

List additional subcontractors, if any, on a similar form and attach to the bid.

Supplier** Final Amount: _____

*Reference to specification sections or bid item number.

- (✓) ___ Met or exceeded the Contract utilization goals; or
- (✓) ___ Failed to meet the Contract utilization goals (attach waiver, substitution or modification); or
- (✓) ___ No goals applied to this Project.

5. CONTRACTOR certifies that each Subcontractor has received full payment for its respective work in connection with the Contract.

6. If applicable, I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved, company-wide, at least ten percent (10%) minority workforce participation and two percent (2%) women workforce participation and (2) a true and accurate copy of my final project workforce monthly report (HRD Form 00485.02 and final company-wide workforce monthly report (HRD Form 00485.03) are attached. **NOTE: This paragraph is only applicable if you completed a construction contract that was estimated by the City, prior to solicitation, as requiring more than 800 construction labor hours and costing in excess of \$324,000.01. If applicable you MUST attach copies of your final monthly workforce reports.**

7. This affidavit is made in behalf of the CONTRACTOR for the purpose of securing from Kansas City, Missouri, the certification of completion of the Project and receiving payment therefore.

8. If the Contract amount exceeded \$123,500.01, CONTRACTOR has submitted proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue and has on file proof of tax compliance from all Subcontractors. If the Contract term exceeded one (1) year, CONTRACTOR has provided proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue prior to receiving final payment and has on file proof of tax compliance from all Subcontractors prior to the Subcontractor receiving final payment from CONTRACTOR.

CONTRACTOR _____

By _____
(Authorized Signature)

Title _____

On this _____ day of _____, _____, before me
appeared _____, to me personally known to be the
_____ of the _____,

and who executed the foregoing instrument and acknowledged that (s)he executed the same on behalf of
_____ as its free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the day and year first above written.

My commission expires:

Notary Public



DEVELOPER AFFIDAVIT FOR FINAL CLOSE-OUT

Project Number _____

Project Title _____

STATE OF _____)
)SS
COUNTY OF _____)

The Undersigned, _____ of lawful
(Name)

age, being first duly sworn, states under oath as follows:

1. I am the _____ of _____
(Title) (Redeveloper)
that entered into a Redevelopment Agreement with _____ on Project No. _____
(Statutory Agency) (if applicable)
and Project Title _____.

2. All payrolls, material bills, use of equipment and other indebtedness connected with the Work for this Project have been paid and all Claims of whatever nature have been satisfied, as required by the Contract.

3. (✓) ___ Prevailing wage does not apply; or

(✓) ___ All provisions and requirements set forth in Chapter 290, Section 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with these provisions and requirements and the Annual Wage Order in effect at the time of the Redevelopment Agreement carrying out the Contract and Work. REDEVELOPER has fully complied with the requirements of the prevailing wage law as required in the Redevelopment Agreement and has attached affidavits from all Subcontractors, including the General Contractor, on this Project, regardless of tier, affirming compliance with the prevailing wage law as stipulated in the Annual Wage Order applicable to this project.

4. I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved (____%) Minority Business Enterprise (MBE) participation and (____%) Women Business Enterprise (WBE) participation on this contract, and (b) listed herein are the names of all certified M/WBE subcontractors, regardless of tier, with whom I, or my subcontractors contracted (attach additional sheets if needed).

1. Name of MBE/WBE Firm _____
Address _____

Telephone Number (____) _____
IRS Number _____
Area/Scope*of Work _____
Subcontract Final Amount _____

2. Name of MBE/WBE Firm _____
Address _____

Telephone Number (____) _____
IRS Number _____

Area/Scope*of Work _____
Subcontract Final Amount _____

List additional subcontractors, if any, on a similar form and attach to this form.

Supplier** Final Amount: _____

*Reference to specification sections or bid item number.

- (✓) ___ Met or exceeded the Contract utilization goals; or
- (✓) ___ Failed to meet the Contract utilization goals (attach waiver, substitution or modification); or
- (✓) ___ No goals applied to this Project.

5. REDEVELOPER certifies that each Subcontractor, including the General Contractor, has received full payment for its respective work in connection with the Contract.

6. If applicable, I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved, company-wide, at least ten percent (10%) minority workforce participation and two percent (2%) women workforce participation and (2) a true and accurate copy of my final project workforce monthly report (HRD Form 00485.02 and final company-wide workforce monthly report (HRD Form 00485.03) are attached. **NOTE: This paragraph is only applicable if you completed a construction contract that was estimated by the City, prior to solicitation, as requiring more than 800 construction labor hours and costing in excess of \$300,000.00. If applicable you MUST attach copies of your final monthly workforce reports.**

7. This affidavit is made in behalf of the REDEVELOPER for the purpose of securing from _____ (name of the Statutory Agency) the certification of completion of the Project and receiving the requested tax incentive therefore.

8. If the Contract amount exceeded \$150,000, REDEVELOPER has submitted proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue and has on file proof of tax compliance from all Subcontractors. If the Contract term exceeded one (1) year, REDEVELOPER has provided proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue prior to receiving final payment and has on file proof of tax compliance from all Subcontractors prior to the Subcontractor receiving final payment from REDEVELOPER.

REDEVELOPER _____

By _____
(Authorized Signature)

Title _____

NOTARY

On this _____ day of _____, _____, before me appeared _____, to me personally known to be the _____ of the _____,

and who executed the foregoing instrument and acknowledged that (s)he executed the same on behalf of _____ as its free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the day and year first above written.

My commission expires:

Notary Public



SUBCONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Project Number _____

Project Title _____

STATE OF MISSOURI)

) ss:

COUNTY OF _____)

After being duly sworn the person whose name and signature appears below hereby states under penalty of perjury that:

1. I am the duly authorized officer of the business indicated below (hereinafter Subcontractor) and I make this affidavit on behalf of Subcontractor in accordance with the requirements set forth in Section 290.290, RSMo. Subcontractor has completed all of the Work required under the terms and conditions of a subcontract as follows:

Subcontract with: _____, Contractor

Work Performed: _____

Total Dollar Amount of Subcontract and all Change Orders: \$_____

City Certified MBE WBE DBE NA

List certifications: _____

2. Subcontractor fully complied with the provisions and requirements of the Missouri Prevailing Wage Law set forth in Sections 290.210, RSMo through 290.340, RSMo.

Business Entity Type:

- Missouri Corporation
- Foreign Corporation
- Fictitious Name Corporation
- Sole Proprietor
- Limited Liability Company
- Partnership
- Joint Venture
- Other (Specify)

Subcontractor's Legal Name and Address

Phone No. _____

Fax: _____

E:mail: _____

Federal ID No. _____

I hereby certify that I have the authority to execute this affidavit on behalf of Subcontractor.

By: _____

(Signature)

(Print Name)

(Title)

(Date)

NOTARY

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

My Commission Expires: _____

By _____

Print Name

Title

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the submittals required by the City prior to and for the duration of the Work.

1.2 Section Includes

- A. Progress Schedule
- B. Progress Reports
- C. Schedule of Values
- D. Substitutes and "Or-Equal" Items
- E. Survey Data
- F. Shop Drawings and Engineering Data

1.3 Progress Schedule

- A. At or before the preconstruction conference, Contractor shall submit to City for review a schedule of the proposed design and construction operations. The progress schedule shall indicate the sequence of the Work, the time of starting and completion of each part, and the time for making connections to existing piping, structures, or facilities.
- B. At least every 30 days the schedule shall be revised as necessary to reflect changes in the progress of the Work.
- C. Owner may require Contractor, at Contractor's expense, to add to his plant, equipment, or construction forces, as well as increase the working hours, if operations fall behind schedule at any time during the construction period.

1.4 Progress Reports

- A. A progress report shall be furnished to City with each Application for Payment. If the Work falls behind schedule, Contractor shall submit additional progress reports at such intervals as City may request.

- B. Each progress report shall include sufficient narrative to describe current and anticipated delaying factors, their effect on the progress schedule, and proposed corrective actions. Any Work reported complete, but which is not readily apparent to City, must be substantiated with satisfactory evidence.
- C. Each progress report shall include three prints of the accepted graphic schedule marked to indicate actual progress.

1.5 Schedule of Values

- A. As provided in the General Conditions, and after review of the preliminary progress schedule at the preconstruction conference and before submission of the first Application for Payment, Contractor shall prepare and submit to City for review a Schedule of Values for the construction phases of the project. The Schedule of Values, showing the estimated quantity and value of each kind of work must be approved by City before any Application for Payment is prepared.
- B. The Schedule of Values for the construction phase portion of the project shall include at least the following items:

ITEM	DESCRIPTION	UNIT	UNIT COST	TOTAL COST
1.	Mobilization	LS		
2.	16" DIP Class 54 Waterline w/Excavation & Backfill	Lin Ft		
3.	12" DIP Class 52 Waterline w/Excavation & Backfill	Lin Ft		
4.	8" DIP Class 52 Waterline w/Excavation & Backfill	Lin Ft		
5.	6" DIP Class 52 Waterline w/Excavation & Backfill	Lin Ft		
6.	4" DIP Class 52 Waterline w/Excavation & Backfill	Lin Ft		
7.	Bends w/ Backing Blocks – Specify size and degree	Each		
8.	Sleeves and Reducers – Specify size	Each		
9.	Tees w/ Backing Block – Specify size	Each		
10.	Straddle Blocks – Specify size of Main	Each		
11.	Water Service Lines	Lin Ft		
12.	Curb Stop Installation	Each		
13.	Meter Relocation	Each		
14.	Sewer Crossing	Each		
15.	Gas Line Crossing	Each		
16.	Fire Hydrant	Each		
17.	Flushing Assembly	Each		
18.	Riprap	Sq Yd		
19.	Street Pavement Removal & Replacement	Lin Ft		
20.	Asphalt Driveway Removal & Replacement	Lin Ft		
21.	Sidewalk Removal & Replacement	Lin Ft		
22.	Curb Removal & Replacement	Lin Ft		
23.	Seeding	LS		
24.	Sodding	LS		
25.	Landscaping	LS		
26.	Traffic Control	LS		
27.	Photographs	LS		
28.	SWPPP & Erosion Control	LS		
29.	Testing (by Segment) a. Segment X	LS		
30.	Disinfection (by Segment) a. Segment X	LS		

31.	Demobilization	LS		
32.	Permits	LS		
33.	Cleanup	LS		
34.	Allowance	LS		
35.	"As Built" Drawings & Project Record Documents	LS		

- C. The sum of the items listed in the Schedule of Values for design and construction phases shall equal the bid prices for the respective phases. Such items as Bond premium, temporary construction facilities, and plant may be listed separately in the Schedule of Values, provided the amounts can be substantiated. Overhead and profit shall not be listed as separate items.
- D. An unbalanced schedule of values providing for overpayment of Contractor on items of Work which would be performed first will not be approved. The Schedule of Values shall be revised and resubmitted until acceptable to the City. Final acceptable by City shall indicate only consent to the Schedule of Values as a basis for preparation of applications for progress payments, and shall not constitute an agreement as to the value of each indicated item.

1.6 Substitutes and "Or-Equal" Items

- A. Whenever a material or article is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, the specified item mentioned shall be understood as establishing the type, function, and quality desired. Requests for review of equivalency will not be accepted from anyone except Contractor, and such requests will not be considered until after the Contract had been awarded. Other manufacturers' products will be accepted provided sufficient information is submitted to allow City to determine that the products proposed are equivalent to those named.
- B. Whenever the names of proprietary products or the names of particular manufacturers or vendors are used, it shall be understood that the words "or equal" following the enumeration, if not specifically stated, are implied.

1.7 Survey Data

- A. All field books, notes, videotapes, and other data developed by Contractor in performing surveys required as part of the Work shall be available to City for examination throughout the construction period. All such data shall be submitted to City with the other documentation required for final acceptance of the Work.

1.8 Shop Drawings and Engineering Data

- A. General
 - 1. Shop Drawings and engineering data covering all equipment and fabricated and building materials which will become a permanent part of the Work under this Contract shall be submitted to City for review, at the City's address given in the Agreement. The data shall include drawings, descriptive information, and sufficient detail to show the kind, size, arrangement, and operation of component materials and devices; the external connections, anchorages, and

supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.

2. All submittals, regardless of origin, shall be stamped with the approval of Contractor and identified with the name and number of this Contract, Contractor's name, and references to applicable specification paragraphs and Contract Drawings. Each submittal shall indicate the intended use of the item in the Work. When catalog pages are submitted, applicable items shall be clearly identified and inapplicable data crossed out. The current revision, issue number, and date shall be indicated on all drawings and other descriptive data.
3. Contractor's stamp of approval is a representation to City that Contractor accepts full responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that Contractor has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.
4. Contractor shall accept full responsibility for the completeness of each submission. When an item consists of components from several sources, Contractor shall submit a complete initial submittal including all components.
5. All deviations from the Contract Documents shall be identified on each submittal and shall be tabulated in Contractor's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by Contractor (including modifications to other facilities that may be a result of the deviation) and all required piping and wiring diagrams.
6. Three (3) copies of each drawing and necessary data shall be submitted to the City. City will return two marked copies to Contractor. Facsimile (fax) copies will not be acceptable. City will not accept submittals from anyone but Contractor. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades.
7. Following are the items requiring submittals by the Contractor at the pre-construction conference. Submittals shall indicate, but not be limited to, name of manufacturer, shop drawings, physical & chemical testing & certification, appurtenances used, etc.

Project Requirements;
Schedule of values
Construction schedule
Subcontractor listing
Project sign request

Pipeline Materials;
Ductile iron pipe, CL52 & CL54 with type of joint used
Polyethylene encasement

Mechanical joint fittings (tees, crosses, reducers, bends, plugs, anchor couplings)
Tapping sleeve & valve
Restrained joints used (Mega-Lug, anchored coupling, push-on)
Gate valve w/base, lid & cover used in both traffic & non-traffic areas
Solid sleeve
Concrete mix (backing block, straddle block, encasement)
Encasement
Casing pipe w/spacers and end seals

Service Transfers;

Corporation stop
Dielectric insulating assembly
Copper service piping
Curb stopping w/base, box & lid/cover
Services coupling (new-to-existing)

Testing & Disinfection;

Pressure testing procedure
Chlorination procedure
MSDS form

- B. Certificate of Compliance: Where indicated in these specifications, each submittal shall include a certificate of compliance prepared by the manufacturer or Supplier of the submitted data, certifying that the item covered is in compliance with Contract Documents. The certificate of compliance shall be a separate document and shall include identification of all deviations from the Contract Documents.
- C. City's Review of Drawings and Data
1. City's review of drawings and data submitted by Contractor will cover only general conformity to the Drawings and Specifications, external connections, and dimensions which affect the layout. City's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown. City's review shall not relieve Contractor of Contractor's responsibility for errors, omissions, or deviations in the drawings and data, nor of sole responsibility for compliance with the Contract Documents.
 2. City's submittal review period shall be 21 consecutive calendar days in length and shall commence on the first calendar day immediately following the date of arrival of the submittal or resubmittal in City's office. The time required to mail the submittal or resubmittal back to Contractor shall not be considered a part of the submittal review period.
 3. When the shop drawings and data are returned marked "NOT ACCEPTABLE" or "RETURNED FOR CORRECTION", the corrections shall be made as noted thereon and as instructed by City and three (3) corrected copies resubmitted. Facsimile (fax) copies will not be acceptable.

4. When the shop drawings and data are returned marked "EXCEPTIONS NOTED", "NO EXCEPTIONS NOTED", or "RECORD COPY", no additional copies need be furnished unless requested by City at time of review.

D. Resubmittal of Drawings and Data

1. Contractor shall accept full responsibility for the completeness of each resubmittal. Contractor shall verify that all corrected data and additional information previously requested by City are provided on the resubmittal. When corrected copies are resubmitted, Contractor shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by City on previous submissions.
2. Requirements specified for initial submittals shall also apply to resubmittals. Resubmittals shall bear the number of the first submittal followed by a letter (A, B, etc.) to indicate the sequence of the resubmittal.
3. Resubmittals shall be made within thirty (30) days of the date of the letter returning the material to be modified or corrected, unless within 14 days Contractor submits an acceptable request for an extension of the stipulated time period, listing the reasons the resubmittal cannot be completed within that time.
4. Any need for more than one resubmission, or any other delay in obtaining City's review of submittals, will not entitle Contractor to extension of the Contract Times unless delay of the Work is directly caused by a change in the Work authorized by a Change Order or by failure of City to review any submittal within the submittal review period specified herein and to return the submittal to Contractor.

E. Distribution of Submittals: If the submittals are not approved the distribution will be as follows:

- 1 copy to Contractor
- 1 copy to City
- 1 copy to Resident Inspector

If the submittals are approved the distribution will be as follows:

- 1 copies to Contractor
- 1 copy to City
- 1 copy to Resident Inspector

END OF SECTION



DAILY FIELD OBSERVATION REPORT

Project Number _____

Project Title _____

Contractor _____

Report Number _____ Date _____ Time _____

Weather

- Clear Snow
 Overcast Foggy
 Rain Cold

- Warm
 Hot
 Temperature Range _____

Site Conditions

- Clear Dusty
 Muddy _____
 Temperature Range _____

Day

- Monday Thursday
 Tuesday Friday
 Wednesday _____

Persons Contacted: _____

Work Observed: _____

Items Discussed: _____

Materials Delivered: _____

Requested Revisions or Interpretations: _____

Nonconforming Work Reported This Date To Contractor: _____

Remarks: _____

Attachments _____

Signed by: _____

Date: _____

- Distribution: Owner
 Contractor
 Construction Manager
 Design Professional
 Consultant _____
 Other _____



PERIODIC FIELD OBSERVATION REPORT

Project Number _____

Project Title _____

Contractor _____

Report Number _____ Date _____ Time _____

Weather

- Clear Snow
 Overcast Foggy
 Rain Cold

Site Conditions

- Warm Clear Dusty
 Hot Muddy _____
 Temperature Range _____

Day

- Monday Thursday
 Tuesday Friday
 Wednesday _____

Persons Contacted:

Work Observed:

Items Discussed:

Remarks:

Attachments

Signed by: _____

Date: _____

- Distribution: Owner
 Contractor
 Construction Manager
 Design Professional
 Consultant _____
 Other _____



WEEKLY REPORT OF WORKING DAYS

Project Number _____

Project Title _____

Contractor _____

Report Number _____ Week Ending: _____

DATE:	WORKING DAY	REMARKS		
TOTAL THIS WEEK	PREVIOUSLY	TOTAL TO DATE	WORKING DAYS IN CONTRACT	REMAINING OR OVERTIME

Signed by OWNER'S REPRESENTATIVE _____ Date: _____

Signed by CONTRACTOR _____ Date: _____

Distribution: OWNER CONTRACTOR Construction Manager Design Professional Consultant Other



TRANSMITTAL LETTER

Project Number _____

Project Title _____

TO: _____ Date _____
 _____ Re: _____

 ATTN: _____

We are sending you Attached Under separate cover via _____ the following items:
 Shop Drawings Prints Drawings Samples Specifications
 Copy of Letter Change Order _____

Copies	Date	No.	Description

These are transmitted as checked below:

For Approval Approved as Submitted Resubmit _____ Copies for Approval
 For Your Use Approved as Noted Submit _____ Copies for Distribution
 As Requested Returned for Corrections Return _____ Corrected Prints
 For Review and Comment _____

Remarks: _____

By: _____

- Distribution:
- Owner
 - Contractor
 - Construction Manager
 - Design Professional
 - Consultant
 - Other

SECTION 01570

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 General

- A. The CONTRACTOR shall provide erosion control for all areas disturbed during construction. The CONTRACTOR shall assume that the work is to be done under the City's General Operating Permit (Permit No: MOR100006). The CONTRACTOR does not need to make separate application with the Missouri Department of Natural Resources.
- B. Specific erosion and sediment control measures are specified in APWA 5100 and Standard ESC Drawings, Erosion and Sediment Control. These measures must be applied to the extent necessary to control erosion and water pollution.
- C. The Contractor shall install and maintain temporary erosion and sediment control devices beginning prior to the first grading operation, and continuing through the construction period until such time as seeding and sodding have been completed and turf is established on all graded areas.
- D. Contractor shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The plan must include a narrative of the types and appropriate uses of Best Management Practices (BMPs) for erosion and sediment control and stormwater management. The requirements of the SWPPP must be at least as stringent as those described in the City's General Operating Permit (No: MOR100006) and 10 CSR 20-6.200. The SWPPP must comply with the City of Kansas City's MS4 permit were applicable.
- E. Failure to control erosion and water pollution will result in the CONTRACTOR being noncompliant. Any noncompliance constitutes grounds for the following enforcement actions. The CONTRACTOR shall have 24 hours after receiving a notice of noncompliance from the City's representative (i.e. project manager, city inspector, representative of the City) to correct the problem. If weather conditions prevent the correction of BMPs within 7 calendar days, the reasons for the delay must be documented (including pictures) and there must be a narrative explaining why the work cannot be accomplished within a 7 day time period. The documentation must be filed with the regular inspection reports. The CONTRACTOR shall correct the problem as soon as weather conditions allow. If the CONTRACTOR fails to correct the problem after the time prescribed, the City will hire a remediation expert to fix the problem. In such

an event, the CONTRACTOR shall be liable to the City for the remediation costs plus a 10% mark-up of the total contract price. If the CONTRACTOR continues to be noncompliant the Director (or an authorized agent thereof) may issue a stop work order and delay any payment until control measures are properly functioning and any damage has been mitigated. In such an event, any delay to the project schedule will result in liquidated damages assessed against the CONTRACTOR.

1.2 Performance

- A. City projects are covered by a general NPDES permit maintained by the Water Services Department's Storm Water Division. The Permit imposes a number of obligations, including:
 - 1. New projects must be reported to MDNR 90 days before the project starts.
 - 2. Each site must have (and follow) a written Storm Water Pollution Prevention Plan (SWPPP). Submit SWPPP no later than the preconstruction conference.
 - a. Each site must be inspected weekly, and following each heavy rain, for compliance with the SWPPP. Written inspection reports must be kept.
 - b. All workers at the site (employees and contractors) must be briefed on the requirements of the SWPPP.
 - c. A copy of the SWPPP must be present on site at any time that City employees or contractors are present at the site.
 - d. Quarterly reports must be filed (by City) with MDNR identifying and giving the status (percentage complete) of each project.
 - e. MDNR must be notified if hazardous substances or contaminated soil are discovered on site.

1.3 Erosion Control Plans

- A. The Contractor shall follow the erosion control plans included in the Contract Drawings, unless otherwise directed by the Project Manager.
- B. The CONTRACTOR shall prevent unrestrained erosion during his operations until vegetation is re-established. Prior to starting work, the CONTRACTOR shall review the erosion control plans and submit in writing to the Owner's Representative any proposed modifications to the plans. The proposed modifications shall describe materials that will be used and tasks

that will be performed to control runoff and any deleterious materials that are brought onto the site.

- C. Erosion control devices shall be in place before land is disturbed.
- D. Methods, materials used, and maintenance shall be the responsibility of the CONTRACTOR. The CONTRACTOR and the Owner's Representative shall conduct weekly onsite inspections using the "Erosion and Sediment Control Checklist" provided by the Water Services Department.
- E. Upon notification of a weather forecast with a reasonable likelihood of rain, or at the direction of the Project Manager, the CONTRACTOR shall construct temporary berms and install or replace enough erosion control fencing as necessary to control the potential eroded sediment and prevent it from leaving the construction area.
- F. If the CONTRACTOR'S construction operations are complete to the point where seeding or sodding is the major item at hand before final acceptance can be made, and seeding or sodding is out-of-season or disallowed by the Project Manager, the CONTRACTOR shall construct one of the following erosion control measures:
 - 1. Incorporate the use of erosion control fencing immediately downstream of vulnerable areas that are susceptible to the formation of small streams. Maintain the erosion control devices until seeding or sodding season returns. Upon return of the sodding season, the area shall be re-graded to the lines and grades established in the Contract Drawings and sodded at the direction of the Project Manager.
 - 2. Terrace the ground with graded berms and incorporate the use of both temporary slope drains (as specified in ESCS Section 10.03.4.3) and erosion control fencing (as specified in this Section on pages 3-5). Maintain the erosion control devices until sodding season returns. Upon return of the sodding season, the area shall be re-graded to the lines and grades established in the Contract Drawings and seeded/sodded at the direction of the Project Manager.
 - 3. Fertilize, place seed or sod, and irrigate as directed by APWA-KCMO 2400. Maintain the erosion control devices until seeding or sodding season returns. Upon return of the seeding or sodding season the CONTRACTOR shall re-establish the grade and replace all dead seed or sod at the direction of the Project Manager.

1.3 Stormwater Pollution Prevention Plan

- A. The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) for the project from land disturbance sites that disturb one or more acres of land or disturb less than one acre when part of a larger common plan of development or sale that will disturb a cumulative total of one or more acres over the life of the project.
- B. The SWPPP shall meet the requirements of this Section (01570), Section 01567, applicable references on the plans, the City's adopted Erosion and Sediment Control Specifications (ESCS), and all sections of the APWA-KCMO specifications that reference erosion control requirements. The CONTRACTOR shall develop, implement, and adhere to an erosion control and stormwater pollution prevention plan based upon the City's guidelines and requirements.
- C. Contractor shall submit a SWPPP at the preconstruction conference. No work can begin until the SWPPP is approved by the Project Manager.
- D. Contractor shall update and maintain the SWPPP as necessary to develop ongoing site-specific control measures until the final acceptance of the Project.

1.4 Additional Specific Requirements

Contractor shall insure that their pollution prevention plan includes the following items. Any deficient items shall be promptly corrected, but in no case shall the correction period exceed one week.

- A. The Contractor's Stormwater Pollution Prevention Plan shall be onsite.
- B. Remove any onsite pollutant sources (debris piles with petroleum cans, chemical containers, fueling trucks/tanks or other possible sources of pollution).
- C. Dust control measures for any graveled areas or exposed soil areas.
- D. Temporarily or permanently stabilize all areas having exposed soil.
- E. Adequately stabilize all finished cut and fill slopes.
- F. Erosion control structural practices showing evidence of overtopping, breaks or erosion shall be repaired or replaced with improved and suitable materials.

- G. All earthen structures shall be seeded and mulched.
- H. Vegetation shall be established to provide adequate protection, or develop other suitable means.
- I. Sediment trapping devices shall be installed in the proper location prior to grading.
- J. Establish perimeter sediment trapping measures that function properly.
- K. Prevent sediment from leaving the site and/or from damaging adjacent property.
- L. Prevent and or remove mud on public roads or at intersections with public roads.
- M. Provide a temporary construction entrance to reduce/eliminate the transport of mud from the construction site onto public right of ways.
- N. All on-site drainage channels and outlets shall be adequately stabilized.
- O. All storm sewer inlets shall be protected so that sediment will not enter the system.
- P. Seeded areas requiring maintenance (fertilizer, reseeding or additional mulch) shall be promptly attended to.
- Q. Repair or clean-out any structural practices that are not functioning properly.
- R. Remove any temporary structural practices that are no longer needed.
- S. Is any work being performed in streams?
- T. Route stream around work areas
- U. Repair stream channel damages
- V. Provide stabilization or a temporary stream channel crossing where needed.
- W. Properly backfill trenches, seed, and mulch.

PART 2 PRODUCTS

2.1 Silt Fence Detail

Shall be installed, inspected and maintained in accordance with APWA ESC-10.

2.2 Berm Detail

Berm shall be constructed in accordance to APWA ESC-29.

- A. Berms are required if the silt fence is not installed or properly maintained.
- B. Inspection shall be frequent and repair or replacement shall be made promptly as needed.
- C. Remove sediment deposits as necessary to provide adequate storage volume for the next rain.
- D. The contractor shall remove berms when they have served their usefulness.
- E. Sediment trapped by this practice shall be uniformly distributed on the source area prior to seeding or sodding.

2.3 Rock Check Dam

The Rock Check Dam shall be constructed, inspected, and maintained in accordance to APWA ESC-15.

PART 3 EXECUTION

3.1 Inlet Protection

- A. Description
 - 1. Work covered under this item consists of installing a Gutter Buddy, Dandy Curb® or equal inlet protection system for inlets and median barrier inlets without grates. The purpose is to keep silt, sediment and construction debris out of the storm system.
- B. Material

1. The inlet protection system shall be a sewn in the U.S.A. fabric unit enclosing a porous structure in the form of a cylindrical tube placed in front of and extending beyond the inlet opening on both sides.

C. Installation

1. Place inlet protection unit on ground with aggregate pouch on street side near inlet it will be installed on.
2. For oil and sediment, place absorbent sock in tube.
3. Center the unit against curb or median inlet opening so that the curb side of the unit creates a seal with the curb or median barrier and inlet structure. There will be approximately twelve (12) inches of the inlet protection unit overhanging on each side of the opening. If the unit is not installed in this manner, it will not function properly.

D. Maintenance

1. The contractor shall remove all accumulated sediment and debris from surface and vicinity of unit after each rain event or as directed by Project Manager/Inspector. Dispose of unit no longer in use at an appropriate recycling or solid waste facility.
2. For oil and sediment; remove and replace absorbent when near saturation.

END OF SECTION

SECTION 01580 – PROJECT SIGNS

1. SCOPE.

This section covers project sign requirements for all Kansas City Water Services projects.

2. GENERAL DESCRIPTION.

The CONTRACTOR shall order 4 (four) project WATER MAIN REPLACEMENT as well as 4 (four) lower placards to accompany the project signs before construction starts. In addition, CONTRACTOR shall order 4 (four) “Thank You KC!” sign(s) and 4 (four) accompanying lower placards to be installed upon construction completion, under the direction of the OWNER’s representative. CONTRACTOR can utilize any printer and shall pick-up project sign(s) at the printer location. Approved sign designs are on file with the following printers:

Almar Printing
7735 Wornall Road, Kansas City, MO 64114
816-523-4566

CustomColor
14320 W. 101st Terrace, Lenexa, KS 66215
913-730-3100

Office Max
Basement, City Hall, Print Center
414 E. 12th Street, Kansas City, MO 64106
816-513-1048

CONTRACTOR shall obtain approved sign designs from the OWNER’s representative if CONTRACTOR chooses to use another printer.

For water main replacement projects, CONTRACTOR shall obtain sign(s) stating, “WATER MAIN REPLACEMENT.” Any other sign language must be approved by the OWNER working in conjunction with Water Services Communications staff. For all projects, the CONTRACTOR shall obtain “Thank You KC!” signs. Every sign shall be accompanied by the appropriate lower 1-ft. x 6-ft. placard.

The signs shall be purchased and picked up by the CONTRACTOR in accordance with the OWNER’s representative’s direction on the quantity, size and language of the signs. Sign costs will be included in CONTRACTOR’s bid price. CONTRACTOR will obtain correct sign type based on type of construction project.

CONTRACTOR shall erect a total of 4 (four) project signs within the affected project area as determined by the OWNER. Project sign erection will conform to Kansas City's Standard Water Services project sign detail D-20142 attached to this specification. (See attached.)

Metal frame and hardware shall be provided by the CONTRACTOR and shall be in conformance with Standard Water Services project sign detail D-20142.

Size: Unless otherwise specified by OWNER's representative, signs shall be 4-ft. x 6-ft. with a 1-ft. x 6-ft. lower placard.

Material: 10mm white coroplast (approximately one-half (1/2) inch thickness).

Print Method: Direct to coroplast with outdoor UV laminate coating.

The CONTRACTOR shall provide all materials and labor to erect the project signs.

The project sign(s) shall be erected in a conspicuous place, but shall not interfere with the vision of pedestrian or vehicular traffic such as to create a hazard.

The CONTRACTOR shall notify any homeowners or businesses adjacent to the location of the signs at least three (3) days prior to erecting signs. Water Services Communications staff will approve the language of the courtesy notification.

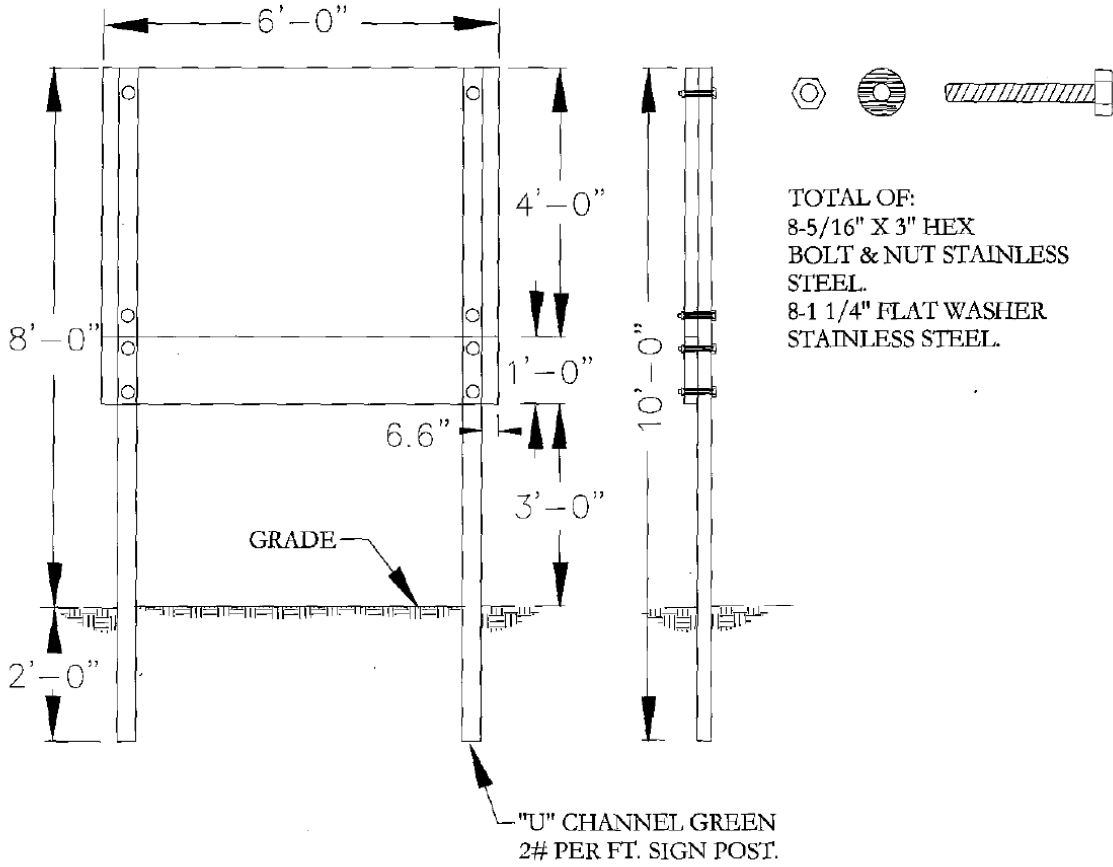
Project sign(s) shall be erected two (2) days before the start of construction activities. Project sign(s) shall remain in place for the duration of the project and be maintained true, plumb, and in neat condition. No construction activities are allowed until the project sign(s) are erected.

OWNER's representative will make the determination of when to remove the project sign(s) and replace with a construction completed "Thank You KC!" sign(s) and accompanying lower placard(s).

Upon completion of the work and when directed by the OWNER's representative, the CONTRACTOR shall remove the "Thank You KC!" sign(s) and lower placard(s) thirty (30) days after signs were erected. CONTRACTOR shall ensure when removing all signs that the area is restored.

CONTRACTOR may reuse applicable project signs that are in good condition to avoid additional costs and waste. Water Services shall assess the condition of the signs and determine the appropriateness of reuse.

End of Section



KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT					
<h2>Installation Detail for Project Signs</h2>					
D-20142	DATE 07/17/2013	MAP NO. -	RANGE -	TWP -	SEC -

SECTION 01581 – PROJECT COMMUNICATIONS

1. SCOPE.

This section covers project communications for all Water Services projects prior and throughout construction.

2. GENERAL DESCRIPTION.

CONTRACTOR shall provide written communications to affected properties (homeowners, tenants and businesses) to inform them about the project work that will take place and may potentially disrupt their everyday activities.

CONTRACTOR shall receive approval from Water Services Communications staff regarding any written communications that are likely to be distributed to homes and businesses, such as letters and door hangers. (See attached example door hanger.)

- Initial letters sent to affected properties should be delivered no more than two (2) weeks prior to the start of construction and no later than five (5) days prior to construction as applicable to the project. (See attached example letter.) Costs to produce and deliver written communications to affected homeowners and businesses shall be included in CONTRACTOR's bid price.
- Door hangers and other communications throughout construction must be distributed to inform homes and businesses of disruptions. Water Services will provide door hangers to CONTRACTOR at no cost.

End of Section.

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the required procedures for selecting, acquiring, shipping, and storing products for the Work.

1.2 Section Includes

- A. Selection and Acquisition
- B. Shipment
- C. Storage

1.3 Selection & Acquisition

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Specifications. All products shall be new, never used before, unless otherwise specified.
- B. Provide interchangeable components of the same manufacturer, for similar removable components, such as T-bolts, glands, and gaskets.

1.4 Shipment

- A. All materials and equipment incorporated into the work shall be suitably packaged to facilitate handling and protect against damage during transit and storage.
- B. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces that are damaged prior to acceptance of materials and equipment shall be repainted to the satisfaction of the City.
- C. Each item, package, bundle of material, or piece of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.
- D. Pipe and fitting linings shall be protected against damage.

1.5 Storage

- A. Offsite Storage
 - 1. Offsite storage of materials and equipment shall conform to manufacturer's recommendations.

2. Offsite storage arrangements shall be approved by the City. Such offsite storage arrangements shall be presented in writing and shall afford adequate and satisfactory security and protection. Offsite storage facilities shall be bonded and accessible to City.

B. Onsite Storage

1. Onsite storage of materials and equipment shall conform to manufacturer's recommendations.
2. Onsite storage shall not interfere with public access and/or safety.

C. Other Requirements

1. Bedding material shall be stored so that it is protected from significant change in moisture content and so that large frozen masses will not form in freezing weather.
2. All components shall be protected from weather. Gaskets shall be protected from exposure to sunlight.

PART 2 PRODUCTS

1. Not Used

PART 3 EXECUTION

1. Not Used

END OF SECTION



SUBSTITUTION REQUEST

Project Number _____

Project Title _____

To: _____

Authorization Number: _____

Re: _____

From: _____

Date: _____

Contract For: _____

Specification Title: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone No. _____

Trade Name: _____ Model No. _____

Installer: _____ Address: _____ Phone No. _____

History: New Product 2-5 years old 5-10 years old More than 10 years old

Differences between proposed substitution and specified product: _____

Point-by-point comparative data attached – REQUIRED

Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance, service, and availability of replacement parts, as applicable, are available.
- Proposed substitution will not affect or delay Progress Schedule, except as stated below.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances, except as stated below.
- Payment will be made for changes to building design, including architectural or engineering design, detailing, licenses, royalties, and construction costs caused by the requested substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be completed in all respects.

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Design Professional: _____

Address: _____ Owner: _____

Date Installed: _____

Proposed substitution affects other parts of Work: No Yes; explain _____

Savings to Owner for accepting substitution: _____

Proposed substitution changes Contract Time: No Yes; add/deduct _____ days.

Supporting Data Attached:

Product Data Drawings Tests Reports Samples _____

Attachments: _____

Submitted by: _____

Signature: _____

Firm: _____

Address: _____

Telephone: _____ Fax: _____ E-Mail: _____

Additional Comments: Contractor Subcontractor Supplier Manufacturer DP _____

DESIGN PROFESSIONAL'S REVIEW AND ACTION

- Substitution approved – Make submittals in accordance with Specification Section 01300.
- Substitution approved as noted – Make submittals in accordance with Specification Section 01300.
- Substitution rejected – Use specified materials.
- Substitution Request received too late – Use specified materials.

Signed by: _____ Date: _____

-
- Distribution:
- Owner
 - Design Professional
 - Contractor
 - Consultant
 - Construction Manager
 - Other

SECTION 01700
TRAFFIC REGULATIONS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the control and maintenance of traffic areas throughout the Work.

1.2 Section Includes

- A. Notification
- B. Maintenance of Traffic
- C. Traffic Control
- D. Signs
- E. Vehicle Parking
- F. Flagmen
- G. Lights
- H. Haul Routes
- I. Street Closure

1.3 Related Sections

- A. Section 01000 – General Requirements
- B. Section 01300 – Submittals

1.4 Notification

- A. Advance written notice of construction activity shall be made to all adjacent residents no less than forty-eight (48) hours, or more than seventy-two (72) hours, before construction begins.
- B. The notice shall describe the activity anticipated in that area, the duration, and the effects upon the residents (such as restricted parking).
- C. The Contractor's on-site contact person, address, and direct telephone number shall be included, in addition to a contact person from City.

1.5 Maintenance of Traffic

- A. Traffic shall be maintained through construction, in accordance with the City of Kansas City, Public Works Department Standard Details.
- B. The Contractor is responsible for maintaining traffic.
- C. The Contractor shall conduct his work so as to minimize interference with traffic, vehicular or pedestrian.
- D. A permit is required from the KCMO Public Works Department, Street and Traffic Division for areas where traffic will be obstructed
- E. When necessary to cross or interfere with traffic the Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel. Contractor shall give at least twenty-four (24) hours notice to owners of private drives before interfering with them.

1.6 Traffic Control

- A. General
 - 1. All streets, roads, highways, and other public thoroughfares that are to be temporarily closed or restricted to traffic shall be protected by 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.
 - 2. All open trenches and other excavations shall be covered with steel plates and have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights.
 - 3. All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and performance of the Work on or alongside public streets and highways shall minimize obstruction and inconvenience to the public.
 - 4. All barricades, signs, lights, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within railroad and highway rights-of-way, as required by the authority having jurisdiction.
 - 5. Working hours on traveled roadways or within the clear zone are typically limited to 9:00 a.m. to 4:00 p.m. Monday through Friday. However, due to the proximity of schools and high volume of traffic additional restrictions on working hours may be required by the KCMO Public Works Department. Contractor shall schedule work around working hour restrictions.

6. The Contractor shall maintain a minimum of one lane of traffic in all directions at all times. No more than 660 feet of lane length can be restricted at a single time unless otherwise specified in the traffic control permit.

B. Devices:

1. Contractor shall provide all barricades, cones, construction warning signs, flagmen, and incidental devices to protect personnel and equipment on the Work site.
2. Contractor shall display the required signs. Traffic control devices not in use shall be covered, removed, or turned away from view of oncoming traffic. Whenever the work area changes, all construction warning signs and traffic channelization devices shall be made current in both legend and function.
3. Traffic control devices shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highways". Substitutions for the required devices and methods will only be allowed with the written approval of the KCMO Public Works Department, Street and Traffic Division.

C. Non-work hours:

1. During non-work hours all roadways shall be opened to normal traffic.
2. Construction equipment or materials shall not interfere with traffic during non-work hours. Barricades (barrels, type I) equipped with appropriate warning lights shall be placed adjacent to the work area. Construction signs, except "ROAD CONSTRUCTION AHEAD" signs, shall be covered or turned from view of oncoming traffic.

1.7 Signs

A. No Parking:

1. "Emergency No Parking" signs may be installed at locations approved by KCMO Public Works Department.
2. Signs shall be in accordance with the KCMO Public Works "Standard Signs for Traffic Maintenance During Construction". Signs shall be on aluminum or plywood panels. Paper or cardboard signs will not be allowed. Signs must be installed a minimum of eighteen (18) hours prior to beginning Work. The Contractor must contact the Public Works Dispatcher (816-513-9300) as soon as the signs are installed so that the KCMO Police Department can be notified. The signs cannot be enforced without this notification to City and KCMO Public Works Department.
3. Signs shall be installed on either steel driven posts or existing utility poles at a height of five (5) feet from the bottom of the sign. The signs are to be installed at 150-foot intervals. The Contractor shall immediately remove all signs and covers as soon as work has been completed. If work will cease for

more than seventy-two (72) hours, the signs and covers shall be removed and reinstalled subject to the minimum eighteen (18) hours notice.

1.8 Vehicle Parking

- A. Parking of construction vehicles and personal vehicles of Contractor's personal shall not interfere with public traffic and parking, access by emergency vehicles, and City operations.

1.9 Flagmen

- A. Contractor shall provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

1.10 Lights

- A. Contractor shall use lights during hours of low visibility to delineate traffic lanes and to guide traffic.

1.11 Haul Routes

- A. Contractor shall consult with City and KCMO Public Works Department to establish public thoroughfares to be used for haul routes and site access.

1.12 Street Closure

- A. Contractor shall obtain a Street Closure Permit in advance of a proposed closure date.

PART 2 PRODUCTS

- 1. Not Used

PART 3 EXECUTION

3.1 Coordination

- A. Damages:
 - 1. Damage to existing roads and utilities during the Work that requires immediate repair may be considered an "emergency". Therefore, Contractor shall immediately contact the utility and the KCMO Public Works Department, Street and Traffic Division whenever there is damage that may require immediate repair. Such repair work once declared an "emergency" will be pursued on a continuous (around the clock) basis until complete or advanced to such a point that use of the roadway can be returned to normal operation and any subsequent repairs completed during normal working hours.

B. Adjustments:

1. The KCMO Public Works Department, Street and Traffic Division reserves the right to make adjustments or revisions in traffic handling requirements that may become necessary after the Work has started. These changes will be determined on the basis of periodic inspections throughout the duration of the Work.
2. Notice of such change will be transmitted to the Contractor and it will be his responsibility to make the necessary changes as soon as practicable after receipt of the notification.

3.2 Inspections and Maintenance

A. Inspections:

1. The Contractor shall make periodic inspections of the traffic control devices installed as part of Work and shall maintain record of any maintenance required. These records will be maintained throughout the Work and be incorporated as part of the final records.
2. The Contractor shall make daily inspections of the traffic control devices installed.

B. Maintenance:

1. Contractor shall be required to designate a specific employee to be responsible for the maintenance of the traffic control devices and establish a method of contacting this person. This information shall be provided to City and the KCMO Public Works Department, Street and Traffic Division, in writing prior to the start of work.
2. Contractor may, at his option, establish a maintenance agreement with a qualified firm, approved by City, to supply, install and maintain the required traffic control devices throughout the duration of the Work.
3. Whenever the work area changes, all construction warning signs and traffic channelization devices shall be made current in both legend and function.
4. The roadway shall be kept clean and free of construction related debris at all times.

3.2 Payment

- A. No separate payment will be made for the Traffic Control Permits or the maintenance or control of traffic. Contractor shall include in his Total Bid Price all labor, materials, and equipment for the maintenance and control of traffic for his Work and permit costs.

END OF SECTION

SECTION 01900
PROJECT CLOSEOUT

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the procedures and submittals required by CITY prior to acceptance of the Work.

1.2 Section Includes

- A. Final Acceptance
- B. Final Clean-Up
- C. Project Record Documents

1.3 Related Sections

- A. Section 01300 – Submittals

1.4 Final Acceptance

- A. General Procedure:
 - 1. After the completion of the Work, the Contractor shall notify CITY that the Work is ready for final inspection.
 - 2. A final inspection will be setup at a mutually agreed time between the Contractor and CITY.
 - 3. CITY will provide the Contractor with the results of the final inspection and will not provide acceptance until all work is done to the satisfaction of the CITY. Acceptance by CITY will not relieve the Contractor of his responsibility under other terms of the Contract Documents.

1.5 Final Clean-Up

- A. Contractor shall replace all surface material and restore paving, curbing, sidewalks, gutters, shrubbery, fences, sod, and other surfaces disturbed to a condition of equal or better than original condition.
- B. All excavated material shall be removed and disposed of properly.
- C. Contractor shall provide material for filling depressions caused by settlement.
- D. Contractor shall remove surplus pipe materials, tools, temporary structures, and rubbish. Restore construction site to its original condition or better.

1.6 Project Record Documents

- A. Contractor shall submit all Record Documents in accordance with Section 01015 – Specific Project Requirements

PART 2 PRODUCTS

- 1. NOT USED.

PART 3 EXECUTION

- 1. NOT USED.

END OF SECTION

SECTION 02200
EXCAVATION AND BACKFILL

PART 1 GENERAL

1.1 Section Description

- A. This section describes the procedures and soil material to be used with excavation, trenching, embedment, and backfill for water main construction.

1.2 Section Includes

- A. Granular Fills
- B. Embedment
- C. Backfill
- D. Filter Fabric
- E. Groundwater Barrier Material
- F. Topsoil
- G. Fills and Embankment Material

1.3 Related Sections

- A. Section 01016 – Water Mains Near Sewers
- B. Section 01300 – Submittals
- C. Section 01600 – Materials and Equipment
- D. Section 02575 – Surface Restoration
- E. Section 02273 – Riprap
- F. Section 02930 – Seeding
- G. Section 02931 - Sodding

1.4 References

- A. ASTM C33 - Standard Specifications for Concrete Aggregates

- B. ASTM D698 - Test Method for Laboratory Compaction Characteristics of Soil Using - Standard Effort (12,400 ft-lb./ft)
- C. ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using - Modified Effort (56,000 ft-lb./ft)
- D. ASTM D3776 - Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
- E. ASTM D4253 - Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
- F. ASTM D4254 - Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
- G. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals.
- B. Submit gradation test reports and quarry quality control reports for the following materials:
 - 1. Granular Fill
 - 2. Granular Embedment
 - 3. Graded Gravel Backfill
- C. Submit a Filter Fabric Manufacturer's Data listing the average values of the properties specified herein.

1.6 Quality Assurance

- A. In accordance with OSHA "Safety and Health Regulations for Construction", Chapter XVII of Title 29, CFR, Part 1926, the Contractor shall employ a competent person and, when necessary, a registered professional engineer, to act upon all pertinent matters of the work of this section.
- B. Backfilling and construction of fills and embankments during freezing weather shall not be done except by permission of the CITY. No backfill, fill, or embankment materials shall be installed on frozen surfaces, nor shall frozen materials, snow, or ice be placed in any backfill, fill, or embankment.

1.7 Delivery, Storage, and Handling

- A. Follow the procedures for the delivery, storage, protection and handling products to and at site provided in Section 01600 - Material and Equipment.
- B. Store and secure materials in neat stockpiles in locations that do not inconvenience public and CITY operations.
- C. Comply with manufacturers recommendations for storage.

PART 2 PRODUCTS

2.1 Materials

- A. Granular Fills:
 - A. Granular Fill material shall be clean crushed rock or gravel; free from dust, clay, and trash; and graded 1-1/2 inch to No. 4 as defined in ASTM C33.
- B. Embedment:
 - 1. Granular Embedment: Granular embedment shall be clean crushed rock with not less than 95% passing a 1/2" screen and not more than 5% passing a #4 screen.
 - 2. Hand Placed Embedment: Hand-placed embedment shall be finely divided job excavated material free from debris, organic material, and stones. Granular embedment material may be substituted for all or part of this type of embedment.
 - 3. Embedment material shall not contain cinders, clay lumps, or other materials that may cause pipe corrosion.
- C. Backfill:
 - 1. Compacted Backfill: At the option of the Contractor, compacted backfill may be suitable job excavated material or graded gravel, as described below:
 - a. Job Excavated Material: Job excavated material may be used for compacted backfill when the job excavated material is finely divided and free from debris, organic material, cinders, any corrosive material, and stones larger than 3 inches in greatest dimension. Masses of moist, stiff clay shall not be used.
 - b. Graded Gravel Backfill: Gravel for compacted backfill shall be clean and conform to the following gradation. The gravel mixture shall contain no clay lumps or organic matter. The fraction passing the No. 4 sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 5.

Sieve Size	Percent Passing by Weight
1 inch	100
3/4 inch	85 – 100
3/8 inch	50 – 80
No. 4	35 – 60
No. 40	15 – 30
No. 200	5 – 10

2. Uncompacted Earth Backfill: Uncompacted earth backfill material to be placed above embedment shall be free of brush and roots larger than 2 inches in diameter, debris, cinders, and any corrosive material, but may contain rubble and detritus from rock excavation, stones, and boulders.

D. Filter Fabric:

1. Nonwoven fabric consisting of only continuous chains of polymeric filaments or yarns of polyester formed into a stable network by needle punching. The fabric shall be inert to commonly encountered chemicals; shall be resistant to mildew, rot, ultraviolet light, insects, and rodents; and shall have the following properties:

Property	Test Method	Unit	Minimum Average Roll Value (weakest principal direction)
Fabric Weight	ASTM D3776	Oz/yd ²	4.5
Grab Strength	ASTM D4632	lb.	120
Grab Elongation	ASTM D4632	Percent	60
Mullen Burst Strength	ASTM D3776	Psi	190
Apparent Opening Size	CW-02215	U.S. Standard Sieve Size	70

2. Filter fabric shall be provided in rolls wrapped with protective covering to protect the fabric from mud, dirt, dust, and debris.

E. Groundwater Barrier Material:

1. Finely divided material free from stones, organic matter and debris meeting soil classification GC, SC, CL or ML-CL. Job excavated material may be used if suitable.

F. Topsoil:

1. Topsoil: Naturally occurring gray or black fertile soil material containing humus, high in nutrients, free of large roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
- G. Fills and Embankment Material:
1. All material placed in fills and embankments shall be free from rocks or stones larger than 6 inches in their greatest dimension, brush, stumps, logs, roots, debris, and other organic or deleterious materials. No rocks or stones shall be placed in the upper 18 inches of any fill or embankment. Rocks or stones within the allowable size limit may be incorporated in the remainder of fills and embankments, provided they are distributed so that they do not interfere with proper compaction. Job excavated material meeting their requirements may be used.

PART 3 EXECUTION

3.2 General Guidelines

- A. Excavations shall be restored to the level of the adjacent surfaces as soon as practicable. Unsupervised open excavations on public properties, including easements are not permitted. Any person involved with open excavation on public properties shall provide effective protection to the public.
- B. Excavations in roadways shall be protected and secured in accordance with existing federal, state and local codes and standards, including, but not limited to, the most current edition of the Manual of Uniform Traffic Control Devices.
- C. Unsupervised excavations not within roadways shall be protected and secured. A protective cover over an excavation shall be installed so that it can sustain the weight of any persons and/or objects placed upon it. The cover shall be fixed to the ground so it cannot be moved. Protective covers shall have no opening(s) or protuberance(s) of sufficient size to cause a fall and/or injury. Advance warning devices shall be installed as necessary.
- D. Any excavation that is not covered shall be fenced in so that it surrounds the entire excavation area and prevents entry. The fencing shall be a minimum of 42" in height. The fence shall be secured and upright at all times.
- E. Protective excavation coverings and fences shall be inspected by the Contractor at least daily to assure integrity. Protective excavation coverings and fences in heavy traffic areas shall be inspected more often as necessary.
- F. Permits shall be secured prior to any work on public properties. In all instances the Contractor agrees to perform all work in accordance with the permit and to indemnify and hold harmless the City from all liability, judgments, costs, expenses and claims growing out of damages or alleged damages, of any nature to any person or property arising out of performance or non-performance of said work or the existence of facilities and/or appurtenances thereof.

3.2 Surface Preparation

A. Clearing:

1. Tag or identify existing trees, shrubs, and landscape materials to be removed, and obtain CITY approval prior to removal.
2. Protect existing trees, plant life, and features that are to remain from damage by construction operations.
3. Open burning of brush or debris will not be permitted unless the Contractor obtains a permit for open burning of trade wastes from the KCMO Environmental Health Division, Air Quality Program Manager.
4. Dispose of all cleared and grubbed materials.

Cutting Portland Cement Concrete Curbs and Pavement:

1. Cuts in curbs and pavements shall provide the minimum working space for proper installation of pipe and appurtenances. Utilize a concrete saw to cut a clean groove to a minimum depth of 3 inches.
2. Curbs and concrete pavement excavated for pipelines shall be removed so that a shoulder not less than 12 inches in width at any point is left between the cut edge of the pavement and the top edge of the trench. Trench width at the bottom shall not be greater than at the top and no undercutting will be permitted.
3. Where the trench parallels the length of curbs or sidewalks, and the trench location is all or partially under the curb or walk, the entire structure shall be removed and replaced. Where the trench crosses surface construction (walks, curbs, etc.) the structures shall be removed and subsequently replaced between existing joints or between saw cuts. Pipeline crossings at existing concrete driveways shall not be open cut unless approved by CITY.

3.3 Trench Excavation

A. General:

1. Classification of excavated materials is not permitted. Excavation and trenching work shall include the removal and handling of all materials necessary to place the pipeline and appurtenances at the line and grade on the drawings, regardless of the type, character, composition, or condition of the material.
2. No more trench shall be opened than is necessary to expedite the Work. Except where tunneling is required, all trench excavation shall be open cut from the surface.

B. Depth of Excavation:

1. Trenches shall be excavated to a depth sufficient to provide a minimum depth of 42" backfill cover over the top of the pipe as indicated below. Sixteen inch and larger diameter water lines shall be provided a minimum of 60" backfill cover. Greater pipe cover depths may be necessary on vertical curves or to provide necessary clearance beneath existing pipes, conduits, drains, drainage structures, or other obstructions.
2. Pipe cover depth shall be measured vertically from the outside top of pipe to finished ground or pavement surface elevation.

C. Trench Bottoms in Rock:

1. Rock excavations shall be carried to a minimum of six (6) inches below the bottom of the pipe. Granular embedment material as specified in this section and as shown in the Construction Detail Drawings shall be used to restore the trench bottom to the desired elevation and grade and to provide a uniform bearing and continuous support for the pipe along its entire length.
2. Prevent any portion of the pipe from coming to bear on solid rocks or boulders.

D. Blasting:

1. Blasting or other use of explosives for excavation will not be permitted without obtaining a blasting permit from the KCMO Public Works Department and KCMO Fire Department.
2. Contractor shall provide a plan for preblast surveys, monitoring during blasting, and post blast surveys to CITY prior to use of explosives.
3. All existing safety regulations, laws, and ordinances on the storage, transportation, and use of explosives shall be observed.
4. Blasting will be permitted only when proper precautions are taken for the protection of persons, the work, private property, public utilities, and the public from damage or injury. Any damage done by blasting will be repaired.

E. Limiting Trench Widths:

1. Trenches shall be excavated to a width that will provide adequate working space and sidewall clearances for proper pipe installation, jointing, and embedment. Trench widths shall be as follows:

TRENCH WIDTHS
Ductile Iron Pipe

Pipe Size	Min. Trench Width in Earth	Max. Trench Width in Earth	Max. Trench Width in Rock
4"	18"	24"	24"
6"	24"	30"	24"
8"	26"	32"	24"
12"	28"	34"	28"
16"	34"	40"	32"
20"	38"	44"	36"
24"	42"	48"	44"

Prestressed Concrete Cylinder Pipe and Reinforced Concrete Pipe

Pipe Size	Min. Trench Width in Earth	Max. Trench Width in Earth	Max. Trench Width in Rock
16"	36"	44"	36"
20"	40"	50"	40"
24"	44"	56"	48"

F. Dewatering:

1. Obtain all necessary permits for the disposal of water from the excavation.
2. Provide and maintain all dewatering equipment to remove and dispose of all surface water and groundwater entering excavations, trenches, or other parts of the Work. Excavation shall be kept dry throughout the Work to ensure that no damage from hydrostatic pressure, flotation, or other cause will result.
3. All excavations for concrete structures or trenches that are within 12 inches of groundwater or extend below groundwater shall be dewatered 12 inches or more below the bottom of the excavation.
4. Prevent surface water from entering excavations or trenches and causing damage to adjacent property.
5. The Contractor shall be responsible for the condition of pipe or conduit including storm sewers, used for drainage.

G. Sheet piling And Shoring:

1. Except where banks are cut back on a stable slope, excavations for structures and trenches shall be supported to prevent caving or sliding.

2. Trench sheeting may be removed only if the pipe strength is sufficient to carry trench loads based on trench width to the back of sheeting. Unless approved by the CITY, trench sheeting shall not be pulled after backfilling.
3. Where trench sheeting is left in place, sheeting shall not be braced against the pipe, but shall be supported in a manner that will preclude concentrated loads or horizontal thrusts on the pipe. Cross braces installed above the pipe to support sheeting may be removed after pipe embedment has been completed.

H. Subgrade Stabilization:

1. Subgrades for trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; free from mud and muck; and shall remain firm and intact under the feet of the workers.
2. Subgrades for trench bottoms that are solid, but become mucky on top due to construction operations, shall be reinforced with clean crushed rock or gravel. The stabilizing material shall be spread and compacted to a depth of not more than 12 inches; the material shall be furnished and installed as specified for Granular Fills. The finished elevation of stabilized subgrades shall not be above subgrade elevations.
3. Soft areas of subgrade not capable of proper compaction shall be excavated and backfilled with granular fill material compacted to 95% modified Proctor per ASTM D4253 and D4254.

I. Mechanical Excavation:

1. The use of mechanical equipment will not be permitted in locations where its operation would cause damage to trees, buildings, culverts, or other existing property, utilities, or structures above or below ground. In all such locations, hand excavating methods shall be used.
2. Mechanical equipment used for trench excavation shall provide a smooth excavation bottom and alignment with the pipe centered in the middle of the trench with adequate sidewall clearance. Undercutting the trench sidewall to obtain sidewall clearance will not be permitted.

J. Excavation Below Pipe:

1. Trenches shall be excavated to a sufficient depth to provide for the installation of Embedment as indicated on Construction Detail Drawings No. 02200-1.

K. Bell Holes:

1. Bell holes shall provide adequate clearance for tools and methods used in installing pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or granular embedment when the pipe is jointed.

L. Drainage Maintenance:

1. Trenches across areas adjacent to drainage ditches or watercourses shall not be backfilled prior to completion of backfilling the trench on the upstream side of the area, to prevent impounding water after the pipe has been laid. Bridges and other temporary structures required to maintain traffic across 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. Remove material deposited in roadway ditches or other watercourses crossed by the line of trench after backfilling is completed. Restore the original section, grades, and contours of ditches or watercourses. Surface drainage shall not be obstructed longer than necessary.

M. Stream Crossings:

1. Stream crossings shall be constructed in accordance with Construction Detail Drawing No. 02200-2.
2. Pipe encasement, where required by the Drawings shall be in accordance with specification Section 02320 and Construction Detail Drawings.
3. The construction of riprap for erosion prevention of ditch slopes shall be as shown on the Construction Detail Drawings and indicated in Section 02273.
4. The Contractor shall furnish all labor, equipment, and materials, and perform all Work as required for shoring, forming, dewatering, trenching, backfilling, riprap, concrete or steel, or any other items necessary in constructing stream crossings.

3.4 Fills and Embankment

C. General:

1. Embankments or fill materials shall be placed where indicated on the Drawings.
2. Fill and embankment materials shall be placed in horizontal layers a maximum of eight (8) inches in uncompacted thickness. Material deposited in piles or windrows by excavating and hauling equipment shall be spread and leveled before compaction.
3. Each layer of material shall have the best practicable moisture content for satisfactory compaction. The material in each layer shall be wetted or dried as required and thoroughly mixed to ensure uniform moisture content and adequate compaction. Each layer shall be thoroughly compacted to 95 percent of maximum density at optimum moisture content as determined by ASTM D698.
4. Wherever a pipeline is to pass through a fill or embankment, the fill or embankment material shall be placed and compacted to an elevation not less

than thirty-six (36) inches above the top of pipe elevation, and a trench shall be excavated in the embankment to permit placement of the pipe.

5. Granular Fills shall be provided where indicated on the Drawings. Granular Fills shall be placed on suitably prepared subgrades and compacted by vibration. Granular Fills shall be compacted to not less than 95 percent relative density as determined by ASTM D1557.
6. Where pipes are installed in embankments containing ground water, granular embedment material shall normally be omitted and the trench bottom shall be graded to provide uniform and continuous support for the pipe. The pipe shall be embedded in embankment material containing no rocks or stones. The embedment material shall be compacted as specified for the embankment.

3.5 Embedment and Backfill

A. Pipe Embedment:

1. Placement and Compaction: Granular embedment material 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.
2. Hand-Placed Embedment: Hand-placed embedment shall be placed in uniform layers not more than 8" thick and compacted around water main.
3. After each pipe has been aligned, placed in final position on the embedment 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 to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations. Embedment material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement.
4. Granular Embedment shall be placed in maximum 6" layers and vibrated with a mechanical probe type vibrator during placement to ensure that all spaces beneath the pipe are filled. Each lift of embedment material shall be compacted with a platform type vibrating compactor to at least 70 percent relative density as determined by ASTM D4253 and D4254.
5. Where soil is migrating into embedment, place filter fabric on the trench surfaces so that it completely surrounds the embedment material. Joints shall be lapped 12 inches.
6. Groundwater Barrier: Interrupt continuity of embedment material by placing low permeability Groundwater Barrier Material to impede passage of groundwater through the embedment. Groundwater Barrier Material shall be placed around vault structures with cast-in-place bases and compacted to 95% of maximum density and along trenches at intervals approved by CITY not to exceed 250 feet.

B. Trench Backfill:

1. **Compacted Backfill:** Compacted Backfill will be required for the full depth of the trench above the embedment in the following locations:
 - a. Beneath pavements, driveways, curbs, gutters, walks, or other surface construction or structures.
 - b. Street, road, or highway shoulders.
 - c. Established lawn areas, including parks.
2. **Job Excavated Materials:** Place in uniform layers not exceeding eight (8) inches in uncompacted thickness. Each layer of material shall maintain optimum moisture content for compaction. The material in each layer shall be wetted or dried as required and mixed to ensure uniform moisture content and compaction. Increased layer thickness not to exceed 12 inches in uncompacted thickness may be permitted for non-cohesive material if the Contractor demonstrates to CITY satisfaction that the specified compacted density will be obtained. The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe. Job excavated material shall be compacted to 95 percent of maximum density at optimum moisture content, as determined by ASTM D698, or to 70 percent relative density, as determined by ASTM D4253 and D4254 when appropriate.
3. **Graded Gravel Backfill:** Place in uniform layers not exceeding twelve (12) inches in uncompacted thickness. The backfill shall be compacted with a vibratory roller or platform vibrator to at least 70 percent relative density as determined by ASTM D4253 and D4254.
 - a. Groundwater Barriers (specified under pipe embedment) shall extend to the top of the graded gravel backfill.
4. **Uncompacted Backfill:** Compaction of trench backfill above pipe embedment will only be required in designated locations and other locations where it is necessary to prevent future settlement.
 - a. Uncompacted backfill material above embedments shall be placed by methods which will not cause excessive concentrated or unbalanced loads, shock, or impact on installed pipe, and which will not result in displacement of the pipe.
 - b. Prevent compact masses of stiff clay or other consolidated material more than 1 cubic foot in volume from falling into the trench.
 - c. Uncompacted trench backfill material containing rocks or rock excavation detritus shall not be placed in the upper 18 inches of the trench, nor shall any stone larger than 6 inches be placed within 3 feet of the top of pipe.

3.6 Final Grading and Placement of Topsoil

- A. After completing backfilling, grade areas to the required elevations, slopes, and contours. All cuts, fills, embankments, and other areas that have been disturbed or damaged by construction operations shall be surfaced with topsoil to a depth of at least 4 inches.
- B. Use of graders or other power equipment will be permitted for final grading and dressing slopes. Grade surfaces to provide effective drainage. Unless otherwise indicated, provide a slope of at least 1- percent.
- C. Final grades and surfaces shall be smooth, even, and free from clods and stones, weeds, brush, and other debris.

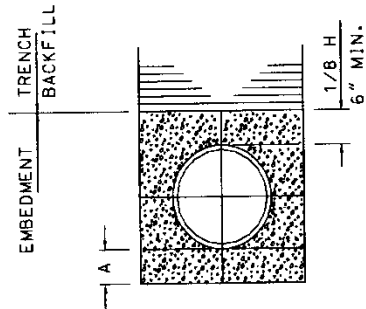
3.7 Disposal of Excess Materials

- A. Excess excavated materials that are not utilized in trench backfill shall be disposed of at an approved site or landfill.
- B. Excess earth from excavations may be distributed directly over the pipe trench and within the pipeline right-of-way to a maximum depth of 6 inches above the original ground surface elevation along the trench centerline and sloping each way. Wasted material shall be carefully finished with a drag, blade machine, or other suitable tool to a smooth, uniform surface without obstructing drainage. Wasting of excess excavated material as described will not be permitted where the line of trench crosses or is within a railroad, public road, highway right-of-way or established lawn or other landscaped area. The disposal of waste and excess excavated materials, including hauling, handling, grading, and surfacing, shall be an obligation of the Contractor.

3.8 Maintenance

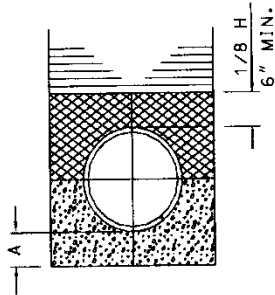
- A. The Contractor shall be responsible for all settlement of backfill, fills, and embankments that may occur.
- B. The Contractor shall make, or cause to be made, all repairs or replacements made necessary by settlement within 30 days after notice from the CITY.

END OF SECTION



CLASS A

1. ALTERNATE EMBEDMENT.





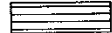
CLASS B

1. NORMAL EMBEDMENT FOR ALL P.C.C.P. AND D.I.P.

NOTES

1. FOR EMBEDMENT AND BACKFILL SPECIFICATIONS SEE SECTION 02200.

LEGEND

-  GRANULAR BEDDING
-  HAND-PLACED EMBEDMENT
-  BACKFILL

ABBREVIATIONS

- H COVER ABOVE TOP OF PIPE
- A DEPTH OF EMBEDMENT BELOW THE PIPE BELL FOR 20" AND SMALLER PIPE. (MINIMUM IN SOIL SHALL BE 3"; MINIMUM IN ROCK SHALL BE 6")

EMBEDMENT AND BACKFILL FOR WATER MAINS

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: APRIL, 2011

CONSTRUCTION DETAIL NO. 02200-1

SECTION 02320
UTILITY CASINGS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for installation of casing pipe at locations shown on the Drawings to protect the water main from surface loadings.

1.2 Section Includes

- A. Steel Casing Pipe
- B. Reinforced Concrete Pipe (RCP) Casing Pipe
- C. FRP Casing Pipe
- D. Accessories
- E. PVC Casing Pipe near gas mains

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Materials and Equipment
- C. Section 02200 – Excavation and Trenching
- D. Section 02618 – Ductile Iron Pipe Water Main
- E. Section 02669 – Thrust Restraints

1.4 References

- A. API RP1102 - Recommended Practice for Liquid Petroleum Pipelines Crossing Railroads and Highways.
- B. API 1104 - Standard for Welding Pipelines and Related Facilities.
- C. ASTM A36 - Structural Steel.
- D. ASTM A570 - Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality.
- E. ASTM C33 - Standard Specifications for Concrete Aggregates.
- F. ASTM C76 - Standard Specifications for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

- G. ASTM C361 - Standard Specifications for Reinforced Concrete Low-Head Pressure Pipe.
- H. AWWA C200 - Steel Water Pipe 6 Inches and Larger.
- I. AWWA C206 - Field Welding of Steel Water Pipe.
- J. SSPC SP3 - Power Tool Cleaning.
- K. AWWA C900 and C-905 – Polyvinylchloride Pipe

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 – Submittals.
- B. Submit descriptive and engineering data for:
 - 1. Casing pipe material, coatings and linings.
 - 2. Pipe alignment skids.
 - 3. Guide spacer bands.
 - 4. Restrained casing spacers.
 - 5. End seals.

1.6 Delivery, Storage, and Handling

- A. Follow the provisions for the delivery, storage, protection and handling projects to and at site provided in Section 01600 - Material and Equipment.
- B. Accept piping on site. Inspect for damage and inventory.

PART 2 PRODUCTS

2.1 Materials

- A. Steel Casing Pipe:
 - 1. New, smooth wall, welded steel pipe fabricated from ASTM A36 plate or ASTM A570 sheet with a minimum yield point of 248 MPa (36,000 psi), conforming to AWWA C200.
 - 2. Casing Thickness: The following table provides a listing of minimum casing diameters and thickness:

Minimum Casing Diameters

Encased Pipe Diameter (inches)	Minimum Casing Diameter (inches) ⁽¹⁾	Wall Thickness (inches)	
		Under Highways	Under Railroads
6	18	0.250	0.312
8	18	0.250	0.312
12	24	0.281	0.375
16	30	0.312	0.438
20	36	0.344	0.563
24	42	0.375	0.625
30	44	0.375	0.625

(1) Minimum casing inside diameter shall exceed outside diameter of carrier pipe joints or couplings by 4 inches.

3. Joints: All joints in steel pipe casings shall be field welded to conform to API 1104 or AWWA C206.
 - a. Clean to SSPC-SP3 and apply iron oxide field coating to all exterior joints after field welding.
 - b. Clean to SSPC-SP3 and apply iron oxide field coating to all interior joints on 24 inch diameter casings and larger after field welding.
4. Factory Coatings and Linings: Coat exterior and line interior of all casing pipe with iron oxide primer applied at 33 microns (1.5 mils) minimum thickness. Hold coatings and linings back from end joints to be welded at least 2 inches each side of joint.

B. Reinforced Concrete Pipe (RCP) Casing Pipe:

1. Pipe: ASTM C76 circular pipe of the strength class required by the drawings, or the highway, railroad, or utility having jurisdiction.
2. Joints: Steel end joints with a groove in the spigot end for an O-ring gasket.
3. Gasket: Synthetic Rubber, ASTM C361.

C. Fiberglass Reinforced Pipes:

1. Pipe to be manufactured by the centrifugal casting process to result in a dense, nonporous, corrosion-resistant, consistent composite structure conforming to ASTM D3262, ASTM D 4161, and ASTM D2412.
2. Joints: Unless otherwise specified, the pipe shall be field connected with fiberglass sleeve couplings that utilize elastomeric sealing gaskets made of EPDM rubber compound as the sole means to maintain joint water tightness. The joints must meet the performance requirements of ASTM D4161.

3. The actual outside diameter and the minimum wall thickness of the pipes shall be in accordance with ASTM D3262. Pipe shall be supplied in nominal lengths of 20 feet. Minimum Pipe stiffness when tested in accordance with ASTM D2412 shall normally be 36 psi.

D. Accessories

1. Casing spacers: shall be used to install the carrier pipe inside the encasement pipe. Casing spacers shall fasten tightly onto the carrier pipe so that when the carrier pipe is being installed the spacers will not move along the pipeline. Casing spacers shall be doubled on each end of the encasement.

Each casing spacer shall be capable of providing support for the carrier pipe in service at a maximum spacing of 10'. Calculations shall be provided to the ENGINEER by the casing spacer manufacturer showing that the casing spacer will support the service load at the recommended spacing, including a factor of safety of two (2). Casing spacers used under this specification shall meet or exceed the specifications described herein as projection-type that has a minimum of projections around the circumference totaling the number of diameter inches.

Projection-type casing spacers panels, risers and fasteners shall be constructed of Stainless Steel type 304. Casing spacer skids shall be constructed of UHMV Polyethylene. Projection-type casing spacers shall be Power Seal Model 4810 or approved equal.

B. End Seals: Power Seal Model 4810ES or approved equal.

C. Sand: Clean, natural sand in accordance with ASTM C33.

E. PVC Casing Pipe near gas mains

1. When a water main will cross under or over, or is in close proximity to a gas main with an impressed current cathodic protection system the water main shall be placed inside a PVC casing pipe conforming to AWWA C-900 or AWWA C-905 for a distance of at least 10' each side of the gas main being crossed.

The water main shall also be protected by two layers of polyethylene encasement for a minimum distance of 25' each side of the gas main being crossed or for the full length of any water main paralleling within 10' of the gas main, or as indicated on the Drawings. Install in accordance with Construction Detail Drawing 02320-2.

2.2 Quality Assurance

- A. Contractor: Company specializing in the installation of the Products specified in this Section with minimum three years documented experience.

PART 3 EXECUTION

3.1 Installation

- A. All work shall meet the minimum requirements of API RP1102, and the highway, railroad, or utility having jurisdiction. Installation shall be subject to their inspection and approval.
- B. Install Casing Pipes:
 - 1. Boring: Continuous flight auger, pneumatic or hydraulic jacking, or method approved by WSD. Reinforce leading end of casing with jacking band.
 - 2. Install to line and grade indicated on the Drawings.
 - 3. Excavate working pits of adequate size to provide safe working conditions and in such a manner as not to disrupt traffic or damage the roadway grade or surface.
 - 4. Casings rejected due to misalignment or other failures shall be abandoned in place and filled with grout. Casing pipe shall not be recovered for reuse.

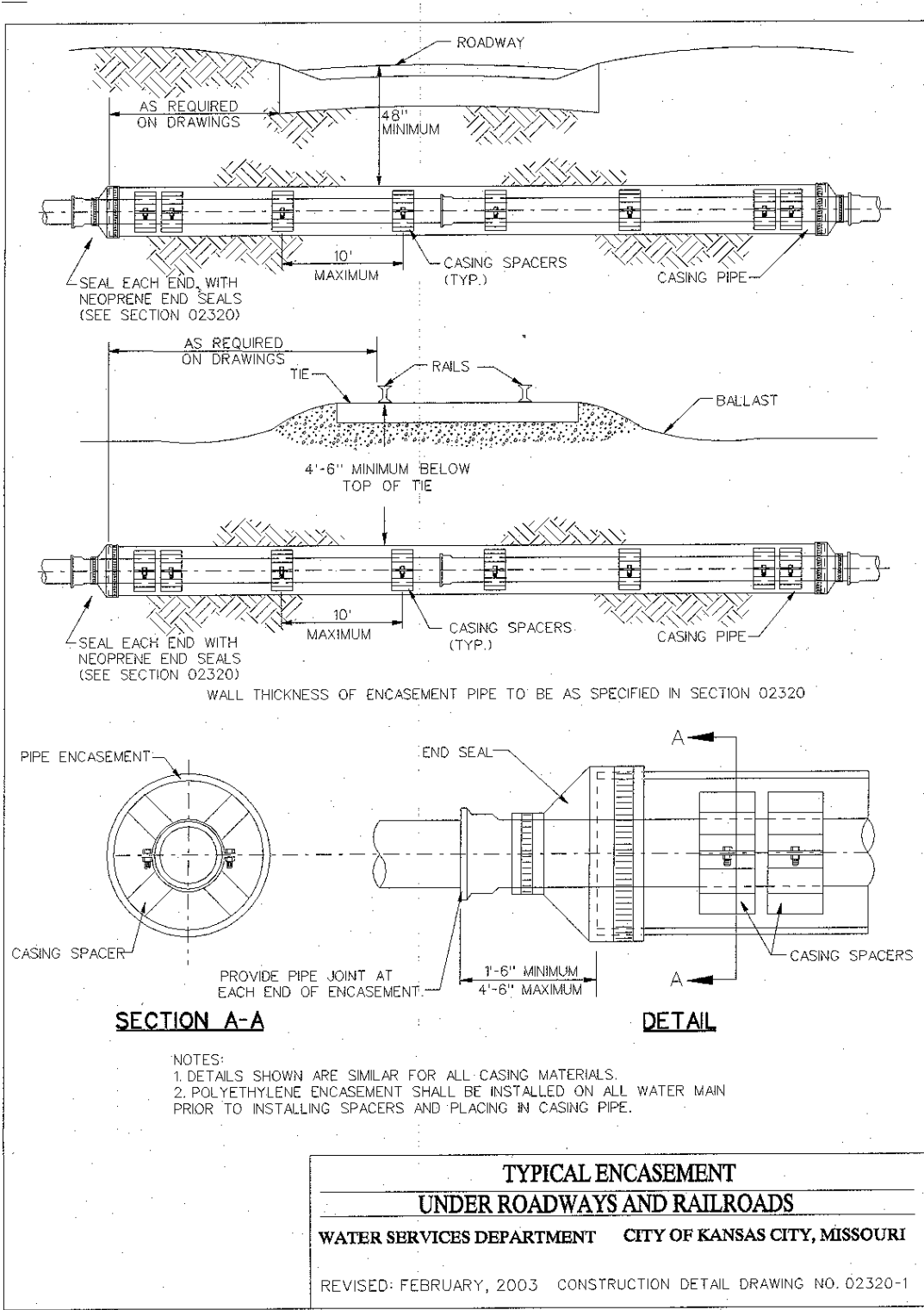
3.2 Casing Spacers

- A. Furnish casing spacers for pipe alignment guides as indicated on the Construction Detail Drawing No. 02320-1 for all carrier pipe to be installed in casing.
 - 1. Outside diameter of spacer to be sized slightly smaller than casing pipe inside diameter to limit carrier pipe movement.
 - 2. Install in accordance with spacer manufacturer's recommendations.

3.3 End Seals

- A. Install end seals as indicated on the Construction Detail Drawing No. 02320-1 and as follows:
 - 1. After inside of casing has been thoroughly cleaned.
 - 2. After carrier pipe has been permanently placed inside casing.

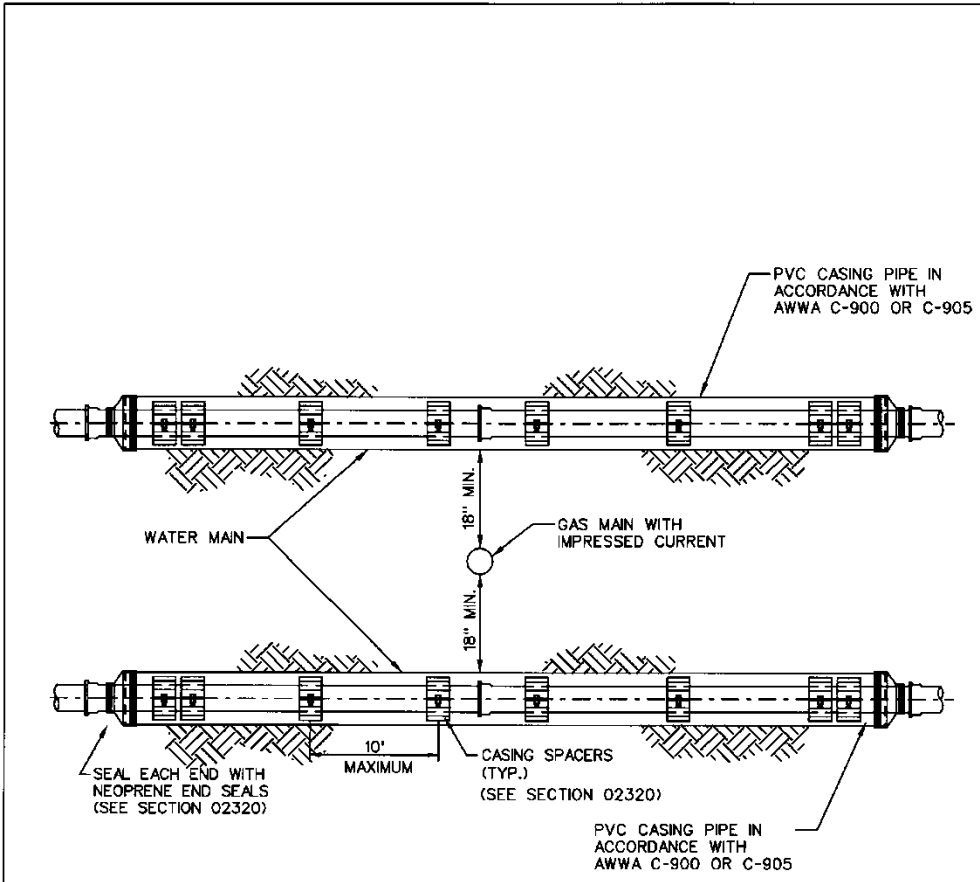
END OF SECTION



TYPICAL ENCASEMENT
UNDER ROADWAYS AND RAILROADS

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: FEBRUARY, 2003 CONSTRUCTION DETAIL DRAWING NO. 02320-1



- NOTES:
1. INSTALL DOUBLE THICKNESS OF POLYETHYLENE ENCASEMENT ON WATER MAIN MINIMUM 25' EACH SIDE.
 2. INSTALL CASING PIPE LENGTH REQUIRED TO EXTEND 10' EACH SIDE OF GAS MAIN.
 3. MINIMUM DIAMETER OF CASING PIPE AS SHOWN IN TABLE, SECTION 02320 PART 2.

GAS MAIN / WATER MAIN CROSSINGS	
WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI	
REVISED: JULY, 2006	CONSTRUCTION DETAIL DRAWING NO. 02320-2

SECTION 02575
SURFACE RESTORATION

PART 1 GENERAL

1.1 Section Description

- A. This section provides replacement of sidewalks, curbs, and pavement removed for water main construction operations.

1.2 Section Includes

- A. Embedment and Backfill
- B. Roadway Surfacing
- C. Brick or other Paver Material
- D. Sidewalk

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 02200 – Excavation and Trenching
- D. Section 03001 – Concrete

1.4 References

- A. American Public Works Association (APWA) - Standard Specifications.
- B. KCMO Public Works - Standard Specifications.

1.5 Submittals

- A. Follow the procedures for Submittals provided in Section 01300 - Submittals.

1.6 Quality Assurance

- A. All work shall conform to the latest APWA Standard Specifications and KCMO Department of Public Works Standard Specifications and Detail Drawing.

- B. Street cuts under Permit Work shall comply with KCMO Public Works Rules and Regulations for Excavation Permits. Excavations shall be protected at all times in accordance with Section 02200.
- C. The manufacturer shall be a company specializing in manufacturing of the Products specified in this Section with minimum three years documented experience.
- D. All tests required for compliance with KCMO Public Works restoration standards and any permit condition shall be at Contractor's costs. Contractor shall coordinate sample collection and testing. Laboratory and test procedures shall be in accordance with KCMO Public Works standards. Tests results shall be provided to the KCMO Public Works and the WSD.

1.7 Delivery, Storage, and Handling

- A. Follow the provisions for the delivery, storage, protection and handling products to and at site provided in Section 01600 - Material and Equipment:
- B. Do not place asphalt when base surface temperature is less than 40° F (4° C), or surface is wet or frozen.

PART 2 PRODUCTS

2.1 Materials

- A. Embedment and Backfill: Refer to 2602.3.C of KCMO Public Works Standard Specifications.
- B. Roadway Surfacing: In accordance with KCMO Public Works Standard Specifications and Street Cut Restoration Standard Drawing, SR-1.
- C. Brick or other Paver Material: Match existing.

PART 3 EXECUTION

3.1 General Requirements

- A. All excavation within City right-of-way requires a permit from the KCMO Public Works Department and within State Highway right-of-way requires a permit from MoDOT.
- B. All street or roadway pavement, driveway pavement, surfaced parking areas, sidewalks, curb and gutters, or other similar features encountered during water main construction shall be carefully demolished in accordance with the requirements herein, to allow for proper reconstruction of the feature.
- C. Existing pavements shall be cut parallel or perpendicular to the direction of traffic. Cuts shall be made with a concrete saw or similar tool designed for cutting pavement with a minimum of damage to the area to remain. The edges of cuts shall be smooth and straight. If, after trench excavation, cuts are less than one foot from the top of the trench in any location, the pavement shall be cut again, and additional pavement shall be removed to allow for proper pavement repair.

- D. All features subject to traffic (vehicular or foot) are to be reopened either permanently or temporarily, at the earliest possible time, to minimize inconvenience to the users of the feature. Trenches are to be backfilled or plated whenever no work is being conducted in the traffic location.
- E. Any surface feature damaged by construction activities, whether in the location of a trench or not, shall be removed and restored in accordance with these requirements.

3.2 Examination

- A. During demolition, existing pavement wearing course, base, and sub-base conditions shall be carefully observed, and measured as necessary for proper duplication during restoration.
- B. During restoration, examine sub-base and base to verify proper moisture content and ability to support construction activities and imposed loads.
- C. Verify grades and elevations are correct.

3.3 Curbs, Sidewalks, Sidewalk Ramps, Driveways, Bicycle/Pedestrian Paths and Concrete Features

- A. Concrete features are to be removed to the nearest joint in the existing material, provided that it is at least one foot from the top of the trench after excavation.
- B. Reconstruct curbs to match adjoining materials and dimensions. Curbs and curb ramps shall meet KCMO Public Works Standards sections 2209 and 2301 and Drawing C, and shall comply fully with all requirements in this section and with the requirements of ADAAG Section 4.7.
- C. Reconstruct sidewalks and driveways to the current City standard or to match the existing materials and dimensions, whichever is the higher standard. Sidewalks and driveways shall meet KCMO Public Works Standards section 2301 and Drawings D1, D2, and D3, and shall comply fully with all requirements in this section and with the requirements of ADAAG Section 4.7.
- D. Stone curbs, brick pavers and similar materials shall be carefully removed by hand, preserved for reuse, and replaced to match the existing feature. A concrete cap extending one foot beyond the top of trench shall be placed over the trench beneath the pavers. This supporting trench cap shall be 10 inches thick in areas subject to vehicular traffic, and 6 inches thick in areas subjected to foot traffic only. A sand bed shall be provided where required to properly level and install pavers.

3.4 Asphaltic Concrete Surfaces

- A. Pavement shall be removed twelve (12) inches beyond the edge of the disturbed subgrade or pavement whichever is greater. If the excavation is within three (3) feet of an existing joint or cut, the surface shall be extended to that joint or cut.

- B. Restoration of street cuts shall conform to the City "Street Cut Restoration Standards", Street Cut Restoration Standard Drawing SR-1, and the requirements of the street cut permit.
- C. Restoration of parking lot, driveway, and similar surfaces shall match the existing surface or conform to current standard for the feature whichever standard is higher.

3.5 Gravel and other Surfaces

- A. Oiled crushed rock (chip and seal) surfaces shall be replaced with a minimum of 6 inches untreated compacted aggregate and 4 inches of Type 3 asphaltic concrete.
- B. Earth or crushed rock roads shall be restored with a minimum of 12 inches of untreated compacted aggregate over a trench cap as described above. The aggregate material shall closely resemble the original or surrounding material.
- C. All other surfaces shall be restored to match the surrounding surface, as directed by WSD.

END OF SECTION 02575

SECTION 02608
CONCRETE VAULTS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the installation of vaults to house water main appurtenances in locations shown on the drawings.

1.2 Section Includes

- A. Concrete Vaults
- B. Lids and Frames
- C. Vault Configuration

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material & Equipment
- C. Section 02200 - Excavation and Trenching
- D. Section 02575 – Surface Restoration
- E. Section 02618 – Ductile Iron Pipe Water Main
- F. Section 02619 – Prestressed Concrete Cylinder Pipe Water Main
- G. Section 02641 – Valves

1.4 References

- A. ASTM A48 - Gray Iron Castings.
- B. ASTM C33 - Standard Specification for Concrete Aggregates.
- C. ASTM C150 - Standard Specification for Portland Cement.
- D. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
- E. ASTM C478 - Precast Reinforced Concrete Manhole Sections.
- F. ASTM C923 - Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

- G. International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specification for Cold Weather Masonry Construction.

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 – Submittals.
- B. Provide information on materials and construction of vaults, vault lids and frames, component construction, features, configuration, and dimensions.

1.6 Quality Assurance

- A. To ensure conformance to tensile strength requirements, the following procedure will be followed for each lot of castings used.
 - 1. All castings shall be Julian Heat dated.
 - 2. Two test bar specimens shall be poured when producing castings. Test bar specimens shall be Julian Heat dated. One test bar shall be sent to an independent laboratory for tensile strength testing. The other test bar shall be held at the foundry for a period of not less than one year.
 - 3. A test report from an independent laboratory verifying tensile strength shall accompany each shipment of castings. The heat date(s) on castings shall correspond to the tensile strength report(s).
- B. The manufacturer shall be a company specializing in manufacturing Products specified in this Section with minimum three years documented experience.
- C. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.7 Delivery, Storage and Handling

- A. Follow the provisions for the delivery, storage and handling of products to and at site provided in Section 01600 - Material and Equipment.

PART 2 PRODUCTS

2.1 Materials

- A. Concrete Vaults:
 - 1. Vault Sections: Reinforced precast concrete in accordance with ASTM C478 with gaskets in accordance with ASTM C923.
 - 2. Mortar: Proportions by volume shall be one part Portland cement, ASTM C150 Type I; two parts sand, ASTM C33; and 10 percent by volume of lime ASTM C207, Type S.

B. Lids And Frames:

1. Castings shall conform to the requirements of ASTM Designation A48, Class 35B.
2. The word "WATER" shall be cast in the cover in 3" letters. The words Kansas City Missouri shall be cast in the cover in 1 ¼ " letters.
3. UNPAVED/EASEMENTS/GREENWAY Locations: Covers shall have "WATER" in the center.
 - a. The frame and cover shall be Deeter Foundry, Inc. #1320A or approved equal.
4. PAVED City/Public Street Right-of-way Locations: Castings installed in Paved areas will be adjustable/self leveling. Covers shall have "WATER" in the center.
 - a. 24" East Jordon Iron Works 3024 Self-Level Manhole Frame and Cover with 1040AGS "T" Gasket Cover or approved equal.

OR

b. 25" CertainTeed PAM VIATOP ductile iron casting reference #CDVT60QG or approved equal. ISO9000 certified foundry of all Ductile Iron components. Castings shall be third party certified 65-45-12 ductile iron and all related standards. Covers shall be hinged with drain and incorporate 90 degree blocking systems to prevent accidental closure. Casting shall have lifetime warranty for all components. Reference: AASHTO H20 and ISO 1083 or approved equal.

C. Vault Configuration

1. Shaft Construction: Concentric with lipped male/female joints; sleeve to receive pipe.
2. Shape: Cylindrical.
3. Clear Inside Dimensions:
 - a. 60" diameter
4. Clear Lid Opening: 26 inches diameter, minimum.
5. Pipe Entry: Provide openings as required.
6. Steps: See detail drawing No. 02608-1.

PART 3 EXECUTION

3.1 Examination

- A. Verify items provided by other sections of Work are properly sized and located.
- B. Verify that built-in items are in proper location, and ready for roughing into Work.
- C. Verify excavation for vaults is correct.
- D. Verify that subgrade will support vault.

3.2 Preparation

- A. Coordinate placement of inlet and outlet pipe or sleeves required by other sections.

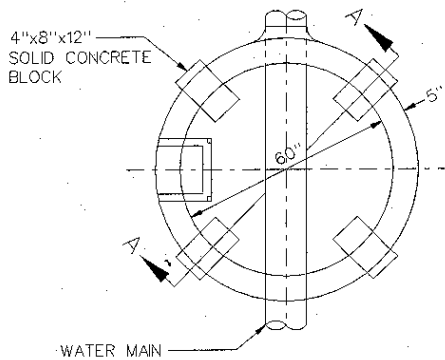
3.3 Placing Vault Sections

- A. Place concrete blocks.
- B. Place vault sections plumb and level, at correct elevations.
- C. Set cover frames and covers level without tipping, to correct elevations.

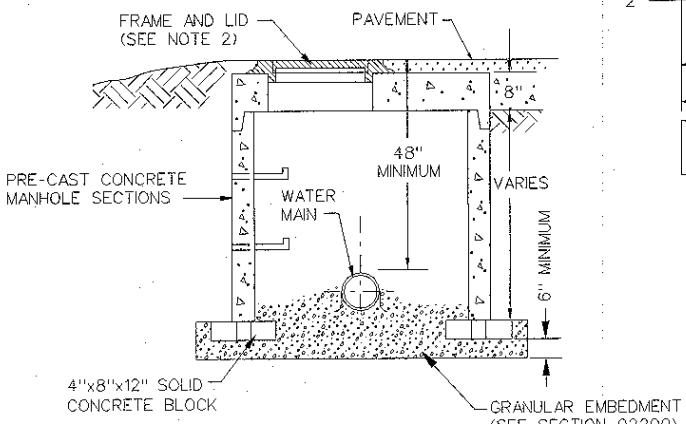
3.4 Corrosion Protection

- A. Provide corrosion protection for the concrete and concrete reinforcement, when and as specified.
- B. Corrosion protection for concrete shall be required when the soil conditions indicate the need for sulfate resistant concrete and it is not available from the precast concrete member manufacturer.

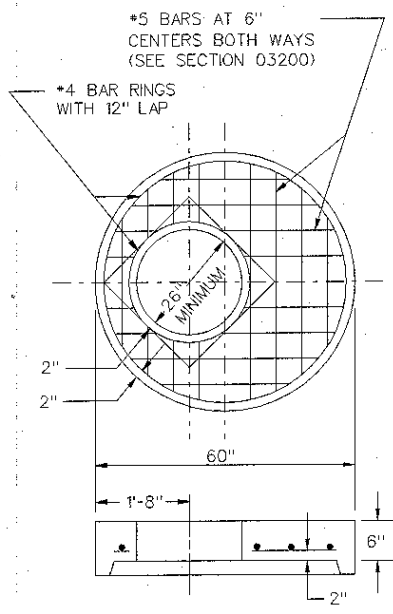
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PLAN



SECTION A-A



**DETAIL
ROOF SLAB**

- NOTES:
1. VAULT SHALL BE STANDARD 60" I.D. PRECAST CONCRETE MANHOLE USING A MINIMUM RISER OF 48 INCHES. ADDITIONAL RISERS MAY BE USED, IF NEEDED, TO ADJUST DEPTH OF MANHOLE.
 2. FRAMES AND LIDS:
 - (a) UNPAVED AREAS: CLAY AND BAILEY MANHOLE COVER NO. 2007 MR (WITH PRECAST CONCRETE ADJUSTMENT RINGS) A MAXIMUM OF 3 RINGS MAY BE USED FOR ADJUSTING TO GRADE.
 - (b) PAVED AREAS: CLAY AND BAILEY RING NO. 2002 WITH LID NO. 2007 OR APPROVED EQUAL.
 3. STEPS:
 - (a) STEPS ARE TO BE 16 INCHES CENTER TO CENTER.
 - (b) THE FOLLOWING STEPS MAY BE USED:
 1. CLAY AND BAILEY CAST IRON STEPS NO. 2104.
 2. M-A INDUSTRIES: PLASTIC COATED RE BAR "PS-4".
 3. OLIVER TIRE & RUBBER CO.: RUBBER COATED "SURE-FOOT".
 4. DELTA PIPE PRODUCTS: "WEDG-LOK WL-11"

TYPICAL PRE-CAST CONCRETE VAULT

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: FEBRUARY, 2003 CONSTRUCTION DETAIL DRAWING NO. 02608-1

SECTION 02618

DUCTILE IRON PIPE WATER MAIN

PART 1 GENERAL

1.1 Section Description

- A. This section provides for pipe, fittings, and appurtenances associated with the installation of ductile iron pipe water main. This section applies to all water main 16" diameter and smaller and to other sizes when ductile iron pipe is selected.

1.2 Section Includes

- A. Pipe
- B. Fittings
- C. Appurtenances
- D. Shop Coating and Lining
- E. Bolts and Nuts
- F. Protective Coatings

1.3 Related Sections

- A. Section 01000 – General Requirements
- B. Section 01016 – Water Mains Near Sewers
- C. Section 01300 – Submittals
- D. Section 01600 – Material and Equipment
- E. Section 02200 – Excavation and Trenching
- F. Section 02575 – Surface Restoration
- G. Section 02608 – Concrete Vaults
- H. Section 02641 – Valves
- I. Section 02645 – Hydrants, Blowoffs and Flushing Assemblies
- J. Section 02669 – Thrust Restraints
- K. Section 02675 – Water Main Testing, Disinfection and Dechlorination

1.4 References

- A. ANSI/NSF61 - Drinking Water Treatment Chemicals.
- B. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.
- C. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
- D. ASTM D4976 - Standard Specification for Polyethylene Tubing.
- E. AWWA C104/ANSI A21.4 - Cement-Mortar Lining for Cast-Iron Pipe and Fittings.
- F. AWWA C105/ANSI A21.5 - Polyethylene Encasement For Ductile Iron Piping.
- G. AWWA C110/ANSI A21.10 - Gray-Iron and Ductile Iron Fittings.
- H. AWWA C111/ANSI A21.11 - Rubber-Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings.
- I. AWWA C115/ANSI A21.15 - Flanged Ductile-Iron Pipe with Ductile Iron or Gray Iron Thread.
- J. AWWA C150/ANSI A21.50 - Standard for the Thickness Design of Ductile Iron Pipe.
- K. AWWA C151/ANSI A21.51 - Ductile Iron Pipe Centrifugally Cast for Water.
- L. AWWA C153/ANSI A21.53 - Ductile-Iron Compact Fittings, 3 in. through 24 in.
- M. AWWA C203 - Standards for Steel Pipe.
- N. AWWA C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.
- O. AWWA C600 - Installation of Ductile Iron Water Mains and their Appurtenances.

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals
- B. Submit shop drawings and project data (laying schedule) for piping work showing pipe and fitting sizes, valve locations, joint details; and hydrant locations.

1.6 Quality Assurance

- A. Follow provisions of AWWA C600.
- B. The manufacturer shall be a company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

- C. Mark rejected or defective materials and remove them from the work site.

1.7 Delivery, Storage, and Handling

- A. Follow the provisions for the delivery, storage, protection and handling products to and at site provided in Section 01600 - Material and Equipment.
- B. Accept piping on site. Inspect for damage and inventory.

PART 2 PRODUCTS

2.1 Water Main Pipe Materials

A. Pipe

1. Unless indicated otherwise, all 4" diameter through 12" diameter shall be thickness class 52. Pipe 16-inch diameter and larger shall be thickness Class 54 minimum. The pipe shall be designed in accordance with AWWA C150-ANSI A21.50 and manufactured per AWWA C151-ANSI A21.51 complete with all accessories.
2. All ductile iron pipe, and all fittings, valves, and other buried appurtenances, shall be encased in polyethylene.
3. Joints: The joints shall be of the push-on type unless otherwise specified conforming to ANSI/AWWA C111/A21.11, except gaskets shall be neoprene or synthetic rubber. Gaskets shall be certified as suitable for chlorinated potable water in accordance with ANSI/NSF61. Natural rubber will not be acceptable.
4. Restrained Joints: See Section 02669.

B. Fittings

1. All fittings shall be made of Ductile Iron and manufactured according to AWWA C110/ANSI A21.10 or AWWA C153/ANSI A21.53.
2. Fitting joints shall be Mechanical Joint (MJ), Flange Joint (FLG), or Push-On Joint, per AWWA C111/ANSI A21.11. All MJ glands shall be ductile iron. Fittings shall have distinctly cast upon them, the pressure rating and the letters "DI" or "Ductile". FLG Fittings shall be used only for aboveground installations.
3. Flanged Joints: Shall be provided with full-face gaskets and shall meet the requirements of AWWA C115/ANSI A21.15.

C. Appurtenances

1. Welded - On Outlets: May not be used in lieu of tees.
2. Tapping Sleeves:

- a. Material: All material in the body, lugs, outlet, flange, bridge plate, bolts, nuts and washers shall be ASTM A-276 Type 304 or Type 316 or ASTM A-564 Type 630 stainless steel.
 - b. Body: Shall be a minimum of 14 gauge stainless steel and shall fit cast iron pipe classes A, B, C, and D.
 - c. Outlet: Shall be a minimum of 14-gauge stainless steel. The branch outlet shall be supplied with a tap and plug to permit pressure testing the sleeve prior to tapping the main.
 - d. Flange: Shall conform to AWWA C207 Class D with drilling in accordance with ANSI B 16.1 class 125, and shall be indexed per MSS-SP 60 to accept tapping valve.
 - e. Welding: All welding on the coupling shall be done with stainless steel rods.
 - f. Gaskets: Sleeve gaskets shall be full circumferential a minimum of ¼” thick gridded with tapered lap joint ends and stainless steel bridge plates molded flush into the gasket.
 - g. The Outlet: The outlet flange face shall be supplied with a bonded, full-face gasket. All gaskets shall be grade 30 specially compounded rubber, synthetic rubber, or 100 percent neoprene that shall have the necessary qualities to allow outside storage, permanence, and resistance to set after installation.
 - h. Bolts and Nuts: All bolts, nuts and washers shall be loose; lifter bar style bolt attachments shall not be permitted. All bolts and/or nuts shall be impregnated or coated to prevent seizure. Minimum diameter shall be 5/8”.
 - i. Working Pressure: Sleeve shall be designed for a minimum working pressure of 175 psi.
 - j. General: Power Seal Model 3490-AS; JMC 432; Cascade CST-Ex stainless steel extra heavy duty; Ford Model FTSS; Romac STD Band SST-III; Smith Blair Type 665.
 - k. Power Seal Model 3490MJ or approved equal may also be used.
3. Tie Rods: ASTM A276, Type 304 or Type 316 Stainless Steel.
 4. Couplings: Dresser “Style 38” or Smith-Blair “441 or 411 Flexible Coupling”; without pipe stop. Bolted compression type couplings shall be manufactured of steel or ductile iron specifically for use with ductile iron pipe.

D. Shop Coating and Lining

1. All pipe and fittings shall be cement mortar lined in accordance with AWWA C104/ANSI A21.4. All buried pipe and fittings shall be coated with a black asphaltic coating minimum 1 mil in thickness per AWWA C151/ANSI A21.51. Any pipe or fittings above ground shall be prime coated with 6 mils DFT of Tnemec 140-1211 Epoxy Primer.
2. As an alternative to cement mortar lining on fittings, the manufacturer may use a Fusion Bonded Epoxy on both the interior and exterior that complies with AWWA C550 and is NSF 61 approved for potable water.

3. Ductile Iron Pipe used for sewers shall have an interior protective coating of calcium aluminate mortar (Sewper Coat, as manufactured by Griffin, or approved equal) or an approved PVC lining.

E. Bolts and Nuts

1. Bolts: ASTM A307, chamfered or rounded ends projecting 1/4 to 1/2 inch from surface.
2. Nuts: ASTM A307, hexagonal, ANSI B18.2.2.

F. Marking:

1. Markings shall be legibly indented in the pipe or painted thereon with waterproof paint.

2.2 Protective Coatings

A. Polyethylene Encasement:

1. Polyethylene encasement materials shall be in accordance with ASTM D4976 and AWWA C105/ A21.5; LLD-12 mil or HDCL-4 mil. LLD-12 mil polywrap shall be blue.

<u>Item</u>	<u>LLD-12 mil</u>	<u>HDCL-4 mil</u>
Tensile Strength, psi	4,400	6,300
Elongation, percent	1,000	100
Dielectric Strength, v/mil	1,900	800
Tear Resistance, g/f	4,400	250
Impact Resistance, g	1,100	800

2. The minimum tube size for each pipe diameter shall be in accordance with AWWA C105 as follows:

Polyethylene Flat Tube Width (inches)

Nominal Pipe Diameter (inches)	Push-on Bell & Spigot Joints	Mechanical Joints
4	14	16
6	17	20
8	21	24
10	25	27
12	29	30
14	33	34
16	37	37
18	41	41
20	45	45
24	53	53

3. Adhesive tape shall be a general purpose adhesive tape 1-inch wide and approximately 8 mils thick, such as Scotch Tape No. 50, Polyken No. 900, Tapecoat CT or approved equal (Duct Tape will not be allowed).
- B. Exterior Surfaces Underground (Excluding Pipe & Fittings): All metal surfaces, including each mechanical coupling, shall be thoroughly cleaned and then coated with Tnemec coal-tar epoxy "High-Build Tnemec-Tar". All material and the application thereof shall conform to AWWA C203.
- C. Above ground pipe and fittings shall be field coated with Tnemec Coal Tar Epoxy "High-Build Tnemec-Tar."

PART 3 EXECUTION

3.1 Handling

- A. Pipe, fittings, and accessories shall be handled in a manner that will ensure installation in a sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, hauling, and laying pipe and fittings shall be such that the pipe, pipe coating, and fittings are not damaged. Hooks shall not be used. Under no circumstances shall pipe or accessories be dropped or dumped. Pipe and fittings shall not be moved by inserting anything into pipe ends.
- B. Pipe and fittings on which the cement lining has been broken or loosened shall be replaced. Where the damaged areas are small and readily accessible, the lining may be permitted to be repaired in accordance with AWWA C104.

3.2 Inspection

- A. Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation. Spigot ends shall be examined with particular care since they are vulnerable to damage from handling. All defective, damaged, or unsound pipe and fittings shall be rejected and marked as such and removed from the site of the work.

3.3 Preparation

A. Cutting Pipe:

1. Ductile iron pipe shall be cut with a saw or an abrasive wheel. Existing cast iron pipe shall be cut with a saw or abrasive wheel.
2. The cutting of pipe with a torch will not be permitted.
3. Cutting shall be done in a neat manner without damage to the pipe or the cement lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp corners.

B. Cleaning:

1. 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 accepted.
2. Surfaces shall be wire brushed, if necessary, wiped clean, and kept clean until jointing is completed.

3.4 Installation

A. General

1. Alignment: Runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the quantities stipulated in Table 4 or Table 5 of AWWA C600. Shorter pipe sections or special bends shall be installed where the alignment or grade requires them.
2. Laying Pipe: Pipe shall be protected from lateral displacement by pipe embedment material installed as specified in Section 02200. Under no circumstances shall the pipe be laid in water; and no pipe shall be laid in unsuitable trench conditions.
 - a. Pipe shall be laid with the bell ends facing the direction of laying except when reverse laying is specifically authorized by the CITY.
 - b. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug that will prevent water and objects from entering the pipe.
3. No pipe length less than 18" shall be used.

B. Mechanical Joints:

1. The gasket and gland shall, after proper joint cleaning, be in position on the spigot before shoving the pipe to its final position. Center the entering spigot so that the gland or follower ring is parallel to the face of the connecting bell. Joint shall be shoved "home" and the gland properly positioned with respect to the connecting bell with the connecting pipes in as nearly perfect alignment as practicable. The bolts shall be slightly and uniformly tightened. Deflection may be made after the bolts are tightened.
2. Coat the gasket with a lubricant (suitable for potable water) supplied by the pipe manufacturer and all surfaces of the bell, spigot, and gland that will come in contact with the gasket at any time during assembly.
3. Gasket shall be carefully pushed into position and evenly seated in the bell. The gland shall be shoved into place against the gasket, the bolts inserted, and the nuts tightened with the fingers until snug. Final tightening of the bolts shall be done with a ratchet torque wrench.
4. Partially tighten the bottom bolt, then the top bolts, alternately either side, and finally the remaining bolts, alternately tightening bolts 180 degrees apart. This

cycle is then to be repeated until all bolts are tightened to the torque specified by the manufacturer:

5/8" bolts --- 40 to 60 foot pounds

3/4" bolts --- 60 to 90 foot pounds

5. If sealing is not maintained at the torque specified, the joint shall be disassembled, thoroughly cleaned, and reassembled. Overstressing of bolts to compensate for poor installation practice will not be permitted.

C. Push-On Joints:

1. Wipe the gasket seat clean with a cloth and position in place. Coat the gasket with a lubricant supplied by the pipe manufacturer. Apply to all of the inner surface of the gasket that will come into contact with the entering pipe.
2. Clean the plain end of the pipe and apply a thin film of lubricant (suitable for potable water) to the outside of the plain end of the pipe and its beveled edge. Align the plain end of the pipe with the bell of the pipe to which it is to be joined. The joint deflection angle should not exceed the recommended maximum of the manufacturer.
3. Bring the plain end of the pipe in contact with the gasket and exert sufficient force on the entering pipe so that its plain end compresses the gasket and makes contact with the base of the socket of the bell. This force can be applied by means of a jack type tool, backhoe, or other methods approved by the CITY.

D. Flanged Joints:

1. When bolting, care shall be taken to provide uniform gasket compression and prevent unnecessary stress on the flanges. Flange shall be free to move in any direction while the flange bolts are being tightened. Bolts shall be tightened gradually and at a uniform rate to provide uniform gasket compression.
2. Use full-face gaskets only.

E. Restrained Joints:

1. Restrained joints shall be installed in accordance with the pipe manufacturer's recommendations.
2. All joints within utility casings shall be restrained joints.

F. Encasement:

1. Polyethylene encasement shall be installed on all ductile iron pipe and fittings. The polyethylene shall prevent contact between the pipe, fittings, and the surrounding embedment.

2. The polyethylene encasement shall be installed as specified in "Method A" below and as shown on the Construction Detail Drawing No. 02618-1.
 - a. Method A: Polyethylene tubing shall be approximately two (2) feet longer than the length of the pipe section to provide a one (1) foot overlap on each adjacent pipe section. Tube ends need not be taped in place unless directed by the CITY. Repair rips, punctures, or other damages to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured with adhesive tape as directed by the CITY (duct tape is not allowed).
3. Pipe-Shaped Appurtenances: Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene in the same manner as the pipe.
4. Odd-Shaped Appurtenances: Valves, tees, crosses, and other odd-shaped pieces that cannot practically be wrapped in a tube shall be wrapped with a flat sheet or split length of polyethylene tube. The sheet shall be passed under the appurtenance and brought up around the body. Seams shall be made by bringing the edges together, folding over twice, and taping down. Tape polyethylene securely in place at overlaps, valve tops and all other penetrations.
5. Lifting devices shall not be placed over polyethylene.
6. Polyethylene shall be protected from exposure to weather or damage at all times.
7. Openings in Encasement: Openings for branches, service taps, blow-offs, air valves, and similar appurtenances shall be made by making an x-shaped cut in the polyethylene and temporarily folding the film back. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut as well as any other damaged areas in the polyethylene with tape. The new appurtenance shall be wrapped.
8. Junctions Between Wrapped and Unwrapped Pipe: Where polyethylene wrapped pipe joins an existing pipe which is not wrapped, extend the polyethylene tube to cover the unwrapped pipe a distance of at least three feet. Secure the end with circumferential turns of tape.
9. Taps: Wrap 3 layers of adhesive tape over the polyethylene, covering the area where the tapping machine will be mounted. Mount the machine over the tape. Make the tap and install the corporation stop through the tape and polyethylene. After making the service connection, inspect the polyethylene, and repair damaged areas with tape.

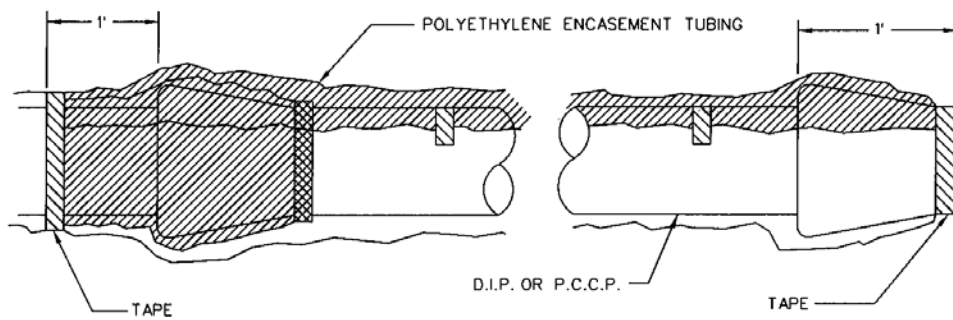
3.5 Water Main and Sewer Separation

- A. Refer to Section 01016.

3.6 Appurtenances

- A. Concrete Vaults: Refer to Section 02608
- B. Valves: Refer to Section 02641
- C. Hydrants, Blow-off, and Flushing Assemblies: Refer to Section 02645
- D. Thrust Restraints: Refer to Section 02669

END OF SECTION



METHOD A

NOTES

1. TAPE IN ACCORDANCE WITH AWWA C-105

POLYETHYLENE ENCASEMENT FOR BURIED PIPE

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: APRIL 2014

CONSTRUCTION DETAIL DRAWING NO. 02618-1

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SECTION 02641

VALVES

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the installation of required valves.

1.2 Section Includes

- A. Gate Valves
- B. Butterfly Valves
- C. Air Release Valves
- D. Tapping Valves
- E. Valve Boxes, Bases, Lids and Covers, Torque Limiting Devices
- F. Valve Seals and Coatings
- G. Check Valves

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 02608 – Concrete Vaults
- D. Section 02618 – Ductile Iron Pipe Water Main
- E. Section 02669 – Thrust Restraints

1.4 References

- A. ANSI B16.1 - Pipe Flanges and Flanged Fittings, Cast-Iron
- B. ANSI/AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings.
- C. ANSI/AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
- D. AWWA C504 - Rubber-Seated Butterfly Valves.

- E. AWWA C509-94 - Standard Specification for Resilient Seated Gate Valves for Water Supply Service.
- F. AWWA C512-99 - Air Release, Air/Vacuum, and Combination Air Valves for Water Works Service.
- G. ASTM A48 - Standard Specifications for Gray-Iron Castings.
- H. ASTM A126 - Standard Specifications for Gray-Iron Castings for Valves, Flanges, and Pipe Fittings.
- I. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
- J. ASTM A536 - Standard Specification for Ductile Iron Castings.
- K. ASTM A564 - Standard Specification for Hot-Rolled and Cold-Finished Stainless Steel Bars and Shapes.
- L. ASTM D471 - Standard Test Method for Rubber Property-Effect of Liquids.
- M. ASTM D1149 - Standard Test Method for Rubber Deterioration-Surface Ozone Cracking in a Chamber.
- N. C508: Swing-Check Valves for Waterworks Service, 2 in. through 24 in.

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals
- B. Shop Drawings: Detailed drawings, data and descriptive literature on all valves and appurtenances, including:
 - 1. Manufacturer
 - 2. Dimensions
 - 3. Size
 - 4. Materials of construction
 - 5. Weight
 - 6. Protective coating
 - 7. Actuator weight and turns to operate where applicable
 - 8. Calculations for actuator torque where applicable
 - 9. Proof of design tests in accordance with Sec. 5.2.4. AWWA C504
 - 10. Cross section drawings detailing all components

- C. The Contractor shall submit descriptive literature describing the proposed valves and accessories. Contractor shall also furnish a copy of the manufacturer's warranty that applies to the valves and actuators.

1.6 Quality Assurance

- A. Valves shall be manufactured by a company specializing in the regular production of the Products specified herein and proven reliable in similar service for at least five (5) years.
- B. Insofar as possible, all valves of the same specific type shall be the product of one (1) manufacturer.

1.7 Delivery, Storage and Handling

- A. Follow the provisions for the delivery, storage, protection and handling Products to and at site provided in Section 01600 - Material and Equipment.

PART 2 PRODUCTS

2.1 General

- A. Marking and identification of valves shall conform to AWWA C504 or AWWA C509.

2.2 Gate Valves

- A. Gate Valves: Except as modified or provided herein, all gate valves shall be 200 psi, ductile iron body, resilient-seated, tight closure gate valves with non-rising stems conforming to the requirements of AWWA C509. Thin wall valves are prohibited.
- B. Valve Ends:
 - 1. Mechanical Joint or Push On Joint: Conforming to ANSI/AWWA C111/A21.11 except where flange ends are required. All glands shall be ductile iron.
 - 2. Flanged: Conforming to the dimensions and drilling of ANSI B16.1 for cast iron flanges and flange fittings, Class 125. The laying lengths of the flange valves shall conform to the dimensions of ANSI B16.1.
- C. Valve Gate: Wedge type gate with a minimum 3/8 inch thick resilient rubber, urethane rubber, Buna "N" or SBR rubber bonded to or mechanically attached to one side or both sides of the gate. No sliding or shear is permitted on the resilient seat, when compressed to a drop-tight shut-off.
- D. Stainless Steel Bolts and Nuts: The bolts and nuts that fasten the bonnet to the valve body, the actuator nut to the valve, and the bonnet thrust plate to the bonnet shall be AISI Type 304 or 316 stainless steel.

- E. Seals: Gate Valves shall be provided with stem seals of the "O" ring type. Two "O" rings shall be used with at least one "O" ring inserted above the thrust collar. The packing plate shall be attached to the valve bonnet by not less than two (2) bolts if bolts are required and one "O" ring below the thrust collar.
- F. Coatings: All exterior surfaces of each valve shall be cleaned and painted in the shop with two (2) coats of asphalt varnish conforming to Federal Specifications TT-V-51-E. The interior surface shall have a protective coating of fusion-bonded, non-toxic epoxy that is safe for potable water. Non-toxic epoxy may also be used for exterior coating
- G. Tapping Valves: The valves shall be 200 psi, ductile iron body, resilient-seated, tight closure gate valves with non-rising stems in conformance with ANSI/AWWA C509, except that the outlet end shall be a standard mechanical joint end conforming to ANSI/AWWA C111/A21.11 and the inlet end shall have an inlet flange conforming to ANSI B16.1 for cast iron flanges, Class 125. Gland shall be ductile iron. Approved mechanical joint valves shall be used with Power Seal Model 3490MJ tapping sleeves.

2.3 Butterfly Valves

- A. General: These specifications provide for the purchase and installation of ductile iron, vault installation or direct bury, rubber-seated, tight closure in both directions, 16 fps butterfly valves and actuators in sizes from 16-inch through 90-inch diameter. All valves shall be Short-Body Flanged-end valves for use in vaults or Mechanical-Joint-end valves for direct bury. The valves and actuators shall be of the latest model with all standard accessories ordinarily furnished to the industry except as otherwise specified herein. All valves of one size shall be built by one manufacturer with actuators built by one manufacturer. The latest revision of AWWA C504, Standard for Rubber Seated Butterfly Valves, shall govern unless noted otherwise herein. The intent of all provisions of AWWA C504 shall apply equally to valves larger than 48" diameter and to 250 psi valves unless noted otherwise herein. Each valve shall have a unique serial number, which shall be part of the information on the tag specified in paragraph 10.
- B. Owner's Data: The quantity, pressure rating, valve material type, and sizes shall be as indicated on the drawings. Each valve shall be fastened to and delivered on an individual pallet on 4" x 4", or heavier, wood skids, high enough to protect the valve and actuator. All other requirements of AWWA C504 Section 6.2 "Shipping" shall apply. Delivery shall be to the jobsite.
- C. Descriptive Literature: The Bidder shall include literature describing the valves and actuators to be furnished.
- D. Warranty: The Supplier shall furnish three copies of the warranty that applies to the valves and actuators they propose to furnish. The warranty period shall be for a minimum of three years after substantial completion of the contract under which the valve is installed or twenty years from the date of shipment, whichever comes first.
- E. Shop Drawings: The approved Supplier, ONLY, before manufacturing the valves and actuators, shall submit eight (3) sets of certified shop drawings, parts lists, exploded

assembly drawings, and material specifications, for approval, to the WSD. In addition to the above, the supplier shall furnish certified copies of proof-of-design tests performed in accordance with Section 5.2.4 of AWWA C504.

- F. Design: All valve parts shall be designed for a minimum safety factor of 3, based on yield strength, or 5, based on tensile strength.
- G. Flow Coefficient “K”: The flow coefficient in terms of velocity head (K), in the full open position, shall not be greater than the following:

	<u>75 psi</u>	<u>150 psi</u>	<u>250 psi</u>
16 inch thru 24 inch	K=0.40	K=0.45	K=0.55
30 inch thru 48 inch	K=0.40	K=0.40	K=0.50
54 inch thru 72 inch	K=0.40	K=0.40	-----
78 inch thru 90 inch	K=0.40	-----	-----

Pressure measurements shall be made at two pipe diameters upstream of the valve and eight pipe diameters downstream of the valve in accordance with recommended procedures of ASME Report on Fluid Meters, Latest Edition.

- H. Minimum Port Diameter: The minimum port diameter through the valve shall not be less than as listed below:

<u>Nominal Size</u>	<u>Allowable Difference in Diameter</u>
16-inch - 42 inch	1 inch
48-inch - 54-inch	1 1/4-inch
60-inch - 72-inch	1 1/2-inch
78-inch - 90-inch	3 inch

- I. Fasteners: All bolts and nuts inside and outside the valve, except Mechanical Joint bolts and nuts, shall be ASTM A276 Type 304 or Type 316 stainless steel or ASTM A564 Grade 630 stainless steel.

- J. Valve Body: The valve body shall be ductile iron poured to full gray iron thickness.

The position of the valve seat in the valve body shall be marked on the outside of the valve body, within 12 inches of the actuator nut of upper valve trunion, tagged or cast, in 1/4” high print, “SEAT THIS SIDE.” Tags shall be ASTM A276 Type 304 or Type 316 stainless steel.

- K. End Plate: No bolt or end thrust adjusting screw shall extend through the End Plate.

- L. End Connections: The dimensions and drillings of end flanges shall conform to ANSI B16.1 for 75 psi valves, ANSI B16.1 Table 5 for 150 psi valve and 250 psi valves, both with 150 psi drillings. If specified in the invitation to bid, 250 psi dimensions and drillings of end flanges shall conform to ANSI B16.1 Table 8, to include but not be limited to, flange outside diameter, flange thickness, bolt circle diameter, bolt

diameter, and bolt quantity. The Mechanical Joint valves are to include the following accessories: gaskets, ductile iron gland rings, mechanical joint bolts, and nuts.

- M. Shafts: All valve shafts shall be in accordance with AWWA C504 Table 3 unless otherwise addended herein. All valve shafts, dowels, and taper pins shall be ASTM A276 Type 304 or Type 316 stainless steel or ASTM A564 Grade 630 condition H1100 stainless steel. The valve shaft shall have a means of clearly indicating the position of the disc on the actuator end of the shaft. This mark shall be machine grooved and shall be visible when the cover and lubrication are removed and shall be offset to the same side as the disc. The valve shaft shall be completely enclosed between the valve body and the actuator body.
- N. Valve Disc: The valve disc shall be ductile iron and shall seat perpendicular to the centerline axis of the valve body.
- O. Valve Seats: The resilient seat shall be EPDM synthetic rubber applied either to the valve disc or valve body. The resilient seat shall be mechanically secured to either the valve disc or valve body with ASTM A276 Type 304 or Type 316 stainless steel fasteners or non-bonding epoxy. Resilient seats shall be field adjustable and replaceable without special tools or instruction.

Mating surfaces for the valve seats shall be ASTM A276 Type 304 or Type 316 stainless steel.

All seats shall be designed to provide tight shut-off with flow in both directions.

- P. Shaft Seals: Seal shall be provided by the use of standard V-type packing or standard "O" ring seals; pull-down packing is not acceptable. The valve shall be designed so that the actuator may be removed and replaced while the valve is in service without losing water.
- Q. Actuator: The actuator shall be Limitorque Model HBC series or Auma Model GS series (additional spur gear reduction gear boxes may be necessary to achieve minimum "number of turns" requirement) or those that have received written approval after May 1, 2002 from the Water Services Department. The actuator shall be a link lever traveling nut type, worm gear type, or yoke and nut type and shall be capable of withstanding submersion in water to a pressure of 10 psi. All exposed bolts, nuts, and shafts shall be of ASTM A276 Type 304 or Type 316 stainless steel or ASTM A564 Grade 630 condition 1100 stainless steel. All actuators must have outside mechanical adjustments capable of adjusting valve travel without removing the valve from the pipeline or removing the actuator cover.

Buried service valves shall open right (clockwise). The actuator shall be equipped with a two-inch square AWWA ductile iron nut having a flanged base upon which shall be cast the word OPEN and an arrow indicating the direction to open. The nut shall be securely pinned to the actuator shaft using a stainless steel fastener.

Vault service valves shall open left (counter-clockwise). The actuator shall be supplied with a handwheel. The handwheel shall be no smaller in diameter than 30 inches and no larger in diameter than 36 inches. Manual actuators shall be suitable for future adaptation to motor operation. Vault service actuators shall have an

indicator on the exterior of the actuator indicating the valve disc position. This indicator shall be stainless steel.

All gearing and actuator stops shall be enclosed in a suitable housing with a removable cover to permit inspection, repair, and adjustment of the mechanism. Adjustable stop limiting devices shall be provided inside the actuator housing to stop the input shaft at full open and full closed positions. The use of stop nuts or shaft collars which rely on clamping forces or set screws to prevent rotation of the nut or collar on the screw shaft will not be acceptable.

The actuator shall rotate the disc from full open to full closed and vice-versa using not less than, nor more than, the number of turns indicated below:

Valve Size (Inches)	Minimum Turns	Maximum Turns
16	30	60
20	40	80
24	40	80
30	40	200
36	80	200
42	80	220
48	90	300
54	90	700
60	200	700
72	200	700
90	200	700

The number of turns shall be included in the information on the tag specified in paragraph 10.

- R. Painting Interior of Valves: The interior of valves sizes 16-inch through 48-inch shall be coated with a white, NSF 61 certified, fusion-bonded or powder coated epoxy. The interior of valve sizes 54-inch through 90-inch shall be coated with a white epoxy paint, Tnemec N141 NSF 61 or approved equal. Surface preparation and application shall be in accordance with SSPC PA-1. The dry film thickness of the coating shall be a minimum of 10 mils. A painting Affidavit of Compliance shall be submitted in accordance with paragraph 21 and AWWA C550 NSF 61 and shall be free of holidays.
- S. Painting Exterior of Valves: The exterior of valve sizes 16-inch through 48-inch shall be coated with an NSF 61 certified, fusion-bonded or powder coated epoxy. The exterior of valve sizes 54-inch through 90-inch shall be coated with an epoxy paint, Tnemec N141 NSF 61 or approved equal. Surface preparation and application shall be in accordance with SSPC PA-1. The dry film thickness of the coating shall be a minimum of 10 mils. A painting Affidavit of Compliance shall be submitted in

accordance with paragraph 21 and AWWA C550 NSF 61 and shall be free of holidays.

- T. Factory Inspection: The Water Services Department's inspector will witness leakage and hydrostatic tests at the Manufacturer's facility and will inspect all valves for conformance to the specifications. The Manufacturer shall include in the bid all expenses for transportation, lodging, and meals required by the Department's inspector to complete the inspection. Absolutely no expenses are to be paid by the inspector at any time.

After the valves are delivered, the Water Services Department may again test the valves and actuators for compliance with the specifications. The valves that do not meet specification will be shipped back to the manufacturer for modifications, at the Manufacturer's expense. The manufacturer shall also be responsible for all testing expenses incurred by the Department if the valve fails to perform as specified herein.

- U. Tests: All test data per AWWA C504 sections 3.8.5.8, 3.8.5.9, 4.5.8.1, 4.5.8.3, 4.5.8.5.2, 5.2.1, 5.2.2, 5.2.3, and 5.2.4 shall be submitted in triplicate to the WSD.
- V. Affidavit of Compliance: The manufacturer shall send an affidavit of compliance, in triplicate, to the WSD.
- W. Torque Limiting Devices: Contractor shall provide a Torque Limiting Device for each direct-bury butterfly valve as specified herein.

1. The torque limiting device shall make over-torque, in either direction, impossible. The unit shall be preset and designed to release when the torque level exceeds 210 foot pounds on the operating nut, in either direction, OPENING or CLOSING the valve. The torque unit shall reset automatically when the torque level drops below 200 foot pounds on the operating nut in either direction.
2. The torque level of the unit shall be adjustable so it may be field set to release at a desired torque limit.
3. The device shall be model D86 Overtorque Protector, manufactured by Aunspach Controls Co, Inc. or approved equal.
4. The unit shall be less than 5-1/4 inches in diameter and made to mount on the valve inside of the 6-inch diameter stem riser tube of the valve box or in the valve box.
5. The unit shall be provided with a two-inch A.W.W.A. operating nut, securely attached to the device. The nut shall have an arrow on the base indicating the valve opens to the "RIGHT" (clockwise) and the word "OPEN". The unit shall be provided with a two-inch square tapered A.W.W.A. socket securely attached to the device. The socket shall fit a 2-inch A.W.W.A. nut.
6. The unit shall be designed to withstand submersion in water to a pressure of 10 psi; to endure long periods (years) of active or inactive use buried underground and submerged in water. The unit shall be sealed to prevent

water and direct from entering the mechanism. The unit shall be packed with a suitable grease.

7. All housing parts, including nut and socket, shall be coated inside and outside with catalyzed (2-part) epoxy. A top coat of catalyzed (2-part) polyurethane enamel shall be applied over the epoxy for additional hardness and extra corrosion protection.
8. Contractor shall mount the torque limiting device's integral socket on each butterfly valve's 2-inch A.W.W.A. operating nut inside of the stem riser tube before backfilling around the valve. No fasteners or screws shall be used.

2.4 Air Release Valves

A. Air Release Valves and Vaults:

1. Air release assemblies shall be manufactured in accordance with AWWA C512.
2. Air release valve vaults and castings: Refer to Section 02608.
3. All piping shall be brass pipe except the air outlet from the air release valve that shall be brass or copper tubing. Brass piping shall be ASTM B43, Extra Strong with ASME 816.1 Class 250 fittings.

B. Air Release Valves for mains 12-inches in diameter or smaller (3/4-inch Diameter):

1. Isolation valves shall be 3/4-inch bronze ball valves, 150 psi working pressure.
2. The 3/4-inch air release assembly shall be as manufactured by ARI Flow Control Accessories, Model S-050 or an approved equal.
3. Air release valves shall be installed in accordance with Drawing No. 02641-1.
4. Provide vault cover with minimum one 1-inch dia. hole for air flow.

C. Air Releases for mains larger than 12-inches in diameter:

1. Each assembly shall have a two-inch inlet connection.
2. Isolation valves shall be 2 inch bronze ball valves with screwed, non-rising stems, 175 psi working pressure..
3. The 2" air release valve shall be an ARI Flow Control Accessories Combination Air Release Valve, Model D-040 or approved equal.
4. Air release valves shall be installed in accordance with Drawing Nos. 02641-2 and 02641-2b.
5. Provide vault cover with a minimum four 1-inch dia. holes for air flow.

2.5 Valve Boxes, Bases, Lids and Covers

- A. One-piece Valve Boxes and Bases:
 - 1. One-piece valve boxes and bases shall be injection molded plastic conforming to ANSI/ASTM 2853, Class 1212 as manufactured by Ametek or approved equal.
- B. Two-piece Valve Box and Base:
 - 1. Valve Boxes: Boxes shall be 6" Class 52 DIP; or 6" Class 160 PVC pipe. Bases are required on all valves.
 - 2. Valves Bases: Valve bases shall be Clay & Bailey No. 2260-4 or an approved equal.
- C. Lids and Covers: Valve lids and covers shall be Clay & Bailey No. 2193, 2193NS or an approved equal. Valve lids shall have "Water" cast in the lid.

2.6 Check Valves

- A. All check valves shall be Ken-Flex Resilient Hinge check valves as manufactured by Kennedy Valve Company or approved equal.
- B. Check valves shall be ductile iron body with reinforced Buna-N rubber flapper.
- C. Check Valves shall be rated for 250 psi working pressure, 500 psi hydrostatic test for structural soundness.
- D. Check Valves shall have ANSI 16.1 – Class 125 flanged end connections.
- E. The check valve body shall have full flow equal to nominal pipe diameter at all points in the valve. The valve body shall be of ductile iron construction to ASTM-A-536 – 65-45-12. Castings will be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed. The seating surface will be at a 45 degree angle to minimize water hammer.
- F. Rubber Clapper & Hinge shall be constructed of ductile iron to ASTM-A 536-65-45-12. Both Clapper and hinge shall have permanently bonded Buna-N rubber with a metal reinforcement connecting the hinge to the clapper.
- G. The top cover plate will be of ductile iron to ASTM-A536-65-45-12 & must be of full size to allow removal of the disc without removing the valve from line. All exterior nuts and bolts shall be 304 or 316 stainless steel.
- H. All iron parts inside and out will be fusion bonded epoxy coated. All coatings must be NFS-61 approved for use in drinking water systems.

- I. Vault service check valves shall have an external mechanical position indicator.

PART 3 EXECUTION

3.1 Inspection

- A. Each valve shall be inspected before installation to insure that all foreign substances have been removed from within the valve body, and shall be opened and closed to see that all parts are in required working condition.

3.2 Setting Valves

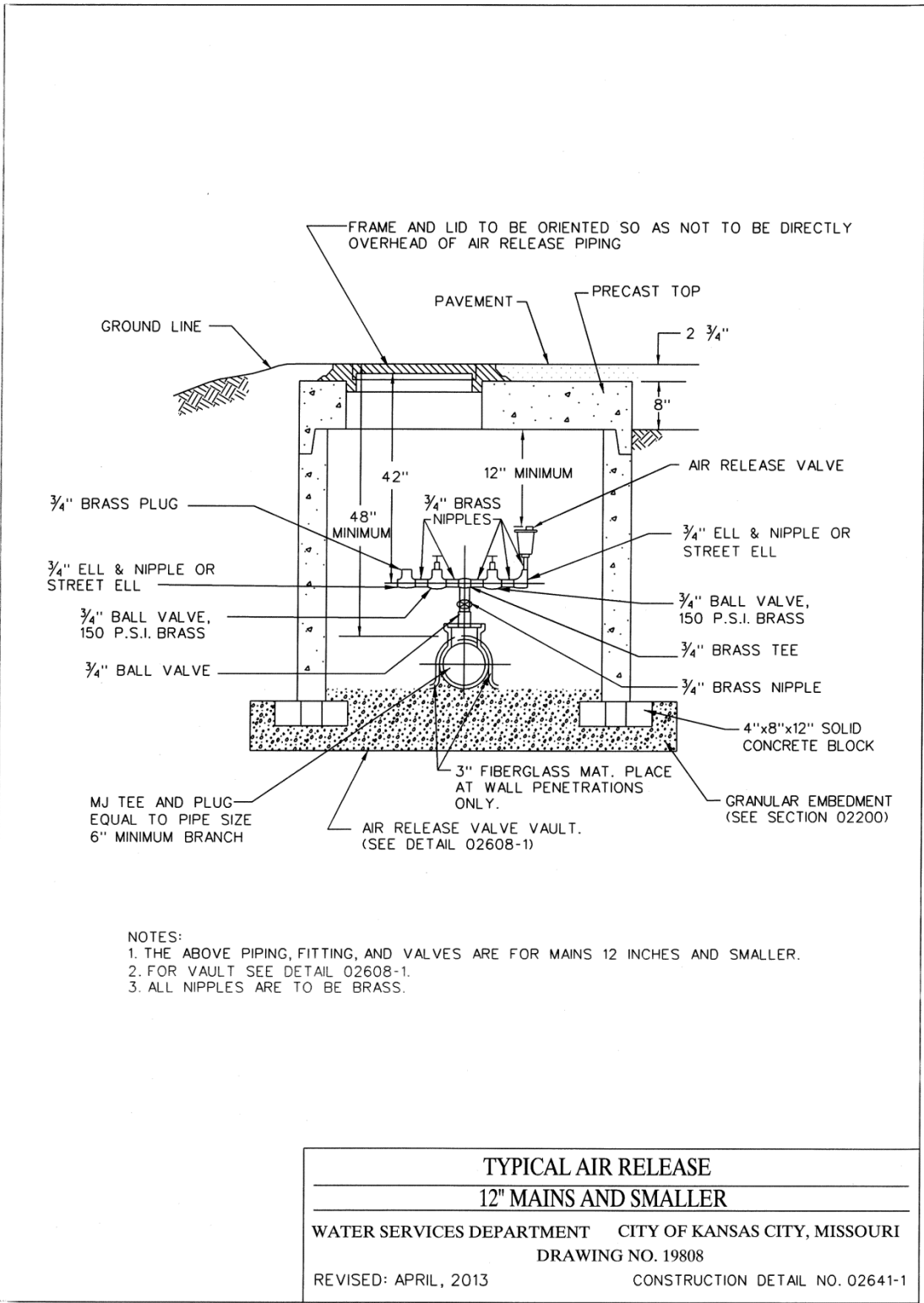
- A. All valves and fittings shall be set and jointed in the manner specified herein. The valves shall be set vertical in the horizontal pipeline. All valves shall be anchored directly to adjacent tees or crosses.
- B. One-piece valve box and base or a two-piece valve box and valve base shall be installed on all valves. An approved valve box alignment device shall also be installed in all valve boxes.
- C. Valve covers, bases, and lids shall be supported and maintained, centered and plumb over the actuator nut. Cover shall be flush with the roadway or ground surface or at such other as directed by the WSD.

3.3 Appurtenances

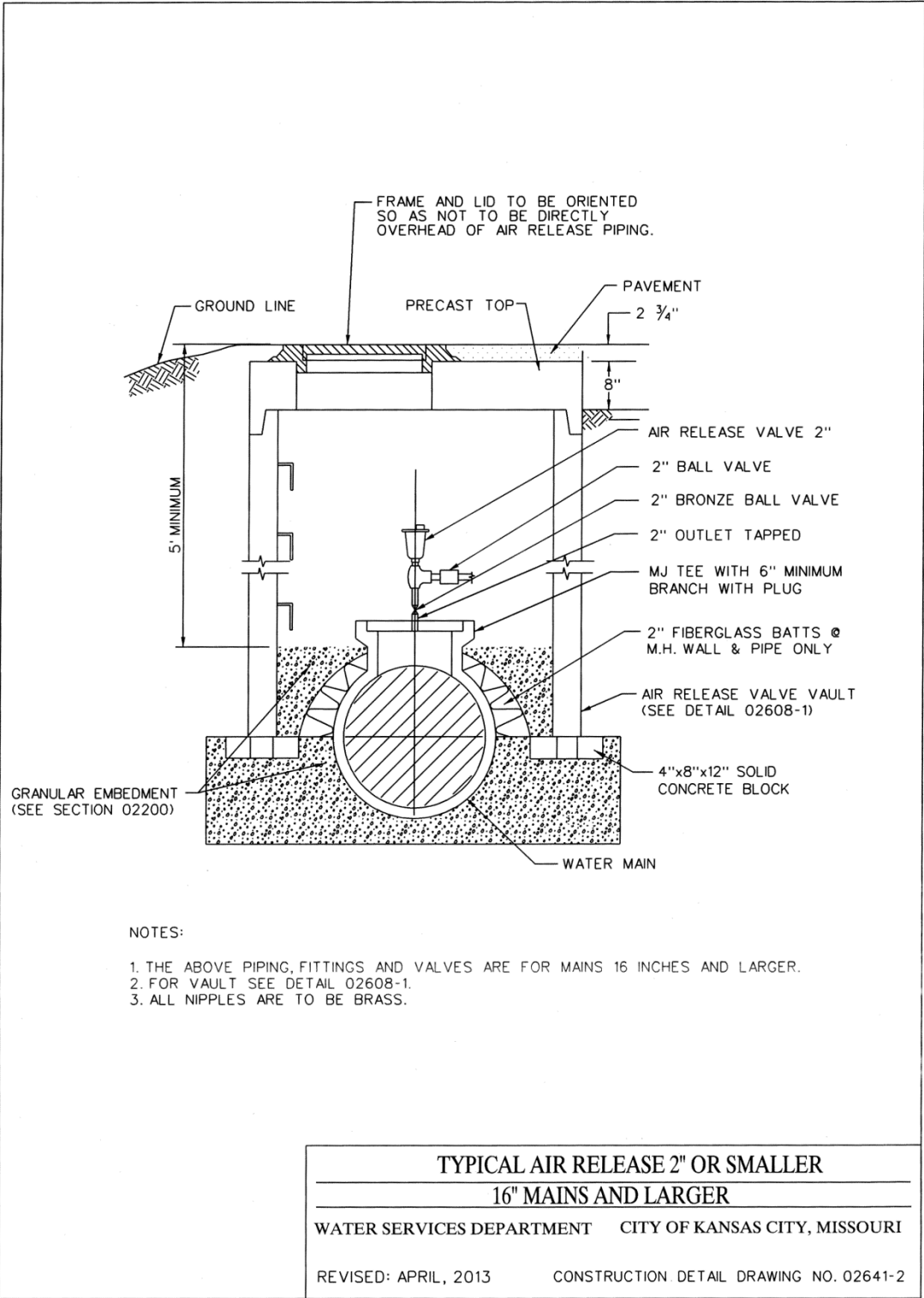
- A. Hydrants; Blowoff, and Flushing Assemblies: Refer to Section 02645
- B. Concrete Vaults and Covers: Refer to Section 02608
- C. Thrust Restraints: Refer to Section 02669
- D. General
 1. Certification: The manufacturer shall provide an affidavit in triplicate certifying that the valves and actuators comply with the provisions of these Specifications.
- E. Leak Tests: (for Butterfly Valves)
 1. Each valve shall be shop tested in both directions for leaks in the closed position. The test shall be conducted with the body in a horizontal plane.
 2. Air pressure shall be applied to the lower face of the disc for 5 minutes.
 3. Both 150-psi and 250-psi rated valves shall be leak tested to 250-psi pressure.
 4. The upper surface of the valve disc shall be visible and covered with a pool of water at "O" psi pressure. There shall be no leakage past the valve disc. Bubbles will appear in the water on the disc if it is leaking.

5. The valve body shall be tested with an internal hydrostatic pressure equivalent to two times the specified shutoff pressure. There shall be no leakage, during the test, through the metal, the end joints, or the shaft seals; nor shall any part be permanently deformed.
 6. The hydrostatic test period for 4-inch valve bodies through 20-inch bodies shall be at least 3 minutes. Valve bodies 24-inch and larger shall be tested for at least 10 minutes.
- F. Performance Tests:
1. Each valve shall be shop operated three times from full closed to full open position, and reverse, under no flow condition to demonstrate that the complete assembly is workable.
 2. Each valve should also be tested in the same manner following installation.

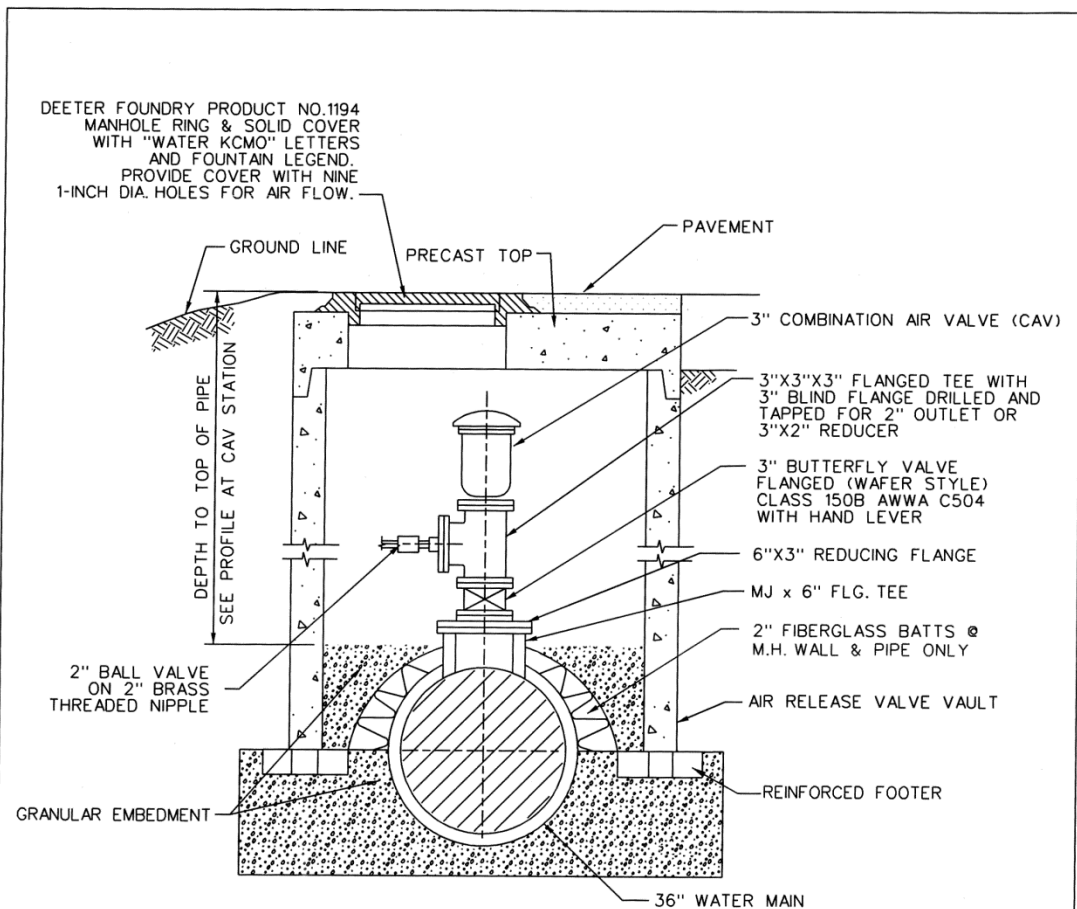
END OF SECTION



...Water\WMStd-airrelease.dgn 5/7/2013 4:25:07 PM



...Air_Release_det43013..dgn 5/7/2013 4:27:34 PM



DEETER FOUNDRY PRODUCT NO.1194
 MANHOLE RING & SOLID COVER
 WITH "WATER KCMO" LETTERS
 AND FOUNTAIN LEGEND.
 PROVIDE COVER WITH NINE
 1-INCH DIA. HOLES FOR AIR FLOW.

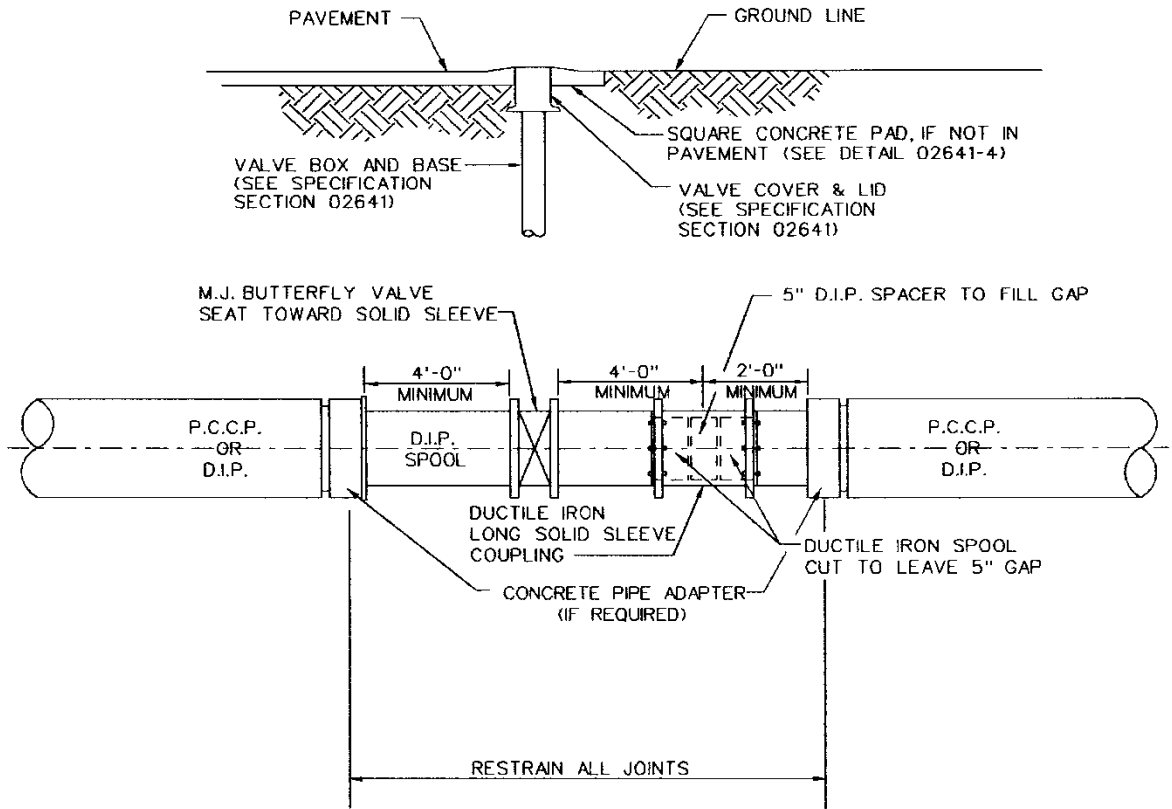
DEPTH TO TOP OF PIPE
 SEE PROFILE AT CAV STATION

NOTES:

1. FOR VAULT DETAILS, SEE SECTION 02608, KCMO WSD STANDARDS AND SPECIFICATIONS AND ASTM C478. TOP, RISER, & FOOTERS, SHALL BE SUITABLE FOR TRAFFIC CONDITIONS AND DESIGNED TO MEET H-20 WHEEL LOAD REQUIREMENTS.
2. BRASS PIPING SHALL BE ASTM B43, EXTRA STRONG W/ ASME 816.1 CLASS 250 FITTINGS
3. CAV TO BE A.R.I. FLOW CONTROL CAV MODEL NO. D-060-C HF OR APPROVED EQUAL.
4. WHERE VAULT IS INSTALLED OUTSIDE OF PAVEMENT LIMITS, PROVIDE MINIMUM 12" OF SOIL ABOVE VAULT TOP FOR RESTORATION OF GRASS OR LANDSCAPE FEATURES AND GRADE TO MATCH ADJACENT EXISTING SURFACE.

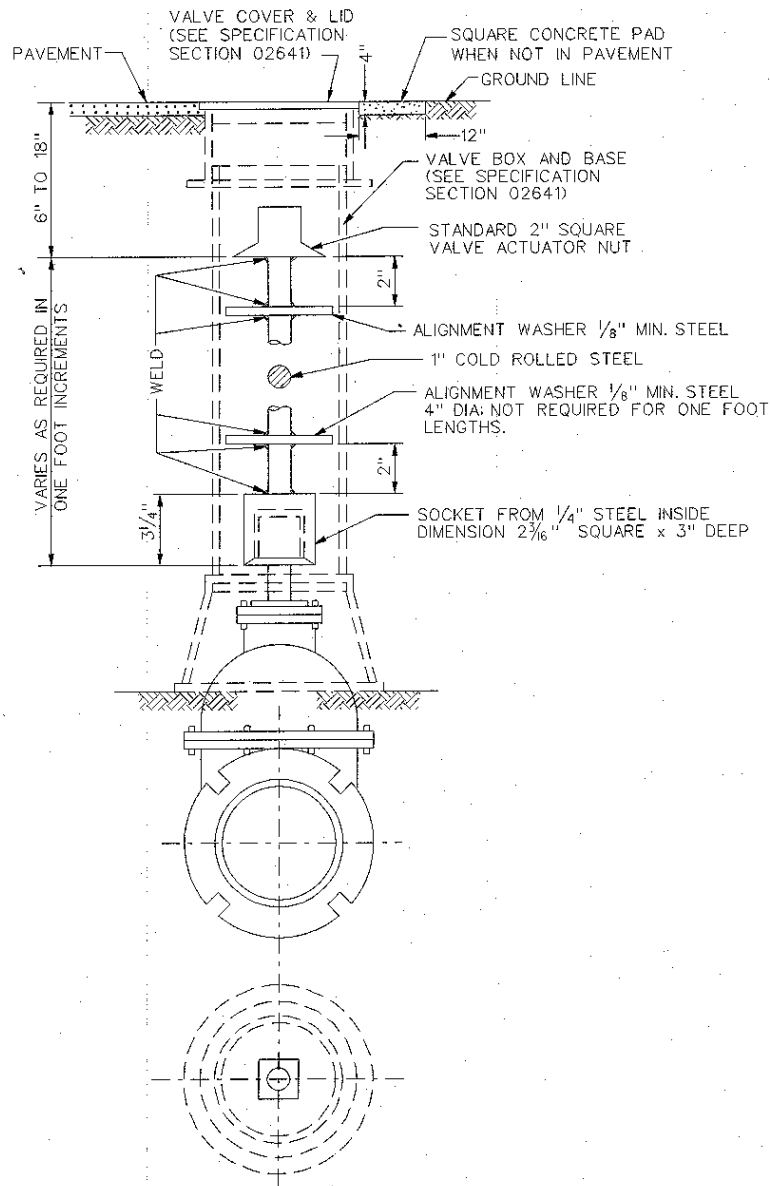
TYPICAL AIR RELEASE 3" OR LARGER	
16" MAINS AND LARGER	
WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI	
REVISED: APRIL 2013	CONSTRUCTION DETAIL DRAWING NO. 02641-2B

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- NOTES:
1. TORQUE LIMITERS TO BE PLACED ON ALL BUTTERFLY VALVES.
 2. ALL PIPE AND BOLTS TO BE PAINTED WITH ONE COAT COAL TAR EPOXY AFTER ASSEMBLY.
 3. RESTRAIN ALL JOINTS BETWEEN ADAPTERS.

TYPICAL BUTTERFLY VALVE INSTALLATION	
<hr/> WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI DRAWING NO. 19808	
REVISED: MARCH, 2011	CONSTRUCTION DETAIL NO. 02641-3



ACTUATOR NUT EXTENSION

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: FEBRUARY, 2003 CONSTRUCTION DETAIL DRAWING NO. 02641-4

SECTION 02645

HYDRANTS, BLOWOFF AND FLUSHING ASSEMBLIES

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the installation of hydrants, and blowoff and flushing assemblies.

1.2 Section Includes

- A. Hydrants
- B. Blowoff and Flushing Assemblies

1.3 Related Sections

- A. Section 01016 – Water Mains Near Sewers
- B. Section 01300 – Submittals
- C. Section 01600 – Material and Equipment
- D. Section 02575 – Surface Restoration
- E. Section 02200 – Excavation and Trenching
- F. Section 02618 – Ductile Iron Pipe Water Main
- G. Section 02641 – Valves
- H. Section 02669 – Thrust Restraints
- I. Section 03001 – Concrete

1.4 Submittals

- A. Follow the procedures for submittals provided in Section 01300 – Submittals.
- B. Product Data: Submit catalog cuts and dimension data.

1.5 Quality Assurance

- A. The manufacturer shall be a company specializing in manufacturing the Products specified in this Section with minimum three years documented experience.

1.6 Delivery, Storage, and Handling

- A. Follow the provisions for delivery, storage, protection, and handling Products to and at site provided in Section 01600 - Material and Equipment.
- B. Accept units on site. Inspect for damage and inventory.

PART 2 PRODUCTS

2.1 Hydrants

- A. **General.** Hydrants shall be current Kansas City, MO. pattern hydrants manufactured especially for CITY. All hydrants shall be designed and manufactured in strict compliance with AWWA C-502 entitled "A.W.W.A. Standard for Dry-Barrel Fire Hydrants" unless otherwise specified.
- B. **Approved hydrants.** Only the following hydrants are approved.
 - Clow Medallion
 - M&H Regent 129i
 - Mueller Super Centurion 200
 - AVK QPL245 Nostalgic Style Fire Hydrant – Model 2760
 - 1. No changes or modifications to the approved hydrant shall be made without prior written notice and written approval.
- C. **Specifications.** Hydrant bury will be measured from the bottom of the hydrant base to the bury line (finished grade line) and shall be five foot (5') bury unless otherwise specified.
 - 1. All hydrants shall be the traffic model type. Hydrants shall have one (1) pumper nozzle located in the horizontal plane. The upper barrel and lower barrel shall be sealed by an EPDM rubber gasket or O-ring.
 - 2. Hydrant base shall be provided with a mechanical joint inlet to accommodate 6-inch diameter ductile iron pipe, in accordance with A.N.S.I. A21.11 (AWWA Standard C-111, Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings"). The hydrant shall be supplied with necessary accessories for the mechanical joint.
 - 3. Main valve of the hydrant shall be 5-1/4 inch diameter compression type, which closes with water pressure.
 - 4. The operating nut shall be a truncated pentagon, 1-1/2 inches on the bottom, 1-7/16 inches on the top, with a finished height of 1-1/8 inches (**see attachment A**). The bonnet shall be so constructed that the opening nut shall not travel during opening and closing the hydrant. The bonnet shall house a Viton gasket or O-ring seal between the opening nut and the bonnet to prevent moisture and foreign material from entering the lubricant reservoir. The bonnet shall also house Viton gasket or O-ring seal between the bonnet and the upper stem to retain the lubricant in the reservoir.

5. The hydrant shall be supplied with a tamper resistant shield for the operating nut. The shield shall be in accordance with the attached drawing, **Attachment B**.
6. The hydrant shall open by turning the operating nut to the right (in a clockwise direction when viewing the hydrant from above).
7. The pumper nozzle threads shall be in accordance with the Federal Screw Thread Standard H28, Section 10, American National Hose Coupling and Fire Hose Coupling Threads. The pumper nozzle shall have right-hand threads and have a 4-inch nominal diameter with 4 (four) threads per inch. The nozzle threads shall be lightly greased from factory with a suitable food grade lubricant.
8. Nozzle cap shall be cast iron and shall be furnished with a synthetic rubber installed in a retaining groove in the inside of the cap. The dimensions and shape of the nozzle cap nut shall be the same as the operating nut as described in Section 4 above, except with a finished height of 1-inch.
9. The exterior of the hydrant above the bury line, nozzle caps, and the bonnet shall be powder coated with epoxy or Triglycidyl Isocyanurate (TGIC) polyester. If epoxy powder is used, it shall be top-coated with a UV resistant, high-gloss acrylic polyurethane paint. **The barrel section of the hydrant shall be gloss International Orange. The bonnet section and nozzle caps shall be gloss Black.** The exterior of the hydrant below the bury line shall be coated with an asphalt varnish with a film thickness of at least 10 mils.
10. All non-thread, non-machined interior surfaces of the hydrant base shall be coated with a wet-applied NSF 61 certified white potable epoxy (such as Tnemec 20-AA90) or powder coated with an NSF 61 certified white epoxy. The exterior of the hydrant base shall also be epoxy coated.
11. Hydrant extensions (spool pieces), if requested and approved by the Water Services Department, shall be a complete assembly allowing for the hydrant's height to be adjusted in six (6) inch increments. The assembly shall be furnished with instructions and all required accessories necessary to adjust the hydrant's height and maintain the hydrant's traffic feature. Hydrant extensions shall be International Orange in color and shall be coated in accordance with Section 9.
12. All external hardware shall be 304 or 316 stainless steel.
13. The lower hydrant stem from the break-away coupling to the main valve and any attaching hardware securing the main valve assembly to the lower stem shall be 304 or 316 stainless steel. Any cross pins securing any part of the main valve assembly or break away stem coupler shall be 420 stainless steel. The lower stem nut may be integral to the lower valve plate or main valve assembly.

14. Main valve assemblies shall be of either three-piece (upper valve plate, main valve seat, lower valve plate) or one-piece EPDM encapsulated ductile iron design. The lower valve plate of three-piece design main valve assemblies shall be powder coated with an NSF 61 certified epoxy.
 15. The upper surface of the seat ring shall have raised lugs allowing for positive engagement of a hydrant disassembly tool. The raised lugs shall be of sufficient design to allow for the removal of the seat ring.
- D. **Shop Drawing.** Prior to manufacturing the hydrants, the manufacture shall submit three (3) sets of detailed shop drawings for written approval.
 - E. **Packaging.** All hydrants shall be bundled in a group no larger than three (3) hydrants wide by three (3) hydrants high. All hydrants shall be shipped with the hydrant base inlet pointing down. All hydrants shall be separated wood framing adequate to prevent the hydrants from touching the ground or each other. Binding the hydrants together shall be a band or wrap adequate to per handling of the hydrant bundles with a crane truck or a forklift. All hydrants shall be delivered with the hydrant nozzle cap installed.
 - F. **Delivery.** The Yard Store shall receive a notice of shipping at least 2 days prior to shipping the hydrants. All hydrants shall be delivered to the Yard Store, 2409 E. 18th Street, Kansas City, Missouri, 64127. Before payment is made for any deliveries, Systems Engineering Division shall be notified and the shipment will be inspected by Systems Engineering Division or its designee for compliance with these specification.

2.2 Blowoff and Flushing Assemblies

- A. Mechanical joint plug: Drilled and tapped for 2-inch standard pipe threads.
- B. Elbows and outlet pipe: standard weight galvanized pipe and fittings.
- C. All discharge piping shall have a 2" PVC cap on top.
- D. Blowoff Assembly:

PART 3 EXECUTION

3.1 Preparation

- A. The areas around each hydrant valve shall be thoroughly compacted to prevent settlement of these areas.
- B. The weep holes of the hydrant shall be kept clear and free to drain with 1-½ C.Y. of coarse stone (¾" clean minimum).

3.2 Installation

- A. Hydrant shall stand plumb and when placed behind curbs, the centerline of the hydrant shall be at least twenty-four (24) inches from the back of the curb or 4' from the edge of pavement when there is no curb. Hydrant shall not be set in a drainage ditch.
- B. Hydrant shall be rotated so as to have the nozzle facing the street or rotated to face any direction as required by the CITY.
- C. Hydrants are to be installed with mechanical joint anchoring fittings or approved restraint devices. Refer to Section 02669.
- D. Hydrants are to be installed in accordance with Details 02645-1, 02645-2, and 02645-3.
- E. After installation and before hydrants are placed in service, Contractor shall field apply two separate coats of all surface spray enamel paint, in accordance with paint manufacturers recommendations, to completely cover each hydrant dome in accordance with the following:

Hydrants connected to 12" or larger mains
Krylon 5816 Green (or approved equal)

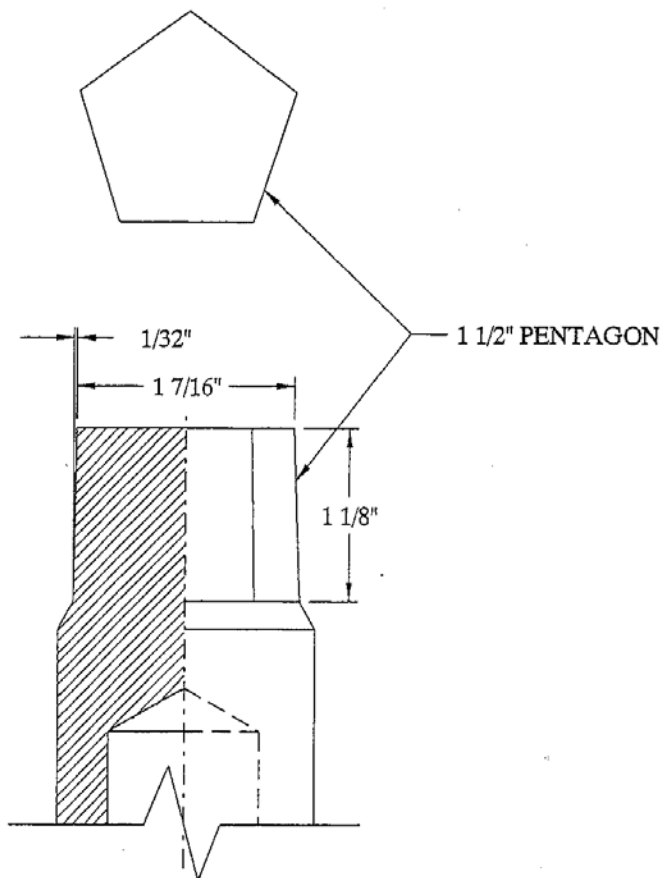
Hydrants connected to mains smaller than 6"
Krylon 5814 Red (or approved equal)

Hydrants connected to 6" or larger mains, but smaller than 12" mains.
Krylon 5812 Black (or approved equal)

This color-coding is intended to provide firefighters and other emergency workers a permanent, quick visual reference to indicate the size of water main connected to each hydrant.

- F. Blow off and flushing assemblies are to be installed in accordance with Details 02645-4, 02645-5, and 02645-6.

END OF SECTION



SCALE 1"=1"

OPERATING NUT (STEM NUT)
ATTACHMENT A

WATER SERVICES DEPARTMENT
 CITY OF KANSAS CITY, MISSOURI

ENGINEERING DIVISION

DRAWING NO. **18015**

NO.	DATE	BY	NATURE
REVISIONS			

DESIGNED BY: B. SCHROEDER

APPROVED BY: E. RYSER

DETAILED BY: M. DeMAY

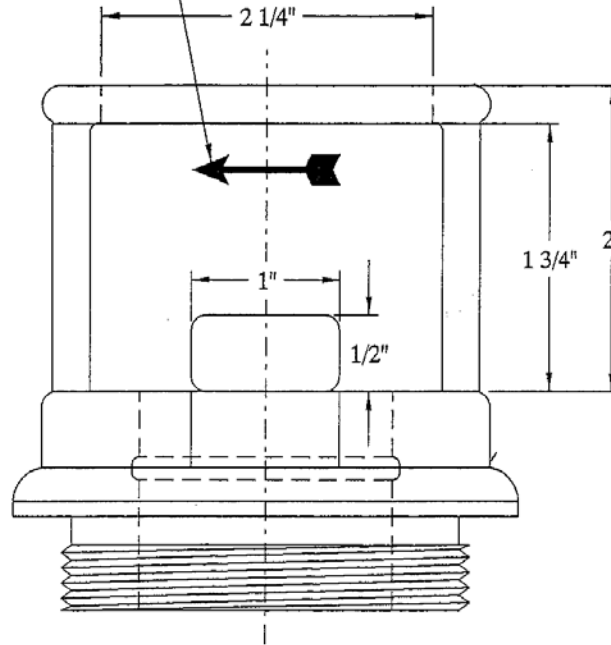
DATE: 25-MAR-1997

1 OF 2

RAISED DIRECTION ARROW
(OPEN-CLOCKWISE)

NOTE:

MANUFACTURERS NAME SHALL BE
CAST IN RAISED LETTERS, 1/4" HIGH,
ON FACE OPPOSITE ARROW



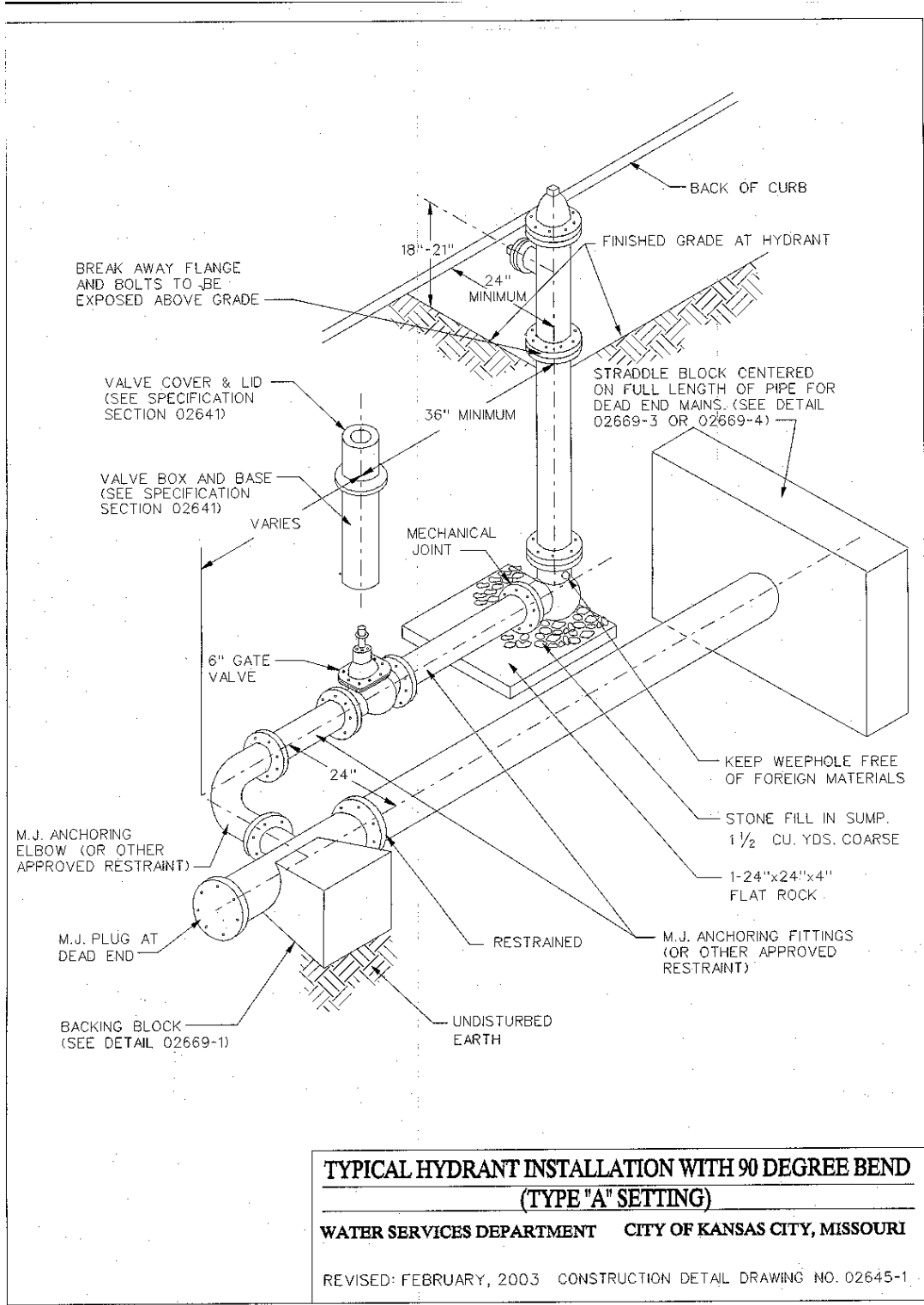
TOLERANCES:
CAST CORNERS
ROUNDS +/- 1/16"
FILLETS +/- 1/16"

BREAK CORNERS
APPROX. .005" R (TYP.)

MATERIAL:
DUCTILE IRON A.S.T.M.
536 GRADE 60-40-18
OR A.S.T.M. A-445

SCALE 1"=1"

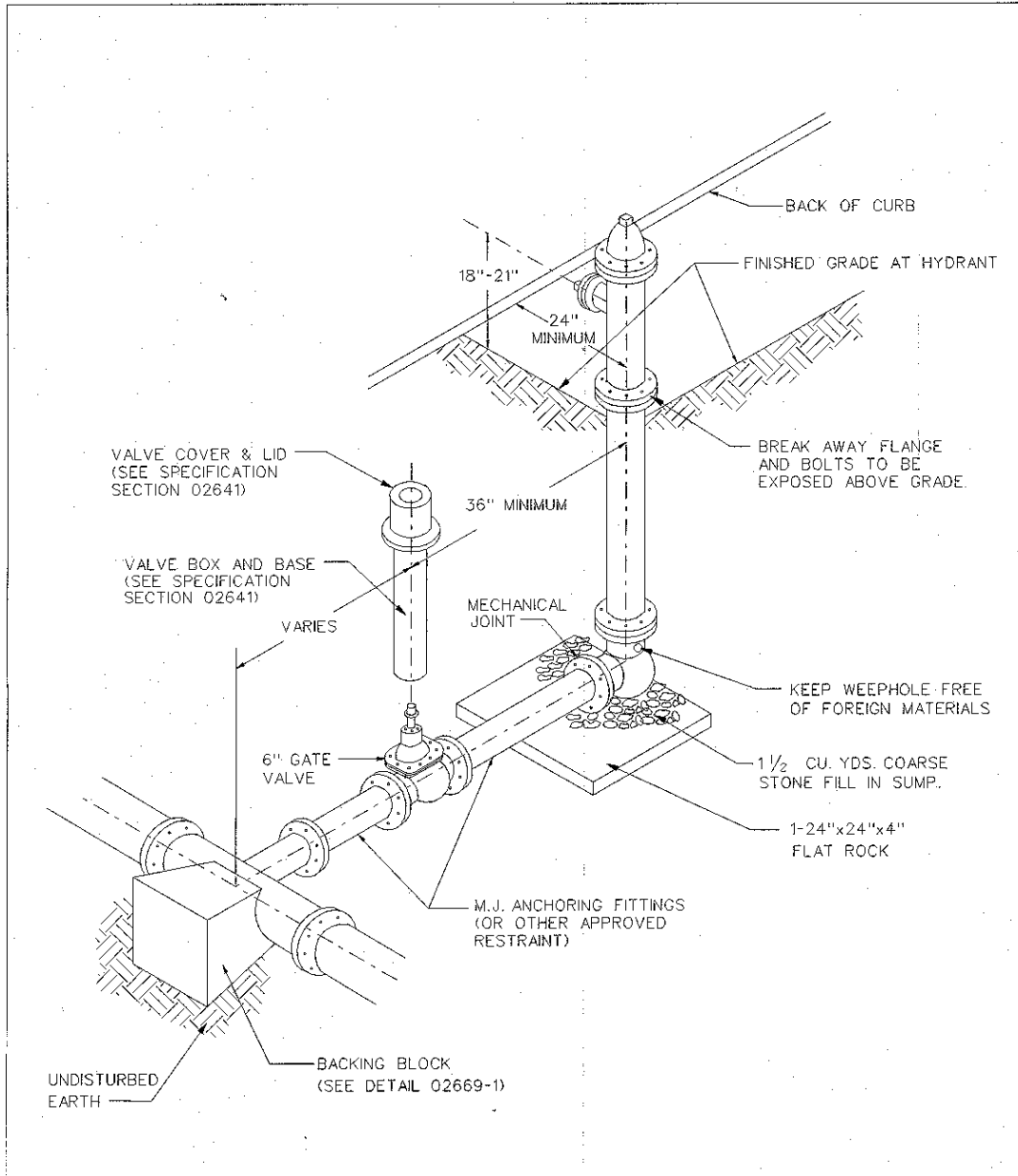
				SECURITY STYLE HOLD DOWN NUT	
				ATTACHMENT B	
WATER SERVICES DEPARTMENT			ENGINEERING DIVISION		
CITY OF KANSAS CITY, MISSOURI					
				DRAWING NO. 18015	
NO.	DATE	BY	NATURE	DESIGNED BY: B. SCHROEDER	APPROVED BY: E. RYSER
REVISIONS				DETAILED BY: M. DeMAY	DATE: 25-MAR-1997
					2 OF 2



**TYPICAL HYDRANT INSTALLATION WITH 90 DEGREE BEND
(TYPE "A" SETTING)**

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: FEBRUARY, 2003 CONSTRUCTION DETAIL DRAWING NO. 02645-1

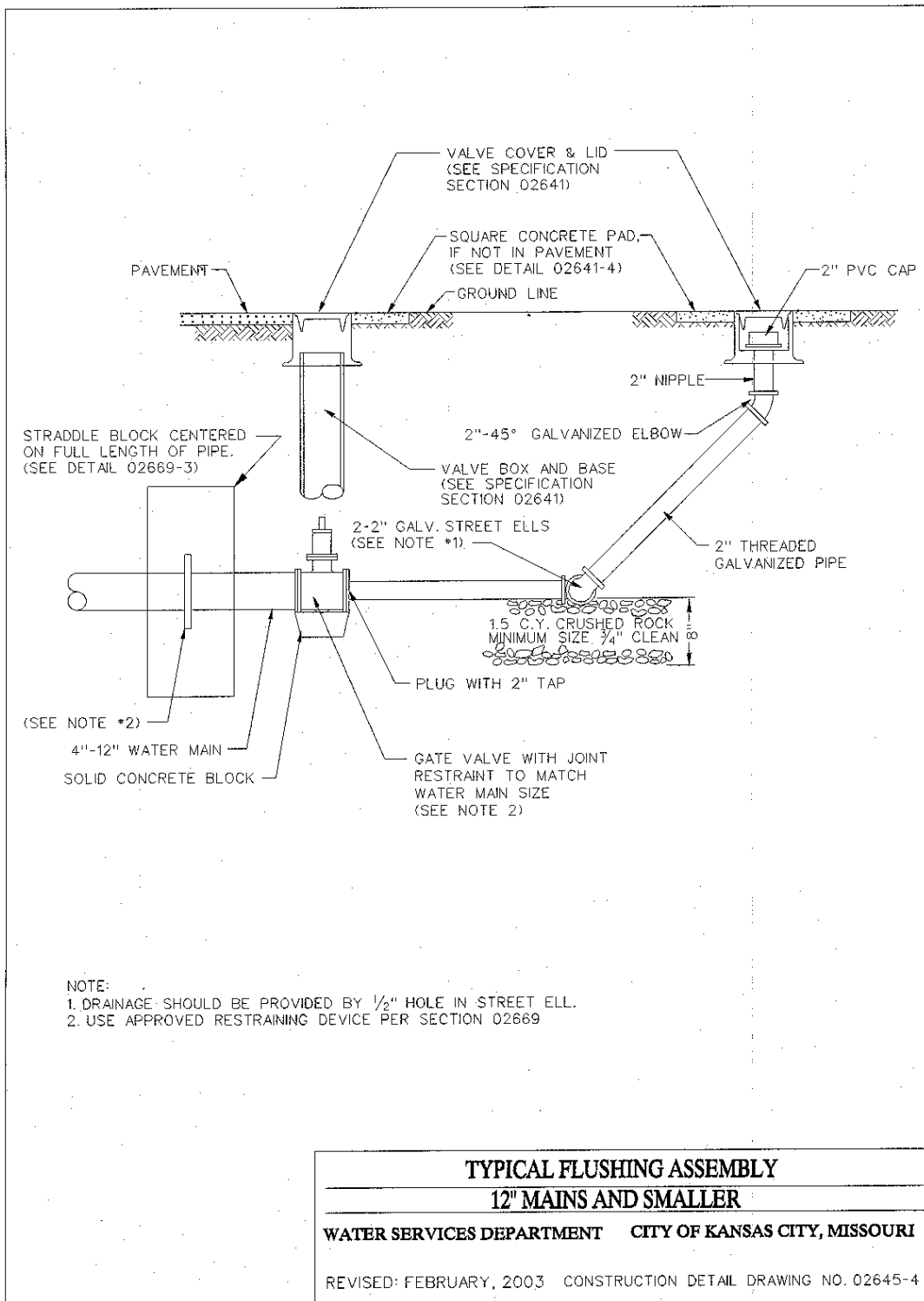


NOTE:
 1. VALVE BOX AND BASE CAN BE ONE PIECE, OR TWO PIECES AS SPECIFIED IN SECTION 02641.

STRAIGHT SET HYDRANT INSTALLATION
(TYPE "B" SETTING)

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: FEBRUARY, 2003 CONSTRUCTION DETAIL DRAWING NO. 02645-2



SECTION 02669
THRUST RESTRAINTS

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the required restraining devices to limit movement of pipe and fittings.

1.2 Section Includes

- A. Restrained Joints
- B. Concrete Blocking

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 02200 – Excavation and Trenching
- D. Section 02618 – Ductile Iron Pipe Water Main
- E. Section 02645 – Hydrants and Blowoff and Flushing Assemblies
- F. Section 03001 – Concrete
- G. Section 03200 – Concrete Reinforcement

1.4 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals.
- B. Submit shop drawings and descriptive details showing the size, length, and location of each fitting and adjacent pipe, and the details of all anchorage and harnessing proposed.

1.5 Quality Assurance

- A. The manufacturer shall be a company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

1.6 Delivery, Storage and Handling

- A. Follow the provisions for the delivery, storage, protection and handling products to and at site provided in Section 01600 - Material and Equipment.

PART 2 PRODUCTS

2.2 Restrained Joints

- A. Restrained Push-on joints for ductile iron pipe and fittings: American "Flex-Ring", "Fast-Grip", Clow "Super-Lock"; U.S. Pipe "TR Flex" or "Field Lok", or Griffin "Snap-Lok".
- B. Restrained Mechanical Joints: EBAA Iron "Mega-Lug" or Ford uni-flange. "Mega-Lug" shall not be used on plain end fittings.
- C. Restrained joint fittings: One Bolt
- D. Restrained joints for PCCP shall be as specified in Section 02619.

2.2 Concrete Blocking

- A. Concrete shall be as per Section 03001.

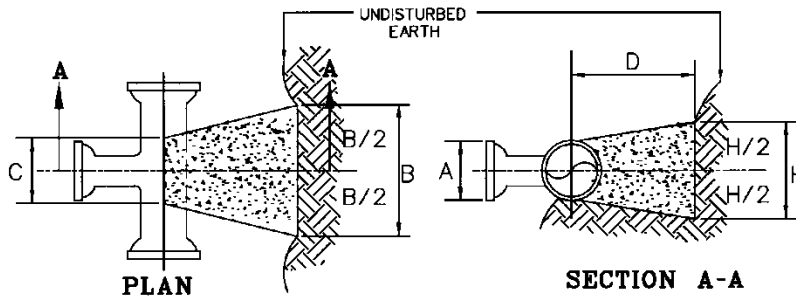
PART 3 EXECUTION

3.3 Reaction Anchorage and Blocking

- A. Piping and fittings with push-on or mechanical joints, or similar joints subject to internal pressure shall be blocked, anchored, or harnessed to preclude separation of joints. All push-on and mechanical joint bends deflecting 11-1/4 degrees or more shall be provided with suitable blocking, anchors, joint harness, or other acceptable means for preventing movement of the pipe caused by internal pressure.
- B. Concrete blocking shall extend from the fitting to solid undisturbed earth and shall be installed so that all joints and bolts are accessible for repair.
- C. The dimensions of concrete blocking shall be as indicated on Construction Detail Drawings numbered 02669-1, 02669-2, 02669-3, 02669-4 and 02669-5. If support against undisturbed earth cannot be obtained, restrain joints as specified in 3.2, Restrained Length (length shall be approved by CITY).
- D. A maximum of eight (8) inches of backfill material may be placed over concrete arch encasement or concrete blocking after the initial set, to aid in curing. No additional backfill shall be placed over arch encasement or blocking until the concrete has been in place for at least one (1) day.

- E. Reaction blocking, anchorages, or other supports for fittings installed in fills or other unstable ground, above grade, or exposed within structures, shall be provided as required by the Construction Detail Drawings and as directed by the CITY.
- F. All clamps, rods, bolts, and other metal accessories used in reaction anchorages, or joint harness subject to submergence or contact with earth or other fill material and not encased in concrete shall be protected from corrosion by two coats of approved coal tar applied in the field to clean, dry metal surfaces. The first coat shall be dry and hard before the second coat is applied. Metal surfaces exposed above grade or within structures shall be painted with one prime coat and two finish coats of a paint acceptable to the CITY.

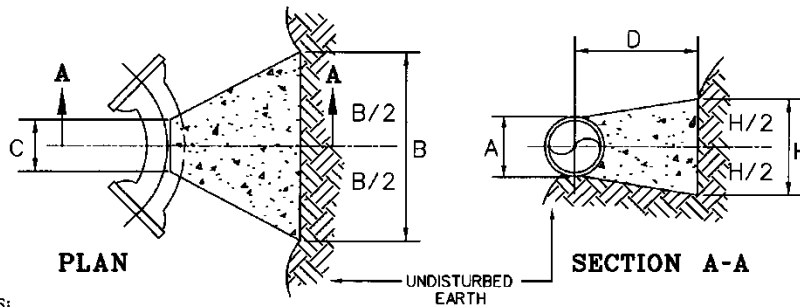
END OF SECTION



- NOTES:
1. BACKING BLOCKS FOR PIPING SIZES UP THROUGH 12-INCH ARE BASED ON WORKING PRESSURE OF 175 P.S.I. PLUS 50% SURGE.
 2. BACKING BLOCKS FOR PIPING SIZES 16-INCH THROUGH 24-INCH ARE BASED ON A WORKING PRESSURE OF 150 P.S.I. PLUS 50% SURGE.
 3. THE PROJECT DESIGN PROFESSIONAL IS RESPONSIBLE FOR THE DESIGN OF THRUST BLOCKS. THE BLOCK SIZES SPECIFIED HEREIN ARE MINIMUM SIZES, BASED ON SOIL RESISTANCE OF 2,000 POUNDS PER SQUARE FOOT. WHERE SOFTER SOILS MAY BE ENCOUNTERED, THE PROJECT DESIGN PROFESSIONAL MUST PROVIDE A DESIGN FOR REVIEW BY THE DEPARTMENT.
 4. SEE SECTION 03001 FOR CONCRETE SPECIFICATIONS.
 5. CONSTRUCT FORMS IN ACCORDANCE WITH SECTION 03100.

BRANCH OR PLUG SIZE A	B (in.)	C (in.)	D (in.)	H (in.)	REQUIRED BEARING AREA (SQ.FT.)	ESTIMATED CONCRETE REQ. CYD.
6"	46	6	20	24	7.4	0.24
8"	60	8	26	32	13.2	0.55
12"	114	12	51	38	29.7	2.45
16"	126	16	55	52	45.2	4.00
20"	140	20	60	72	70.7	6.74
24"	184	24	80	80	101.8	13.00
30"	230	30	100	100	159.0	25.61

TYPICAL BACKING BLOCKS FOR TEES AND PLUGS
2,000 POUNDS PER SQUARE FOOT SOIL RESISTANCE
 WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI
 REVISED: July, 2006 CONSTRUCTION DETAIL DRAWING NO. 02669-1



NOTES:

1. BACKING BLOCKS FOR PIPING SIZES UP THROUGH 12-INCH ARE BASED ON WORKING PRESSURE OF 175 P.S.I. PLUS 50% SURGE.
2. BACKING BLOCKS FOR PIPING SIZES 16-INCH THROUGH 24-INCH ARE BASED ON A WORKING PRESSURE OF 150 P.S.I. PLUS 50% SURGE.
3. THE PROJECT DESIGN PROFESSIONAL IS RESPONSIBLE FOR THE DESIGN OF THRUST BLOCKS. THE BLOCK SIZES SPECIFIED HEREIN ARE MINIMUM SIZES, BASED ON SOIL RESISTANCE OF 2,000 POUNDS PER SQUARE FOOT. WHERE SOFTER SOILS MAY BE ENCOUNTERED, THE PROJECT DESIGN PROFESSIONAL MUST PROVIDE A DESIGN FOR REVIEW BY THE DEPARTMENT.
4. SEE SECTION 03001 FOR CONCRETE SPECIFICATIONS.
5. CONSTRUCT FORMS IN ACCORDANCE WITH SECTION 03100.

1 1/4 DEGREE BENDS						
PIPE SIZE A	B (in.)	C (in.)	D (in.)	H (in.)	REQUIRED BEARING AREA (SQ.FT.)	ESTIMATED CONCRETE REQ. CYD.
6"	18	6	12	12	1.5	0.03
8"	28	8	12	14	2.6	0.06
12"	38	12	13	22	5.8	0.14
16"	50	16	17	26	8.9	0.28
20"	64	20	22	32	13.9	0.58
24"	76	24	26	38	20.0	0.97
30"	95	30	33	48	31.2	1.90

2 1/2 DEGREE BENDS						
PIPE SIZE A	B (in.)	C (in.)	D (in.)	H (in.)	REQUIRED BEARING AREA (SQ.FT.)	ESTIMATED CONCRETE REQ. CYD.
6"	28	6	12	16	2.9	0.06
8"	34	8	13	22	5.1	0.11
12"	56	12	22	30	11.6	0.43
16"	72	16	28	36	17.7	0.85
20"	86	20	33	46	27.6	1.54
24"	106	24	41	54	39.7	2.77
30"	136	30	53	66	62.1	5.60

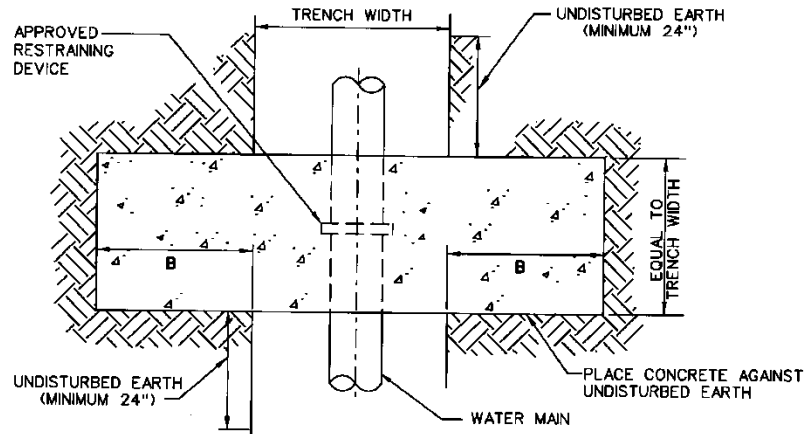
45 DEGREE BENDS						
PIPE SIZE A	B (in.)	C (in.)	D (in.)	H (in.)	REQUIRED BEARING AREA (SQ.FT.)	ESTIMATED CONCRETE REQ. CYD.
6"	38	6	16	22	5.7	0.15
8"	54	8	23	28	10.1	0.39
12"	82	12	35	40	22.7	1.28
16"	100	16	42	50	34.6	2.37
20"	130	20	55	60	54.1	4.83
24"	152	24	64	74	77.9	8.10
30"	196	30	83	90	121.7	16.49

90 DEGREE BENDS						
PIPE SIZE A	B (in.)	C (in.)	D (in.)	H (in.)	REQUIRED BEARING AREA (SQ.FT.)	ESTIMATED CONCRETE REQ. CYD.
6"	60	6	27	26	10.5	0.46
8"	84	8	38	32	18.7	1.12
12"	126	12	57	44	42.0	3.47
16"	160	16	72	58	64.0	7.36
20"	200	20	90	72	100.0	14.27
24"	242	24	109	86	143.9	24.98
30"	324	30	147	100	224.9	52.46

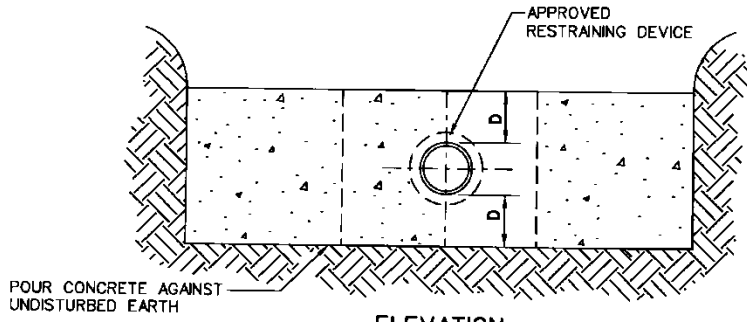
TYPICAL BACKING BLOCKS FOR HORIZONTAL BENDS
2,000 POUNDS PER SQUARE FOOT SOIL RESISTANCE

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: JULY, 2006 CONSTRUCTION DETAIL DRAWING NO. 02669-2



PLAN



ELEVATION

NOTES:

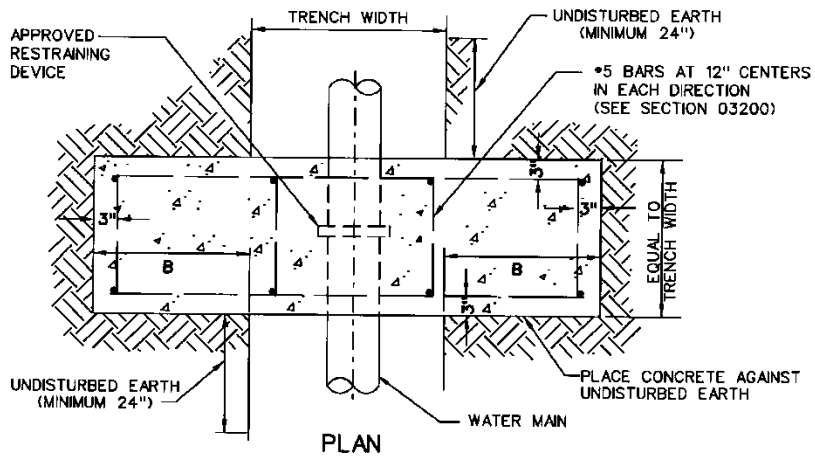
1. STRADDLE BLOCKS ARE SIZED FOR 175 P.S.I. LINE PRESSURE 50% SURGE.
2. THE PROJECT DESIGN PROFESSIONAL IS RESPONSIBLE FOR DESIGN OF STRADDLE BLOCKS. THE SIZES SPECIFIED HEREIN ARE MINIMUM SIZES BASED ON SOIL RESISTANCE OF 2,000 POUNDS PER SQUARE FOOT. WHERE SOFTER SOILS MAY BE ENCOUNTERED, THE PROJECT DESIGN PROFESSIONAL MUST PROVIDE A DESIGN FOR REVIEW BY THE DEPARTMENT.
3. SEE SECTION 03001 FOR CONCRETE SPECIFICATIONS.
4. CONSTRUCT FORMS IN ACCORDANCE WITH SECTION 03100.

PIPE SIZE	TRENCH WIDTH (in.)	B (in.)	D (in.)	REQUIRED BEARING AREA (SQ. FT.)	ESTIMATED CONCRETE REQ. CYD.
6"	30	24	9	7.4	0.9
8"	32	30	12	13.2	1.5

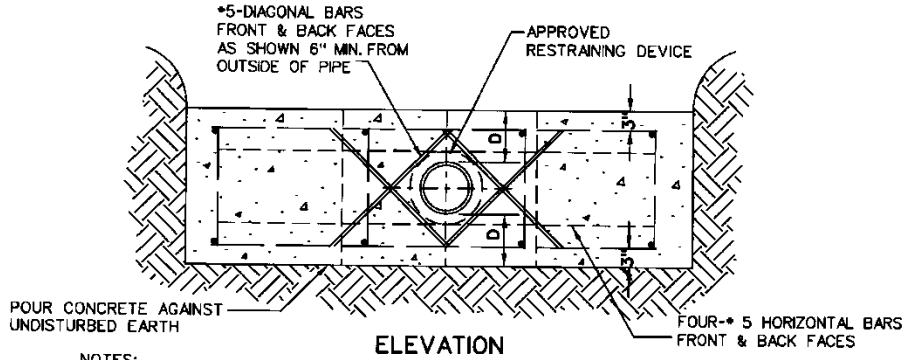
TYPICAL STRADDLE BLOCK FOR 6 AND 8 INCH PIPE
2,000 POUNDS PER SQUARE FOOT SOIL RESISTANCE

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: JULY, 2006 CONSTRUCTION DETAIL DRAWING NO. 02669-3



PLAN



ELEVATION

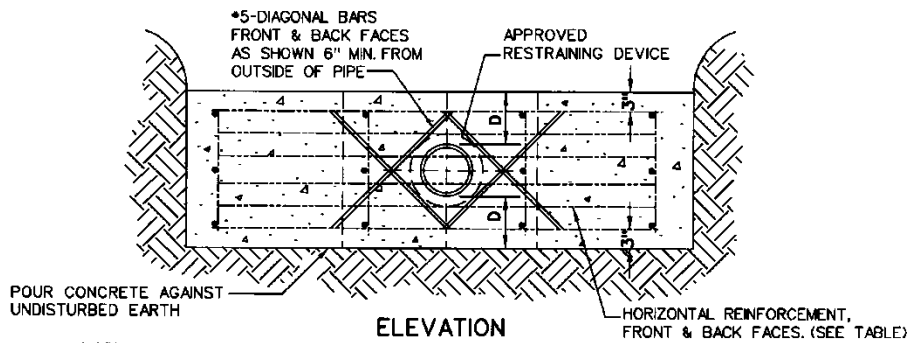
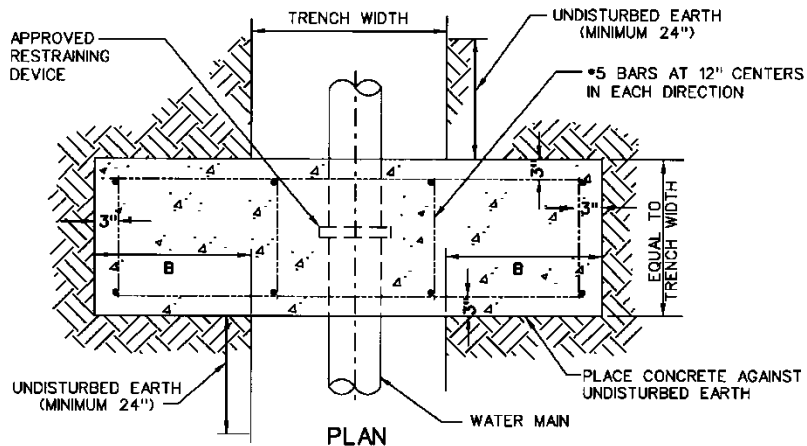
- NOTES:
1. STRADDLE BLOCKS 12" ARE SIZED FOR 175 P.S.I., AND 16" & LARGER ARE SIZED FOR 150 P.S.I. LINE PRESSURE 50% SURGE.
 2. THE PROJECT DESIGN PROFESSIONAL IS RESPONSIBLE FOR DESIGN OF STRADDLE BLOCKS. THE SIZES SPECIFIED HEREIN ARE MINIMUM SIZES BASED ON SOIL RESISTANCE OF 2,000 POUNDS PER SQUARE FOOT. WHERE SOFTER SOILS MAY BE ENCOUNTERED, THE PROJECT DESIGN PROFESSIONAL MUST PROVIDE A DESIGN FOR REVIEW BY THE DEPARTMENT.
 3. SEE SECTION 03001 FOR CONCRETE SPECIFICATIONS.
 4. CONSTRUCT FORMS IN ACCORDANCE WITH SECTION 03100.

PIPE SIZE	TRENCH WIDTH (in.)	B (in.)	D (in.)	REQUIRED BEARING AREA (SQ. FT.)	ESTIMATED CONCRETE REQ. CYD.
12"	34	51	15	29.7	4.1
16"	40	48	26	45.2	7.8

TYPICAL STRADDLE BLOCK FOR 12 & 16 INCH PIPE
2,000 POUNDS PER SQUARE FOOT SOIL RESISTANCE

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: JULY, 2006 CONSTRUCTION DETAIL DRAWING NO. 02669-4



NOTES:

1. STRADDLE BLOCKS ARE SIZED FOR 150 P.S.I. LINE PRESSURE 50% SURGE.
2. THE PROJECT DESIGN PROFESSIONAL IS RESPONSIBLE FOR DESIGN OF STRADDLE BLOCKS. THE SIZES SPECIFIED HEREIN ARE MINIMUM SIZES BASED ON SOIL RESISTANCE OF 2,000 POUNDS PER SQUARE FOOT. WHERE SOFTER SOILS MAY BE ENCOUNTERED, THE PROJECT DESIGN PROFESSIONAL MUST PROVIDE A DESIGN FOR REVIEW BY THE DEPARTMENT.
3. SEE SECTION 03001 FOR CONCRETE SPECIFICATIONS.
4. CONSTRUCT FORMS IN ACCORDANCE WITH SECTION 03100.

PIPE SIZE	BAR SIZE	NO. OF BARS (each face)	TRENCH WIDTH (in.)	B (in.)	D (in.)	REQUIRED BEARING AREA (SQ. FT.)	ESTIMATED CONCRETE REQ. CYD.
20"	*5	5	44	71	26	70.7	12.3
24"	*6	6	48	92	28	101.8	18.6
30"	*7	6	60	115	35	159.0	36.4

TYPICAL STRADDLE BLOCK FOR 20, 24, & 30 INCH PIPE
2,000 POUNDS PER SQUARE FOOT SOIL RESISTANCE

WATER SERVICES DEPARTMENT CITY OF KANSAS CITY, MISSOURI

REVISED: JULY, 2006 CONSTRUCTION DETAIL DRAWING NO. 02669-5

SECTION 02675

WATER MAIN TESTING, DISINFECTION AND DECHLORINATION

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the required procedure for the water main testing, disinfection, and dechlorination prior to placing in service.

1.2 Section Includes

- A. Corporation Cocks
- B. Hydrostatic Testing
- C. Disinfection of Water Mains

1.3 Related Sections

- A. Section 01000 – General Requirements
- B. Section 01300 – Submittals
- C. Section 01600 – Material and Equipment
- D. Section 02618 – Ductile Iron Pipe
- E. Section 02641 – Valves
- F. Section 02645 – Hydrants, Blowoff and Flushing Assemblies

1.4 References

- A. AWWA C651 - Standards for Disinfecting Water Mains.

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 – Submittals.
- B. Certificate: The Contractor shall certify in writing that cleanliness of water distribution system meets or exceeds specified requirements.
- C. At the completion of the disinfection procedures, Contractor shall prepare a Disinfection Report; including:
 - 1. Type and form of disinfectant used.
 - 2. Date and time of disinfectant injection start and time of completion.

3. Test locations.
 4. Initial and 24 hour disinfectant residuals (quantity in treated water) in parts per million for each outlet tested.
 5. Date and time of post disinfectant flushing start and completion.
 6. Disinfectant residual after flushing in parts per million for each outlet tested.
- C. Contractor shall provide, at their expense, water sample collection and testing by a MoDNR approved laboratory which shall prepare a Bacteriological Report; including:
1. Date issued, project name, and testing laboratory name, address, and telephone number.
 2. Time and date of water sample collection, and testing.
 3. Name of person collecting samples.
 4. Test locations.
 5. Initial and 24 hour disinfectant residuals in parts per million for each outlet tested.
 6. Coliform bacteria test results for each outlet tested.
 7. Certification that water conforms, or fails to conform, to bacterial standards of the Missouri Department of Natural Resources.
 8. Bacteriologist's signature and authority.

1.6 Quality Assurance

- A. Work shall be performed in accordance with AWWA C651.

PART 2 PRODUCTS

2.1 Corporation Cocks

- A. The Contractor will furnish and install a three-fourth inch (3/4") Corporation cock to be used in the testing and disinfection of each new main. The location of these corporation cocks shall be as directed by the CITY.
- B. After the line has been tested and prior to placing the main in service, the Contractor shall remove the corporation cock and replace it with a tapered brass plug.

PART 3 EXECUTION

3.1 Hydrostatic Testing

A. General

1. The entire main shall be tested (pressure test and allowable leakage test) immediately after construction as directed and witnessed by the CITY.
2. With approval of the CITY, the pressure test and leakage test may be conducted simultaneously. However, should the Contractor be granted permission to make both tests simultaneously, the required test pressure shall be equal to or greater than that for pressure tests as specified below.

B. Pressure Test

1. After the trench has been backfilled, the test connections made and the main filled with water, a minimum pressure of not less than the normal operating pressure (for the lowest point on the line) plus 50% for surge but in no case less than 160 psi for 12" and smaller mains and 225 psi for 16" and larger mains, unless otherwise stated, shall be maintained on the new water main for at least two (2) hours.
2. The Contractor shall furnish all pumps, piping, gauges, labor and other materials and services necessary to bring the main up to the specified test pressure.
3. All exposed pipe, fittings, valves, hydrants and joints shall be inspected by the CITY and all evidence of moisture appearing on the surface of the ground during the test shall be investigated by the Contractor by excavation where the pipe has been covered with backfill.
4. All defective pipe, fittings, valves or hydrants discovered during the pressure test shall be removed and replaced by the Contractor and the pressure test shall be repeated until satisfactory to the CITY.
5. The Contractor shall furnish and install all temporary blow-off assemblies, fittings, thrust blocks, and restraining devices required for temporary connections for flushing, pressure testing, chlorination, and de-chlorination of water mains.

C. Leakage Test

1. An allowable leakage test shall be conducted after the pressure test has been satisfactorily completed. The Contractor shall maintain a minimum pressure in the new water main of 150 psi (or a minimum of 10 psi greater than the normal operating pressure of the system, if the normal operating pressure is lower than 140 psi) for the lowest point on the line for at least two (2) hours.

2. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe to maintain the specified leakage test pressure after the air has been expelled and the pipe has been filled with water.
3. No water main, or section thereof will be accepted if and while it has a leakage rate in excess of that determined by the following formula:

$$L = .0000075 SD(P)^{1/2} / 2$$

Where:

L = Maximum permissible leakage in gallons for two hours.

S = Length of pipe tested, in feet.

D = Nominal internal diameter of the water main being tested in inches.

P = Average test pressure in psi in the water main being tested.

4. Should the actual leakage exceed the allowable leakage, the test pressure shall be maintained for an additional period of time as directed by the CITY so that the leakage location may be detected.

3.2 Disinfection of Water Mains

A. General

1. After completion of hydrostatic testing the Contractor shall flush and disinfect the entire main under the direction of CITY.
2. The Contractor shall prepare the main for disinfection by exposing the pipe at all entry points where the chlorine will be introduced into the pipe and installing temporary blow-offs at all discharge ends.
3. Continuous feed method of chlorination is required. The slug method of chlorination may be used only when directed by CITY.

B. Continuous Feed-Method

1. Water supplied from an approved source of supply shall be made to flow at a constant, measured rate into the new water main.
2. At a point not more than 10 ft downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 60 mg/L free chlorine. To ensure that this concentration is achieved, the chlorine concentration should be measured at regular intervals.
3. As an optional procedure, water used to fill the new water main during the application of chlorine shall be supplied through a temporary connection. This temporary connection shall be installed with an appropriate cross-

connection control device for backflow protection of the active distribution system. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants shall be operated to ensure disinfection of the appurtenances. At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of at least 45 mg/L free chlorine.

4. The preferred equipment for applying liquid chlorine is a solution-feed, vacuum-operated chlorinator and a booster pump. The vacuum-operated chlorinator mixes the chlorine gas in solution water; the booster pump injects the chlorine-gas solution into the main to be disinfected. All connections shall be checked for tightness before the solution is applied to the main.
5. After the required retention period (24 hours), the 24 hour residual chlorine sample shall be pulled, the heavily chlorinated water shall then be dechlorinated to 0 mg/L chlorine. A reducing agent shall be applied to the water before discharging, to neutralize thoroughly the chlorine residual remaining in the water. Two sets of Bac-T samples shall be taken, one immediately after the final flush, the second taken 24 hours later.
6. Contractor shall coordinate disinfectant testing and bacteriological testing to demonstrate that the above requirements have been met.

C. Slug Method

1. Water supplied from an approved source of supply shall be made to flow at a constant, measured rate into the new water main.
2. At a point not more than 10 ft downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 100 mg/L free chlorine. To ensure that this concentration is achieved, the chlorine concentration should be measured at regular intervals.
3. The chlorine shall be applied continuously and for a sufficient period to develop a solid column, or "slug" of chlorinated water that will, as it moves through the main, expose all interior surfaces to a concentration of approximately 100 mg/L for at least 3 hours
4. If at any time chlorine residual drops below 50 mg/L, the flow shall be stopped. Then the chlorination equipment shall be relocated at the head of the slug, and, as flow is resumed, chlorine shall be applied to restore the free chlorine in the slug to not less than 100 mg/L.
5. After the required retention period (at least 3 hours), the 3 hour residual chlorine sample shall be pulled, the heavily chlorinated water shall then be dechlorinated to 0 mg/L chlorine. A reducing agent shall be applied to the water before discharging, to neutralize thoroughly the chlorine residual remaining in the water. Two sets of Bac-T samples shall be taken, one immediately after the final flush, the second taken 24 hours later.

6. Contractor shall co-ordinate disinfectant testing and bacteriological testing to demonstrate that the above requirements have been met.

END OF SECTION

SECTION 02930

SEEDING

PART 1 GENERAL

1.1 Section Description

- A. This section provides for areas to be restored with seeding materials.

1.2 Section Includes

- A. Soil for Repairs
- B. Mulch
- C. Fertilizer and Herbicide
- D. Seed

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 01900 – Project Closeout
- D. Section 02200 - Excavation and Trenching
- E. Section 02931 - Sodding

1.4 References

- A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.5 Definitions

- A. Seeding areas: All areas disturbed by construction operations including areas of cut and fill, trenching, temporary roads, and temporary staging or storage areas shall be seeded unless otherwise specified.
- B. Sequence of Work: Sequence shall be clearing, grading, fertilizing, tilling, seeding, covering and firming, and application of mulch. All seeded areas shall be mulched with grain straw or wood cellulose fiber, or covered with erosion control fabric.
- C. 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.

1.6 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals.
- B. Invoices and Analysis Labels: A copy of the supplier's invoices for all seed, mulch, and fertilizer which shows the quantity by weight purchased and a representative label bearing the manufacturer's or vendor's guaranteed statement of analysis shall be submitted to the CITY for review and approval to assure compliance with specified requirements for quality and application rates.

1.7 Quality Assurance

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. Seed and Fertilizer shall be labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and State seed laws. Seed shall be furnished in sealed standard containers of the vendor. Each seed container shall bear the name, trade name, or trade mark, and a warranty of the producer and a certificate of the percentage of the purity and germination of each kind of seed specified. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable
- C. All seeding work shall be performed by a contractor having demonstrated experience in seeding on projects of similar size. The work shall be prepared by experienced personnel who are familiar with the required work and who are under the supervision of a qualified foreman at all times when the work is in progress.
- D. The Contractor shall have access to equipment such as a fertilizer spreader, farm tractor with tilling equipment, grass seed drill or cultipacker type seeder, mulch blower, or hydromulcher for application of mulch, and straight serrated disk for crimping mulch into the soil.

1.8 Delivery, Storage, and Handling

- A. Follow the provisions for the delivery, storage, protection and handling Product to and at site provided in Section 01600 - Material and Equipment.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.2 Soil for Repairs

- A. The soil used in any repair work shall be of a quality at least equal to that in areas adjacent to the area to be repaired. Soil shall be free from tree roots, clay balls,

stones, and other materials that hinder grading, planting, and maintenance operations and that is free from noxious and other objectionable weed seeds and toxic substances.

2.3 Mulch

A. Vegetative Type Mulch:

1. Vegetative Type Mulch shall be baled, dry, unweathered, no discoloration or mold damage.
2. A minimum of 50 percent of weight of the herbage making up the material shall be a minimum of 10 inches in length. Mulch material containing an excessive amount of weed and crop seeds will not be acceptable.

B. Wood Cellulose Fiber Mulch:

1. Prepared from virgin wood fibers containing no substance that might inhibit germination or growth of grass seed. Mulch shall be dyed an appropriate color to allow visual maintenance of its application and shall contain a tacking agent. The wood cellulose fibers shall be evenly dispersed and suspended when agitated in water. When sprayed uniformly on the surface of the soil, the fiber shall form a blotter-like ground cover that readily absorbs water and allows infiltration to the underlying soil. Weight specifications from suppliers, and for all applications, shall refer only to air dry weight of the fiber, at a standard equivalent of 10 percent nominal moisture content.
2. The mulch material shall be supplied in packages having a gross weight not in excess of 100 pounds and shall be marked by the manufacturer to show the air-dry weight. Suppliers shall certify that laboratory and field testing of their product has been conducted. Certificates shall be submitted in accordance with Section 01300 and that it meets all of the foregoing requirements pertaining to wood cellulose fiber mulch.

2.4 Fertilizer and Herbicide

A. Starter Fertilizer:

1. Fertilizer shall be pelleted or granulated and shall be an approved brand composed of a "Slow Release Nitrogen" fertilizer in the 1-2-1 range, such as 13-25-12 grade. Fertilizer shall be uniform in composition, free flowing and suitable for application with approved equipment.

B. Herbicide:

1. Pre-emergent herbicide shall be siduron (Tupersan). In areas where herbicide runoff may compromise water quality, herbicide should be Glyphosage, N-(phosphonomethyl) glycine in a form approved for aquatic applications.

2.5 Seed

A. Pure Live Seed:

- The following formula shall be used to determine the amount of commercial seed required to provide each kind of seed for the specified quantities of pure live seeds:

$$\text{Pounds of Commercial Seed Required} = \frac{10,000 \times \text{Pure Live Seeds (lbs. Per acre)}}{\text{Purity (percent)} \times \text{Germination (percent)}}$$

- Type "A" Seed: This seeding mixture will normally be used when seeding is required in areas of non-residential established lawns, shoulders and slopes in street right-of-way, and any other areas where a high-type seeding is deemed necessary. The seed mixture will be 100 percent Turf-Type Tall Fescue composed of an equal mix of three of four compatible species. The mixture shall not include any varieties of the slower growing Turf-Type Tall Fescue. The species shall be one of the following or equal as approved by the CITY:

Apache	Arid	Austin
Bonanza	Carefree	Chieftan
Cimmaron	Cochise	Falcon
Guardian	Hounddog	Jaguar II
Maverick II	Mustang	Olympic
Phoenix	Rebel II	Rebel 3D
Safari	Shenandoah	Thoroughbred
Titan	Tribute	Vegas

The seed mixture shall also include 100 percent Annual Rye grass to provide a temporary grass stand. The seed mixture shall be sowed at a rate of 10 lbs. per 1000 square feet (436 lbs. per acre) of the Turf-Type Tall Fescue and 2 lbs. per 1000 square feet (87 lbs. per acre) of the Annual Rye.

- Type "B" Seed: This seeding mixture will normally be used to seed areas off street right of ways that are not maintained.

Kind of Seed	Minimum Pure Live Seed	Rate of Pure Live Seed (Lbs. per Acre)
Alta Fescue or Kentucky 31 Fescue (Festuca Elation Var. Arundines)	75	90
Rye grass (Lolium Perenne or L. Multiflorum)	80	50
TOTAL		140

4. Type "C" Seed: This seeding mixture will normally be used in public parks, wildlife refuges, and any other areas where this seeding mixture is deemed necessary. The types of seeding mixtures for different habitats will be as follows:

Planting Habitat	Scientific Name	Common Name	Initial or Permanent Cover	Coverage
Wet Woodland	Elymus virginicus L.	Virginia Wild Rye	P	3 lbs./ac pls.
	Cinna arundinacea L.	Woodreed	P	100 plants/ac
	Sporobolus heterolepis A. Gray	Prairie Dropseed	I,P	3 lbs./ac pls.
	Elymus canadensis L.	Canada Wild Rye	P	3 lbs./ac pls.
	Festuca octoflora	Six-weeks Fescue	I	0.5 lbs./ac pls.
	Triticum aestivum L.	Winter Wheat	I	60 lbs./ac pls.

Planting Habitat	Scientific Name	Common Name	Initial or Permanent Cover	Coverage
Dry Woodland	Elymus canadensis L.	Canada Wild Rye	P	3 lbs./ac pls.
	Elymus virginicus L.	Virginia Wild Rye	P	3 lbs./ ac pls.
	Sporobolus heterolepis A. Gray	Prairie Dropseed	I,P	3 lbs./ac pls.
	Triticum aestivum L.	Winter Wheat	I	60 lbs./ac pls.

Planting Habitat	Scientific Name	Common Name	Initial or Permanent Cover	Coverage
Wet Open	Elymus canadensis L.	Virginia Wild Rye	P	3 lbs./ac pls.
	Echinochloa muricata Fern.	Rough Barnyard grass	I,P	2 lbs./ac pls.
	Spartina pectinata	Prairie Cordgrass	P	200 rhiz./ac
	Leersia oryzoides	Redtop Bentgrass	P	200 rhiz./ac
	Triticum aestivum L.	Winter Wheat	I	60 lbs./ac pls.

5. Adding Switchgrass (*Panicum virgatum* – 3 lbs./acre) to the wet open mix would be a good idea. Of the native grasses listed, it provides the greatest soil erosion control because of its extensive root system. It is also drought tolerant and a warm season grass while the others are primarily cool season.

PART 3 EXECUTION

3.6 Preparation of Subsoil

A. General:

1. The work shall not be started until substantially all earthwork has been completed in the area to be seeded. The topsoil spread and finish grading shall be completed immediately before the seeding work is started.

B. Clearing:

1. Prior to grading and tilling, vegetation that may interfere with operations shall be mowed, grubbed, and raked. The collected material shall be removed from the site. The surface shall be cleared of stumps, stones, cable, wire, and other materials that might hinder the work or subsequent maintenance.

C. Grading:

1. Establish and maintain grades, in a true and even condition. Eroded areas and areas having inadequate drainage, as indicated by ponding of water, shall be filled. Ruts, deep tracks, dead furrows, and ridges shall be eliminated.

D. Cleanup:

1. Within reasonable time after completion of the construction operations, the entire area shall be cleared of excess soil and waste material, including, but not limited to, stones, stumps, roots, brush, wire, grade stakes, and all objects that might be a hindrance to maintenance operations or affect the visual appearance of the site. All roads over which hauling operations have been conducted, regardless of the type of surfacing, shall be kept clean, and soil clods and debris left on the surface shall be removed. The wheels of vehicles shall be cleaned to avoid leaving soil upon the surface of roads, walks, and other surfaced areas.

3.7 Fertilizing

- A. Application of Fertilizer: Fertilizer as specified shall be applied within 24 hours prior to the tilling operation. The fertilizer shall be distributed over the entire area to be seeded at the rate of 200 pounds per acre, and incorporated into the soil to a depth of at least 4 inches by disking or harrowing methods. Fertilizing rate is equivalent to 2.3 pounds per 500 square feet.

3.8 Seeding

A. Preparation of Seed Bed:

1. After fertilizer has been applied, the areas to be seeded shall be tilled to a depth of at least 4 inches by disking, plowing, harrowing, or other accepted

methods until the soil is well pulverized and smoothed with a weighted spike-tooth harrow, railroad chains, or bridge timber float drag. When a chisel plow is used, the chisels shall be set not more than 10 inches apart and the areas shall be cross or double-tilled. All areas shall be left smooth for ease of mowing. All operations shall be done in a direction parallel to the contour lines on the slope and not uphill or downhill. Areas tilled shall be maintained until seeding and mulching is complete to insure a smooth area with no gullies or depressions.

B. Application of Seed:

1. Seeding equipment calibration tests shall be made in the presence of the CITY to determine the equipment setting required to apply the seed at the specified rates. Markers shall be used to ensure that no skips occur between successive passes of the seeder. If unplanted skips and areas are noted after germination and the growth of the grass, the unplanted areas shall be prepared again, fertilized, seeded, compacted, protected with herbicide (Section 3.4.A) and mulched (Section 3.4.B) as if none of those steps had previously taken place. The seed box shall be kept at least half full during seeding operations to ensure even distribution of seed over all the areas seeded. The types of acceptable seeding depending upon the area are as follows:
2. All seeding work shall be done between the dates of February 1 and April 15 for spring planting or August 15 and October 15 for fall planting. Sowing shall be accomplished by use of an approved mechanical seeder or drill (hand spreader can be used in small areas), making sure that successive seed strips overlap to provide uniform coverage. The mixtures shall be applied in a crossing pattern of two passes, each applying half of the seed required. Seed should be drilled to a depth of 1/2 inch. The sprigs (rhizomes) shall be broadcast evenly and uniformly on the soil surface.

C. Compaction:

1. Immediately following the completion of seeding operations, the entire area shall be compacted by means of a roller weighing at least 60 but not more than 90 pounds per linear foot of roller or any other method approved by the CITY.

3.9 Seed Protection

A. Application of Herbicide:

1. Following completion of seeding operations, pre-emergent herbicide as specified shall be applied to all seeded areas at the rate suggested by the manufacturer.

B. Mulching:

1. Mulching shall be done within 24 hours following the seeding operation except in the case of wood cellulose type mulch.

2. **Vegetative Type Mulch:** Straw mulch shall be spread uniformly in a continuous blanket at a depth of not less than 1-1/2 inches and not more than 2 inches loose measurement (approximately 1-1/2 to 2 tons per acre). Mulch shall be spread by hand or by a blower type mulch spreader. Blower type mulch spreaders shall be adjusted and operated in such a manner as to prevent excessive breakage of the mulch material. If this cannot be accomplished, the mulch shall be spread by hand. Care shall be exercised to ensure that all wire from baled hay is collected as it is removed from the bale. Mulching shall be started at the windward side of relatively flat areas, or at the upper part of a steep slope, and continued uniformly until the area is covered. The mulch shall not be bunched.
 - a. No mulch shall be spread unless it can be anchored on the same day.
3. **Anchoring Straw Mulch:** The straw mulch shall be anchored in the soil to a depth of 2 to 3 inches by a notched disk set straight or a mulch crimping machine. The machine shall be weighted and operated in such a manner to secure the mulch firmly in the ground to form a soil binding mulch and prevent loss or bunching of straw by wind. Two or more passes may be required to anchor the mulch to the satisfaction of the CITY.
4. **Application of Wood Cellulose Fiber:** Wood cellulose fiber mulch shall be applied with a hydromulcher at not less than 1000 pounds per acre. Precautionary measures shall be taken in preventing overspray on structures, paving, and plantings.

3.10 Maintenance

A. Watering:

1. Promptly after seeding and mulching, wet the seedbed thoroughly. Watering shall continue so as to keep all areas moist throughout the germination period.

B. Water Usage:

1. Water used in this work shall be furnished by the Contractor and shall be suitable for irrigation and free from ingredients harmful to plant life. All watering equipment required for the work shall be furnished by the Contractor. Water shall be taken from adjacent fire hydrants or public water lines only through hydrant connections permitted and issued by CITY. Written approval from the property owner shall be obtained prior to the use of suitable water from ponds or creeks. Water from private owners shall also be metered.

C. Maintenance of Area:

1. The Contractor shall be responsible for maintaining all seeded areas until acceptance by the CITY. If at any time before acceptance of the completed contract, any portion of the seeded surface becomes gullied or otherwise

damaged, or the seeding has been damaged or destroyed, the affected portion shall be cleared of stones, etc. and repaired to re-establish the specified condition prior to the acceptance of the work.

2. In established yards, shoulders and slopes in street right-of-way, and any other areas where a Type "A" seeding is necessary, all newly seeded grassed areas shall be kept in a healthy growing condition by watering, weeding, mowing, trimming, edging, etc., until completion and acceptance by CITY. The seeded areas shall be mowed with approved mowing equipment to a height of 3 inches whenever the average height of vegetation becomes 6 inches.
3. Turf grass of one-square foot or more that does not show definite growth and establishment shall be re-seeded in accordance with all requirements of this section including soil preparation and mulching. The Contractor shall continue the care and maintenance of all seeded areas as specified above until all work of this project has been satisfactorily completed and all deficiencies have been corrected at which time final inspection shall be made.
4. Areas Off of Street Right-of-Way (Type "B" Seed): All seeded areas shall be maintained until acceptance by the Engineer. Maintenance shall include repair of erosion damage, re-seeding, including all preparation requirements maintenance of mulch, and watering.

END OF SECTION

SECTION 02931

SODDING

PART 1 GENERAL

1.1 Section Description

- A. This section provides for areas to be restored with sodding materials.

1.2 Section Includes

- A. Sod
- B. Fertilizer

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 01900 – Project Closeout
- D. Section 02200 - Excavation and Trenching
- E. Section 02930 - Seeding

1.4 References

- A. ASPA (American Sod Producers Association) - Guideline Specifications to Sodding.
- B. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.5 Definitions

- A. Sodding areas: All established lawn areas that have been disturbed by construction operations including areas of cut and fill, trenching, temporary roads, and temporary staging or storage areas shall be sodded unless otherwise specified.
- B. Sequence of Work: Sequence shall be clearing, grading, fertilizing, tilling, and sodding.
- C. Weeds: Includes 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.

1.6 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals.

1.7 Quality Assurance

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. All sodding work shall be performed by a contractor having demonstrated experience in sodding on projects of similar size. The work shall be prepared by experienced personnel who are familiar with the required work and who are under the supervision of a qualified foreman at all times when the work is in progress.
- C. Sod: Shall be a minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.
- D. Submit sod certification for grass species and the location of sod source.
- E. Sod Producer: Shall be a company specializing in sod production and harvesting with minimum three years documented experience.

1.8 Delivery, Storage, and Handling

- A. Follow the provisions for the delivery, storage, protection and handling Products to and at site provided in Section 01600 - Material and Equipment.
- B. Deliver sod in rolls. Protect exposed roots from dehydration.
- C. Do not deliver more sod than can be laid within 24 hours. Sod harvested more than 48 hours prior to placement will be rejected and shall be removed immediately from the site.

PART 2 PRODUCTS

2.2 Sod

- A. General:
 - 1. The sod to be used as source material shall be a thick stand of Kentucky Blue Grass, Turf Type Tall Fescue, Bermuda Grass, Zoysia Grass or other grasses as required. The sod shall contain a growth of not more than 1 percent of other grasses and clovers, shall be free from all prohibited and noxious weeds.
 - 2. Broken pads and torn or uneven ends will not be acceptable. Standard size sections shall be strong enough to support their own weight and should retain their size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section. Sod shall not be harvested or transplanted

with moisture content (excessively dry or wet) that will adversely affect its survival.

3. Sod shall be relatively free of thatch, up to 1/2 inch allowable (uncompressed). Sod shall be reasonably free of diseases, nematodes, and soil-borne insects. State nursery and/or plant materials laws require that all sod entering inter-state commerce be inspected and approved for sale. The same applies to sod being shipped intra-state. The inspections and approval must be made by the state agricultural department, office of the state entomologist.
4. Sod for golf courses and other areas as deemed necessary shall be of the Kentucky Blue Grass and Turf Type Tall Fescue Grass as specified above. Bermuda Grass and Zoysia Grass sod will not be acceptable for these areas.

B. Turf Type Tall Fescue Sod:

1. Composed of an equal mix of three or four compatible species of 100 percent Turf Type Tall Fescue. The mixture shall not include any varieties of the slower growing Turf Type Tall Fescue "Dwarf". The species shall be one of the following:

Apache	Arid	Austin
Bonanza	Carefree	Chieftan
Cimmaron	Cochise	Falcon
Guardian	Hounddog	Jaguar II
Maverick II	Mustang	Olympic
Phoenix	Rebel II	Rebel 3D
Safari	Shenandoah	Thoroughbred
Titan	Tribute	Vegas

C. Kentucky Blue Grass and Turf Type Tall Fescue Sod:

1. Cut in strips of uniform thickness, the range of acceptable thickness shall be 1 1/2 to 2 inches; each strip containing at least one square yard. Sod shall be cut in strips not less than 12 inches wide.

D. Bermuda Grass or Zoysia Grass Sod:

1. Cut into strips of uniform thickness, the range of acceptable thickness shall be 1 1/2 to 2 inches; each strip being not less than 12 inches wide and 24 inches long. Strips that crumble will not be acceptable.

2.3 Fertilizer

- A. Fertilizer shall be inorganic 12.12.12 or 13.13.13 grade, uniform in composition, free flowing and suitable for application with approved equipment, delivered to the site in convenient containers, each fully labeled, conforming to applicable state

fertilizer laws, bearing the name, trade name, or trade mark and warranty of the producer.

PART 3 EXECUTION

3.4 Preparation of Subsoil

A. General:

1. The work shall not be started until all earthwork has been completed. Backfills and fills shall be properly compacted, the topsoil shall be spread and finish grading shall be completed immediately before the sodding work is started.

B. Preparation of Area:

1. Preparation of areas to be sodded shall include filling, reshaping eroded areas, cleaning ditches and refinishing slopes to the established grade section.

C. Cleanup:

1. Within reasonable time after completion of the construction operations, the entire area shall be cleared of excess soil and waste material, including, but not limited to, stones, stumps, roots, brush, wire, grade stakes, and all objects that might be a hindrance to maintenance operations or affect the visual appearance of the site. All roads over which hauling operations have been conducted, regardless of the type of surfacing, shall be kept clean, and soil clods and debris left on the surface shall be removed. The wheels of vehicles shall be cleaned to avoid leaving soil upon the surface of roads, walks, and other surfaced areas.

D. Preparation of Sod Bed:

1. After fertilizer has been applied, the areas to be sodded shall be tilled to a depth of at least 2 inches by disking, plowing, harrowing, or other accepted methods until the soil is well pulverized and smoothed with a weighted spike-tooth harrow, railroad chains, or bridge timber float drag. When a chisel plow is used, the chisels shall be set not more than 10 inches apart and the areas shall be cross or double-tilled. All areas shall be left smooth for ease of mowing. All operations shall be done in a direction parallel to the contour lines on the slope and not uphill or downhill.

3.5 Fertilizing

- A. Before tilling operations, fertilizer shall be spread uniformly at the rate of 300 pounds per acre. Fertilizing rate is equivalent to 3.5 pounds per 500 square feet.

3.6 Laying Sod

A. Application of Sod:

1. Kentucky Blue Grass and Turf Type Fescue sod shall not be placed during a drought, or during the period from June 1 to September 1, unless authorized by the CITY, and shall not be placed on frozen ground. Bermuda and Zoysia sods shall only be placed during the period from May 1 to October 15. The CITY reserves the right to delay the sodding of all types of sod or to vary the permissible sodding seasons, due to weather, soil conditions, or for other causes.
2. Sod shall be moist when it is placed. Sod strips shall be laid along contour lines, commencing at the lowest point of the area and working upward. The transverse joints of sod strips shall be staggered and the sod carefully placed to produce tight joints. If necessary to walk excessively on newly laid sod, walking boards should be laid for this purpose. The sod shall be firm and watered immediately after it is placed. The "firming" shall be accomplished by application of a roller weighing not less than 60 nor more than 90 pounds per linear foot of roller or other approved method.

B. Anchoring Sod:

1. On 2:1 slopes, or steeper, the sod shall be anchored with 1/2 inch square by 8 inch long wooden pegs. The wooden pegs shall be driven into the ground 3 pegs to the square yard or other approved methods. Pegging shall be done immediately after sod is firmed.

3.7 Maintenance

A. Water Usage:

1. Water used in this work shall be furnished by the Contractor and will be suitable for irrigation and free from ingredients harmful to plant life. All watering equipment required for the work shall be furnished by the Contractor. Water shall be taken from adjacent fire hydrants or public water lines only through hydrant connections permitted and issued by CITY. Written approval from the property owner shall be obtained prior to the use of suitable water from ponds or creeks. Water from private owners shall also be metered.

B. Maintenance:

1. The Contractor shall be responsible for maintaining the installed grass sod until all areas are complete and accepted by the CITY. Grass areas in excess of one square foot that are dead or in poor condition regarding color and quality shall be replaced including all sodded preparation steps, and fertilized at the Contractor's expense prior to final acceptance.
2. The Contractor shall maintain the grass area for a minimum period of approximately 30 days or until the grass reaches a mowing height of 4

inches. The Contractor shall notify the City that the installed grass is ready to be mowed, and upon approval, the Contractor shall cut and “bag” grass clippings to a height of 2 1/2 inches. Completion of the mowing and replanting of all dead or dying grass by the Contractor shall be required prior to final acceptance.

END OF SECTION

SECTION 03001

CONCRETE

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the materials and procedures utilized in cast-in-place concrete for thrust restraints restoration and repair of surface structures.

1.2 Section Includes

- A. Concrete Mixture
- B. Curing
- C. Form Work
- D. Reinforcement

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 02200 - Excavation and Trenching
- D. Section 02608 - Concrete Vaults and Covers
- E. Section 02669 - Thrust Restraints

1.4 References

- A. ACI 301 - Specifications for Structural Concrete Buildings
- B. ASTM C33 - Standard Specification for Concrete Aggregates.
- C. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
- D. ASTM C150 - Standard Specification for Portland Cement.
- E. ASTM C171 - Standard Specification for Waterproof Paper for Curing Concrete.
- F. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
- G. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

- H. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
- I. ASTM C881 - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
- J. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
- K. MCIB – Specifications for Concrete Work.

1.5 Submittals for Review

- A. Follow the procedures for submittals provided in Section 01300 - Submittals
- B. Submit proposed mix design of each class of concrete to CITY for review prior to commencement of work.

1.6 Quality Assurance

- A. Perform work in accordance with ACI 301.
- B. Tests: Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301 and ASTM standards.

PART 2 PRODUCTS

2.1 Concrete Mixture

- A. Concrete Mixture:
 - 1. The concrete shall be MCIB WA530-1-4 as designated by the Mid-West Concrete Industry Board, Inc., Kansas City, Missouri.
- B. Cement:
 - 1. The cement shall be Portland Cement Type I unless high early strength is required in which instance Type III shall be used.
 - 2. All cement shall conform to the "Standard Specification for Portland Cement," ASTM C150.
- C. Aggregate:
 - 1. All aggregates shall conform to the appropriate bulletins and specifications of the Mid-West Concrete Industry Board, Inc.
- D. Admixtures:
 - 1. Air-entraining admixtures shall comply with ASTM C260 (AASHTO M154), current edition.

2. Chemical admixtures shall comply with ASTM C494 (AASHTO M194), current edition.
 3. All Concrete shall include a water-reducing admixture and an air-entraining admixture.
- E. Water:
1. Water for mixing and curing concrete shall be clean and free from injurious amounts of sewage, oil, acid, alkali, salt, or organic matter. (Only potable water will be acceptable without testing.)
- F. Ready-Mix Concrete:
1. Ready-mixed concrete shall be used unless otherwise permitted by the CITY.
 2. Ready-mixed concrete shall be mixed and delivered in accordance with the requirements set forth in the "Standard Specifications for Ready-Mixed Concrete," ASTM C94.

2.2 Curing

- A. Cotton Mats: American Association of State Highway Officials (AASHTO) - "Standard Specifications for Cotton Mats for Curing Concrete Pavements," Designation M-73, current edition.
- B. Burlap: AASHTO - "Standard Specifications for Burlap Cloth Made from Jute or Kenaf," M-182, Class 2, 3, or 4, current edition.
- C. Waterproof Paper: ASTM – "Standard Specification for Waterproof Paper for Curing Concrete", Designation C-171, Current Edition.
- D. Liquid Membrane: ASTM – "Standard Specifications for Liquid Membrane Forming Compounds for Curing Concrete", Designation C-309, current edition.
- E. Membrane Curing Compounds: ASTM C1315 - "Standard Specifications for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete", current edition.
- F. Concrete Bonding Agent; ASTM C881 - Standard Specifications for Epoxy-Resin-Base Bonding Systems for Concrete", Type I and V, moisture insensitive, current edition.
- G. Polyethylene Sheeting: AASHTO – "Standard Specifications for White Polyethylene Sheeting (Film) for Curing Concrete", Designation M-171, current edition.

2.3 Form Work

- A. Refer to Section 03100 - Concrete Formwork

2.4 Reinforcement

- A. Refer to Section 03200 - Concrete Reinforcement

PART 3 EXECUTION

3.1 Surface Preparation

- A. General:

1. Concrete shall not be placed on muddy or frozen ground.
2. Dry sub-grade shall be wetted in advance of concrete placement.
3. All mud, freestanding water, loose dirt, and debris shall be removed prior to placement of concrete.

- B. Surface Preparation of Existing Concrete:

1. Where new concrete is placed against existing concrete, the surface of the existing concrete shall be chipped to remove the existing surface to a depth that exposes a clean concrete surface. No oil, grease, or dirt stains shall be evident when the new concrete is poured.
2. Latency or soft layers of mortar shall be removed from the top or face of previously hardened concrete prior to placing additional concrete in contact with the existing surfaces.
3. If, in the opinion of the CITY, a structural bond is required between the old and new concrete, a concrete bonding agent shall be used.

- C. Under-Water Conditions:

1. Prior to placing concrete, any water flow into excavation or forms shall be controlled or stabilized.
2. Tremies shall be used in all cases unless other methods are specified.
3. Tremies shall be equipped with watertight valves or caps at the lower end that shall be kept submerged in freshly placed concrete when placing concrete.

3.2 Formwork

- A. Refer to Section 03100 – Concrete Formwork

3.3 Reinforcement

- A. Refer to Section 03200 – Concrete Reinforcement

3.4 Placing Concrete

A. General:

1. Only those methods and arrangements of equipment shall be used which will reduce to a minimum any segregation of coarse aggregate from the concrete.
2. Every consideration shall be given to the proper placement of all concrete and the proper care of all concrete after placement.
3. Sufficient capacity of manpower and placing equipment shall be provided so that the work may be kept free from cold joints and other defects in the finished product.
4. Concrete shall be deposited into the forms or on the grade as nearly as practicable in its final position and in such manner that the concrete will completely fill the forms.
5. Vibration shall not be used to move concrete in a horizontal direction after initial placement.
6. Placement of concrete on a slope shall begin at the lower end of the slope and progress upward.
7. Concrete that has partially hardened or has been contaminated by foreign material shall not be deposited in the work but shall be discarded.
8. When inclined chutes beyond the mixer are permitted by the CITY, a baffle shall be provided at the bottom end so that concrete will drop vertically without segregation.
9. No water shall be added to the concrete for any reason at the job site that will result in exceeding the specified water-cement ratio.
10. Care shall be taken to fill the forms and to finish the concrete so that top surface is true to line and grade.
11. Care shall be taken to assure proper concrete coverage of reinforcing steel and mesh as designed.
12. Care shall be taken to maintain the proper location of all joint material, dowels, embedded items, etc., during concrete placement.
13. No mud or other foreign materials shall be tracked into the concrete during placement operations, and all contaminated concrete shall be removed.

B. Footings:

1. Footings shall have sound and stable earth sides or assembled forms.
2. Placement operations shall be performed in such a manner as to prevent loose earth falling into footing area during placement of concrete.

C. Walls And Thrust Restraints:

1. Collection hoppers shall be used wherever depth of wall or thrust restraints exceeds four (4) feet.
2. Concrete that might contact forms or reinforcing steel during placement shall be placed by the use of trunks or pipes whenever the drop exceeds six (6) feet for unexposed work, or three (3) feet for exposed work.
3. When trunks or pipe are used, they shall be located at horizontal spacing of not to exceed ten (10) feet.
4. Concrete for walls and thrust restraints shall be placed in horizontal layers not exceeding two (2) feet in depth.
5. Where concrete is to be placed for slabs monolithically with walls, beams, or columns which have a depth of four (4) feet or more, the placing of concrete for slab shall be delayed one (1) to three (3) hours after placing of concrete in lower portions to allow for subsidence.
6. Placing of concrete in slabs and thrust restraints shall be done in such manner as to prevent "cold joints," both horizontally and vertically.

D. Slabs:

1. Strike-off screens shall be set to proper grades for all concrete slab construction, and the tolerance for screens for smooth finish slabs shall not exceed one-eighth (1/8) inch, plus or minus, in a distance of seven (7) feet.
2. Strike-off shall be accomplished by use of a straight edge of adequate weight and length.
3. Vibrating screens or other approved strike-off methods shall be used when concrete slump is less than three (3) inches and slab thickness is more than four (4) inches.
4. Jitterbugs shall not be used.

E. Vibrating:

1. Mechanical internal vibrators shall be used whenever possible in all formed concrete work.
2. Vibrators shall be inserted at uniform spacing of twelve (12) inches to twenty (20) inches to assure thorough consolidation of all concrete.
3. Vibrators shall be inserted and withdrawn vertically to a depth, which will assure penetration into the previous lift with vibration periods of from five (5) to fifteen (15) seconds.

4. Form vibration and hand spading will be required at points inaccessible for thorough internal vibration.
5. During placement of concrete, stand-by vibrators shall be immediately available in the event of mechanical failure in the vibrators being used.

3.5 Concrete Curing

A. General:

1. Curing and protection shall consist of providing adequate measures to prevent the loss of moisture so hydration of the cement can continue. Special care shall be taken to provide proper curing for all concrete, including edges.
2. All regular concrete shall be cured for a period of not less than five (5) days, and concrete made with high early strength cement shall be cured not less than three (3) days unless otherwise directed or specified by the CITY.
3. Whenever placing of concrete is interrupted, the concrete already placed shall be kept continuously moist with damp mats or burlap until placing is resumed. Concrete shall not be directly sprayed with water prior to obtaining initial set.

B. Concrete In Forms:

1. Concrete adjacent to wood forms shall be cured either by keeping the forms continuously wet, beginning not later than eighteen (18) hours after placing has been completed, or by loosening the forms as directed or approved by the Engineer and applying water to the top portion and allowing the water to run down between the forms and the concrete.
2. When metal forms are used for vertical surfaces, the forms shall either be kept in contact with the concrete for the entire curing period, or the forms may be removed completely and one of the other acceptable curing methods used.
3. Concrete slabs shall be cured by either wet covering, steel materials, or membrane curing compounds.
4. Supporting forms under flat slabs will not be required to be kept moist.

C. Curing Methods:

1. One of the following methods of curing shall be used as soon as possible after the final finishing operations and when the concrete has set sufficiently so that it will not be damaged in the process.
2. Wet covering shall consist of either burlap, cotton mats, damp earth or sand, or ponded water. Coverings shall be kept moist for the duration of the curing period. Water shall be applied in a manner, which will not damage the concrete, and shall be free from impurities, which may damage or discolor the concrete.

3. The covering shall completely cover the concrete surfaces with sufficient material remaining at the sides for proper anchorage. Adjoining sheets shall be lapped six (6) inches or be sealed. All tears and holes shall be patched promptly with adhesive tape or other approved means. The covering shall be anchored continuously around the edges and at laps, and shall be weighted on the surface as required to prevent billowing by the wind. The covering material may be reused provided all holes and tears are properly repaired.
4. During hot weather, the membrane curing compound shall be a white pigmented compound when used on concrete exposed to sunlight and on all other concrete unless the CITY specifies a clear type with fugitive dye. Membrane curing compounds shall not be used where concrete is to be bonded to concrete. Where concrete is to be painted or covered with floor covering, or where concrete is to be bonded to other construction material, membrane curing compound shall be applied by spraying in such a manner as to provide a uniform, continuous, and water-impermeable film using not less than the amount recommended by the manufacturer. Compounds shall be stirred prior to and during use. If an even covering cannot be obtained by one coat, the compound shall be applied in two (2) coats with the direction of application of the second coat at right angles to that of the first coat. The membrane shall be protected from damage during the curing period, and any damage shall be repaired promptly.
5. Vertical faces of slabs on grade shall be cured by backfilling with moist earth or by use of one of the methods described herein.
6. If approved by CITY, a combination of various curing methods may be used providing the intermediate time of exposure to drying is less than one (1) hour. For example, concrete work may be initially cured for one (1) day with a wet covering followed by four (4) days curing with a sheet material or membrane curing compound.

3.6 Concrete Protection

A. General:

1. The provisions of this Section shall apply to all concrete work, which is done when the air temperature is below forty degrees Fahrenheit (40° F) or forecast to drop below that temperature within twenty-four (24) hours of the time concrete is to be placed.
2. Concrete Production: Adequate equipment for heating the concrete materials shall be provided. No ingredient that is frozen or contains ice shall be placed in the mixer.
 - a. When air temperature is below 40° F, or forecast to fall below 40° F in the next 24 hours, concrete ingredients shall be heated.
 - b. Temperature of concrete at time of delivery shall be not less than 60° F nor greater than 80° F, and 70° F is preferred.

- c. Heating shall be accomplished by heating either the aggregates or the mixing water or both. When the water temperature is above 165° F, the aggregate shall be premixed with the water for one (1) minute before cement and admixtures are added. Cement shall not be mixed with water or aggregates having temperature above 165° F.
 - d. The addition of calcium chloride WILL NOT be permitted.
3. Placing and Finishing: Concrete shall not be placed on or come in contact with frozen subgrade or forms and equipment containing ice or snow.
- a. Concrete, when placed, shall have a slump not to exceed four (4) inches for flat work or five (5) inches for walls and columns.
 - b. During placing and finishing, concrete shall be maintained at a temperature of 50° F or above but not more than 80° F.
 - c. Heating of enclosures for flat slab finishing shall be done by vented heating methods, and open-flame heating methods will not be permitted.
 - d. Troweling shall be delayed in order to avoid bringing an excess of fines to the surface.
 - e. During placing and finishing, the slabs shall be protected from wind to prevent loss of heat and rapid drying.
4. Protection: When freezing temperatures are forecast, suitable and adequate facilities shall be provided prior to beginning concrete placement for maintaining the ambient air temperature at the surface of the concrete or forms for the times and temperatures specified herein.
- a. Type I (normal) cement concrete - not less than 50°F for five (5) days or 70°F for three (3) days.
 - b. Type II (low heat of hydration/moderate sulfate resistant) cement concrete - not less than 50°F for fourteen (14) days.
 - c. Type III (high early strength) cement concrete - not less than 50°F for three (3) days or 70°F for two (2) days.
 - d. Protective measures shall be maintained for at least four (4) days beyond the period specified above.
 - e. Sudden cooling (in excess of 20°F in any 24-hour period) of ambient air temperature at the surface of the concrete or forms shall not be permitted. During this period concrete shall not be allowed to drop to a temperature below 40°F.
 - f. Newly finished flat work shall be covered and protected during cold weather for at least 14 days against exposure to rain, sleet, and ice.

- g. All methods for protecting concrete shall be subject to approval of the Director.
- h. Insulated forms may be used when approved by the CITY. Care shall be taken to keep the internal concrete temperature below 130°F and avoid sudden cooling at end of protection period.
- i. During the entire protection period adequate means shall be provided to prevent loss of moisture from the concrete surface.

B. Hot Weather Protection:

1. General: The provisions of this Section shall apply to all concrete work that is done when the air temperature is above 80°F or forecast to rise above that temperature within 24 hours of the time concrete is to be placed.
2. Concrete Production: Stockpiled aggregates shall be saturated and the surface kept moist by intermittent sprinkling or continuous fog spray.
 - a. Mixing water shall be kept cool by adequate protection of storage tanks and piping. Supply lines shall be shaded, insulated, or buried.
 - b. When necessary to produce and maintain concrete at an acceptable temperature, chopped or crushed ice shall be added directly to the mixer to the limit of 50% by weight of the total water required. Ice shall be added at a rate and in a manner that it will be completely melted during the mixing period. Chilled mixed water will also be acceptable.
 - c. The cement factor required by the design mix shall be increased as necessary to maintain the specified water-cement ratio whenever additional water is added to compensate for loss of slump during transportation, handling, and placing.
3. Placing and Finishing: Temperature of concrete when placed shall not exceed 85°F.
 - a. Forms, reinforcing, and subgrade surfaces shall be wet down immediately before concrete is placed. Wetting down of areas around the work to cool the air and increase humidity is recommended.
 - b. Placing and finishing shall be done as quickly as possible. Adequate manpower and equipment shall be available to handle and place the concrete immediately after its mixing and delivery to the site.
 - c. Concrete shall be placed in layers in such manner as to insure bond and union with adjacent layers, thus avoiding cold joints.
4. Protection: In extremely hot weather or in very dry and/or windy weather, sunshades, wind breakers, fog nozzles, or a combination of such items will be required during flat slab finishing operations.

- a. If in the opinion of CITY proper protection is not being provided, CITY may order concrete operations to be suspended until adequate protective measures are provided.
- b. Concrete shall be kept cool and moist during the specified curing period.
- c. Top surface of slabs shall be cured as specified in Paragraph 6-" Curing and Protection." Initial curing media shall be applied within 20 minutes after the final finishing has been completed in each area.
- d. When air temperature exceeds 90°F and as soon as practicable without damage to the surface finish, all exposed concrete shall be kept continuously moist by means of fog sprays, wet burlap, cotton mats, and other effective means. This water cooling shall be in addition to the initial sealing by the membrane curing compound.

END OF SECTION

SECTION 03100
CONCRETE FORMWORK

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the materials and installation for cast-in-place concrete formwork.

1.2 Section Includes

- A. Forms
- B. Form work accessories

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 03001 - Concrete
- D. Section 03200 - Concrete Reinforcement

1.4 References

- A. ACI 347 - Recommended Practice For Concrete Formwork.

1.5 Submittals

- A. Follow the procedures for submittals provided in Section 01300 - Submittals.
- B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

1.6 Quality Assurance

- A. Perform Work in accordance with ACI 347.

1.7 Delivery, Storage, and Handling

- A. Follow the provisions for the delivery, storage, protection and handling products to and at site provided in Section 01600 - Material and Equipment.
- B. Store off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 PRODUCTS

2.1 FORMS

- A. Suitable and substantial forms shall be provided for all structural concrete and, where required, for plain concrete. All forms shall be constructed and maintained plumb and true to line, securely braced, tied, clamped and shored, and tight enough to prevent leakage of mortar.
- B. The deflection of the forms due to the weight of plastic concrete, placing equipment, and workmen shall be accurately figured and taken into account in the design of the forms so that finished concrete members will have surfaces, lines, planes, and elevations required within tolerances in accordance with ACI 117.
- C. Forms shall be constructed so that they can be removed without damage to the concrete.
- D. Forms for walls and thrust restraints shall be designed structurally for the rate of placement of concrete.

2.2 Formwork Accessories

- A. Forms shall be securely braced and tied with approved form ties that do not leave any parts within 3/4 inch of the surface of the concrete. Wire ties and wood spreaders will not be permitted.

PART 3 EXECUTION

3.1 Preparation

- A. Verify lines, levels and centers before proceeding with formwork.
- B. A coat of non-staining oil, lacquer, or other approved material shall be applied to protect form surface and to facilitate stripping. Coating shall be applied in strict accordance with the current directions of the manufacturer.
- C. Screens shall be constructed and located so as to produce continuous plane surfaces and shall be sturdy and designed so as to leave no undesirable parts permanently embedded in the concrete.
- D. Screens shall be set sufficiently in advance of placement of concrete to avoid interruption in the placing of concrete.
- E. All exterior surfaces of the forms shall be thoroughly cleaned with water or compressed air immediately prior to placing of concrete.
- F. All surfaces of forms that are to be reused shall be thoroughly cleaned and repaired prior to reuse.

3.2 Erection - Formwork

- A. Openings and chases of proper size shall be provided in the forms for piping, ductwork, etc., at the locations indicated or as otherwise approved.
- B. All approved embedded items shall be accurately located and securely fastened in place prior to placing of concrete.
- C. Control, contraction, expansion, and construction joints shall be provided at the locations indicated or specified.

3.3 Form Removal

- A. Forms shall be removed in such manner as to assure the complete safety of the structure. In no case shall supporting forms or shoring be removed until the concrete members have acquired sufficient strength to support their weight safely.

END OF SECTION

SECTION 03200
CONCRETE REINFORCEMENT

PART 1 GENERAL

1.1 Section Description

- A. This section provides for the materials and installation for cast-in-place concrete reinforcement.

1.2 Section Includes

- A. Reinforcing steel bars, wire fabric and accessories for cast-in-place concrete.

1.3 Related Sections

- A. Section 01300 – Submittals
- B. Section 01600 – Material and Equipment
- C. Section 03001 – Concrete
- D. Section 03100 – Concrete Formwork

1.4 References

- A. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- B. ASTM A616/A616M - Standard Specification for Rail Steel Deformed and Plain Bars for Concrete Reinforcement.
- C. CRSI 63 - Recommended Practice For Placing Reinforcing Bars.
- D. CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications and Nomenclature.

1.5 Submittals for Review

- A. Follow the procedures for submittals provided in Section 01300 - Submittals.
- B. Shop Drawings: Indicate reinforcement bar sizes, spacing, locations, and quantities of reinforcing steel and wire fabric; bending and cutting schedules; splicing and supporting and spacing devices.

1.6 Quality Assurance

- A. Perform work in accordance with CRSI 63, CRSI 65, and CRSI Manual of Standard Practice.

PART 2 PRODUCTS

2.1 Reinforcement

- A. Reinforcing steel bars shall conform to the requirements of the following Standards and Grades:

<u>ASTM STANDARD</u>	<u>Grade</u>
A 615 - Billet Steel	40 or 60
A 616 - Rail Steel	50 or 60
A 617 - Axle Steel	40 or 60

- B. Welded steel wire fabric shall conform to the requirement of ASTM A185.

PART 3 EXECUTION

3.1 Preparation

- B. Before being installed in the final position, all metal reinforcements shall be free of mud, clay, ice, grease, oil, loose rust and scale, and other coatings that would reduce or destroy the bond.

3.2 Placement

- A. Metal reinforcements shall be accurately formed and positioned to the required dimensions.
- B. Steel reinforcements shall be accurately positioned as required and shall be secured against displacement by using annealed wire ties or suitable clips at all intersections.
- C. The steel reinforcements shall be supported by metal supports, spacers, or hangers.
- D. The legs on the metal chair supports shall be plastic coated.
- E. The minimum center to center distance between parallel bars shall be not less than two and five-tenths (2.5) times the diameter of the bars so installed; but in no case shall the clear spacing between bars be less than one and five-tenths (1.5) times the maximum size of the course aggregate.

3.3 Protection

- A. Metal reinforcements (bars or mesh) shall be protected with concrete as stipulated in the following table. The concrete cover shall be measured from the edge of the bar or mesh to the face of the concrete.

<u>Condition of Service</u>	<u>Minimum Inches of Cover</u>
Placed against undisturbed earth	3 inches
Formed face exposed to earth or liquid	2 inches
Other formed surfaces	3/4 inches

END OF SECTION



STORMWATER POLLUTION PREVENTION PLAN **(SWPPP)**

For Building & Grading Projects Disturbing 1 or More Acres

Missouri State General Operating Permit (Land Disturbance Permit) MO-R100006

Water Main Replacement.

**Elmwood to Blue Ridge Cutoff, 47th Street to 57th Street.
Kansas City, Missouri.**

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PART I: GENERAL PROJECT INFORMATION

(To be completed by OWNER or Design Professional)

Project Site Name: Water Main Replacement Elmwood to Blue Ridge Cutoff, 47th Street to 57th Street
Project Site Street/Location: Elmwood to Blue Ridge Cutoff, 47th Street to 57th Street
City: Kansas City State: Missouri Zip Code: N/A
County: Jackson
Section, Township, Range: Sec. 36 T49N-R33W and Sec. 31 T49N-R32W
Project Number: 80001820
Owner's Name: Kansas City Missouri Water Services Department (Contact Alex Ivanescu)
Address: 4800 E. 63rd Street
City: Kansas City State: Missouri Zip Code: 64130
Phone: 816-513-0445 Fax: 816-513-0288
E-mail: Alex.Ivanescu@kcmo.org Cell Phone: N/A

Nature of Construction Activity:

Linear trenching and backfilling to construct water main replacements or relocations in developed public right of way in pavement or adjacent greenway.

Estimated Project Start Date:	October 2015
Estimated Project Completion Date:	September 2016

PART II: PROJECT PLANNING & DESIGN

(To be completed by DESIGN PROFESSIONAL)

Designer's Name: Lamin Nyang, PE
Company Name: Lamin Nyang, PE
Address: 1020 E. 8th Street
City: Kansas City State: Kansas City Zip Code: Kansas City
Phone: 816-283-3456 Fax: 816-283-0810
E-mail: Kansas City Cell Phone: Kansas City

Soil Disturbing Activities for this project will include the following (Check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> Clearing and grubbing of existing vegetation | <input type="checkbox"/> Stripping of topsoil within the limits of |
| <input type="checkbox"/> Stockpiling and re-spreading | <input checked="" type="checkbox"/> Utility trench excavation and backfill |
| <input type="checkbox"/> Preparing sub grade for streets and sidewalks | <input type="checkbox"/> Backfilling curbs and sidewalks |
| <input type="checkbox"/> Disposal areas for excess excavated material | <input type="checkbox"/> Borrow areas for fill material |
| <input type="checkbox"/> Construction of sediment basins or storm water | <input type="checkbox"/> Minimize soil compaction and preserve top soil. |
| <input type="checkbox"/> Construction of compacted fill areas for residential building | |
| <input type="checkbox"/> Provide and maintain natural buffers around surface waters | |
| <input type="checkbox"/> Other (specify): <u>Click here to enter text.</u> | |

Note: Limits of land disturbance must be clearly shown on the erosion and sediment control plan.

Total Site Area: N/A

Total Estimated Area to be disturbed by all activities: 3.3 acres

Runoff Coefficient prior to development: Varies from 0.30 to 0.90

Runoff Coefficient after development: No permanent change in runoff coefficients post installation on new water mains

Describe and Identify the location of any storm water discharge associated with industrial activities other than construction at the site, such as dedicated asphalt and concrete plants:

N/A

Controls to Reduce pollutants from these materials (if applicable):

N/a

Name of Receiving water body: tributaries or engineered drainage structures to Blue River _____
Distance from Project outfall to receiving water body: N/A _____ (feet)
Does this Project require 401 and 404 permits as defined under the Clean Water Act? (yes/no): No _____
If yes, attach the permits to the SWPPP.

Note: If outfall discharge is to more than one receiving water body, attach information for each outfall.

Endangered or threatened species/critical habitats on or near the project (yes/no): No _____

If yes, describe the species and/or critical habitat: N/A _____

If yes, describe steps taken to address the impact of construction: N/A _____

Historic Sites on or near the construction site? (yes/no): No _____

If yes, describe steps taken to address the impact of construction: N/A _____

Soils, Slopes, Vegetation, and Current Drainage Patterns existing soil conditions at construction site including soil types, slopes and slope lengths, drainage patterns, and other topographic features that might affect erosion and sediment control (should also be included on site map).

Excavations in pavement will include concrete, asphalt, rock and soil fill material. Excavations in greenway adjacent to curb will include topsoil, earthen fill materials, silt loams and possible limestone and shale. Slopes and grades will conform to existing conditions which have been graded for street and residential development.

Potential Sources of Pollution. Identify and list all potential sources of sediment, which may reasonably be expected to affect the quality of stormwater discharges from the construction site.

Sediment from linear excavation and backfilling to construct new water mains.

Identify and list all potential sources, other than sediment, which may reasonably be expected to affect the quality of storm water discharges from the construction's site.

Potential non sediment contaminants from construction activities.

CONSTRUCTION SITE BEST MANAGEMENT PRACTICES

Description of Best Management Practices (BMPS): The SWPP must include a description of both structural and nonstructural BMPs that will be used at the site. The SWPPP must have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs. The SWPPP must provide the following general information for each BMP which will be used one or more times at the site:

- a.) Physical description of the BMP;
- b.) Site and physical conditions that must be met for effective use of the BMP;
- c.) BMP installation/construction procedures, including typical drawings; and
- d.) Operation and maintenance procedures for the BMP.

The SWPP must provide the following information for each specific instance where a BMP is to be installed:

- a.) Whether the BMP is temporary or permanent;
- b.) Where, in relation to other site features, the BMP is to be located;
- c.) When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
- d.) What site conditions must be met before removal of the BMP if the BMP is not a permanent BMP?

(check all that apply)

Soil Stabilization and Slope Protection BMPs:

- | | | |
|---|---|---|
| <input type="checkbox"/> Scheduling | <input type="checkbox"/> Hydroseeding | <input type="checkbox"/> Earth Dikes/Swales & Lined Ditches |
| <input checked="" type="checkbox"/> Straw Mulch | <input type="checkbox"/> Hydraulic/Wood Mulch | <input type="checkbox"/> Outlet Protection/Velocity Dissipater |
| <input type="checkbox"/> Slope Drains | <input type="checkbox"/> Streambank Stabilization | <input checked="" type="checkbox"/> Preservation of Existing Vegetation |
| <input type="checkbox"/> Soil Binders | <input type="checkbox"/> Geotextiles,ECBs or TRMs | |

Other (specify): [Click here to enter text.](#) _____

Perimeter Controls & Sediment Barriers:

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Silt Fence | <input type="checkbox"/> Sandbag Barrier | <input checked="" type="checkbox"/> Storm Drain Inlet Protection |
| <input type="checkbox"/> Fiber Rolls | <input checked="" type="checkbox"/> Sediment Traps | <input type="checkbox"/> Sediment/Desilting Basin |
| <input checked="" type="checkbox"/> Check Dam | <input type="checkbox"/> Gravel Bag Berm | <input checked="" type="checkbox"/> Street Sweeping and Vacuuming |
| <input type="checkbox"/> Direct stormwater to vegetated areas | | <input type="checkbox"/> Maintain natural buffers around surface waters |

Other (specify): [Click here to enter text.](#) _____

Establish Stabilized Construction Exits:

- Stone Pads Entrance/Outlet Tire Wash

Other (specify): Daily cleaning and removal of mud and dirt from pavement in vicinity of trenching _____

Non-Storm Water Management BMPs:

- | | | |
|--|---|---|
| <input type="checkbox"/> Pile Driving Operations | <input type="checkbox"/> Concrete Finishing | <input type="checkbox"/> Demolition/Removal Over Water |
| <input type="checkbox"/> Dewatering Operations | <input type="checkbox"/> Concrete Curing | <input type="checkbox"/> Illicit/Illegal Discharge Detection |
| <input type="checkbox"/> Clean Water Diversion | <input type="checkbox"/> Paving & Grinding | <input checked="" type="checkbox"/> Vehicle & Equipment Cleaning |
| <input type="checkbox"/> Potable Water/Irrigation | <input type="checkbox"/> Water Conservation Practices | <input type="checkbox"/> Temporary Stream Crossing |
| <input type="checkbox"/> Material/Equipment Use Over Water | | <input checked="" type="checkbox"/> Vehicle & Equipment Fueling & Maintenance |

Other (specify): [Click here to enter text.](#) _____

Waste Management & Materials Pollution Control BMPs:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> Spill Prevention/Control | <input type="checkbox"/> Liquid Waste Management | <input checked="" type="checkbox"/> Sanitary/Septic Waste Management |
| <input checked="" type="checkbox"/> Stockpile Management | <input checked="" type="checkbox"/> Concrete Waste Management (Washout Area) | <input type="checkbox"/> Hazardous Waste Management |
| <input checked="" type="checkbox"/> Solid Waste Management | <input type="checkbox"/> Material Delivery/Storage/Use | <input type="checkbox"/> Contaminated Waste Management |

Other (specify): [Click here to enter text.](#) _____

Permanent Stabilization BMPs:

- Retaining Walls
- Biofilters
- Porous Pavement
- Other (specify): Click here to enter text. _____
- Infiltration Basins
- Vegetative Buffers
- Slope Protection
- Outlet Protection/Velocity Dissipation Devices
- Earth Dikes, Drainage Swales & Lined Ditches
- Detention/Retention Devices

The counter must select, install, use, operate, and maintain appropriate BMPs for the permitted sites. The following manual are acceptable resources for the selection of appropriate BMPs, but should not be considered exclusive:

*Kansas City Metropolitan Chapter of the American Public Works Association:
Division 5100 Erosion and Sediment Control manual.*

or

*Storm Water Management for Construction Activities: Developing Pollution Prevention Plans
and Best Management Practices, (Document number EPA 832-R-92-005)
published by the United States Environmental Protection Agency USEPA) in 1992.*

PART III: CONSTRUCTION PHASE
(To be completed by GENERAL CONTRACTOR)

General Contractor's Name: Click here to enter text. _____

Company Name: Click here to enter text. _____

Address: Click here to enter text. _____

City: Click here to enter text. _____ **State:** Click here to enter text. _____ **Zip Code:** Click here to enter text. _____

Phone: Click here to enter text. _____ **Fax:** Click here to enter text. _____

E-mail: Click here to enter text. _____ **Cell Phone:** Click here to enter text. _____

Note: The General Contractor must designate an individual responsible for environmental matters who has primary responsibility for ensuring compliance with the Storm Water Pollution Prevention Plan (SWPPP) during construction.

Contractor's Individual Response for Environmental Matters: Click here to enter text. _____

Phone: Click here to enter text. _____ **Fax:** Click here to enter text. _____

E-mail: Click here to enter text. _____ **Cell Phone:** Click here to enter text. _____

How will they be notified when a rain event causes runoff from the site:

Click here to enter text. _____

Subcontractors: Check all items for which subcontractors will be used and attach a list of all the subcontractor's company names:

- Gas Grading Sanitary sewers Concrete flatwork Concrete drainage structures
- Water Blasting Storm sewers Sediment controls
- Paving Electric Curb & gutter Seeding & mulching

Other (specify): Click here to enter text. _____

List All Additional subcontractors used on the project whose scope of work includes land disturbance activities (keep list updated throughout the project):

Contacts

Click here to enter text. _____
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Contact Phone Number

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Other Utilities and Contractors: List all other utility companies and contractors which will be doing work on the site with their own contractors involving land disturbance:

Contacts

Click here to enter text. _____
Click here to enter text. _____
Click here to enter text. _____
Click here to enter text. _____
Click here to enter text. _____

Contact Phone Number

Click here to enter text. _____
Click here to enter text. _____
Click here to enter text. _____
Click here to enter text. _____
Click here to enter text. _____

Important Recorded Dates: To be filled in during construction activities:

Completed SWPPP approval: _____
Groundbreaking activities begin: _____
Construction temporarily or permanently ceased: _____
Stabilization measures initiated: _____
Permanent stabilization achieved: _____

Sequence of Construction: The General Contractor must complete the following intended construction sequence and timing for major activities, including any opportunities for phasing, grading and stabilization activities to minimize the overall amount of disturbed soil that will be subject to potential erosion at one time.

Phase

BMP's & Stabilization Methods

1. Click here to enter text. _____
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PART IV: GENERAL REQUIREMENTS

(To be understood and implemented by GENERAL CONTRACTOR)

- 1) Discharges must not cause violations of the Water Quality Standards 10 CST 20-7.031(3), which state, in part, that no water contaminant, by itself or in combination with other substances, will prevent the waters of the state from meeting the following conditions:
 - a) Waters must be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - b) Waters must be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - c) Waters must be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - d) Waters must be free from substances or conditions in sufficient amounts to have a harmful effect on human, animal or aquatic life;
 - e) There must be no significant human health hazard from incidental contact with the water;
 - f) There must be no acute toxicity to livestock or wildlife watering;
 - g) Waters must be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - h) Waters must be free from used tires, car bodies, appliances, demolition debris, used vehicles, or equipment and solid waste as defined in Missouri's Solid Waste Law, Section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to Section 260.200-260.247.
- 2) The contractor must designate an individual to be responsible for environmental matters (See Part III). The individual responsible for environmental matters must have a thorough and demonstrable knowledge of the site's SWPPP, City's Land Disturbance Permit (See Appendix C), and sediment and erosion control practices in general. The individual responsible for environmental matters or a designated inspector must be knowledgeable in erosion, sediment, and storm water control principles, must inspect all structures that function to prevent pollution of waters of the state.
- 3) The contractor must store all paint, solvents, petroleum products and petroleum waste products, and storage containers (such as drums, cans, or cartons) according to best management practices (BMPs). The materials exposed to precipitation must be stored in watertight, structurally sound, closed containers. All containers must be inspected for leaks or spillage during the once per week inspection of BMP's.
- 4) The contractor must retain a current copy of the SWPPP at an easily accessible location so that it can be made available at the time of an on-site inspection by Federal, State or Local regulatory agencies.
- 5) The contractor must post a copy of the public notification sign of the information board at the main entrance to the site. The public notification sign must contain:
 - a) The land disturbance permit number;
 - b) The name and phone number of individual responsible for environmental matters; and
 - c) The onsite location of the SWPPP and the hours that it is viewable to the public.

The public notification sign must remain posted at the site until the site has been fully stabilized.

- 6) The contractor must at all times maintain all pollution control measures and systems in good order to achieve compliance requirements of the SWPPP, as well as State and Federal Law.

PART V: BMP PERFORMANCE REQUIREMENTS

(To be Maintained by GENERAL CONTRACTOR)

- 1) Discharge to Valuable Resources Waters: Storm water discharges as described in 1.a., 1.b. and 1.c. below must be considered discharges to “valuable resource waters”. For the purpose of this SWPPP, the term “stream feet” will mean the distance in feet following the nearest drainage channel from the land disturbance to the valuable resource water.
 - a) Storm water discharges within 1000 stream feet of Streams identified as a losing stream*.
 - i. Streams of lakes listed as an outstanding national or state resource water*;
 - ii. Reservoirs or lakes used for public drinking water supplies*;
 - iii. Streams, lakes or reservoirs identified as critical habitat for endangered species*, or
 - iv. Streams, lakes or reservoirs listed as impaired for sediment and/or an unknown pollutant by standard MDNR methodology.*
 - b) Storm water discharges:
 - i. Within 100 stream feet of a permanent stream (class P) or major reservoir (class 12), or
 - ii. Within 2 stream miles upstream of biocriteria reference locations*.
 - c) Storm water discharges where:
 - i. Any of the disturbed area is defined as a wetland (Class W), by 10 CSR 20-7.03(1)(F)7*;or
 - ii. The storm water discharges to a sinkhole or other direct conduit to groundwater.
 - iii. Total Settable Solids from a storm water outfall must not exceed 2.5 m/L/hr.
 - iv. If the disturbed area discharges to valuable resource water, Total Settable Solids must not exceed 0.5 ml/L/hr.

*Identified or described in 10 CSR 20, Chapter 7. These regulations are available at many libraries and may be purchased from MDNR by calling the Water Pollution Control Program at (573) 751-1300. The regulations are also available from the Missouri Secretary of State’s Office.

- 2) Disturbed Areas: Slopes for disturbed areas must be defined. A site map or maps, defining the sloped areas for all phases of the project, must be included in the SWPPP. **Where soil disturbing activities cease in an area for 14 days or more, the contractor must construct BMPs to establish temporary stabilization. Temporary stabilization must be completed with 7 calendar days. Temporary stabilization must consist of well-established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution. These BMPs may include a combination of sediment basins, check dams, sediment fences, and mulch. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 3:1 (3 feet horizontal to 1 foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the contractor must establish temporary stabilization within 7 days of ceasing operations on that part of the site. Delays in work caused by inclement weather or equipment malfunction are not considered “ceasing operations” for the purpose of this section, as long as work resumes as soon as possible. Final stabilization of the disturbed areas must be initiated immediately and completed within 7 calendar days whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site. Allowances to the 7 day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. The use of allowances shall be documented in the SWPPP.**
- 3) Installation: The contractor must ensure the BMPs are properly installed at the locations and relative times specified. Peripheral or border BMPs to control runoff from disturbed areas must be installed or marked for preservation before general site clearing is started. Storm water discharges from disturbed areas, which leave the site, must pass through an appropriate BMP prior to leaving the land disturbance site. A drainage course change must be clearly marked on a site map and described. The location of all BMPs must be indicated on a site map.
- 4) Sedimentation Basins: Sedimentation basins are required for each drainage area with 10 or more acres disturbed at one time. The sedimentation basin must be sized to contain a volume of at least 3600 cubic feet per each disturbed

acre draining into it. Accumulated sediment must be removed from the basin when the basin is 50 % full. When discharging from the basin and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible. Discharges from the basin must not cause scouring of the banks or bottom of the receiving stream. The basin must be maintained until final stabilization of the disturbed area served by the basin.

Where use of a sediment basin of this size is impractical, the contractor must evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment delivery. The BMPs must provide equivalent protection. The contractor must provide temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

- 5) **Dewatering:** Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods including the anticipated volume of water to be discharged and the anticipated maximum flow discharged from these dewatering activities expressed in gallons per minute. Maximum flow may be stated in the SWPPP as an estimate based on the type and capacity of equipment being used for dewatering. The SWPPP shall call for specific BMPs designed to treat water pumped from trenches and excavations and in no case shall this water be pumped off-site without being treated by the specified BMPs. When discharging from the basin and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

PART VI: ADDITIONAL REQUIREMENTS AND CONTROLS

(To be understood and implemented by the GENERAL CONTRACTOR)

- 1) The contractor must comply with all federal and state regulations regarding underground storage tanks, above ground storage tanks and dispensers of fueling facilities.
- 2) The contractor must manage hazardous wastes in accordance with the provisions of the Missouri Hazardous Waste Laws and Regulations. This includes hazardous wastes that are generated (by maintenance, cleaning, and repair activities), transported or stored on site.
- 3) **Materials Inventory:** Check items stored outside on the site during construction:
 - Pipe, Fittings, and joint compounds for utility piping
 - Gravel and stone bedding
 - Concrete forming materials
 - Other (specify): [Click here to enter text.](#) _____

(Note: fuels, oils and other petroleum products, forming oils and compounds, fertilizers, pesticides, or any other hazardous or toxic compounds must be stored according to best management practices.)

- 4) **Spill Prevention / Materials Management Practices:**
 - a) **Petroleum Products:** all vehicles kept on site will be monitored for leaks and should receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled. Any asphalt substances use on site will be applied according to the manufacturer's recommendations.
 - b) **Fueling and Servicing:** No fueling, servicing, maintenance, or repair of equipment or machinery may be done within 50 feet of a stream, or within 100 feet of a classified stream, losing stream or sinkhole. Fueling activities must be in compliance with all federal and state regulations regarding underground storage, above ground storage, and dispensers of fueling facilities.

- c) Track Out: a stabilized construction exit has been designated on the site plan. Only designated exits can be used for exit from the site. Where sediment is present on roadways, all storm water curb inlets must have inlet protection. Where storm water will flow off the end of where a roadway terminates, a sediment catching BMP (ex. Gravel bean, silt fence, etc.) must be provided. The General Contractor is responsible for keeping track out cleaned from adjoining streets on a daily basis, if needed.
- d) Concrete Trucks: concrete trucks will be allowed to wash out only in locations (designated on the site map) where discharge is contained and marked with appropriate signage.
- e) Disposal of Hazardous Materials: no fuels, oils, lubricants, solvents, or other hazardous materials can be disposed of on this site. All hazardous materials must be properly disposed of, in accordance with Missouri State Law.
- f) Solid Waste: The General Contractor is responsible for disposing of all solid waste from the site in accordance with Missouri State Law. Dumpsters or other collection facilities must be provided as needed. Solid waste may not be buried on site.
- g) Sanitary Waste: The General Contractor is responsible for providing sanitary facilities on the site. Sanitary waste may be disposed only in locations having a Missouri State permit.
- h) Other Discharges: Water for pressure testing sanitary sewers, flushing water lines, etc. may be discharged only in approved areas.

5) Air Emissions:

Dust Control: The General Contractor is required to control fugitive emissions from the site. Dust can be minimized by stabilizing areas with BMPs as soon as possible. Watering must be provided in unstabilized areas. Fugitive dust emissions are regulated by the Kansas City Health Department, Air Quality Program. Call (816) 513-6314 for guidance.

6) Hazardous Products:

The contractor must store all paint, solvents, petroleum products and petroleum waste products, and storage containers (such as drums, cans, or cartons) according to best management practices (BMPs). The materials exposed to precipitation must be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the once per week inspections of BMPs.

7) Spill Controls:

- a) The contractor's individual responsible for environmental matters will be the spill prevention and cleanup coordinator. The contractor must notify the City's designated individual responsible for environmental matters immediately of all spills that takes place during the construction project.
- b) Manufacturer's recommended methods for spill cleanup will be clearly posted, and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- c) Material and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include, but not be limited to: brooms, dust pans, mops, rags, gloves, kitty litter, san, sawdust, and plastic and metal trash containers (specifically for this purpose).
- d) All spills will be cleaned up immediately upon discovery.
- e) The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- f) The spill prevention procedures will include measures to prevent spills from re-occurring and how to clean up the spill if there is another one.

8) Additional Good Housekeeping Practices:

- a) An effort will be made to store only enough products to do the job.
- b) All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers; and if possible, under a roof or other enclosure.
- c) Whenever possible, all of a product will be used up before disposing of the containers in accordance with Missouri State Law.
- d) Manufacturer's recommendations for proper use and disposal will be followed.
- e) All paint containers will be tightly sealed and stored when not required for use. Excess paint will not be dumped into the storm sewer system, but will be properly disposed of in accordance with Missouri State Law.

PART VII: CERTIFICATION

(To be completed by ALL PARTIES)

Design Professional's Declaration:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Design Professional: Taliaferro & Browne, Inc. _____
By: Lamin Nyang, PE _____ Title: Design Professional _____
Date: _____, 2015 _____

City's Review:

I have reviewed this SWPPP for compliance with the requirements contained in the City's Missouri State Operating Permit for land disturbance activities and have found the plan complete prior to commencement of land disturbance activities.

Owner: Water Services Department _____
By: Alex Ivanescu _____ Title: Project Manager _____
Date: _____, 2015 _____

Note: The owner must designate an individual responsible for environmental matters who has primary responsibility for ensuring compliance with the Storm Water Pollution Prevention Plan (SWPPP) during construction.

City's Individual Responsible for Environmental Matters: Denise Burkett, PE _____
Phone: 816-513-0413 _____ Fax: 816-513-0366 _____
Email: denise.burkett@kcmo.org _____ Cell Phone: 816-522-7165 _____

How will they be notified when a rain event causes runoff from the site:

Contact Denise Burkett at 816-522-7165 and confirm with email

General Contractor's Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

General Contractor: Click here to enter text. _____
By: Click here to enter text. _____ Title: Click here to enter text. _____
Date: Click here to enter text. _____

Subcontractors Certification:

I hereby certify that I understand the requirements stated in this SWPPP, that I am responsible for completing the requirements, which have been listed in the plan as being a part of my scope of work.

Subcontractor: Click here to enter text. _____

By: Click here to enter text. _____ Title: Click here to enter text. _____

Date: Click here to enter text. _____

Subcontractor: Click here to enter text. _____

By: Click here to enter text. _____ Title: Click here to enter text. _____

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Subcontractor: Click here to enter text. _____

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SITE INSPECTION REPORTS

(To be completed by CONTRACTOR)

Site Inspection Reports: Regularly scheduled inspections must be at a minimum once per seven calendar days. These inspections must be conducted by the person responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures must be inspected for proper installation, operation and maintenance. All storm water outfalls must be inspected for proper installation, operation and maintenance. All storm water outfalls must be inspected for evidence of erosion or sediment deposition. The receiving stream must also be inspected for 50 feet downstream of the outfall. Any problems must be noted in an inspection report and corrected within seven calendar days of the inspection. If a rainfall causes storm water runoff to occur on site, the BMPs must be inspected within a reasonable time period (not to exceed 48 hours). If weather conditions make it impossible to correct the problem within seven days, a detailed report of the problem (including pictures), must be filed with the regular inspection reports. The contractor must correct BMP malfunctions as soon as weather conditions allow. Parts of the site that have been finally stabilized may be inspected once per month. A log of each inspection must be kept. The Inspection report is to include the following minimum information: inspector's name, date of inspection, observations relative to the effectiveness of the BMPs, actions taken or necessary to correct problems, and a listing of areas where land disturbance operations have permanently or temporarily stopped. The inspection report must be signed by the person responsible for environmental matters or by the person performing the inspection, if duly authorized to do so.

Include copies of all site inspection reports at the end of the SWPPP document: Appendix D (See sample Inspection Report)

****REMINDER****

- 1) The SWPP must remain on-site until the site has been closed out.
- 2) A copy of the permit needs to be attached to the SWPPP (See Appendix C).
- 3) Any update or modification to reflect change at the site effecting discharge, or where inspections identify SWPPP/BMPs as ineffective, needs to be attached to the SWPPP (See Appendix E).
- 4) Any additional federal, state, or local permits need to be attached to the SWPPP (See Appendix F).
- 5) The SWPPP, as well as all supporting documentation (permits, inspection reports, and addendums to the SWPPP, location maps, and site plan), must be retained for three (3) years.
- 6) SWPPPs are dynamic documents, which can be changed during the construction process. The goal of SWPPPs is to keep sediment on project sites and assure water quality standards. If BMPs or procedures are not attaining this goal, then the SWPPP should be changed or updated in order to better address specific conditions.
- 7) Total Settleable Solids from a storm water outfall exceeding 2.5 mg/L/hr (or 0.5 mg/L/hr if discharged to valuable resource water) may allow MDNR to determine a violation of the Water Quality Standards may occur or has occurred.
- 8) The contractor must post a copy of the public notification sign, including the permit number, on the information board at the main entrance to the site. The public notification sign must remain posted at the site until the site has been finally stabilized.

SWPPP APPENDICES

Attach the following documents to the SWPPP.

APPENDIX A – GENERAL LOCATION MAP

APPENDIX B – SITE MAPS

APPENDIX C – CITY’S LAND DISTURBANCE PERMIT

APPENDIX D – INSPECTION REPORTS

APPENDIX E – SWPPP UPDATE AND MODIFICATION LOG

APPENDIX F – ADDITIONAL INFORMATION

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APPENDIX A – GENERAL LOCATION MAP



WATER MAIN REPLACEMENT IN THE AREA OF ELMWOOD TO BLUE RIDGE CUTOFF 47TH STREET TO 57TH STREET KANSAS CITY, JACKSON COUNTY, MISSOURI CONTRACT NO. 9029 PROJECT NUMBER 80001820

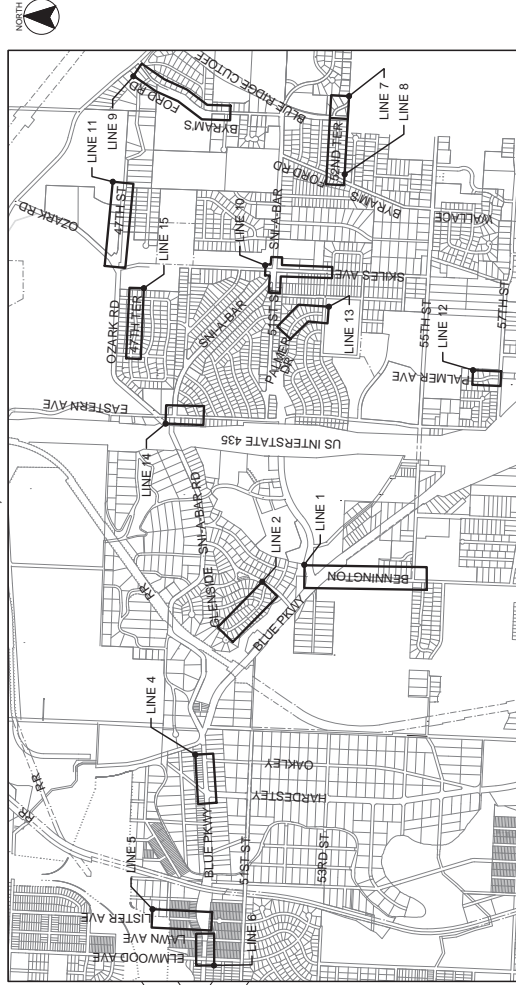


UTILITY CONTACTS

- AT&T1-800-246-8484
- CHRYSLER FINANCIAL GROUP1-800-854-4572
- COCA-COLA1-800-854-4572
- KCMO PARKS & RECREATION816-413-7500
- KCMO PUBLIC WORKS DEPARTMENT816-513-6471
- STREET LIGHTING BLACK & MCDONALD816-493-0257
- (AFTER HOURS)816-404-8093
- KCMO WATER SERVICES DEPARTMENT816-513-1510
- POLLUTION CONTROL816-513-1313
- (AFTER HOURS)816-513-8417
- FACILITIES ENGINEERING816-513-0384
- WATER MAIN ENGINEERING816-513-0384
- K.C.P. & COMPANY1-888-544-4852
- LEVEL 31-877-2-LEVEL3
- MAGELLAN MIDSTREAM PARTNERS LP1-800-720-2417
- MISSOURI DEPT OF TRANSPORTATION1-888-755-6636
- MISSOURI ONE CALL1-800-344-7463
- SURETIES913-825-3000
- TELEPHONE CABLE1-800-529-0420
- (TV) TELECOM LEVEL 31-800-529-0420
- UNITED PRIVATE NETWORKS866-883-4287
- VEolia ENERGY (TRIGEN)816-889-4850
- WASTE MANAGEMENT816-889-4850
- ZAYO1-866-238-2824



1 - 800 - 344 - 7483
1 - 800 - (DIG-RITE)
(811)



LOCATION MAP
NOT TO SCALE
[Symbol] DENOTES AREA OF WORK

DRAWING INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	GENERAL NOTES, LEGEND AND SERVICE CONNECTION DETAILS
3	GENERAL LAYOUT NORTHWEST SHEETS 1 OF 4
4	GENERAL LAYOUT NORTHWEST SHEETS 2 OF 4
5	GENERAL LAYOUT NORTHWEST SHEETS 3 OF 4
6	GENERAL LAYOUT NORTHWEST SHEETS 4 OF 4
7	PROJECT SURVEY DATA SHEET 1 OF 2
8	PROJECT SURVEY DATA SHEET 2 OF 2
9	LINE 1 PLAN & PROFILE STA. 1+00 TO STA. 5+20
10	LINE 1 PLAN & PROFILE STA. 1+00 TO STA. 5+20
11	LINE 1 PLAN & PROFILE STA. 1+00 TO STA. 5+20
12	LINE 1 PLAN & PROFILE STA. 13+70 TO STA. 16+73
13	LINE 2 PLAN & PROFILE STA. 1+00 TO STA. 5+20
14	LINE 2 PLAN & PROFILE STA. 5+20 TO STA. 9+20
15	LINE 3 PLAN & PROFILE STA. 1+00 TO STA. 5+20
16	LINE 4 PLAN & PROFILE STA. 1+00 TO STA. 5+20
17	LINE 4 PLAN & PROFILE STA. 5+20 TO STA. 9+28
18	LINE 5 PLAN & PROFILE STA. 1+00 TO STA. 5+20
19	LINE 5 PLAN & PROFILE STA. 5+20 TO STA. 6+71
20	LINE 6 PLAN & PROFILE STA. 1+00 TO STA. 5+20
21	LINE 6 PLAN & PROFILE STA. 5+20 TO STA. 9+28
22	LINE 7 PLAN & PROFILE STA. 10+28 TO STA. 11+49
23	LINE 8 PLAN & PROFILE STA. 1+00 TO STA. 5+20
24	LINE 8 PLAN & PROFILE STA. 5+20 TO STA. 9+20
25	LINE 9 PLAN & PROFILE STA. 1+00 TO STA. 5+20
26	LINE 9 PLAN & PROFILE STA. 5+20 TO STA. 9+45
27	LINE 9 PLAN & PROFILE STA. 9+45 TO STA. 14+00
28	LINE 9 PLAN & PROFILE STA. 14+00 TO STA. 14+45
29	LINE 10 PLAN & PROFILE STA. 1+00 TO STA. 5+20
30	LINE 10 PLAN & PROFILE STA. 5+20 TO STA. 9+40
31	LINE 10 PLAN & PROFILE STA. 9+40 TO STA. 9+40
32	LINE 10 PLAN & PROFILE STA. 9+40 TO STA. 11+23
33	LINE 10 PLAN & PROFILE STA. 1+00 TO STA. 5+20
34	LINE 10 PLAN & PROFILE STA. 5+20 TO STA. 9+57
35	LINE 10 PLAN & PROFILE STA. 9+57 TO STA. 9+57
36	LINE 11 PLAN & PROFILE STA. 5+20 TO STA. 9+50
37	LINE 11 PLAN & PROFILE STA. 9+50 TO STA. 9+50
38	LINE 11 PLAN & PROFILE STA. 13+70 TO STA. 15+85
39	LINE 12 PLAN & PROFILE STA. 1+00 TO STA. 5+20
40	LINE 13 PLAN & PROFILE STA. 1+00 TO STA. 5+20
41	LINE 13 PLAN & PROFILE STA. 5+20 TO STA. 5+27
42	LINE 14 PLAN & PROFILE STA. 1+00 TO STA. 4+00
43	LINE 14 PLAN & PROFILE STA. 4+00 TO STA. 5+32
44	LINE 15 PLAN & PROFILE STA. 1+00 TO STA. 9+40
45	LINE 15 PLAN & PROFILE STA. 5+40 TO STA. 9+40
46	LINE 15 PLAN & PROFILE STA. 9+40 TO STA. 11+08

APPROVED BY: ANDY SHIVELY, P.E. ENGINEERING OFFICER DATE: _____
FOR TERRY LEEDS, DIRECTOR, WATER SERVICES DEPARTMENT

COVER SHEET

KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT
**WATER MAIN REPLACEMENT
IN THE AREA OF
ELMWOOD TO BLUE RIDGE CUTOFF,
47TH ST. TO 57TH ST.
KANSAS CITY, JACKSON COUNTY, MISSOURI**

DRAWN BY: _____	CHECKED BY: _____	DATE SUBMITTED: _____	RANGE: _____	TOWNSHIP: _____	SECTION: _____
CONTRACTOR: _____	DATE COMPLETED: _____				
CONTRACT NO.: _____	CONTRACT DATE: _____	MAP NO.: _____	WORK ORDER NO.: _____	DRAWING NO.: _____	D-30223
PROJECT NO.: _____	PROJECT DATE: _____	PROJECT NO.: _____			

SHEET 1 OF 46

100% CONSTRUCTION DOCUMENTS
PRELIMINARY NOT FOR CONSTRUCTION

Taliaferro & Browne, Inc.
Civil / Structural Engineering,
Landscape Architecture & Surveying
100E. 98th STREET, SUITE 41006
KANSAS CITY, MISSOURI 64114
PH: (816) 283-3456 FAX: (816) 283-0810



I & B Project No. 29-0610		File Name: _____	
DESIGNED BY: LBN	RS	DATE OF ORIGINAL ISSUE: 24 DECEMBER 2014	
CHECKED BY: BMM			
<p>THE PROFESSIONAL WHOSE NAME AND PERSONAL SEAL APPEAR ON THIS SHEET ASSUME RESPONSIBILITY FOR THE ACCURACY OF ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR STATEMENTS OF FACTS AND FOR THE CORRECTNESS OF ALL DIMENSIONS, DIMENSIONS, DIMENSIONS OR DIMENSIONS TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SIZE RELATES.</p>			
MAR 06, 2015	2	1	1
DEC 23, 2014	35X CONSTRUCTION DOCUMENTS	35X CONSTRUCTION DOCUMENTS	REVISIONS AND RECORD OF ISSUE
DATE	NO. BY	NO. BY	NO. BY

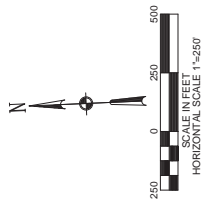
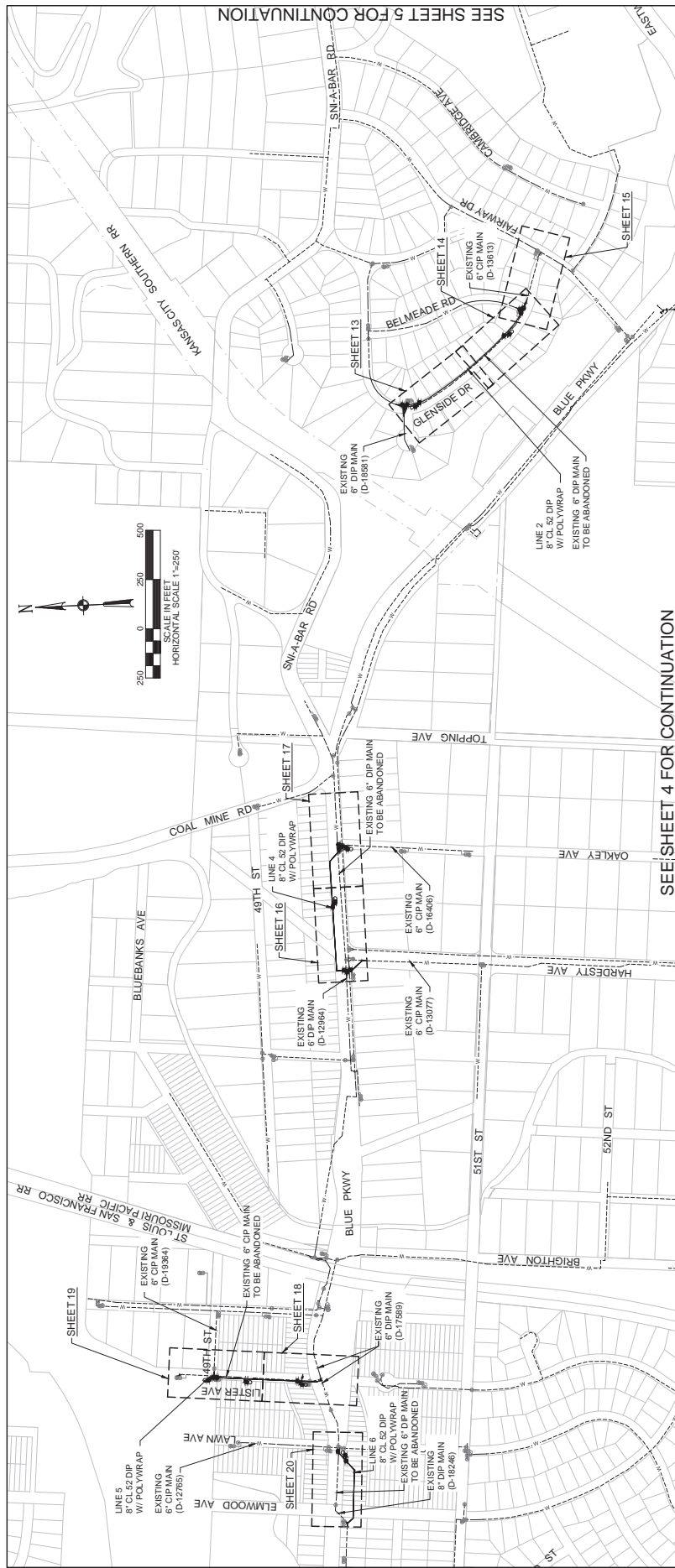
NAME	BENCHMARK DESCRIPTION	ELEVATION
CITY OF KANSAS CITY BM 2012	SW CORNER OF LINWOOD BLVD. AND CARBONEL SQUARE AT THE CORNER HEADWALL NEAR 2121 LINWOOD BLVD.	977.63
TBM 'A'	SE CORNER BOTTOM GRANITE STONE SIDEWALK WEST SIDE BUILDING 65160 THE PASSEO	989.18

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APPENDIX B – SITE MAPS

Attach site maps. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site. These maps should include the following:

- **Direction of stormwater flow and approximate slopes before and after major grading activities;**
- **Areas at timing of soil disturbance;**
- **Areas that will not be disturbed;**
- **Natural features to be preserved;**
- **Location of major structural and non-structural BMPs identifiers in the SWPPP;**
- **Location and timing of stabilization measures;**
- **Location of off-site materials, waste, borrow, or equipment storage;**
- **Location of all waters of the United States, including wetlands;**
- **Locations where stormwater discharges to a surface water;**
- **Locations of storm drain inlets; and**
- **Area where final stabilization has been accomplished.**

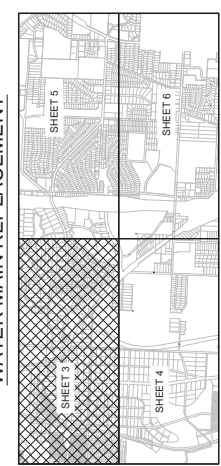


SEE SHEET 5 FOR CONTINUATION

SEE SHEET 4 FOR CONTINUATION

GENERAL LAYOUT NORTHWEST

WATER MAIN REPLACEMENT



KEY PLAN

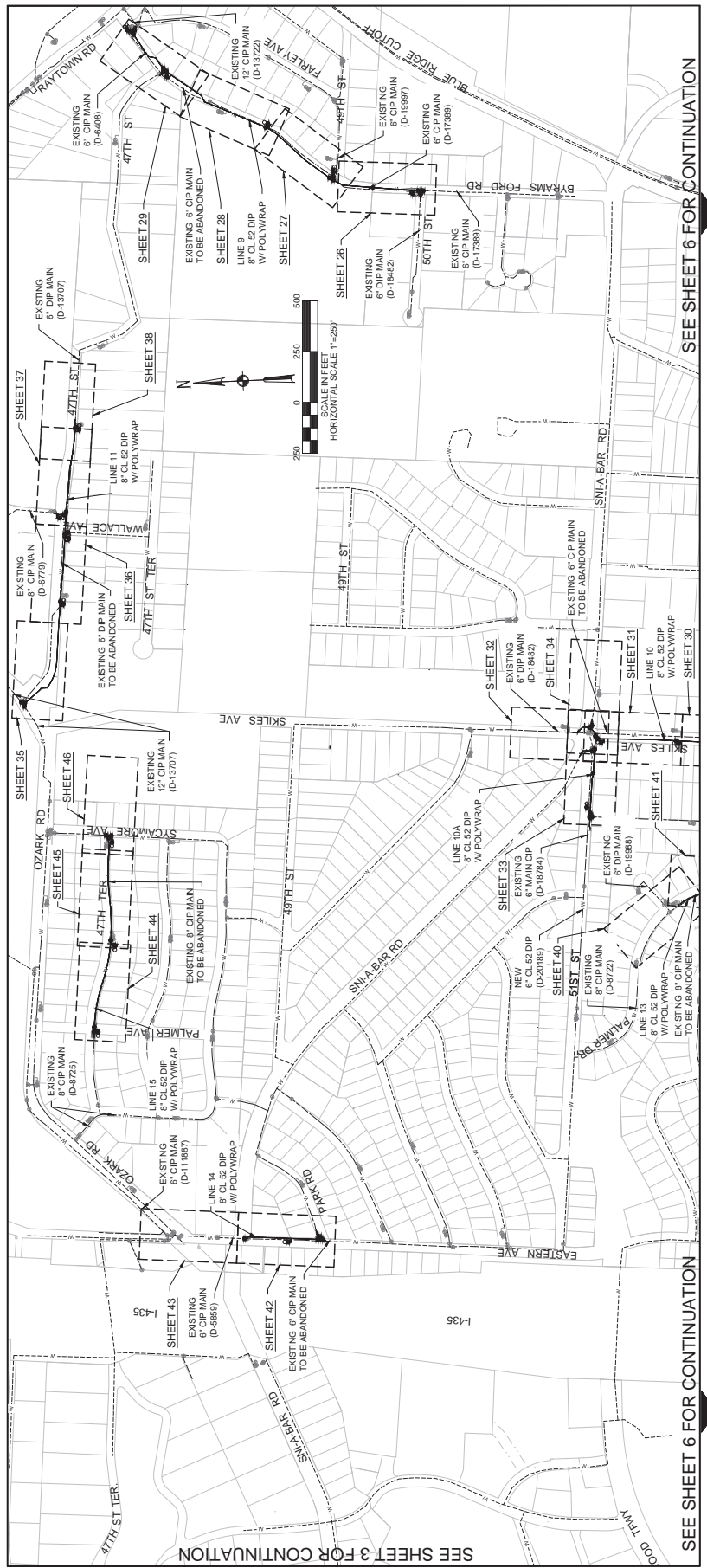
NOTE:
1. SEE GENERAL NOTES 8, 9, 1 & 2 OF SHEET 7 REGARDING THE LOCATION OF EXISTING UTILITIES AND THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL UTILITIES.

KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT WATER MAIN REPLACEMENT IN THE AREA OF ELMWOOD TO BLUE RIDGE CUTOFF, 47TH ST. TO 57TH ST. KANSAS CITY, JACKSON COUNTY, MISSOURI		GENERAL LAYOUT NORTHWEST SHEET 1 OF 4	
DRAWN BY: [blank] CHECKED BY: [blank]	DESIGNED BY: [blank] CHECKED BY: [blank]	DATE SUBMITTED: [blank] DATE COMPLETED: [blank]	TOWNSHIP: [blank] SECTION: [blank]
CONTRACT NO.: [blank] CONTRACT DATE: [blank]	MAP NO.: [blank] WORK ORDER NO.: [blank]	DRAWING NO.: [blank] DATE: [blank]	SHEET 3 OF 46
PROJECT NO.: 00001620		100% CONSTRUCTION DOCUMENTS PRELIMINARY NOT FOR CONSTRUCTION	

Taliaferro & Browne, Inc.
 Civil/Structural Engineering,
 Landscape Architecture & Surveying

1000 E. 98th STREET
 KANSAS CITY, MISSOURI 64106
 PH: (816) 283-4456 FAX: (816) 283-0810

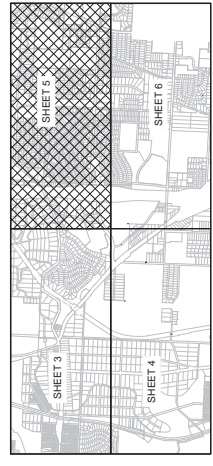
I & B Project No. 25-0610		File Name: 24 DECEMBER 2014
DESIGNED BY: LBN CHECKED BY: BAW	DATE OF ORIGINAL ISSUE: 24 DECEMBER 2014	
2 LAYOUTS 1 LAYOUTS 35% CONSTRUCTION DOCUMENTS REVISIONS AND RECORD OF ISSUE	THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR STATEMENTS OF WORK PREPARED BY HIMSELF OR HIS EMPLOYEES OR SUBCONTRACTORS IN CONNECTION WITH THIS PROJECT TO WHICH THIS SEAL APPLIES. NO. BY: CK/MP	



SEE SHEET 6 FOR CONTINUATION

SEE SHEET 3 FOR CONTINUATION

GENERAL LAYOUT NORTHEAST



WATER MAIN REPLACEMENT

NOTE:
1. SEE GENERAL NOTES 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 REGARDING THE LOCATION OF EXISTING UTILITIES AND THE CONTRACTORS RESPONSIBILITY TO FIELD LOCATE ALL UTILITIES.

PROFESSIONAL ENGINEER SEAL

KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT

**WATER MAIN REPLACEMENT
IN THE AREA OF
ELMWOOD TO BLUE RIDGE CUTOFF,
47TH ST. TO 57TH ST.**

KANSAS CITY, JACKSON COUNTY, MISSOURI

GENERAL LAYOUT NORTHEAST
SHEET 3 OF 4

DRAWN BY	CHECKED BY	DATE SUBMITTED	RANGE	TOWNSHIP	SECTION
LSB	LSB				
CONTRACTOR	DATE COMPLETED				
CONTRACT NO.	CONTRACT DATE	MAP NO.	WORK ORDER NO.	DRAWING NO.	
2014-0023	03/23/2014			D-20223	
PROJECT NO.					
00001020					

100% CONSTRUCTION DOCUMENTS

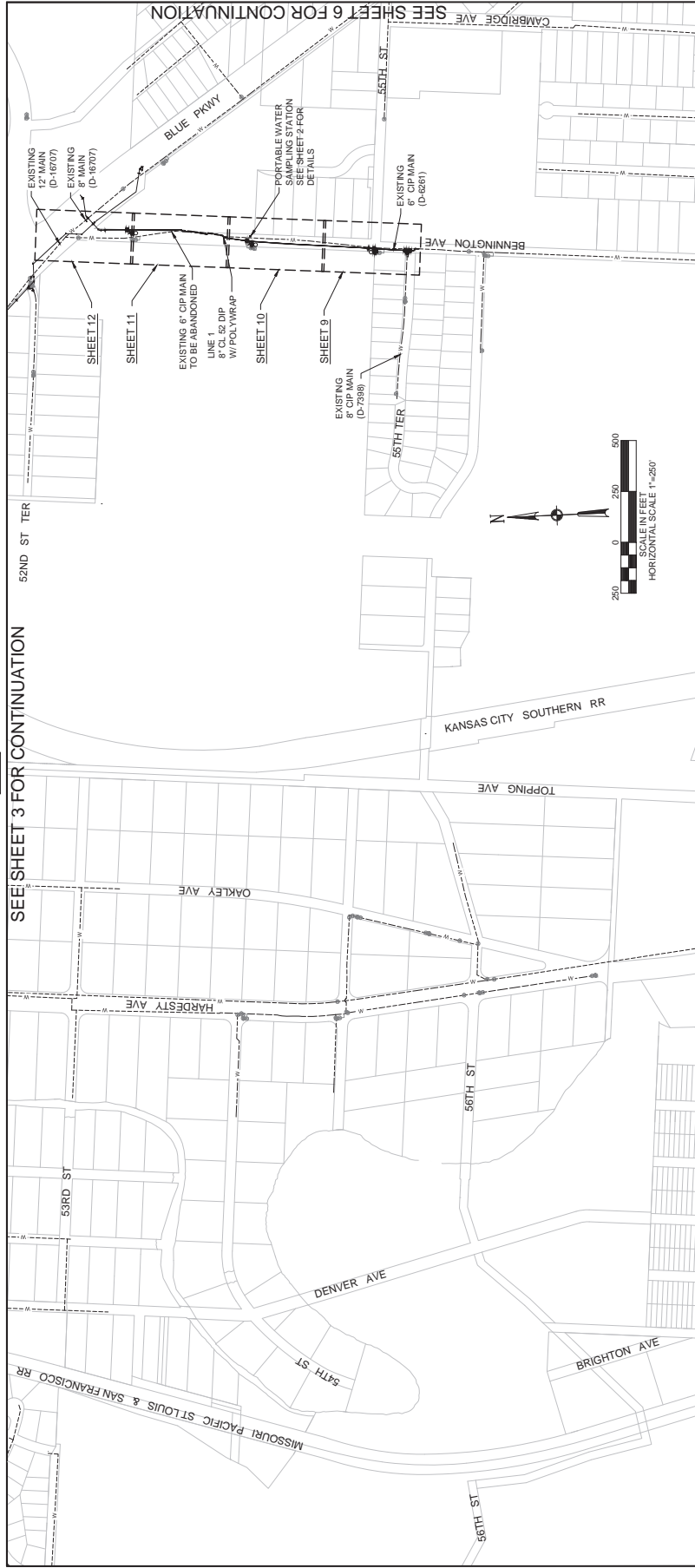
PRELIMINARY NOT FOR CONSTRUCTION

Taliaferro & Browne, Inc.
Civil/Structural Engineering,
Landscape Architecture & Surveying

1000 E. 98th STREET
KANSAS CITY, MISSOURI 64116
PH (816) 283-4456 FAX (816) 283-0810

I & B Project No.		File Name:
25-0610	RS	DATE OF ORIGINAL ISSUE: 24 DECEMBER 2014
DESIGNED BY: LSB	RS	CHECKED BY: BAW
DATE: MAR 06, 2015		NO. BY: CS (HP)
DATE: DEC 23, 2014		
DATE:		

THE PROFESSIONAL ENGINEER SEAL APPEARS ON THIS SHEET AS A REQUIREMENT FOR THE PROJECT TO BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS ISSUED. THE USER ASSUMES ALL LIABILITY FOR ANY ERRORS OR OMISSIONS IN ANY OTHER PARTS OF THE PROJECT TO WHICH THIS SEAL REFERS.



GENERAL LAYOUT SOUTHWEST

NOTE:
1. SEE GENERAL NOTES 8, 21 & 22 ON SHEET 2 REGARDING THE LOCATION OF EXISTING UTILITIES AND THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL UTILITIES.

KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT
WATER MAIN REPLACEMENT
IN THE AREA OF
ELMWOOD TO BLUE RIDGE CUTOFF,
47TH ST. TO 57TH ST.
KANSAS CITY, JACKSON COUNTY, MISSOURI

GENERAL LAYOUT SOUTHWEST
SHEET 2 OF 4

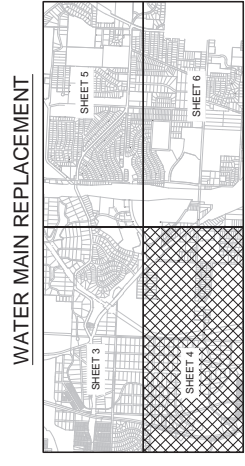
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LSB	LSB				
CONTRACTOR	DATE COMPLETED				
CONTRACT NO.	CONTRACT DATE	MAP NO.	WORK ORDER NO.	DRAWING NO.	
25741	02/23/14	0023	0023	D-20223	
PROJECT NO.				SHEET	4 OF 46
00001620					

FOR 860 USE

100% CONSTRUCTION DOCUMENTS

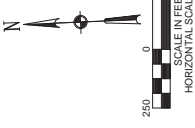
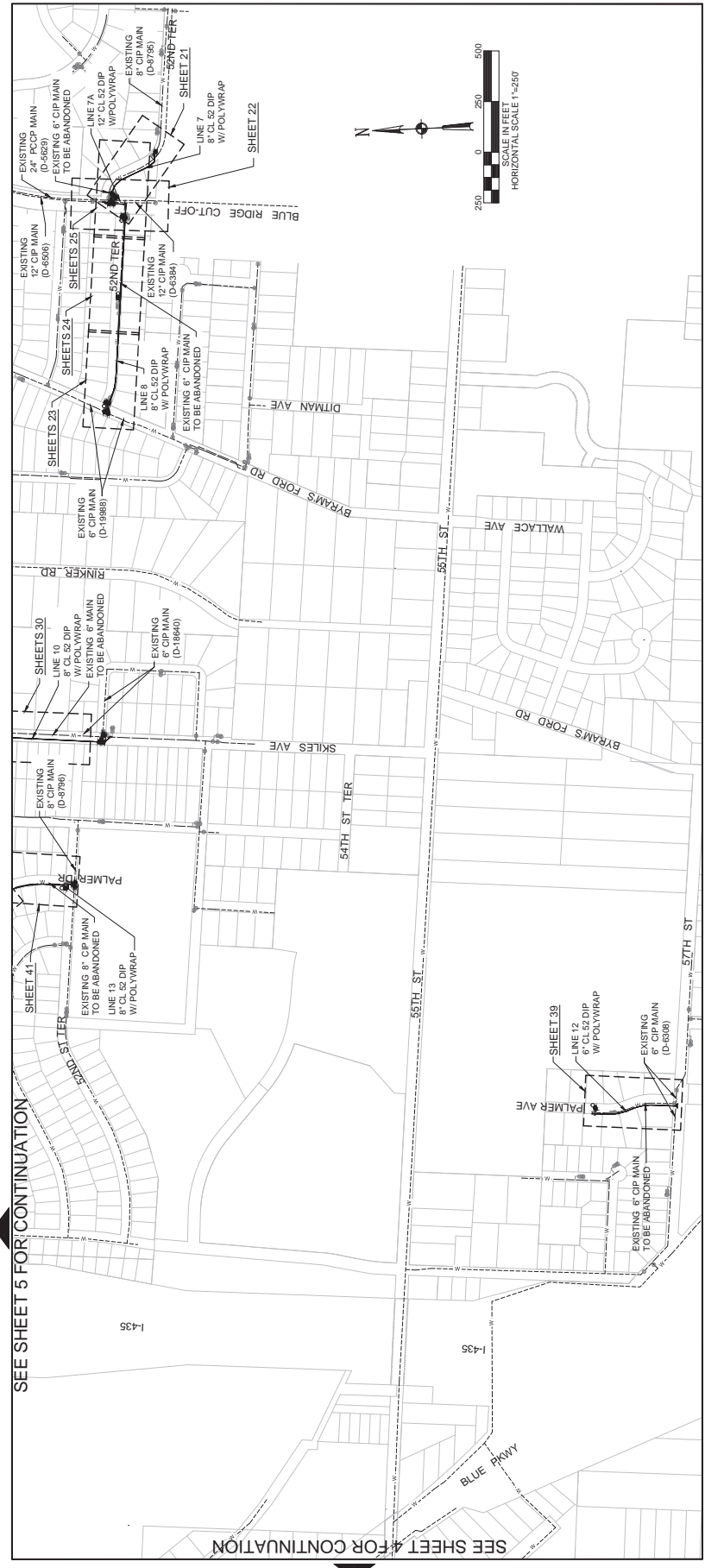
PRELIMINARY NOT FOR CONSTRUCTION

Taliaferro & Browne, Inc.
Civil/Structural Engineering, Landscape Architecture & Surveying
1000 E. 98th STREET #4106
KANSAS CITY, MISSOURI 64116
PH (816) 283-3456 FAX (816) 283-0810



KEY PLAN

I & B Project No.		File Name:
75-0610		
DESIGNED BY: LSB	RS	DATE OF ORIGINAL ISSUE: 24 DECEMBER 2014
CHECKED BY: BAW		
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2 LAYOUTS	50% CONSTRUCTION DOCUMENTS	
1 LAYOUT	35% CONSTRUCTION DOCUMENTS	
NO. BY	DATE	
LSB	MAR 06, 2015	
LSB	FEB 23, 2014	
LSB		

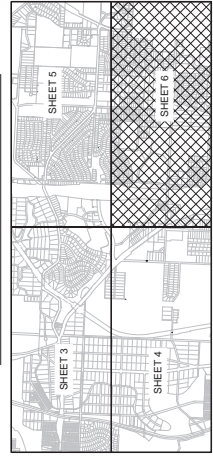


SEE SHEET 5 FOR CONTINUATION

SEE SHEET 4 FOR CONTINUATION

GENERAL LAYOUT SOUTHEAST

WATER MAIN REPLACEMENT



KEY PLAN

NOTE:
1. SEE GENERAL NOTES 8, 21 & 22 ON SHEET 2 REGARDING THE LOCATION OF EXISTING UTILITIES AND THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL UTILITIES.

PROFESSIONAL ENGINEER SEAL

KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT
**WATER MAIN REPLACEMENT
 IN THE AREA OF
 ELMWOOD TO BLUE RIDGE CUTOFF,
 47TH ST. TO 57TH ST.**
 KANSAS CITY, JACKSON COUNTY, MISSOURI

100% CONSTRUCTION DOCUMENTS
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DATE	BY	REVISION	DATE	ISSUED TO	SECTION

CONTRACT NO.	CONTRACT DATE	MAP NO.	WORK ORDER NO.	DRAWING NO.
PROJECT NO.				

Taliaferro & Browne, Inc.
 Civil/Structural Engineering,
 Landscape Architecture & Surveying
 1000 E. 98th STREET #4106
 KANSAS CITY, MISSOURI 64116
 PH: (816) 283-4356 FAX: (816) 283-0810

I & B Project No.		File Name:	
DESIGNED BY: LBN	RS	DATE OF ORIGINAL ISSUE:	24 DECEMBER 2014
CHECKED BY: BMJ			

DATE	DESCRIPTION AND RECORD OF ISSUE
MAR 06, 2015	50% CONSTRUCTION DOCUMENTS
DEC 23, 2014	35% CONSTRUCTION DOCUMENTS

THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY FOR THE ACCURACY OF ALL OTHER DATA, INCLUDING ESTIMATES, SURVEY OR TEST DATA, AND FOR THE PROPER DESIGN AND CONSTRUCTION OF THE PROJECT TO WHICH THIS SEAL APPLIES.

NO. BY: CK/DP

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APPENDIX C – CITY’S LAND DISTURBANCE PERMIT

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

General Operating Permit

In compliance with the Missouri Clean Water Law, (chapter 644 R.S. Mo as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended.

Permit No: MOR100006
Owner: City of Kansas City
Address: 4800 East 63rd Street
Kansas City, MO 64130

Continuing Authority: City of Kansas City
4800 E 63rd Street
Kansas City, MO 64130

Facility Name: Kansas City Erosion Control
Facility Address: Various
KANSAS CITY, MO 64106

Legal Description: Sec. 5, T49N, R33W, Jackson County
UTM Coordinates: 363553.900/4329062.600
Receiving Stream: Various (U)
First Classified Stream - ID#: Missouri R. (P) 356.00
USGS# and Sub Watershed#: 10270104 - 0607

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

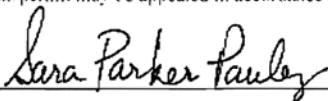
FACILITY DESCRIPTION All Outfalls SIC #1629

All Outfalls - Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading and other activity that results in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution of waters of the state)

This permit authorizes only wastewater, including storm water, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System, it does not apply to other regulated areas. This permit may be appealed in accordance with RSMo Section 644.051.6 and 621.250, 10 CSR 20-6.020, and 10 CSR 20-1.020.

May 31, 2012

Issue Date


Sara Parker Pauley, Director
Department of Natural Resources

May 30, 2017

Expiration Date


John Madras
Director, Water Protection Program

A. APPLICABILITY

1. This general permit authorizes the discharge of stormwater and certain non-stormwater discharges from land disturbance sites that disturb one or more acres of land or disturb less than one acre when part of a larger common plan of development or sale that will disturb a cumulative total of one or more acres over the life of the project.

This general permit also authorizes the discharge of stormwater and certain non-stormwater discharges from smaller projects where the Missouri Department of Natural Resources (Department) has exercised its discretion to require a permit [10 CSR 20-6.200 (1)(B)].

This general permit is issued to a city, county, state or federal agency or other governmental jurisdiction for land disturbance projects performed by or under contract to the permittee. A stormwater control plan or stormwater pollution prevention plan (SWPPP) must be developed prior to issuance of this permit. These plans must include a narrative of the types and appropriate uses of Best Management Practices (BMPs) for erosion and sediment control and stormwater management.

All water pollution controls on land disturbance sites shall conform to the storm water control program and/or SWPPP of the city, county or other governmental jurisdiction in which the land disturbance activity is occurring. These storm water control programs and/or SWPPPs shall be developed prior to permit issuance. The requirements of the stormwater control program and/or SWPPP must be at least as stringent as those described in this permit and 10 CSR 20-6.200. If the permittee is a regulated municipal separate stormwater system (MS4), the stormwater program and/or SWPPP must comply with the permittee's MS4 permit. The Department may enforce the requirements of the stormwater program and/or SWPPP.

All projects covered under this permit must also be identified as part of the Missouri State Operating Permit covered area and must have a SWPPP developed specific to the project site. The site specific SWPPP shall be developed prior to removal of any vegetation or site disturbance. This SWPPP must contain all the SWPPP requirements of this permit.

Any site owner/operator subject to these requirements for stormwater discharges and who disturbs land *prior* to permit issuance from the Department or prior to the development of the SWPPP is in violation of both State and Federal Laws.

The legal owner of the property, the right-of-way or the easement on which the site is located and the operator are responsible for compliance with this permit.

2. This permit authorizes discharges from construction support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided that appropriate stormwater controls are designed, installed, maintained and provided:
 - a. The support activity is directly related to the construction site required to have permit coverage for stormwater discharges;
 - b. The support activity is not a commercial operation; and
 - c. The support activity does not continue to operate beyond the completion of the construction activity at the project it supports.

It is the permittee that is responsible for compliance with this permit for any construction support activities.

3. This permit authorizes non-stormwater discharges from the following activities provided that these discharges are addressed in the SWPPP required by this general permit:
 - a. De-watering activities if there are no contaminants other than sediment present in the discharge, and the discharge is treated as specified in Requirements, Section C.10.1. of this permit;
 - b. Flushing water hydrants and potable water lines;
 - c. Water only (i.e., without detergents or additives) rinsing of streets and buildings; and
 - d. Site watering to establish vegetation.
4. This general permit does not authorize the placement of fill materials in flood plains, the obstruction of stream flow, directing stormwater across private property not owned or operated by the permittee, or changing the channel of a defined drainage course. This general permit addresses only the quality of the stormwater runoff and the minimization of off-site migration of sediments and other water contaminants.
5. This general permit does not authorize any discharge to waters of the state of sewage or pollutants including but not limited to:
 - a. Any hazardous material, oil, lubricant, solid waste or other non-naturally occurring substance from the site, including fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
 - b. Soaps or solvents used in vehicle and equipment washing;
 - c. Hazardous substances or petroleum products from an on-site spill or handling and disposal practices,
 - d. Wash and/or rinse waters from concrete mixing equipment including ready mix concrete trucks, unless managed by an appropriate control. Any such pollutants must be adequately treated and addressed in the SWPPP, and cannot be discharged to waters of the state;
 - e. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
 - f. Wastewater generated from air pollution control equipment or the containment of scrubber water in lined ponds;
 - g. Domestic wastewaters, including gray waters; or
 - h. Industrial stormwater runoff.
6. The Department reserves the right to revoke or deny coverage under this general permit to applicants for stormwater discharges from land disturbance activities at sites that have contaminated soils that will be disturbed by the land disturbance activity or where such materials are brought to the site to use as fill or borrow. A site-specific permit may be required to cover such activities.
7. If Department may require any person authorized by a general permit to apply for and obtain an individual operating permit [10 CSR 20-6.010 (13) (C)].

The Department may require the permittee to apply for and obtain a site-specific or different general permit if:

- a. The permittee is not in compliance with the conditions of this general permit;
- b. The discharge no longer qualifies for this general permit due to changed site conditions and/or regulations; or
- c. Information becomes available that indicates water quality standards have been or may be violated.

8. The permittee will be notified in writing of the requirement to apply for a site-specific permit or a different general permit. When a site-specific permit or different general permit is issued to the authorized permittee, the applicability of this general permit to the permittee is automatically terminated upon the effective date of the site specific or different general permit.
9. Any owner/operator authorized by a general permit may request to be excluded from the coverage of the general permit and apply for a site-specific permit [10 CSR 20-6.010 (13)(D)].
10. This permit does not authorize land disturbance activity in jurisdictional waters of the United States as defined by the Army Corps of Engineers, unless the permittee has obtained the required 404/401 permit. Land disturbance activities may not begin in the affected portions of the site until the required 404/401 permits have been obtained.
11. This permit does not supersede compliance with the Historic Preservation Act or the Endangered Species Act.
12. This permit does not supersede any requirement for obtaining project approval under an established local authority.
13. This permit is not transferable to other owners or operators.

B. EXEMPTIONS FROM PERMIT REQUIREMENTS

1. Facilities that discharge all stormwater runoff directly to a combined sewer system are exempt from stormwater permit requirements.
2. Land disturbance activity as described in [10 CSR 20-6.200 (1) (B)] and [10 CSR 20-6.010 (1) (B)] where water quality standards are not exceeded.
3. Linear, strip, or ribbon construction (as described in [10 CSR 20-6.200 (1) (B) 8]) where water quality standards are not exceeded.
4. Sites that disturb less than one acre of total land area as described in [10 CSR20-6.200 (1)(B)7], that are not part of a common plan or sale and that do not cause any violations of water quality standards, and are not otherwise designated by the Department as requiring a permit.
5. Agricultural stormwater discharges and irrigation return flows as described in [10CSR 20-6.200 (1) (B) 6].

C. REQUIREMENTS

These requirements do not supersede nor remove any requirement to comply with county or other local ordinances [10 CSR20-6.010(14) (D)]:

1. This permit is to ensure the design, the installation and the maintenance of effective erosion controls and sediment controls to minimize the discharge of pollutants. At minimum, such controls must be designed, installed and maintained to:
 - a. Control stormwater volume and velocity within the site to minimize soil erosion;
 - b. Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
 - c. Minimize the amount of soil exposed during construction activity;
 - d. Minimize the disturbance of steep slopes;

- e. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle size expected to be present on the site.;
 - f. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible; and
 - g. Minimize soil compaction and, unless infeasible, preserve topsoil.
2. The primary requirement of this permit is the development and implementation of a SWPPP which incorporates site specific practices to best minimize the soil exposure, soil erosion, and the discharge of pollutants. The permittee shall fully implement the provisions of the SWPPP required under this part as a condition of this general permit throughout the term of all land disturbance projects covered under this permit.
 3. The permittee must inspect all land disturbance sites as described in C.13 of this permit.
 4. The permittee shall provide a list of active land disturbance sites to the Department on a quarterly basis. The list shall contain the name of the project, location (including the County), name of the primary receiving water(s) for each project, description of the project, number of acres disturbed, percent completion of the project and projected date of completion. The permittee shall submit quarterly reports each January, April, July and October. The Department must receive reports by the end of the specified month.
 5. The permittee is required to keep a current copy of the SWPPP at an easily accessible location so that it can be made available at the time of an onsite inspection by the Department or local agency approving stormwater management plans.

The SWPPP must:

- a. List and describe all outfalls or primary receiving water(s) for the project;
- b. Incorporate required practices identified below;
- c. Incorporate erosion control practices specific to site conditions;
- d. Provide for maintenance and adherence to the plan;
- e. Discuss whether or not a 404/401 Permit is required for the project; and
- f. Name the person responsible for inspection, operation and maintenance of BMPs.

The purpose of the SWPPP is to ensure; the design, implementation, management and maintenance of Best Management Practices (BMPs) in order to prevent sediment and other pollutants in stormwater discharges associated with the land disturbance activities; compliance with the Missouri Water Quality Standards; and compliance with the terms and conditions of this general permit.

The permittee shall select, install, use, operate and maintain appropriate BMPs for the permitted site. The following manuals are acceptable resources for the selection of appropriate BMPs.

Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Activities (Document number EPA 833-R-06-004) published by the United States Environmental Protection Agency (USEPA) in May 2007. This manual as well as other information, including examples of construction SWPPPs, is available at the USEPA internet site at <http://cfpub1.epa.gov/npdes/stormwater/swppp.cfm>; and

The latest version of *Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri*, published by the Missouri Department of Natural Resources. This manual is available on the Department's internet site at: <http://www.dnr.mo.gov/env/wpp/wpcp-guide.htm>.

The permittee is not limited to the use of these guidance manuals. Other guidance publications may be used to select appropriate BMPs. However, all BMPs should be described and justified in the SWPPP.

6. SWPPP Requirements: The following information and practices shall be provided for in the SWPPP:
 - a. Nature of the Construction Activity: The SWPPP briefly must describe the nature of the construction activity, including:
 - 1) The function of the project (e.g., low density residential, shopping mall, highway, etc.);
 - 2) The intended sequence and timing of activities that disturb the soils at the site;
 - 3) Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities including off-site borrow and fill areas; and
 - 4) A general map (e.g., United States Geological Survey quadrangle map, a portion of a city or county map, or other map) with enough detail to identify the location of the construction site and waters of the United States within one mile of the site.
 - b. Site Map: The SWPPP must contain a legible site map showing the site boundaries and outfalls and identifying:
 - 1) Direction(s) of stormwater flow and approximate slopes anticipated after grading activities;
 - 2) Areas of soil disturbance and areas that will not be disturbed (or a statement that all areas of the site will be disturbed unless otherwise noted);
 - 3) Location of major structural and non-structural BMPs identified in the SWPPP;
 - 4) Locations where stabilization practices are expected to occur;
 - 5) Locations of off-site material, waste, borrow or equipment storage areas;
 - 6) Locations of all waters of the United States (including wetlands);
 - 7) Locations where stormwater discharges to a surface water; and
 - 8) Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.
 - c. Site Description: In order to identify the site, the SWPPP shall include facility and receiving water(s) information. The SWPPP shall have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs.
 - d. Effluent Limits: The permittee must select control measurements (e.g., BMPs, controls, practices, etc.) to meet effluent limits found in Section E.1. of this permit. All control measures must be properly selected, installed and maintained in accordance with any relevant manufacturer specifications and good engineering practices to ensure stormwater outfall discharges do not cause water quality problems. The permittee must implement the control measures from commencement of the construction activity until final stabilization is complete unless the exception noted in Section C.6.i. of this permit applies.
 - e. Selection of Temporary and Permanent Non-Structural BMPs: The permittee shall select appropriate non-structural BMPs for use at the site and list them in the SWPPP. The SWPPP shall require existing vegetation to be preserved where practical. For surface waters located on or immediately adjacent to the site, the permittee must provide at minimum a 25-foot buffer of undisturbed natural vegetation between the disturbed portions of the site and the surface water unless infeasible or where there is a more stringent local requirement. The buffer is measured perpendicularly from the ordinary high water mark or the bank edge, whichever is further landward from the water. The time period for disturbed areas to be without vegetative cover is to be minimized to the maximum extent practicable. Examples of non-structural BMPs which the permittee should consider specifying in the SWPPP include preservation of trees and mature vegetation, protection of existing vegetation

for use as buffer strips, mulching, sodding, temporary seeding, final seeding, geotextiles, stabilization of disturbed areas, preserving existing stream channels as overflow areas when channel straightening or shortening is allowed, soil stabilizing emulsions and tackifiers, mulch tackifiers, stabilized site entrances/exits and other appropriate BMPs.

- f. Selection of Temporary and Permanent Structural BMPs: The permittee shall select appropriate structural BMPs for use at the site and list them in the SWPPP. Examples of structural BMPs that the permittee should consider specifying in the SWPPP include diverting flows from undisturbed areas away from disturbed areas, silt (filter fabric and/or straw bale) fences, earthen diversion dikes, drainage swales, sediment traps, rock check dams, subsurface drains (to gather or transport water for surface discharge elsewhere), pipe slope drains (to carry concentrated flow down a slope face), level spreaders (to distribute concentrated flow into sheet flow), storm drain inlet protection and outlet protection, reinforced soil retaining systems, gabions, temporary or permanent sediment basins and other appropriate BMPs.
- g. Description of BMPs: The SWPPP shall include a description of both structural and non-structural BMPs that will be used at the site.

The SWPPP shall provide the following general information for each BMP which will be used one or more times at the site:

- 1) Physical description of the BMP;
- 2) Site and physical conditions that must be met for effective use of the BMP;
- 3) BMP installation/construction procedures, including typical drawings; and
- 4) Operation and maintenance procedures for the BMP.

The SWPPP shall provide the following information for each specific instance where a BMP is to be installed:

- 1) Whether the BMP is temporary or permanent;
- 2) Where, in relation to other site features, the BMP is to be located;
- 3) When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
- 4) Site conditions that must be met before removal of the BMP if the BMP is not a permanent BMP.

- h. Disturbed Areas: Slopes for disturbed areas must be defined in the SWPPP. A site map or maps defining the sloped areas for all phases of the project must be included in the SWPPP.

Temporary stabilization is to take place where soil disturbing activities will cease on any portion of the site and are not planned to resume for a period exceeding 14 calendar days. Temporary stabilization must be initiated immediately upon knowing the duration is more than 14 days. Temporary stabilization must be completed within 7 calendar days. Temporary stabilization shall consist of well-established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution over an extended period of time. This may require adding more BMPs to an area than is normally used during daily operations. These BMPs may include a combination of sediment basins, check dams, sediment fences and mulch. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 3:1 (3 feet horizontal to one foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee shall establish temporary stabilization within seven days of ceasing operations on that part of the site.

Final stabilization of disturbed areas must be initiated immediately and completed within 7 calendar days whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site.

Allowances to the 7 day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. The use of allowances shall be documented in the SWPPP.

- i. Installation: The permittee shall ensure the BMPs are properly installed at the locations and relative times specified in the SWPPP. Peripheral or border BMPs to control runoff from disturbed areas shall be installed or marked for preservation before general site clearing is started. Note that this requirement does not apply to earth disturbances related to initial site clearing and establishing entry, exit and access of the site, which may require that stormwater controls be installed immediately after the earth disturbance. Stormwater discharges from disturbed areas which leave the site shall pass through an appropriate impediment to sediment movement such as a sedimentation basin, sediment traps and silt fences prior to leaving the land disturbance site. A drainage course change shall be clearly marked on a site map and described in the SWPPP. The location of all BMPs must be indicated on a site map, included in the SWPPP.
- j. Sedimentation Basins: The SWPPP shall include a sedimentation basin for each drainage area with ten or more acres disturbed at one time. The sedimentation basin shall be sized to contain a volume of at least 3,600 cubic feet per each disturbed acre draining thereto. Accumulated sediment shall be removed from the basin when basin is 50% full. When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface unless infeasible. Discharges from the basin shall not cause scouring of the banks or bottom of the receiving stream. The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin.

Where use of a sediment basin is impractical, the SWPPP shall evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment delivery. These similarly effective BMPs shall be based on good engineering practices. The BMPs must provide equivalent water quality protection to achieve compliance with this permit. The SWPPP shall require both temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

- k. Pollution Prevention Measures: The SWPPP shall include BMPs for pollution prevention measures. At minimum such measures must be designed, installed, implemented and maintained to:
 - 1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge ;
 - 2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and
 - 3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. Included but not limited to the installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers.

- l. Dewatering: Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods including the anticipated volume of water to be discharged and the anticipated maximum flow discharged from these dewatering activities expressed in gallons per minute. Maximum flow may be stated in the SWPPP as an estimate based on the type and capacity of equipment being used for dewatering. The SWPPP shall call for specific BMPs designed to treat water pumped from trenches and excavations and in no case shall this water be pumped off-site without being treated by the specified BMPs. When discharging from basins and impoundments utilize outlet structures that withdraw water from the surface, unless infeasible.
 - m. Roadways: Where applicable, upon installation of or connection to roadways, all efforts should be made to prevent the deposition of earth and sediment onto roadways through the use of proper BMPs. Stormwater inlets susceptible to receiving sediment from the permitted land disturbance site shall have curb inlet protection. Where stormwater will flow off the end of where a roadway terminates, a sediment catching BMP such as gravel berm or silt fence shall be provided. Roadways and curb inlets shall be inspected weekly or following a rainfall that generates a run-off and cleaned as necessary to maintain a clean roadway and drainage system. Where practicable, construction entrance BMP controls shall be used to prevent sediment track-out.
7. Good housekeeping practices shall be maintained at all times to keep waste from entry into waters of the state. Solid and hazardous waste management include providing trash containers and regular site clean-up for proper disposal of solid waste such as scrap building material, product/material shipping waste, food containers and cups, and providing containers and proper disposal of waste paints, solvents and cleaning compounds. The provision of portable toilets for proper disposal of sanitary sewage and the storage of construction materials should be kept away from drainage courses and low areas.
 8. All fueling facilities present shall at all times adhere to applicable federal and state regulations concerning underground storage, above ground storage and dispensers.
 9. Hazardous wastes that are transported, stored, or used for maintenance, cleaning, or repair shall be managed according to the provisions of the Missouri Hazardous Waste Laws and Regulations.
 10. All paint, solvents, petroleum products, petroleum waste products and storage containers such as drums, cans, or cartons shall be stored according to BMPs. The materials exposed to precipitation shall be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the once per week inspection of BMPs.
 11. Amending/Updating the SWPPP: The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP at a minimum whenever the:
 - a. Design, operation, or maintenance of BMPs is changed;
 - b. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
 - c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
 - d. The Department notifies the permittee in writing of deficiencies in the SWPPP;
 - e. SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or excessive sediment deposits in streams or lakes);
 - f. Settleable Solids from a stormwater outfall exceed 2.5 ml/L; and
 - g. The Department determines violations of water quality standards may occur or have occurred.

12. An individual shall be designated by the permittee as responsible for environmental matters. The individual responsible for environmental matters shall have a thorough and demonstrable knowledge of the site's SWPPP and sediment and erosion control practices in general. The individual responsible for environmental matters or a designated inspector knowledgeable in erosion, sediment and stormwater control principles shall inspect all structures that function to prevent pollution of waters of the state including those for material, waste, borrow, or equipment storage and maintenance areas that are covered by this permit. These inspections shall be conducted in accordance with No. 13 of these requirements.
13. Site Inspection Reports: The permittee (or a representative of the permittee) shall conduct regularly scheduled inspections at least once per seven calendar days. These inspections shall be conducted by a qualified person, one who is responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation and maintenance. All stormwater outfalls shall be inspected for evidence of erosion or sediment deposition. When practicable the receiving stream shall also be inspected for 50 feet downstream of the outfall. Any structural or maintenance problems shall be noted in an inspection report and corrected within seven calendar days of the inspection. If a rainfall causes stormwater runoff to occur on-site, the BMPs must be inspected. These inspections must occur within 48 hours after the rain event has ceased during a normal work day and within 72 hours on the next business day if the rain event ceases during a non-work day such as a weekends or holiday. The total rainfall measured for that day must be recorded. A properly maintained rain gauge must be kept on site or the storm event information may be obtained from a weather station that is representative of your location.

The SWPPP must explain how the person responsible for erosion control will be notified when stormwater runoff occurs. If weather conditions prevent correction of BMPs within 7 calendar days, the reasons for the delay must be documented (including pictures) and there must be a narrative explaining why the work cannot be accomplished within the 7 day time period. The documentation must be filed with the regular inspection reports. The permittee shall correct the problem as soon as weather conditions allow.

A log of each inspection and a current copy, of all the inspection reports shall be kept at the site or at an easily accessible location so that it can be made available at the time of an on-site inspection or at the request of the Department. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so. The inspection report is to include the following minimum information:

- a. Inspector's name;
 - b. Date of inspection;
 - c. Observations relative to the effectiveness of the BMPs;
 - d. Actions taken or necessary to correct the observed problem; and
 - e. Listing of areas where land disturbance operations have permanently or temporarily stopped.
14. Proper Operation and Maintenance: The permittee shall at all times maintain all pollution control measures and systems in good order to achieve compliance with the terms of this general permit.
 15. Notification to All Contractors: The permittee shall be responsible for notifying each contractor or entity (including utility crews and city employees or their agents) that will perform work at the site of the existence of the SWPPP and what action or precautions shall be taken while on-site to minimize the potential for erosion and the potential for damaging any BMP. The permittee is responsible for any damage a subcontractor may do to established BMPs and any subsequent water quality violation resulting from the damage.

16. Public Notification: The permittee shall post a copy of the public notification sign described by the Department at the main entrance to the site. The public notification sign must be visible from the public road that provides access to the site's main entrance. An alternate location is acceptable provided the public can see it and it is noted in the SWPPP. The public notification sign must remain posted at the site until the permit has been terminated.

D. OTHER DISCHARGES

1. Hazardous Substance and Oil Spill Reporting: Refer to Section B, #14 of Part I of the Standard Conditions that accompany this permit.
2. Removed substances: Refer to Section B, #6 of Part I of the Standard Conditions that accompany this permit.
3. Change in discharge: In the event soil contamination or hazardous substances are discovered at the site during land disturbance activities, the permittee shall notify the Department's regional office by telephone as soon as practicable but no later than 24 hours after discovery. The permittee must also notify the Department's regional office in writing no later than 14 calendar days after discovery.

E. SAMPLING REQUIREMENTS AND EFFLUENT LIMITATIONS

1. Settleable Solids discharging from a stormwater outfall shall not exceed 2.5 ml/L per Standard Method 2540 F for storm events up to but not exceeding the local 2-year, 24-hour storm. The Settleable Solids limit does not apply during storm events that exceed the local 2-year, 24-hour storm.
2. The Department may require sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of contamination from activities at the site. If such an action is needed, the Department will specify in writing any sampling requirements, including such information as location, extent and parameters.

F. RECORDS

1. The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site named in the State Operating Permit, results of any monitoring and analysis and all site inspection records required by this general permit. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years from the date of the Letter of Termination.
2. The permittee shall provide a copy of the SWPPP to the Department, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.
3. The permittee shall ensure a copy of the SWPPP to those who are responsible for installation, operation, or maintenance of any BMP. The permittee, their representative, and/or the contractor(s) responsible for installation, operation and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site.

G. LAND PURCHASE AND CHANGE OF OWNERSHIP

1. Federal and Missouri stormwater regulations [10 CSR 20-6.200] require a stormwater permit and erosion control measures for all land disturbances of one or more acres. These regulations also require a permit for less than one acre lots if the lot is part of a common plan of development or sale where that plan is at least one acre in size. If the permittee sells less than one acre of the permitted site to an entity for, commercial, industrial, or residential use, (unless sold to an individual for the purpose of building his/her own private residence and in accordance with No. 3 of this section) this land remains a part of the common sale and regulated by this permit. Therefore, the permittee is still responsible for erosion control on the sold property until termination of the permit.
2. If the permittee sells one or more acres of the permitted site to an entity, the new owner of the property must obtain a land disturbance permit for the purchased property. The original permittee must amend the SWPPP to show that the property (one acre or more) has been sold and therefore no longer under the original permit jurisdiction.
3. If the permittee has stabilized the less than one acre lot which is part of a larger common plan of development and the lot is sold to an individual for purposes of building his/her own private residence, the permittee is no longer responsible for erosion control on the lot.
4. Property of any size which is part of a larger common plan of development where the property has been stabilized and the original permit terminated will require application of a new land disturbance permit for any future land disturbance activity.
5. If the entire tract is sold to a single entity, then this permit shall be terminated when the new owner obtains a new land disturbance permit for the site.

H. TERMINATION

This permit may be terminated when the project is stabilized. The project is considered to be stabilized when perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetation cover shall be at least 70% plant density over 100% of the site. In order to terminate the permit, the permittee shall notify the Department.

The Cover Page (Certificate Page) of the Master General Permit for Land Disturbance specifies the “effective date” and the “expiration date” of the Master General Permit. The “issued date” along with the “expiration date” will appear on the State Operating Permit issued to the applicant. This permit does not continue administratively beyond the expiration date.

If the project or development completion date will be after the expiration date of this general permit, then the permittee must reapply to the Department for a new permit. The applicant must file a request to the Department for a new permit 180 days prior to the expiration of this permit.

If the permittee has not terminated the permit and the permit expires, and the permittee has not applied for a new permit the permittee will be consider “operating without a permit” if the site does not meet the requirements for termination.

I. MODIFICATION, REVOCATION, AND REOPENING

1. The U.S. Environmental Protection Agency (EPA) has proposed stormwater requirements that may direct the State to reopen this permit. The EPA is proposing to change its construction general permit (CGP) with more prescriptive requirements and design standards for buffers to prevent stormwater runoff, increased monitoring requirements and more frequent inspections. While the EPA permit is only effective in areas where EPA has permitting authority these requirements are likely to act as a template, setting a baseline for the agency's approval of state plans for permitting sites.
2. If at any time the Missouri Department of Natural Resources determines that the quality of waters of the state may be better protected by reopening this permit, or revoking this permit and requiring the owner/operator of the permitted site to apply for a site-specific permit, the Department may revoke a general permit and require any person to obtain such an operating permit as authorized by 10 CSR 20-6.010 (13) and 10 CSR 20-6.200(5).
3. If this permit is re-opened, modified or revoked pursuant to this Section, the permittee retains all rights under Chapter 536 and 644 Revised Statutes of Missouri upon the Department's reissuance of the permit as well as all other forms of administrative, judicial, and equitable relief available under law.

J. DUTY TO COMPLY

The permittee must comply with all conditions of this general permit. Any noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

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APPENDIX D – INSPECTION REPORTS

Sample Inspection Report

Instructions

This sample inspection report has been developed as a helpful tool to aid you in completing your site inspections. This sample inspection report was created consistent with EPA's Developing Your Stormwater Pollution Prevention Plan. You can find both the guide and the sample inspection report (formatted in Microsoft Word) at www.epa.gov/npdes/swpppguide.

This inspection report is provided in Microsoft Word format to allow you to easily customize it for your use and the conditions at your site. You should also customize this form to help you meet the requirements in your construction general permit related to inspections.

Using the Inspection Report

This inspection report is designed to be customized according to the BMP's and conditions at your site. For ease of use, you should take a copy of your site plan and number all of the stormwater BMPs and areas of your site that will be inspected. A brief description of the BMP or area should then be listed in the site-specific section of the inspection report. For example, specific structural BMPs such as construction site entrances, sediment ponds, or specific areas with silt fence (e.g., silt fence along Main Street; silt fence along slope in NW corner, etc.) should be numbered and listed. You should also number specific non-structural BMPs or areas that will be inspected (such as trash areas, material storage areas, temporary sanitary waste areas, etc.).

You can complete the items in the "General Information" section that will remain constant, such as the project name, NPDES tracking number, and inspector (if you only use one inspector). Print out multiple copies of this customized inspection report to use during your inspections.

When conducting the inspection, walk the site by following your site map and numbered BMPs/areas for inspection.

Also note whether the overall site issues have been addressed (customize this list according to the conditions at your site). Note any required corrective actions and the date and responsible person for the correction in the Corrective Action Log.

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STORMWATER CONSTRUCTION SITE INSPECTION REPORT

General Information

Project Name:			
NPDES Tracking No.:		Location:	
Date of Inspection:		Start/End Time:	
Inspector's Name(s):			
Inspector's Title(s):			
Inspector's Contact Information:			
Inspector's Qualifications:	Insert qualifications or add reference to the SWPPP. (See Section 5 of the SWPPP Template)		
Describe present phase of construction:			
Type of Inspection:	<input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post -storm event		
Weather Information			
Has there been a storm event since the last inspections?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, provide:			
Storm Start Date & Time	Storm Durations (hrs)	Approximate Amount of Precipitation (in.)	
Weather at time of this Inspection?			
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> High Winds			
<input type="checkbox"/> Other:		Temperature:	
Have any discharges occurred since the last inspection?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, describe:			
Are there any discharges at the time of inspection?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, describe:			

Site-specific BMPs

- Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.
- Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
9		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
10		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

11		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
12		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
13		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
14		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
15		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
16		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
17		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
18		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
19		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
20		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc) protected with barriers or similar BMPs?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	Are discharge points and receiving waters free of any sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Are storm drain inlets properly protected?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	Is the construction exit preventing sediment from being tracked into the street?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
10	Are materials that are potential stormwater contaminants stored inside or under cover?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
12	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Non-Compliance

Click here to enter text.

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name and title: _____

Signature: _____ Date: _____

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APPENDIX F – ADDITIONAL INFORMATION

(i.e., Endangered Species and Historic Preservation Documentation, additional permits)

**Specification for Best Management Practices For Erosion Control –
Linear Excavation for Water Main Replacements or Relocations**

1.0 General Construction Sequence

1. The general construction sequence is as follows:
 - a. Install sediment control measures for the pipeline segment including inlet protection, sediment fence along the perimeter of greenway areas, and rock check dams in swales or super sediment fences.
 - b. Trenching, pipe installation, and trench backfill.
 - c. Additional installation of measures for temporary stabilization of disturbed areas.
 - d. Surface restoration.
 - e. Permanent seeding and mulching or sodding when appropriate.
 - f. Upon establishment of turf, removal of erosion control measures.

2. Erosion control may be removed only after disturbed areas have been stabilized. A site is considered stabilized with respect to areas that have been vegetated, where vegetative cover shall be at least 70% of the fully established plant density over 100% of the disturbed areas and with the Owner's approval.

2.0 Non-Structural Best Management Practices (BMPs)

Contractor shall conduct Best Management Practices for controlling erosion and sedimentation during construction:

- a. Provide temporary or permanent stabilization of disturbed areas as soon as possible but no later than 14 days after temporary or permanent cessation of excavation and backfilling at a particular location. On areas with slopes greater than 3%, effective stabilization must be established within 7 days after cessation of excavation and backfilling. Temporary stabilization practices include temporary seeding, mulching, rolled erosion control products. See APWA Sections 2100 and 5107 for detailed specifications for temporary surface stabilization methods.

Temporary Seeding & Mulching:

1. Choose a recommended temporary species or mixture appropriate for the season from Table 2152-1 of APWA Section 2152. Plant during optimum seeding dates from Table 2152-2. Provide soil fertilization and mulch or hydro mulch as specified in APWA Sections 2152.1, 2152.2, and 5107.4.
2. For site conditions where mulch alone will not be effective to secure soil and seed, augment with tackifiers, soil binders, or a bonded fiber matrix (APWA Sections 2152.3, 5107.5)

For permanent seeding and mulching specifications, see Specification Section 02930. For sodding specifications, see Specification Section 02931.

On slopes steeper than 8 percent and of highly erodible soils, provide a protective cover for temporary stabilization consisting of rolled erosion control products - netting, blankets or turf reinforcement mats, as specified in APWA Section 2152.4 and 5107.6 and detailed in AWWA Standard Drawings ESC-04 through ESC-09.

b. Conduct operations to preserve existing vegetation to the maximum extent practicable. Preserve vegetative strips between disturbed areas and streams, channels, or drainage courses to off site.

c. Promptly backfill the trench after pipe installation and inspection by Water Services. Remove and haul excavated materials from site as soon as practicable, which will not be reused for backfill. If temporary earth stockpiling is required, stockpile at locations with topography which will contain or limit sediment runoff or install temporary silt fence along the downhill side of all stockpiles.

d. Conduct operations to minimize deposition of earth and sediment onto adjacent paved surfaces. Clean dirt and sediment from paved surfaces adjacent to project site on a daily basis using brush attachments, shovels, brooms, or other tools.

e. Contain all concrete truck washout and remove from project site for proper disposal.

f. If temporary dewatering of an excavation is required, provide straw bale/sediment fence pit (APWA Standard Drawing ESC-41), dewatering box (APWA Standard Drawing ESC-42), Dirt Bag (APWA Standard Drawing ESC-43) or other approved methods for sediment removal. Direct discharge to any stream, waterway, or drainage course to off-site is prohibited without providing appropriate treatment to remove solids to meet the NPDES permit limits. A written detailed dewatering plan must be submitted to Water Services for approval prior to dewatering activities.

3.0 Structural Best Management Practices (BMPs)

The Contractor shall provide effective erosion and sediment control along the entire length of the project. Templates from APWA Section 5100, which are included with this document, provide guidance for installing various erosion and sediment control measures along the pipeline. These measures are required to be installed and maintained by the Contractor for this project as part of the scope of Work for the pipeline installation contract. Except as noted herein, BMPs are considered temporary construction-activity related and not permanent structures. Maintenance of all temporary construction-activity BMP's will be provided by the Contractor until establishment of vegetative cover shall be at least 70% of fully established plant density over 100% of the disturbed areas.

- a. Provide stabilized construction site entrances at established locations used to enter the site. Temporary construction entrances shall be as specified and detailed on APWA Standard Drawing No. ESC-01, Temporary Construction Entrance.
- b. Provide sediment fences as sediment traps installed perpendicular to the pipeline trench after backfill in greenway swales or ditches. Sediment fences shall be as specified and detailed on APWA Standard Drawing No. ESC-10, Drainageway Installation, Filtrexx SiltSoxx, or approved equal. Extra-strength sediment fabric shall be used with a maximum 3-foot spacing of posts.
- c. Provide sediment fences (sheet flow installation) parallel to the pipeline trench in greenway at the perimeter of the disturbed area. Sediment fences shall be as specified and detailed on APWA Standard Drawing No. ESC-10, Sheet Flow Installation, Filtrexx SiltSoxx, or approved equal.
- d. Provide temporary inlet protection for curb inlets susceptible to stormwater runoff from construction activities due to topography and drainage courses from disturbed areas on the site. Inlet protection shall be as specified and detailed on Curb Inlet Sediment Filter detail GUTTERBUDDY™, APWA Standard Drawing No 24 through 26, or approved equal.
- e. Provide temporary inlet protection for drop inlets susceptible to stormwater runoff from construction activities due to topography and drainage courses from disturbed areas on the site. Inlet protection shall be as specified and detailed on APWA Standard Drawing No. ESC-19, Sediment Fence Drop Inlet Protection, Filtrexx SiltSoxx, or approved equal.
- f. Provide temporary rock check sediment traps within established ditches or swales with concentrated runoff flows which receive runoff from disturbed areas. Rock check sediment traps shall be as specified and detailed on APWA Standard Drawing No. ESC-15, Rock Check Dam.
- g. Erosion and sediment control for stream crossings shall be as follows:
 1. Submit detailed written plan for stream crossings to Water Services for approval. Plan must provide for the following:
 - a. Protect sediment from entering the stream from construction within approach areas;
 - b. Minimize the amount of disturbance within the stream itself;
 - c. Provide a means for construction traffic to cross flowing streams without damaging the channel or bank (See APWA Standard Drawing No. ESC-39).
 2. Schedule construction during low water events.

3. Install temporary sediment fences across top of banks on either side of stream at the work area.
4. Conduct work in the stream channel in such a manner to seal off the work area from direct contact with stream flow (See APWA Template 5104-2 Flow Diversion).
5. If work area cannot be sealed off from direct contact with stream flow, construct temporary sediment trap downstream of work area, consisting of rock or sandbag weirs (See APWA Template 5104-5 Rock Weirs, or turbidity curtain (See APWA Template 5104-4 Turbidity Curtain)
6. Restore banks to original cross-section using stone riprap as detailed on construction drawings.
7. Carefully clean out sediment and other debris from behind rock or sandbag weirs or turbidity curtain in the stream after construction is complete.
8. Remove rock or sandbag weirs or turbidity curtain from the stream. Upon removal of all structures from the stream, the stream shall immediately be shaped to its original cross-section and properly stabilized.
9. Construct and maintain temporary Culvert Crossings where multiple equipment crosses will be required. Temporary culvert crossings shall be as specified and detailed on APWA Standard Drawing No. ECS-39, Temporary Culvert Crossing.

4.0 Potential Stormwater Pollutants and Control Measures

Pollutants from various sources have the potential to enter the storm water system during project construction. Chemicals, petroleum products, and other materials will be used and stored on the project site. Best Management Practices, such as good housekeeping measures, inspections, containment, and spill prevention practices will be used to limit contact between storm water and potential pollutants. A description of these potential pollutants and control measures to reduce the risk of storm water contamination is provided below.

4.1 Petroleum Products

Construction equipment will require diesel fuel and oil on a regular basis so the potential exists for spills or leaks. All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to ensure proper operation and reduce the chance of leaks. No "topping off" of fuel tanks will be allowed to reduce the possibility of spills.

Petroleum products will be stored in clearly labeled and tightly sealed containers or tanks. Any asphalt used onsite will be applied according to the manufacturer's

recommendations. Any soil contaminated by fuel or oil spills will be removed and disposed of to an approved disposal site by the Contractor.

4.2 Sanitary Wastes

A licensed sanitary waste management contractor will collect all construction or temporary sanitary wastes from portable units. The units will be maintained on a regular basis.

4.3 Hazardous Wastes

All hazardous waste materials will be disposed of according to local or state regulation or the manufacturer's recommendations. Site personnel will be instructed of these regulations and recommendations and the Construction Manager will be responsible for their implementation.

4.4 Fertilizers

Fertilizers are to be applied as recommended by the manufacturer. After application the fertilizer will be worked into the soil to limit exposure to storm waters. Fertilizers will be stored in a covered area or in water-tight containers. Any partially used bags or containers will be properly sealed and stored to avoid spills or leaks.

4.5 Paints

All paint containers will be tightly sealed and properly stored to prevent leaks or spills. Paint will not be discharged to the storm water system. Unused paints will be disposed of according to local and/or state regulations. Spray painting will not occur on windy days and a drop cloth will be used to collect and dispose of drips and overspray associated with all painting activities.

4.6 Concrete Trucks

Concrete trucks will only be allowed to discharge surplus concrete or drum wash water at an approved location on the project site and in such a manner that prevents contact with potential storm waters discharges. The contractor shall construct a dike or barrier around the designated area to contain these materials until stable, at which time the materials will be disposed of in an appropriate manner offsite.

4.7 Waste Materials

All construction waste material shall be collected, deposited, and stored in metal dumpsters obtained from a licensed solid waste management contractor. Adequate waste receptacles shall be provided onsite. No construction waste materials shall be buried onsite.

4.8 Construction Silt and Dust

Silt barriers (fences) will be installed on the perimeter (downhill sides of site) of the disturbed site in greenway to control offsite discharges of silt. The silt barrier will remain in place and be maintained until the up-slope surface is permanently stabilized. Silt shall be removed from the silt barrier when there is an accumulation no more than 1/3

the height of the protective barrier. Fugitive dust may be generated during dry weather conditions. Water sprays is one alternative to be used for dust control.

4.9 Offsite Sediment Tracking

Adjacent streets and roads shall be kept relatively free of excess mud, dirt, and rock tracked from the project site. Stabilized construction entrances shall be constructed to reduce the tracking of sediment to offsite locations.

4.10 Good Housekeeping

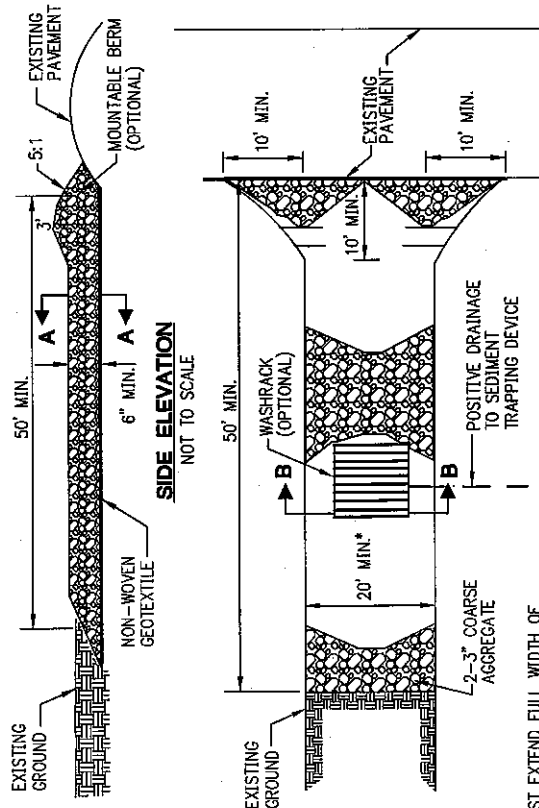
The good housekeeping practices listed below will be followed to reduce the risk of potential pollutants entering storm water discharges. All construction personnel will be responsible for monitoring and maintaining housekeeping tasks or notifying the appropriate person of a problem.

- Store only enough product to do the job.
- Store all materials in a neat and orderly manner, in the appropriate containers and, if possible, under a roof or within an enclosure.
- Keep products in the original container with the original manufacturer's label.
- Do not mix products unless recommended by the manufacturer.
- Use all of a product before disposing of the container.
- Use and dispose of products according to the manufacturer's recommendations.
- Perform regular inspections of the storm water system and the material storage areas.
- When and where appropriate, use posters, bulletin boards, or meetings to remind and inform construction personnel of required procedures.

4.11 Hazardous Materials

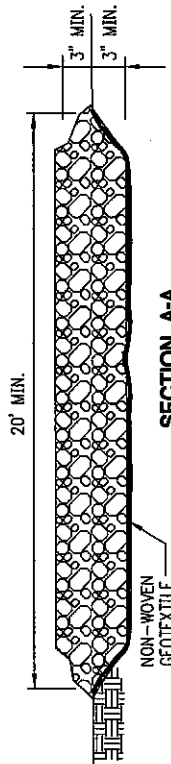
Storage areas for hazardous materials such as oils, greases, paints, fuels, and chemicals, must be provided with secondary containment to ensure that spills in these areas do not reach waters of the State. Contingencies for the proper disposal of contaminated soils shall be established (use of licensed hauler and approved landfill, for example) early in the construction period.

TEMPORARY CONSTRUCTION ENTRANCE

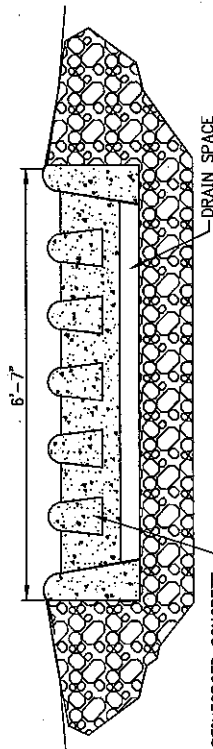


* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

TEMPORARY CONSTRUCTION ENTRANCE PAD NOTES:

A) INSTALLATION:

1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS. IF POSSIBLE, LOCATE WHERE PERMANENT ROADS WILL EVENTUALLY BE CONSTRUCTED.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. IF SLOPE TOWARDS THE PUBLIC ROAD EXCEEDS 2%, CONSTRUCT A 6-TO 8-INCH HIGH RIDGE WITH 3:1-V SIDE SLOPES ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE EDGE OF THE PUBLIC ROAD TO DIVERT RUNOFF AWAY FROM IT.
4. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES ALONG PUBLIC ROADS.
5. PLACE STONE TO DIMENSIONS AND GRADE AS SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE.
7. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.

B) TROUBLESHOOTING:

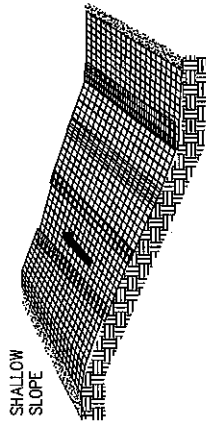
1. CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR:
 - a. INADEQUATE RUNOFF CONTROL TO THE EXTENT THAT SEDIMENT WASHES ONTO PUBLIC ROAD - INSTALL DIVERSIONS OR OTHER RUNOFF CONTROL MEASURES.
 - b. SMALL STONE, THIN PAD, OR ABSENCE OF GEOTEXTILE FABRIC RESULTS IN RUTS AND MUDDY CONDITIONS AS STONE IS PRESSED INTO SOIL - INCREASE STONE SIZE OR PAD THICKNESS OR ADD GEOTEXTILE FABRIC.
 - c. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC - EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.

C) INSPECTION AND MAINTENANCE:

1. INSPECT STONE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER 1/2-INCH OR GREATER STORM EVENTS.
2. RESHAPE PAD AS NEEDED FOR PROPER DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN 2-AND 3-INCH STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROAD. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.
5. REMOVE ALL TEMPORARY ROAD MATERIALS FROM AREAS WHERE PERMANENT VEGETATION WILL BE ESTABLISHED.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
TEMPORARY CONSTRUCTION ENTRANCE	STANDARD DRAWING NUMBER: ESC-01 ADOPTED:

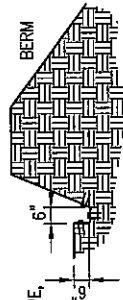
EROSION CONTROL BLANKET



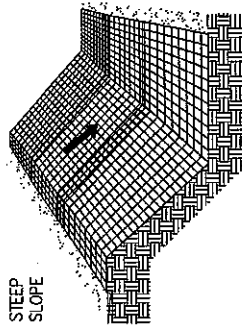
SHALLOW SLOPE

NOTE:
ON SHALLOW SLOPES, PROTECTIVE EROSION CONTROL BLANKETS MAY BE APPLIED ACROSS THE SLOPE.

NOTE:
WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.



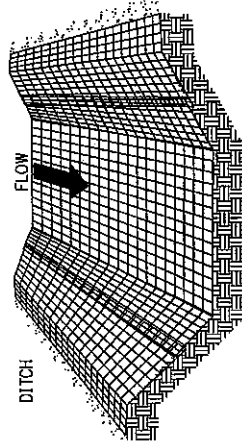
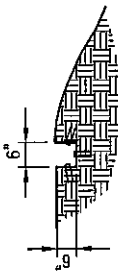
STEEP SLOPE



NOTE:
BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING THE INSTALLATION.

NOTE:
ON STEEP SLOPES, APPLY PROTECTIVE BLANKET PERPENDICULAR TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

TOP OF SLOPE BLANKET ANCHOR SLOT



DITCH

NOTE:
IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE. FOLLOW BLANKET MANUFACTURER'S RECOMMENDATIONS FOR ALLOWABLE VELOCITY AND SHEAR STRESS.

EROSION CONTROL BLANKET NOTES (1 OF 2):

A) SITE PREPARATION:

AFTER SITE HAS BEEN SHAPED AND GRADED, PREPARE A FRIABLE SEEDBED RELATIVELY FREE FROM CLODS AND ROCKS MORE THAN 1 1/2 INCHES IN DIAMETER AND ANY FOREIGN MATERIAL THAT WILL PREVENT UNIFORM CONTACT OF THE PROTECTIVE COVERING WITH THE SOIL SURFACE.

B) PLANTING:

LIME, FERTILIZE, AND SEED IN ACCORDANCE WITH SEEDING OR PLANTING PLAN. WHEN USING JUTE MESH ON A SEED AREA, APPLY APPROXIMATELY ONE HALF THE SEED AFTER LAYING THE MAT. THE PROTECTIVE COVERING CAN BE LAID OVER SPRIGGED AREAS WHERE SMALL GRASS PLANTS HAVE BEEN INSERTED INTO THE SOIL. WHERE GROUND COVERS ARE TO BE PLANTED, LAY THE PROTECTIVE COVERING FIRST AND THEN PLANT THROUGH THE MATERIAL AS PER PLANTING PLAN.

C) LAYING AND STAPLING:

IF INSTRUCTIONS HAVE BEEN FOLLOWED, ALL NEEDED CHECK SLOTS WILL HAVE BEEN INSTALLED, AND THE PROTECTIVE COVERING WILL BE LAID ON A FRIABLE SEEDBED FREE FROM CLODS, ROCKS, ROOTS, ETC. THAT MIGHT IMPEDE GOOD CONTACT.

1. START LAYING THE PROTECTIVE COVERING FROM THE TOP OF THE CHANNEL OR SLOPE AND UNROLL DOWN-GRADE. ALLOW TO LAY LOOSELY ON SOIL; DO NOT STRETCH.
2. UPSLOPE ENDS OF THE BLANKET SHOULD BE BURIED IN AN ANCHOR SLOT NO LESS THAN 6-INCHES DEEP. TAMP EARTH FIRMLY OVER THE MATERIAL. WHEN TOP IS RELATIVELY FLAT, EXTEND BLANKET ABOUT 40 INCHES AWAY FROM SLOPE.
3. STAPLE THE MATERIAL AT A MINIMUM OF EVERY 12 INCHES ACROSS THE TOP END.
4. EDGES OF THE MATERIAL SHALL BE STAPLED EVERY 3 FEET. WHERE MULTIPLE WIDTHS ARE LAID SIDE BY SIDE, THE ADJACENT EDGES SHALL BE OVERLAPPED A MINIMUM OF 6 INCHES AND STAPLED TOGETHER.
5. STAPLES SHALL BE PLACED DOWN THE CENTER, STAGGERED WITH THE EDGES AT 3-FOOT INTERVALS.

D) TROUBLESHOOTING:

CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL, IF ANY OF THE FOLLOWING OCCUR:

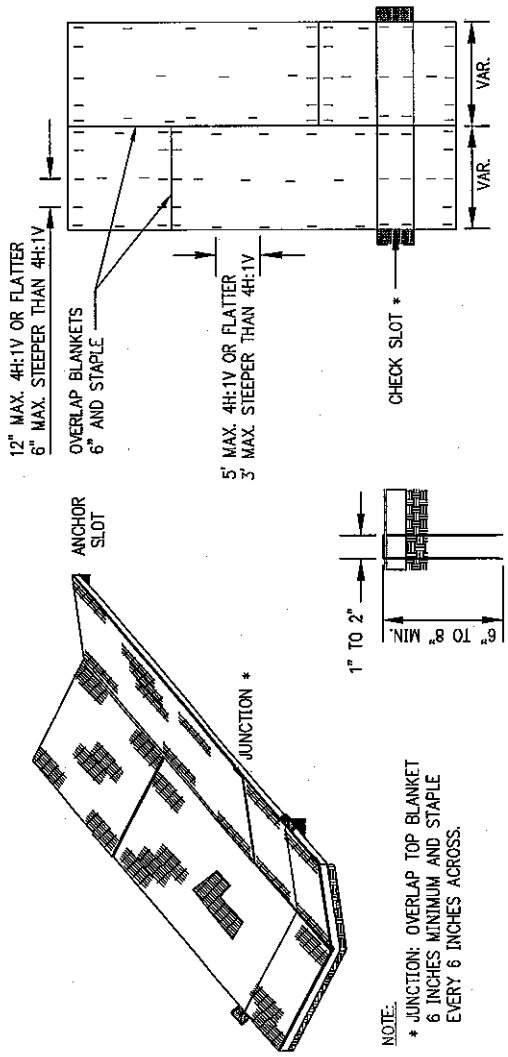
1. MOVEMENT OF THE BLANKET OR EROSION UNDER THE BLANKET IS OBSERVED.
2. VARIATIONS IN TOPOGRAPHY ON SITE INDICATE EROSION CONTROL MAT WILL NOT FUNCTION AS INTENDED; CHANGES IN PLAN MAY BE NEEDED, OR A BLANKET WITH A SHORTER OR LONGER LIFE MAY BE NEEDED.
3. DESIGN SPECIFICATIONS FOR SEED VARIETY, SEEDING DATES, OR EROSION CONTROL MATERIALS CANNOT BE MET; SUBSTITUTION MAY BE REQUIRED. UNAPPROVED SUBSTITUTIONS COULD RESULT IN FAILURE TO ESTABLISH VEGETATION.

E) MAINTENANCE & INSPECTION

INSPECT CONTROLS AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER, AND EVERY 7 DAYS UNTIL VEGETATION IS ESTABLISHED, FOR EROSION OR UNDERMINING BENEATH THE NETTING, BLANKETS, OR MATS. IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE MATERIAL, ADD SOIL, TAMP DOWN, AND RESEED; RESEED THE MATERIAL IN PLACE. IF NETTING, BLANKETS OR MATS BECOME DISLOCATED OR DAMAGED, REPAIR OR REPLACE AND RESECURE IMMEDIATELY.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY
METROPOLITAN CHAPTER	
EROSION CONTROL BLANKET	
SHEET 1 OF 2	
STANDARD DRAWING NUMBER: ESC-04	ADOPTED:

**EROSION CONTROL BLANKET
INSTALLATION FOR CHANNELS**



EROSION CONTROL BLANKET NOTES (2 OF 2):

- F) STAPLES:**
STAPLES FOR ANCHORING BLANKET SHALL BE NO. 11-GAUGE WIRE OR HEAVIER. THEIR LENGTH SHALL BE A MINIMUM OF 6 INCHES. A LARGER STAPLE WITH A LENGTH OF UP TO 12 INCHES SHALL BE USED ON LOOSE, SANDY, OR UNSTABLE SOILS.
- G) JOINING PROTECTIVE COVERINGS:**
OVERLAP THE END OF THE PREVIOUS ROLL A MINIMUM OF 6 INCHES AND STAPLE. STAPLE ACROSS THE END OF THE ROLL JUST BELOW THE ANCHOR SLOT AND ACROSS THE MATERIAL EVERY 6 INCHES.
- H) TERMINAL END:**
AT THE POINT AT WHICH THE MATERIAL IS DISCONTINUED, OR WHERE THE PROTECTIVE COVERING MEETS A STRUCTURE OF SOME TYPE, STAPLE A MINIMUM OF EVERY 12 INCHES.
- I) FINAL CHECK:**
THESE INSTALLATION CRITERIA MUST BE ADHERED TO:
1. ALL DISTURBED AREAS ARE SEEDED.
2. PROTECTIVE BLANKET IS IN UNIFORM CONTACT WITH THE SOIL.
3. ALL LAP JOINTS ARE SECURE.
4. ALL STAPLES ARE DRIVEN FLUSH WITH THE GROUND.

**PLAN VIEW
STAPLING DIAGRAM**
NOT TO SCALE

NOTE:
* CHECK SLOTS AT MIN. 50' INTERVALS; NOT REQUIRED WITH ALL COMBINATION BLANKETS

NOTE:
NOT TO SCALE

STAPLE FORMED FROM NO.11 STEEL WIRE.
MIN. 8" STAPLE LENGTH FOR SANDY SOIL.
MIN. 6" STAPLE LENGTH FOR OTHER SOIL.

NOTE:

APPROXIMATELY 200 STAPLES ARE REQUIRED PER 100 SQ. YDS. OF MATERIAL ROLL. ANCHOR SLOTS, JUNCTION SLOTS, AND CHECK SLOTS TO BE BURIED 6" TO 12" DEEP.

NOTE:
* JUNCTION: OVERLAP TOP BLANKET 6 INCHES MINIMUM AND STAPLE EVERY 6 INCHES ACROSS.

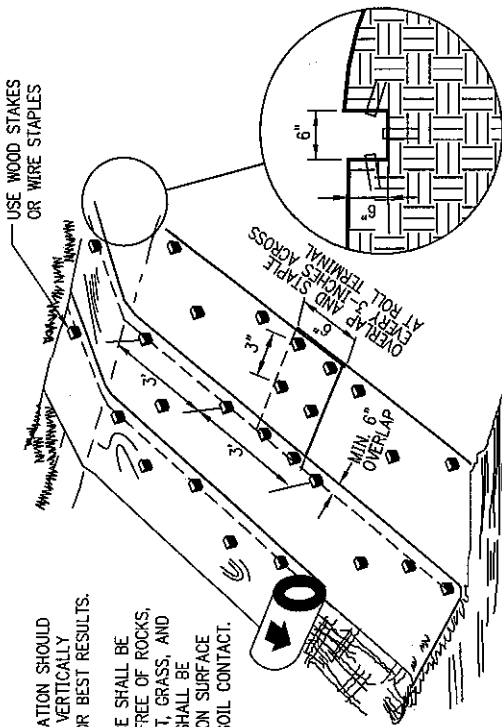
ANCHOR SLOT

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
EROSION CONTROL BLANKET	STANDARD DRAWING NUMBER ESC-05
SHEET 2 OF 2	ADOPTED:

TURF REINFORCEMENT MAT SLOPE INSTALLATION

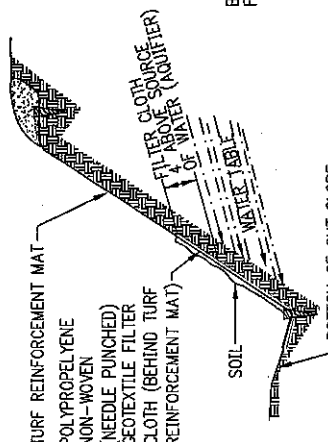
NOTES:

1. SOIL STABILIZATION SHOULD BE INSTALLED VERTICALLY DOWNSLOPE FOR BEST RESULTS.
2. SLOPE SURFACE SHALL BE SMOOTH AND FREE OF ROCKS, LUMPS OF DIRT, GRASS, AND STICKS. MAT SHALL BE PLACED FLAT ON SURFACE FOR PROPER SOIL CONTACT.



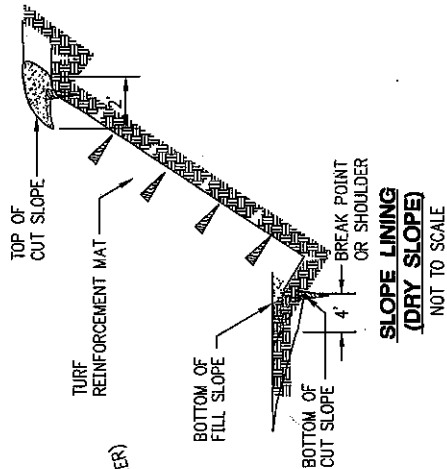
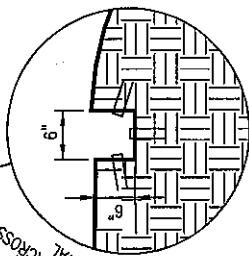
FILL SLOPE SECTION
NOT TO SCALE

TOE
MAINTAIN SLOPE ANGLE



SLOPE LINING (WET SLOPE)
NOT TO SCALE

ANCHOR SLOT
NOT TO SCALE
TRENCH INTO BERM AND PROGRESS DOWNSLOPE



TURF REINFORCEMENT MAT SLOPE INSTALLATION NOTES:

A) TURF REINFORCEMENT MAT:

1. THE MAJORITY OF THESE PRODUCTS PROVIDE A THREE DIMENSIONAL GEOMATRIX OF NYLON, POLYETHYLENE, OR RANDOMLY ORIENTED MONOFILAMENTS, FORMING A MAT. THESE PRODUCTS CONTAIN ULTRAVIOLET (UV) INHIBITING STABILIZERS, ADDED TO THE COMPOUNDS TO ENSURE ENDURANCE, AND PROVIDE "PERMANENT ROOT REINFORCEMENT." THE THREE DIMENSIONAL FEATURE CREATES AN OPEN SPACE WHICH IS ALLOWED TO FILL WITH SOIL. THE ROOTS OF THE GRASS PLANT BECOME ESTABLISHED WITHIN THE MAT ITSELF, FORMING A SYNERGISTIC ROOT AND MAT SYSTEM. AS THE GRASS BECOMES ESTABLISHED, THE TWO ACTUALLY "REINFORCE" EACH OTHER, PREVENTING MOVEMENT OR DAMAGE TO THE SOIL. ALLOWABLE VELOCITIES ARE INCREASED CONSIDERABLY OVER NATURAL TURF STANDS. SELECTION OF THE APPROPRIATE MATTING MATERIALS ALONG WITH PROPER INSTALLATION BECOME CRITICAL FACTORS IN THE SUCCESS OF THIS PRACTICE. CONSULTATION WITH THE SUPPLIER OR THE MANUFACTURER AND THOROUGH EVALUATION OF PERFORMANCE DATA TO ENSURE PROPER SELECTION OF A SOIL STABILIZATION MATTING ARE ALSO ESSENTIAL.

B) INSTALLATION REQUIREMENTS:

1. SITE PREPARATION:

AFTER SITE HAS BEEN SHAPED AND GRADED, PREPARE A FRIABLE SEEDBED RELATIVELY FREE OF CLODS AND ROCKS MORE THAN 1-INCH IN DIAMETER AND ANY FOREIGN MATERIAL THAT WILL PREVENT CONTACT OF THE SOIL STABILIZATION MAT WITH THE SOIL SURFACE. IF NECESSARY, REDIRECT ANY RUNOFF AWAY FROM THE DITCH OR SLOPE DURING INSTALLATION.

2. PLANTING:

LIME, FERTILIZE, AND SEED IN ACCORDANCE WITH THE APPROVED PLAN, PAYING SPECIAL ATTENTION TO THE PLANT SELECTION CHOSEN FOR THE MATTED AREA. IF THE AREA HAS BEEN SEEDBED PRIOR TO INSTALLING THE MAT, RESEED ALL AREAS DISTURBED DURING INSTALLATION.

3. LAYING AND SECURING:

SIMILAR TO INSTALLING OTHER EROSION CONTROL BLANKETS, BUT PLAN-APPROVING AUTHORITY'S REQUIREMENTS OR MANUFACTURER'S RECOMMENDATIONS MUST BE FOLLOWED AS DETAILED. THE KEY TO ACHIEVING DESIRED PERFORMANCE IS DEPENDENT UPON PROPER INSTALLATION.

4. SECURING THE MATERIAL AND JOINING BLANKETS:

PRODUCT SPECIFICATIONS VARY. UPSTREAM AND DOWNSTREAM TERMINAL SLOTS, NEW ROLL OVERLAPS, AND MULTIPLE WIDTH INSTALLATIONS DIFFER BY PRODUCT AND MANUFACTURER.

5. FINAL CHECK:

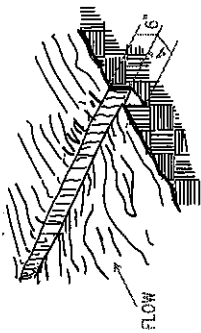
- ENSURE THAT THESE INSTALLATION CRITERIA ARE COMPLETED:
- a. ALL DISTURBED AREAS ARE SEEDDED.
 - b. SOIL STABILIZATION BLANKET IS IN UNIFORM CONTACT WITH THE SOIL.
 - c. ALL REQUIRED SLOTS AND LAPPED JOINTS ARE IN PLACE.
 - d. THE MATERIAL IS PROPERLY ANCHORED.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METROPOLITAN CHAPTER
TURF REINFORCEMENT MAT	STANDARD DRAWING NUMBER ESC-06
SLOPE INSTALLATION	ADOPTED:

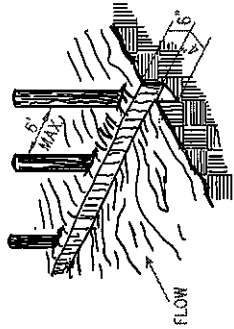
SOURCE: MODIFIED FROM VA. DCR, 1992

SEDIMENT FENCE

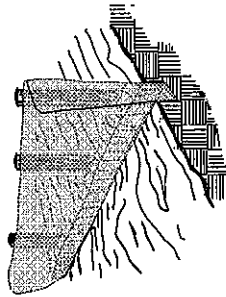
1. EXCAVATE A 6"x4" TRENCH.



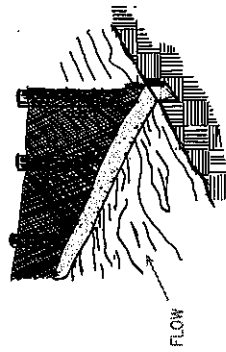
2. SET THE STAKES ALONG THE DOWN SLOPE SIDE OF THE TRENCH.



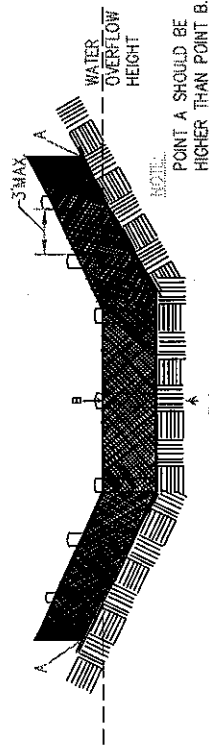
3. STAPLE GEOTEXTILE MATERIAL TO STAKES AND EXTEND IT INTO AND AROUND THE BOTTOM OF THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL OVER THE GEOTEXTILE IN THE TRENCH.



**SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)
NOT TO SCALE**



**DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)
NOT TO SCALE**

SEDIMENT FENCE NOTES:

A) INSTALLATION:

1. THE HEIGHT OF SEDIMENT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE THE GROUND SURFACE.
2. THE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SECURELY SPLICED TOGETHER ONLY AT SUPPORT POSTS, WITH A MAX 6-INCH OVERLAP.
3. DIG A TRENCH AT LEAST 6 INCHES DEEP AND 4 INCHES WIDE ALONG THE FENCE ALIGNMENT.
4. DRIVE POSTS AT LEAST 24 INCHES INTO THE GROUND ON THE DOWNSLOPE SIDE OF THE TRENCH. SPACE POSTS A MAXIMUM OF 6 FEET APART.
5. EXTRA-STRENGTH SEDIMENT FENCE FABRIC SHALL BE USED. POSTS FOR THIS TYPE OF FABRIC SHALL BE PLACED A MAXIMUM OF 6 FEET APART. THE SEDIMENT FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING A MINIMUM OF ONE INCH LONG, HEAVY-DUTY WIRE STAPLES OR NAIL-WIRES, AND EIGHT INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. PLACE THE BOTTOM 1 FOOT OF FABRIC IN THE MINIMUM-OF-6-INCH DEEP TRENCH, LAPPING TOWARD THE UPSLOPE SIDE. BACKFILL WITH COMPACTED EARTH OR GRAVEL.
7. IF A SEDIMENT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, IT MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE. PLACED ON A CONTOUR, WITH THE ENDS ORIENTED UPSLOPE. EXTRA-STRENGTH SEDIMENT FABRIC SHALL BE USED WITH A MAXIMUM 3-FOOT SPACING OF POSTS.
8. TO REDUCE MAINTENANCE, EXCAVATE A SHALLOW SEDIMENT STORAGE AREA IN THE UPSLOPE SIDE OF THE FENCE. PROVIDE GOOD ACCESS IN AREAS OF HEAVY SEDIMENTATION FOR CLEAN OUT AND MAINTENANCE.
9. SEDIMENT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

B) TROUBLESHOOTING:

1. DETERMINE THE EXACT LOCATION OF UNDERGROUND UTILITIES, BEFORE FENCE INSTALLATION SO UTILITIES ARE NOT DISTURBED.
2. GRADE ALIGNMENT OF FENCE AS NEEDED TO PROVIDE A BROAD, NEARLY LEVEL AREA UPSTREAM OF FENCE TO ALLOW SEDIMENT COLLECTION AREA.

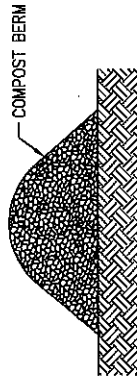
C) INSPECTION MAINTENANCE:

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. AVOID DAMAGING OR UNDERMINING THE FENCE DURING CLEANOUT. SEDIMENT ACCUMULATION SHOULD NOT EXCEED 1/2 THE HEIGHT OF THE FENCE.
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 AND COMPLETELY STABILIZED.

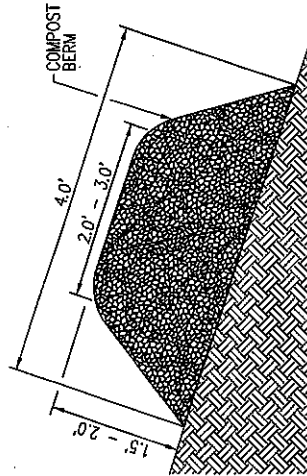
AMERICAN PUBLIC WORKS ASSOCIATION
APWA
 KANSAS CITY
 METROPOLITAN CHAPTER
 1200 EAST 15TH ST
 SUITE 100
 OVERLAND PARK, MO 66204
 816.875.4300
 WWW.APWA.ORG

SEDIMENT FENCE

COMPOST BERM



CROSS SECTION



DETAIL
NOT TO SCALE

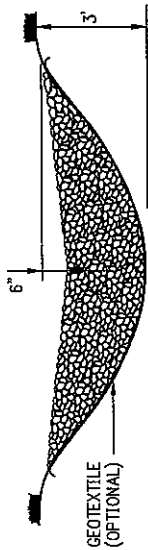
COMPOST BERM MULCH NOTES:

A) GENERAL NOTES:

1. THE SEDIMENT CONTROL BERM SHALL BE PLACED UNCOMPACTED IN A WINDROW AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. PARALLEL TO THE BASE OF THE SLOPE, OR AROUND THE PERIMETER OF OTHER AFFECTED AREAS, CONSTRUCT A 1 TO 1.5 FOOT HIGH BY 2.5 TO 3 FOOT WIDE BERM. FOR MAXIMUM WATER TREATMENT ABILITY OR FOR STEEP SLOPES, CONSTRUCT A 1.5 TO 2 FOOT HIGH TRAPEZOIDAL BERM THAT IS APPROXIMATELY 2 TO 3 FOOT WIDE AT THE TOP AND A MINIMUM OF 4 FEET WIDE AT THE BASE. IN EXTREME CONDITIONS, OR WHERE SPECIFIED BY THE ENGINEER, A SECOND BERM SHALL BE CONSTRUCTED AT THE TOP OF THE SLOPE. ENGINEER SHALL SPECIFY BERM REQUIREMENTS.
3. IF BERM IS TO BE LEFT AS PERMANENT OR PART OF THE NATURAL LANDSCAPE, THE COMPOST BERM MAY BE SEEDD DURING APPLICATION FOR PERMANENT VEGETATION. THE ENGINEER/LANDSCAPE ARCHITECT SHALL SPECIFY SEED REQUIREMENTS.
4. DO NOT USE COMPOST BERMS IN ANY RUNOFF CHANNELS.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
COMPOST BERM	STANDARD DRAWING NUMBER: ESC-14
	ADOPTED:

ROCK CHECK DAM



ROCK CHECK DAM

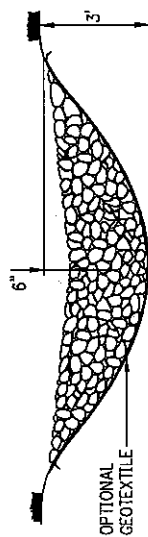
2 ACRES OR LESS OF DRAINAGE AREA

NOT TO SCALE



(SIDE VIEW)

NOT TO SCALE



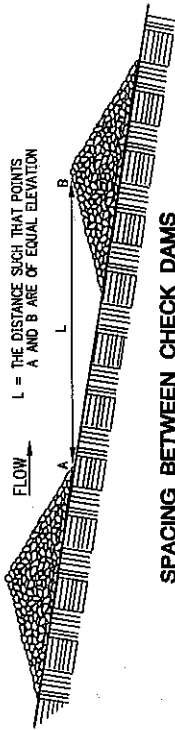
2-10 ACRES OF DRAINAGE AREA

NOT TO SCALE



(SIDE VIEW)

NOT TO SCALE



SPACING BETWEEN CHECK DAMS

NOT TO SCALE

ROCK CHECK DAM NOTES:

A) CONSTRUCTION SPECIFICATIONS & INSTALLATION:

1. THE DRAINAGE AREA OF THE DITCH OR SWALE BEING PROTECTED SHALL NOT EXCEED 2 ACRES WHEN A COARSE AGGREGATE IS USED ALONE AND SHALL NOT EXCEED 10 ACRES WHEN A COMBINATION OF CLASS 1 RIPRAP AND COARSE AGGREGATE IS USED. AN EFFORT SHOULD BE MADE TO EXTEND THE STONE TO THE TOP OF CHANNEL BANKS.
2. THE MAXIMUM HEIGHT OF THE DAM SHALL BE 3 FEET. THE CENTER OF THE CHECK DAM IS AT THE SAME ELEVATION AS THE TOP OF THE OUTER EDGES.
3. FOR ADDED STABILITY, THE BASE OF THE CHECK DAM CAN BE KEYED INTO THE SOIL APPROXIMATELY 6 INCHES.
4. THE MAXIMUM SPACING BETWEEN THE DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
5. STONE SHOULD BE PLACED ACCORDING TO THE CONFIGURATION TO THE LEFT. HAND OR MECHANICAL PLACEMENT WILL BE NECESSARY TO ACHIEVE COMPLETE COVERAGE OF THE DITCH OR SWALE AND TO INSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES.
6. GEOTEXTILE MAY BE USED UNDER THE STONE TO PROVIDE A STABLE FOUNDATION AND TO FACILITATE REMOVAL OF THE STONE.

C) INSPECTION AND MAINTENANCE:

1. CHECK DAMS SHOULD BE CHECKED FOR SEDIMENT ACCUMULATION AFTER EACH STORM EVENT OF 1/2-INCH OR GREATER. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES ONE HALF OF THE ORIGINAL HEIGHT OF THE DAM.
2. REGULAR INSPECTIONS SHOULD BE MADE TO ENSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED

D) REMOVAL OF PRACTICE:

UNLESS THEY ARE TO BE PERMANENT, CHECK DAMS MUST BE REMOVED WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED. IN TEMPORARY DITCHES AND SWALES, CHECK DAMS SHOULD BE REMOVED AND THE DITCH FILLED WHEN THEY ARE NO LONGER NEEDED. IN PERMANENT STRUCTURES, CHECK DAMS SHOULD BE REMOVED WHEN A PERMANENT LINING CAN BE INSTALLED. IN THE CASE OF GRASS-LINED DITCHES, CHECK DAMS SHOULD BE REMOVED WHEN THE GRASS HAS MATURED SUFFICIENTLY TO PROTECT THE DITCH OR SWALE. THE AREA BENEATH THE CHECK DAMS SHOULD BE SEEDED AND MULCHED IMMEDIATELY AFTER THEY ARE REMOVED. THE USE OF FILTER CLOTH UNDERNEATH THE STONE WILL MAKE REMOVAL OF THE STONE EASIER.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
ROCK CHECK DAM	STANDARD DRAWING NUMBER ESC-15 ADOPTED:

SEDIMENT FENCE DROP INLET PROTECTION NOTES:

A) CONSTRUCTION SPECIFICATIONS:

1. SEDIMENT FENCE SHALL CONFORM TO THE CONSTRUCTION SPECIFICATIONS FOR EXTRA STRENGTH FOUND IN THE TABLE BELOW AND SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID JOINTS.
PHYSICAL PROPERTIES OF FABRIC IN SEDIMENT FENCE:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
FILTERING EFFICIENCY	ASTM 5141	75%
TENSILE STRENGTH AT 20% (MAX.) ELONGATION*	ASTM 4632 AASHTO M288-96	EXTRA STRENGTH - 50 LBS./LINEAR INCH
FLOW RATE	ASTM 5141	0.2 GAL./SQ.FT/ MINUTE**
ULTRAVIOLET RADIATION STABILITY %	ASTM D 4355	90%

* REQUIREMENTS REDUCED BY 50% AFTER SIX MONTHS OF INSTALLATION.

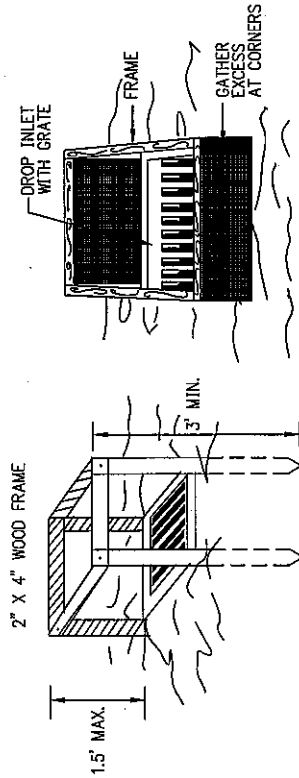
** HIGH POROSITY FABRIC MADE BY BETTER SUITED FOR THIS DEVICE.

2. FOR STAKES, USE 2X4 WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3 FEET.
3. SPACE STAKES EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVE THEM INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP.
4. TO PROVIDE NEEDED STABILITY TO THE INSTALLATION, FRAME WITH 2X4 WOOD STRIPS AROUND THE CREST OF THE OVERFLOW AREA AT A MAXIMUM OF 1.5 FEET ABOVE THE DROP INLET CREST.
5. PLACE THE BOTTOM 12 INCHES OF THE FABRIC IN A TRENCH AND BACKFILL THE TRENCH WITH 12-INCHES OF COMPACTED SOIL.
6. FASTEN FABRIC SECURELY BY STAPLES, OR WIRE IT TO THE STAKES AND FRAME. JOINTS MUST BE OVERLAPPED TO THE NEXT STAKE.
7. IT MAY BE NECESSARY TO BUILD A TEMPORARY DIKE ON THE DOWNSLOPE SIDE OF THE STRUCTURE TO PREVENT BYPASS FLOW.

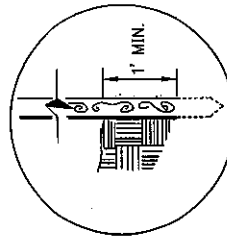
B) INSPECTION AND MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

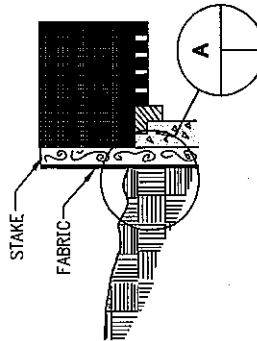
SEDIMENT FENCE DROP INLET PROTECTION



PERSPECTIVE VIEWS
NOT TO SCALE

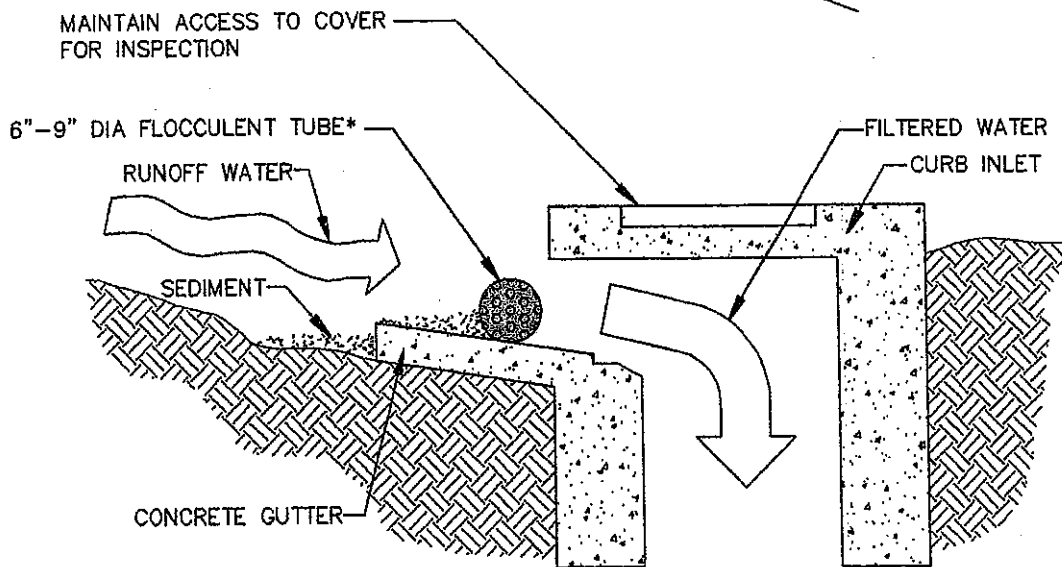
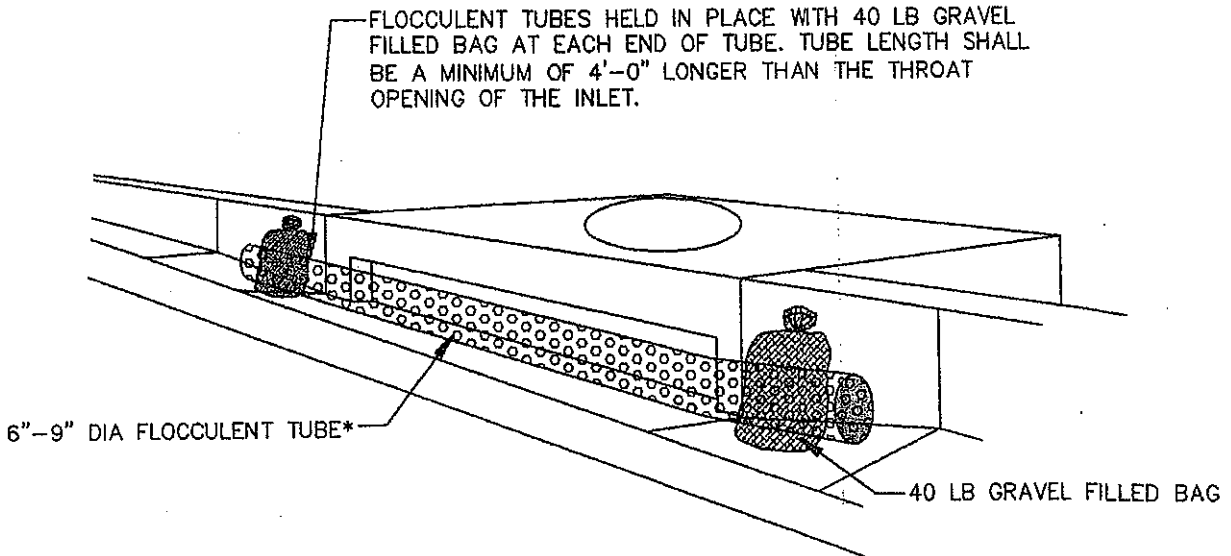


DETAIL A
NOT TO SCALE



ELEVATION OF STAKE AND FABRIC ORIENTATION

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
SEDIMENT FENCE DROP INLET	STANDARD DRAWING NUMBER: ESC-19
PROTECTION	ADOPTED:



SPECIFIC APPLICATION

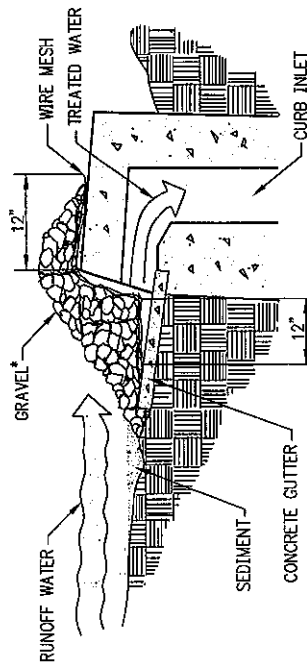
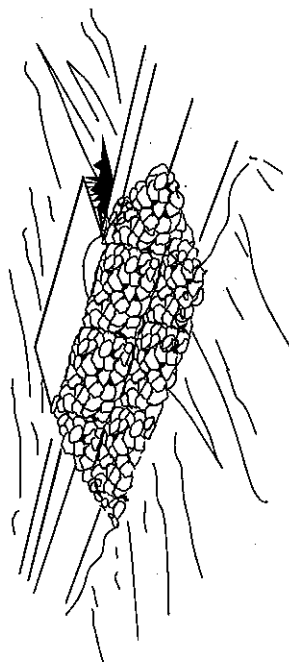
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* 6" PERFORATED ADS DRAIN PIPE FILLED WITH CLEAN 3/4" GRAVEL, CAPPED AT EACH END AND COVERED WITH GEOFABRIC SOCK MAYBE SUBSTITUTED FOR FIBER FLOCCULENT TUBE.

CURB INLET SEDIMENT FILTER

N.T.S.

GRAVEL CURB INLET SEDIMENT TRAP



CROSS SECTION
NOT TO SCALE

NOTE:

*USE CLEAN GRAVEL 1/2" TO 1" IN DIAMETER.


GRAVEL CURB INLET SEDIMENT TRAP NOTES:

A) GENERAL NOTES:

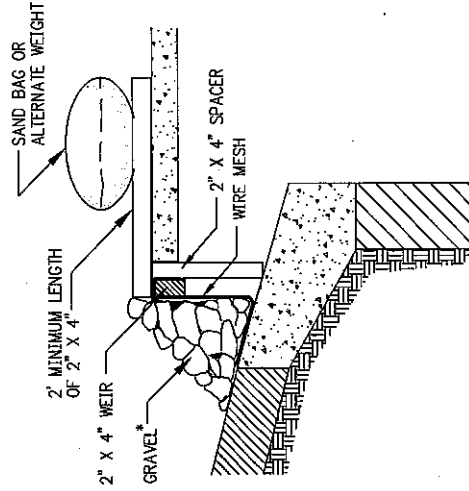
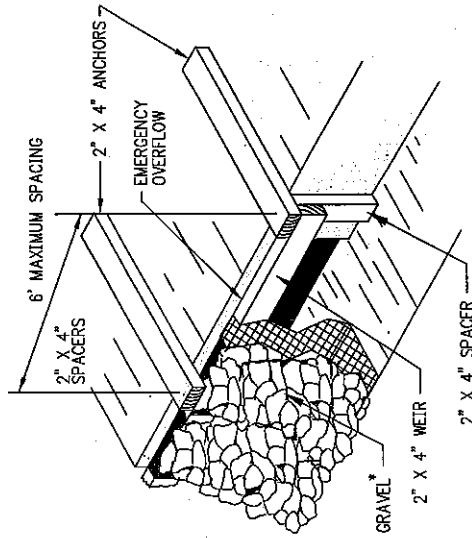
1. WIRE MESH WITH 1/2-INCH OPENINGS SHALL BE PLACED OVER THE CURB INLET OPENING SO THAT AT LEAST 12 INCHES OF WIRE EXTENDS ACROSS THE INLET COVER AND AT LEAST 12 INCHES OF WIRE EXTENDS ACROSS THE CONCRETE GUTTER FROM THE INLET OPENING.
2. STONE SHALL BE PILED AGAINST THE WIRE SO AS TO ANCHOR IT AGAINST THE GUTTER AND INLET COVER AND TO COVER THE INLET OPENING COMPLETELY.
3. IF THE STONE BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCK AND CLEANED OR REPLACED.

B) INSPECTION AND MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN EVENT OF 1/2-INCH OR GREATER AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA SO THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METROPOLITAN CHAPTER
GRAVEL CURB INLET SEDIMENT TRAP	STANDARD DRAWING NUMBER: ESC-24
	ADOPTED:

**WOODEN WEIR
CURB INLET PROTECTION**



PERSPECTIVE VIEW
NOT TO SCALE

NOTE:
* GRAVEL SHALL BE COARSE AGGREGATE FROM 1/2" TO 1" IN DIAMETER.

CROSS SECTION
NOT TO SCALE

WOODEN WEIR CURB INLET PROTECTION NOTES:

A) GENERAL NOTES:

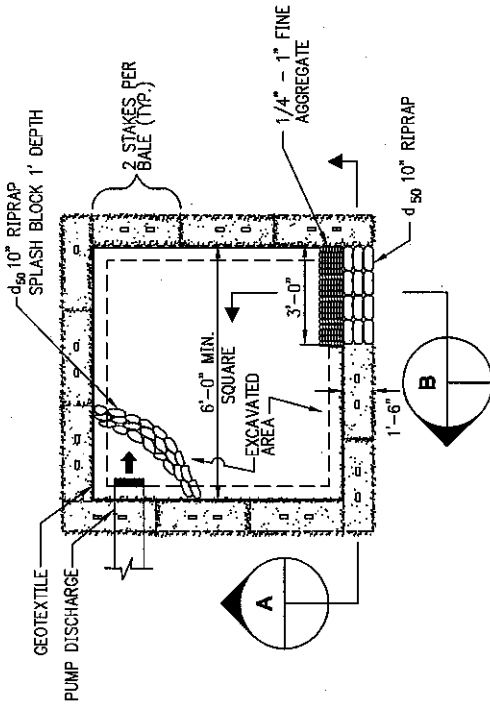
1. ATTACH A CONTINUOUS PIECE OF WIRE MESH THAT IS 30-INCH MINIMUM WIDTH X INLET THROAT LENGTH PLUS 4 FEET TO A 2 X 4 WOODEN WEIR WITH LENGTH EQUAL TO THROAT LENGTH PLUS 2 FEET. WOOD SHOULD BE CONSTRUCTION GRADE LUMBER.
2. PLACE A PIECE OF APPROVED EXTRA-STRENGTH GEOTEXTILE OF THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH IT TO THE 2 X 4 WOODEN WEIR.
3. SECURELY NAIL THE 2 X 4 WEIR TO THE 9-INCH LONG VERTICAL SPACERS WHICH ARE TO BE LOCATED BETWEEN THE WEIR AND INLET FACE AT A MAXIMUM 6-FOOT SPACING.
4. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL A MINIMUM OF 2-FOOT LENGTHS OF 2 X 4 BOARD TO THE TOP OF THE WEIR AT SPACER LOCATIONS. THESE 2 X 4 ANCHORS SHALL EXTEND ACROSS THE INLET TOPS AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
5. THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM OF 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
6. FORM THE WIRE MESH AND GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF CURB ON BOTH SIDES OF THE INLET. PLACE COARSE AGGREGATE OVER THE WIRE MESH AND GEOTEXTILE TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
7. THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE GEOTEXTILE AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
8. ASSURE THAT STORM FLOW DOES NOT BYPASS INLET BY INSTALLING TEMPORARY EARTH OR ASPHALT DIKES DIRECTING FLOW INTO INLET.

B) INSPECTION AND MAINTENANCE:

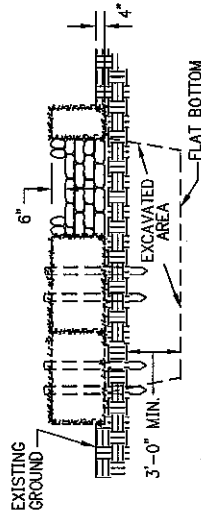
1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN EVENT OF 1/2-INCH OR GREATER AND REPAIRS SHALL BE MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA SO THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
WOODEN WEIR	STANDARD DRAWING NUMBER ESC-25
CURB INLET PROTECTION	ADOPTED:

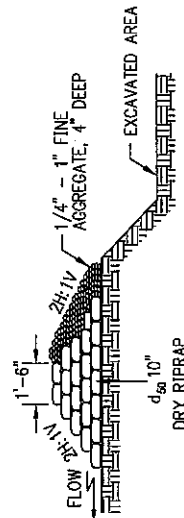
STRAW BALE/SEDIMENT FENCE PIT



PLAN VIEW
NOT TO SCALE



CROSS SECTION A-A
NOT TO SCALE



CROSS SECTION B-B
NOT TO SCALE

STRAW BALE/SEDIMENT FENCE PIT NOTES:

A) GENERAL NOTES:

1. PIT SHALL CONSIST OF STRAW BALES, SEDIMENT FENCE, A STONE OUTLET THAT IS A COMBINATION OF RIPRAP AND AGGREGATE, AND A WET STORAGE PIT.
2. THE STRUCTURE MUST HAVE A CAPACITY WHICH IS DICTATED BY THE FOLLOWING FORMULA:

$$\text{PUMP DISCHARGE (GPM)} \times 16 = \text{CUBIC FEET OF STORAGE REQUIRED}$$

3. IN CALCULATING THE CAPACITY, INCLUDE THE VOLUME AVAILABLE FROM THE FLOOR OF THE EXCAVATION TO THE CREST OF THE STONE WEIR.
4. THE EXCAVATED AREA SHOULD BE A MINIMUM OF 3 FEET BELOW THE BASE OF THE STRAW BALES OR SEDIMENT FENCE.
5. THE PERIMETER MUST BE INSTALLED AS PER THE GUIDELINES FOUND IN SECTION #. STRAW BALE BARRIER AND IN SECTION #. SEDIMENT FENCE.
6. ONCE THE WATER LEVEL NEARS THE CREST OF THE STONE WEIR, THE PUMP MUST BE SHUT OFF WHILE THE STRUCTURE DRAINS DOWN TO THE WET STORAGE ELEVATION.
7. THE WET STORAGE PIT MAY BE DEWATERED ONLY AFTER A MINIMUM OF 6 HOURS OF SEDIMENT SETTLING TIME. THIS EFFLUENT SHOULD BE PUMPED ACROSS A WELL-VEGETATED AREA OR THROUGH A SEDIMENT FENCE PRIOR TO ENTERING A WATERCOURSE.
8. ONCE THE WET STORAGE AREA BECOMES FILLED TO HALF OF THE EXCAVATED DEPTH, ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF.
9. ONCE THE DEVICE HAS BEEN REMOVED, GROUND CONTOURS WILL BE RETURNED TO ORIGINAL CONDITION.

B) INSPECTION AND MAINTENANCE:

1. THE DEWATERING DEVICES MUST BE INSPECTED FREQUENTLY AND REPAIRED OR REPLACED ONCE THE SEDIMENT BUILD-UP PREVENTS THE STRUCTURE FROM FUNCTIONING AS DESIGNED.
2. THE ACCUMULATED SEDIMENT WHICH IS REMOVED FROM A DEWATERING DEVICE MUST BE SPREAD ON SITE AND STABILIZED OR DISPOSED OF AT AN APPROVED DISPOSAL SITE AS PER APPROVED PLAN.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
STRAW BALE/ SEDIMENT FENCE PIT	STANDARD DRAWING NUMBER: ESC-41 ADOPTED:

DEWATER BOX NOTES:

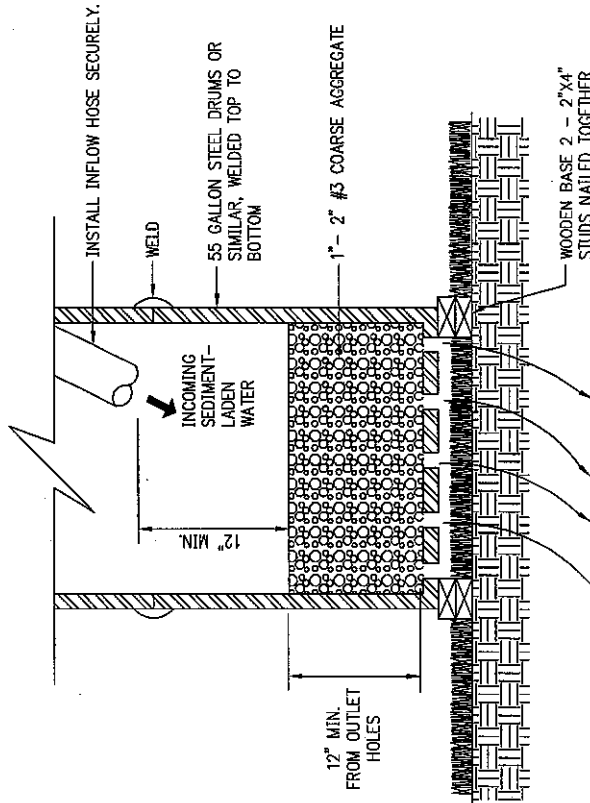
A) GENERAL NOTES:

1. THE BOX SELECTED SHOULD BE MADE OF STEEL, STURDY WOOD, OR OTHER MATERIALS SUITABLE TO HANDLE THE PRESSURE REQUIREMENTS IMPOSED BY THE VOLUME OF WATER. FIFTY-FIVE GALLON DRUMS WELDED TOP TO BOTTOM ARE NORMALLY READILY AVAILABLE AND IN MOST CASES WILL SUFFICE.
 2. BOTTOM OF THE BOX SHALL BE MADE POROUS BY DRILLING HOLES.
 3. COARSE AGGREGATE SHALL BE PLACED OVER THE HOLES AT A MINIMUM DEPTH OF 12 INCHES. METAL HARDWARE CLOTH MAY BE REQUIRED BETWEEN THE AGGREGATE AND THE HOLES IF HOLES ARE DRILLED LARGER THAN THE MAJORITY OF THE STONE.
 4. AS A RESULT OF THE FAST RATE OF FLOW THROUGH THE AGGREGATE, THE EFFLUENT MUST BE DIRECTED OVER A WELL-VEGETATED STRIP AT LEAST 50 FEET LONG AFTER LEAVING THE BASE OF THE FILTER BOX.
 5. THE BOX SHALL BE SIZED AS FOLLOWS:
PUMP DISCHARGE (GPM) X 16 = CUBIC FEET OF STORAGE REQUIRED
 6. ONCE THE WATER LEVEL NEARS THE TOP OF THE BOX, THE PUMP MUST BE SHUT OFF WHILE THE BOX DRAINS AND ADDITIONAL CAPACITY IS MADE AVAILABLE.
 7. THE BOX SHALL BE DESIGNED TO ALLOW FOR EMERGENCY FLOW OVER THE TOP.
- NOTE: USING A DEWATER BOX ONLY ALLOWS FOR MINIMAL SETTLING TIME FOR SEDIMENT PARTICLES; THEREFORE, IT SHOULD ONLY BE USED WHEN SITE CONDITIONS RESTRICT THE USE OF THE OTHER METHODS.

B) INSPECTION AND MAINTENANCE:

1. THE DEWATERING DEVICES MUST BE INSPECTED FREQUENTLY AND REPAIRED OR REPLACED ONCE THE SEDIMENT BUILD-UP PREVENTS THE STRUCTURE FROM FUNCTIONING AS DESIGNED.
2. CLEAN-OUT OF THE BOX IS REQUIRED ONCE ONE THIRD OF THE ORIGINAL CAPACITY IS DEPLETED DUE TO SEDIMENT ACCUMULATION. THE TANK SHALL BE CLEARLY MARKED SHOWING THE CLEAN-OUT POINT.
3. THE ACCUMULATED SEDIMENT WHICH IS REMOVED FROM A DEWATERING DEVICE MUST BE SPREAD ON SITE AND STABILIZED OR DISPOSED OF AT AN APPROVED DISPOSAL SITE AS PER APPROVED PLAN.

DEWATER BOX



TREATED WATER FLOW ACROSS WELL-VEGETATED AREA WHICH HAS A MINIMUM 50' LENGTH

ELEVATION VIEW
NOT TO SCALE

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
STANDARD DRAWING NUMBER ESC-42	ADAPTER: DEWATER BOX

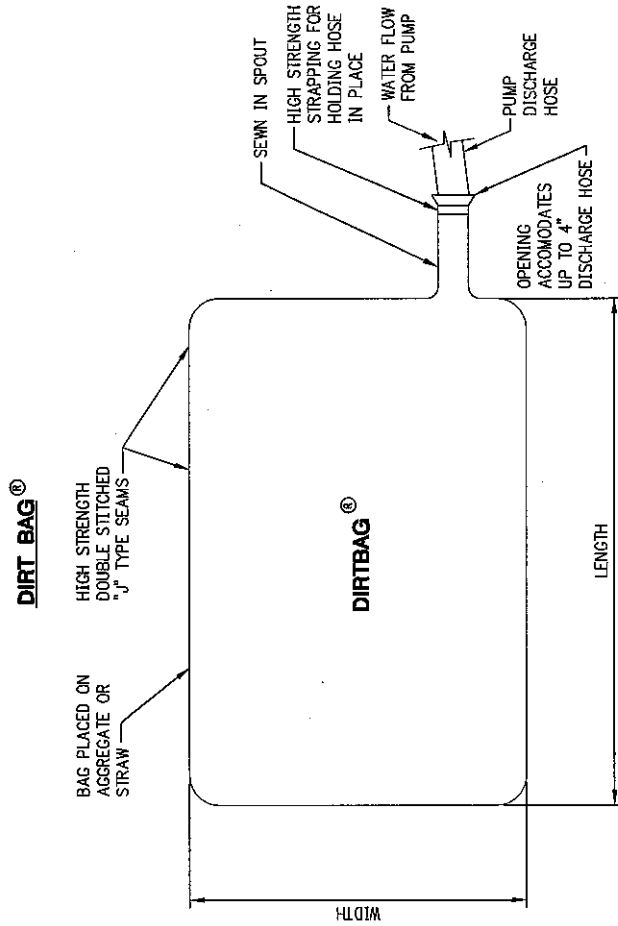
DIRTBAG® NOTES:

A) GENERAL NOTES:

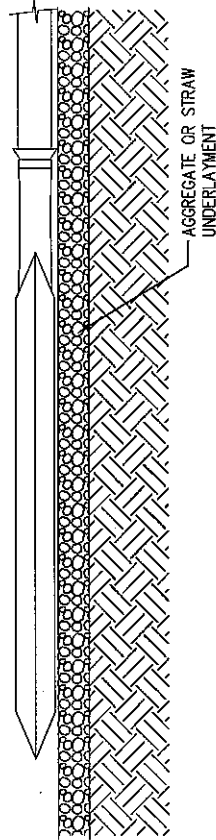
1. THE DIRTBAG® WILL HAVE AN OPENING LARGE ENOUGH TO ACCOMMODATE A 4" DISCHARGE HOSE WITH ATTACHED STRAP TO PREVENT THE PUMPED WATER FROM ESCAPING THE DIRTBAG® WITHOUT BEING TREATED.
2. INSTALL THE DIRTBAG® ON A SLOPE. IT SHOULD BE PLACED SO THE INCOMING WATER FLOWS THROUGH THE DIRTBAG®. DO NOT ALLOW WATER TO FLOW OUT OF THE OPENING WITHOUT BEING TREATED THROUGH THE FABRIC. TO INCREASE THE EFFICIENCY OF THE FILTRATION, THE BAG SHOULD BE PLACED ON AN AGGREGATE BED TO ALLOW WATER TO FLOW THROUGH ALL SURFACES OF THE BAG.
3. DISPOSAL MAY BE ACCOMPLISHED AS DIRECTED BY THE ENGINEER. IF THE SITE ALLOWS, THE DIRTBAG® MAY BE CUT OPEN AND SEEDED, REMOVING THE VISIBLE FABRIC. THE DIRTBAG® IS STRONG ENOUGH TO BE LIFTED IF IT MUST BE HAULED AWAY.

B) INSPECTION AND MAINTENANCE:

THE DIRTBAG® SHOULD BE CONSIDERED FULL WHEN IT IS IMPRACTICAL FOR THE BAG TO TREAT SEDIMENT LADEN RUNOFF AT A REASONABLE RATE, AND SHOULD BE REPLACED WITH A NEW DIRTBAG®.



TOP VIEW



SIDE VIEW

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
DIRTBAG®	STANDARD DRAWING NUMBER: ESC-43
	ADOPTED: