

CONTRACT NUMBER 1183

**KANSAS CITY, MISSOURI
WATER SERVICES DEPARTMENT**

TERRY LEEDS, DIRECTOR

PROJECT MANUAL

FOR

**TARGET GREEN EAST MARLBOROUGH
AND WATER MAIN REPLACEMENTS
PHASE 1**

Kansas City, Jackson County, Missouri

BIDDER/ADDRESS

PHONE

FAX

Engineering Division

2015



ADDENDUM NUMBER 1

Contract Number: **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1**

ISSUE DATE: **June 18, 2015**

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **June 23, 2015**, are amended as follows:

Information to Bidders The following is provided to Bidders for information only:

1. Pre-Bid meeting Sign-in sheet

Bidding Requirements

1. Delete Form 00410 Bid Form/Contract and replace with the attached Form 00410 Bid Form/Contract
2. Delete 00210 Instructions to Bidders, Page 1, Paragraph 2.a and replace with the following 00210 Instructions to Bidders, Page 1, Paragraph 2.a:

The City will determine the lowest and best Bid based on the Total Lump sum Bid in Form 00410 Bid Form/Contract, Paragraph 4.iii. 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.

Contracting Requirements

1. Delete 00830 Wage Rate Requirements and replace with the attached 00830 Wage Rate Requirements
2. Delete Section 00700 General Conditions, Page 11, Article 2.07.C and replace with the following 00700 General Conditions, Page 11, Article 2.07.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 **Article 2.07 B**, procedures for handling Shop Drawings and other submittals, processing Applications for

Payment, maintaining required records, Claims process, dispute resolution, OCP requirements, or any other applicable provisions of the Contract Documents.

3. Delete Section 00700 General Conditions, Page 39, Article 6.18.D.1 and replace with the following 00700 General Conditions, Page 39, Article 6.18.D.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 **Article 2.07** 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.

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.

PRE-BID CONFERENCE SIGN IN SHEET

TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS
PHASE 1

WATER SERVICE DEPARTMENT
CONTRACT #1183

June 9, 2015
2:00 P.M.

NAME	COMPANY	EMAIL	PHONE
Bridgette Atkinson	WSD	atkinson@kemp.kemv.org	816-513-0177
Rachelle Lowe	BMCD	rlowe@burnsmcd.com	816-822-4276
Leon Steinhilber	BMCD / JCP	LSMAB@BURNSMCD.COM	5040 (913) 302-5440
Nick Komer	Blue Nile Cont	nck@bluenilecontractors.com	816-505-1302
Jon Parker	BMCD	jparker@burnsmcd.com	816-995-9270
Priya Iyengar	WSD	padmavathi.iyengar@kemp.org	816-513-0579

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

BID FORM/CONTRACT

Contract Number **1183** _____

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1**

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.
 - i. **LUMP SUM BID for "Water Main Replacement 77th Terrace to 79th Street, Euclid Avenue to Prospect Avenue"** \$ _____
 - ii. **LUMP SUM BID for "Target Green East Marlborough Middle Blue River Green Infrastructure/ Distributed Storage for Areas Tributary to Outfall 069 phase 1-77th Terrace Storm Sewer Separation"** \$ _____
 - iii. **TOTAL LUMP SUM BID IN NUMERIC FIGURES (i+ii)** \$ _____
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.

Bidder: _____

- 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:

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 11 through Section 15 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: 15 % MBE 9 % WBE _____ % DBE

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

Bidder: _____

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 _____
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)

Bidder: _____

- 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.

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, (\$_____).

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)

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

**JACKSON COUNTY
BUILDING CONSTRUCTION OVERTIME SCHEDULE**

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.

**JACKSON COUNTY
BUILDING CONSTRUCTION OVERTIME SCHEDULE**

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.

**JACKSON COUNTY
BUILDING CONSTRUCTION OVERTIME SCHEDULE**

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
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.

OCCUPATIONAL TITLE	* Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Carpenter		\$36.05	1	17	\$15.05
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		\$28.06	3	2	\$14.25
Skilled Laborer		\$29.27	3	2	\$14.25
Millwright		\$36.05	1	17	\$15.05
Operating Engineer					
Group I		\$34.58	3	2	\$15.13
Group II		\$33.54	3	2	\$15.13
Group III		\$33.54	3	2	\$15.13
Group IV		\$29.07	3	2	\$15.13
Oiler-Driver		\$32.42	3	2	\$15.13
Pile Driver		\$36.05	1	17	\$15.05
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
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.



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
**AFFIDAVIT
COMPLIANCE WITH THE PREVAILING WAGE LAW**

I, _____, upon being duly sworn upon my oath state that: (1) I am the

(Name)

_____ of _____; (2) all requirements of

(Title)

(Name of Company)

§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects have been fully satisfied with regard to this company's work on _____;

(Name of Project)

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

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

Signature

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

My commission expires _____, _____.

Notary Public

Receipt by Authorized Public Representative



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
**PREVAILING WAGE
PROJECT NOTIFICATION – CONTRACTOR INFORMATION**

The information below is requested pursuant to Sections 290.210 through 290.340, RSMo.

1. Date of Notification		2. Annual Wage Order Number Included in Bid Specifications	
3. Popular or Descriptive Name of Project			
4. Estimated Project Cost of Completion <i>(total construction contracts to be awarded)</i>		5. \$	
5. Exact Location of Project			
<u>County</u>		<u>City</u>	<u>Township</u>
6. Official Name of Public Body or Agency			
7. Name of Contact Person			8. Phone Number <i>(include area code)</i>
9. Address			
10. E-mail Address		Website	
11. Anticipated Date for Soliciting or Advertising for Bids		12. Contract Award Date	
13. Estimated Start Date of Work	14. Estimated Date of Project Completion	15. Will There Be Any Federal Funds Used in this Contract? <input type="checkbox"/> Yes <input type="checkbox"/> No	
16. Contractor Information Notification			
General Contractor:			
Name		_____	
Address		_____	
City		State	ZIP
_____		_____	_____
Phone Number		E-mail Address	
_____		_____	
Type of Craftsmen Needed by Project _____			
Scope of Work _____			
List all Subcontractors:			
Name		_____	
Address		_____	
City		State	ZIP
_____		_____	_____
Phone Number		E-mail Address	
_____		_____	
Type of Craftsmen Needed by Project _____			
Scope of Work _____			
Name		_____	
Address		_____	
City		State	ZIP
_____		_____	_____
Phone Number		E-mail Address	
_____		_____	
Type of Craftsmen Needed by Project _____			
Scope of Work _____			

The state of Missouri requires workers on public works projects be paid the prevailing wage. Public bodies have duties as required under Section 290.210 - 290.340, RSMo.

Mail, Fax, or E-mail completed form to: **DIVISION OF LABOR STANDARDS**
Attn: Prevailing Wage Section
P.O. Box 449 Jefferson City, MO 65102-0449
Phone: 573-751-3403 Fax: 573-751-3721 E-mail: prevailingwage@labor.mo.gov Website: www.labor.mo.gov/DLS

Missouri Department of Labor and Industrial Relations is an equal opportunity employer/program.



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
**AFFIDAVIT
COMPLIANCE WITH THE PREVAILING WAGE LAW**

I, _____, upon being duly sworn upon my oath state that: (1) I am the
(Name)
_____ of _____; (2) all requirements of
(Title) *(Name of Company)*
§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects
have been fully satisfied with regard to this company's work on _____;
(Name of Project)

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

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

Signature

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

Notary Public

Receipt by Authorized Public Representative



MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
**PREVAILING WAGE
 PROJECT NOTIFICATION – CONTRACTOR INFORMATION**

The information below is requested pursuant to Sections 290.210 through 290.340, RSMo.

1. Date of Notification		2. Annual Wage Order Number Included in Bid Specifications	
3. Popular or Descriptive Name of Project			
4. Estimated Project Cost of Completion <i>(total construction contracts to be awarded)</i>		5. Estimated Project Cost of Completion <i>(total construction contracts to be awarded)</i> \$	
5. Exact Location of Project			
<u>County</u>		<u>City</u>	<u>Township</u>
6. Official Name of Public Body or Agency			
7. Name of Contact Person			8. Phone Number <i>(include area code)</i>
9. Address			
10. E-mail Address		Website	
11. Anticipated Date for Soliciting or Advertising for Bids		12. Contract Award Date	
13. Estimated Start Date of Work	14. Estimated Date of Project Completion	15. Will There Be Any Federal Funds Used in this Contract? <input type="checkbox"/> Yes <input type="checkbox"/> No	
16. Contractor Information Notification			
General Contractor:			
Name		_____	
Address		_____	
City		State	ZIP
Phone Number		E-mail Address	
Type of Craftsmen Needed by Project		_____	
Scope of Work		_____	
List all Subcontractors:			
Name		_____	
Address		_____	
City		State	ZIP
Phone Number		E-mail Address	
Type of Craftsmen Needed by Project		_____	
Scope of Work		_____	
Name		_____	
Address		_____	
City		State	ZIP
Phone Number		E-mail Address	
Type of Craftsmen Needed by Project		_____	
Scope of Work		_____	

The state of Missouri requires workers on public works projects be paid the prevailing wage. Public bodies have duties as required under Section 290.210 - 290.340, RSMo.

Mail, Fax, or E-mail completed form to: **DIVISION OF LABOR STANDARDS**
 Attn: Prevailing Wage Section
 P.O. Box 449 Jefferson City, MO 65102-0449
 Phone: 573-751-3403 Fax: 573-751-3721 E-mail: prevailingwage@labor.mo.gov Website: www.labor.mo.gov/DLS

Missouri Department of Labor and Industrial Relations is an equal opportunity employer/program.



Rules of Department of Labor and Industrial Relations

Division 30—Division of Labor Standards Chapter 3—Prevailing Wage Law Rules

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airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, dredging, shoring, rehabilitation and reactivation of plants, scaffolding, drilling, blasting, excavating, clearing and landscaping. The manufacture or furnishing of materials, articles, supplies or equipment is not construction of public works within the meaning of the Prevailing Wage Law unless conducted in connection with and at the site of construction. The term construction of public works also means all work done in the construction or development of a public works project, including without limitation, altering, remodeling, demolishing existing structures, installation on the site of the construction of items fabricated off-site, painting and decorating, the transporting of materials and supplies to or from the site of the construction by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies or equipment on the site of the construction by persons employed by the contractor or subcontractor.

(2) The term site of the building or construction job means the physical place(s) where the public works are to be constructed, and also means other adjacent or nearby property used by the contractor or subcontractor in that construction which can reasonably be said to be included in the site. Except as otherwise provided in this section, fabrication plants, mobile factories, batch plants, borrow pits, job headquarters, tool yards and the like, are part of the site of the building or construction job provided they are dedicated in a substantial degree to the performance of the public works project, and are so located in proximity to the actual construction location that it would be reasonable to include them. The dedication of seventy-five percent (75%) or more of the output of a fabrication plant, batch plant and the like, to the public works project raises a rebuttable presumption that the facility is part of the site of the building or construction job. The presumption may be rebutted by evidence showing that the facility was established for other legitimate commercial purposes that make the facility useful well after the public works project has been completed. Not included in the site of the building or construction job are permanent home offices, branch plant establishments, fabrication plants and tool yards of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular public works project. In addition, fabrication plants, batch plants, borrow pits, job headquarters, tool yards and the like, of a commercial supplier

or materialman which are established by a supplier of materials for the project before opening of bids and not on the project site are not included in the site of the building or construction job. The permanent, previously established facilities are not a part of the site of the building or construction job, even where the operations for a period of time may be dedicated exclusively, or nearly so, to the performance of a public works project.

AUTHORITY: section 290.240, RSMo 1994. Original rule filed Aug. 24, 1990, effective April 29, 1991. Amended: Filed July 17, 1995, effective Jan. 30, 1996.*

**Original authority: 290.240, RSMo 1957, amended 1959.*

8 CSR 30-3.030 Apprentices and Trainees

PURPOSE: This rule sets forth the requirements for the payment of apprentice wages for workers employed on public works subject to the Prevailing Wage Law.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. Therefore, the material which is so incorporated is on file with the agency who filed this rule, and with the Office of the Secretary of State. Any interested person may view this material at either agency's headquarters or the same will be made available at the Office of the Secretary of State at a cost no to exceed actual cost of copy reproduction. The entire text of the rule is printed here. This not refers only to the incorporated by reference material.

(1) Journeymen's rate of pay shall be paid to all workers employed on public works construction except apprentices and trainees registered and participating in apprentice or trainee programs registered with the United States Department of Labor, Bureau of Apprenticeship and Training; and apprentices and trainees registered and participating in apprenticeship and skill training programs certified by the Secretary of the United States Department of Transportation as promoting equal opportunity in connection with federal-aid highway construction programs.

(2) Apprentices shall be permitted to work at less than the predetermined rate for the class or type of work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the United States Department

of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training. The allowable ratio of apprenticeship to journeymen on the site of the construction for any class or type of workers shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on the payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this rule, shall be paid not less than the applicable wage rate on the wage determination for the class or type of work actually performed. In addition, those apprentices performing work on the site of the construction who are in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the class or type of work actually performed. Every apprentice shall be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate for the class or type of worker specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices shall be paid the full amount of fringe benefits listed on the wage determination for the applicable class or type of work performed. In the event the Bureau of Apprenticeship and Training withdraws approval of an apprenticeship program, the contractor shall no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the class or type of work performed until an acceptable program is approved.

(3) Trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the United States Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of



8 CSR 30-3.060 Occupational Titles of Work Descriptions

PURPOSE: The Department of Labor and Industrial Relations is required to determine the prevailing hourly rate of wages to be paid to each worker engaged in construction on a public works project, relative to the type of work performed by each worker. This rule describes by occupational title the type of work performed in the construction of a public works project in Missouri and sets forth the procedures to be followed in identifying each occupational title utilized on a public works project.

(1) Each occupational title defines by name the type of work performed in the construction of a public works project. The description of work designated for a particular occupational title is not intended to be jurisdictional in scope or nature, and is not to be construed as limiting or prohibiting workers from engaging in construction work falling within several occupational titles.

(2) Each occupational title of work description shall be based upon the particular nature of the work performed, with consideration given to those trades, occupations or work generally considered within the construction industry as constituting a distinct classification of work. In determining occupational titles and scope of work definitions, the department shall consider the following:

(A) Collective bargaining agreements;

(B) *Dictionary of Occupational Titles*, as published by the United States Department of Labor; and

(C) Opinions of experts from organized labor and the opinions of contractors and contractor associations as they relate to the custom and usage applicable to the construction industry in Missouri.

(3) Any person wishing to add, delete or modify an occupational title of work description shall submit to the director of the Division of Labor Standards a written request containing the proposed changes. Proposals shall contain the following information:

(A) Occupational title;

(B) A description of the physical duties to be performed by workers under the title;

(C) A copy of any current collective bargaining agreements that are relevant to the proposal, if any;

(D) Evidence of hours worked and wages paid while performing work under the title, including fringe benefits paid, if any;

(E) Identification of the county(ies) where the work was performed;

(F) Evidence that the proposed occupational title of work description is for a type or class of work that is commonly utilized by the construction industry on building or heavy and highway construction projects in Missouri; and

(G) Other information concerning the proposed addition, deletion or modification as the director of the Division of Labor Standards may deem advisable under the circumstances.

(4) Interested parties who wish to submit wage information to be used in establishing the prevailing hourly rate of wages for a particular class or type of work are required to identify the work according to the applicable occupational title of work description set forth in this rule. Hours of work reported to the department shall not be used to establish the prevailing hourly rate of wages if the party submitting the hours of work fails to identify the work under one of the occupational titles recognized by this rule.

(5) Any question as to the proper classification of work should be resolved before the work in question is commenced. Interested parties are encouraged to contact the Prevailing Wage Section of the Division of Labor Standards for an interpretation of these rules and for a determination of the appropriate occupational title of work description, relative to the class or type of work to be performed.

(6) The occupational titles and work descriptions for each type or class of work contained herein are valid throughout the entire state of Missouri. Through an objection to a wage order, an interested party may assert that any given description of work, as stated within this rule, does not apply to a specific occupational title(s) and that a different work description should apply to that occupational title(s). The interested party shall have the burden of proving by a preponderance of the evidence the inapplicability of the description of work within that particular occupational title, but shall be afforded the opportunity to do so in a hearing on an objection to the wage order before the Labor and Industrial Relations Commission.

(7) Occupational titles of work descriptions may be obtained from the department by written request to the director of the Division of Labor Standards, PO Box 449, Jefferson City, MO 65102.

(8) The occupational titles of work descriptions set forth here are as follows:

(A) Asbestos Worker/Heat and Frost Insulator—Applies to workers who apply insulation materials to mechanical systems to reduce loss or absorption of heat, prevent moisture condensation and to deaden sound and prevent vibration. The workers remove all insulation materials from mechanical systems unless the mechanical system is being scrapped. The work falling within this occupational title of work description includes:

1. The preparation, including the building of enclosures and hanging polyurethane, and physical distribution on the job site of asbestos, cork, plastic, magnesia or similar materials, or other materials used as a substitute, and used as thermal insulation. The manufacture, fabrication, assembling, molding, handling, erection, spraying, pouring, making, hanging, application, adjusting, alteration, repairing, dismantling, reconditioning, corrosion control and testing of heat or frost insulation, such as asbestos, cork, mineral wall, infusorial earth, mercerized silk, flax, fiber, fire felt, asbestos paper, asbestos curtain, asbestos millboard, fibrous glass, foam glass, styrofoam, polyurethane, polystyrene, metals, plastics, fibrous matter, roving and resins, and the erection of scaffolding up to fourteen feet (14'), working platform;

2. The covering, including encapsulation, of boilers, tanks, refrigeration units, evaporators, turbines, fittings, valves, ducts, flues, vats, equipment, hot and cold pipes or any other hot or cold surfaces with the insulation materials listed in this rule, used for the purpose of thermal insulation, fire stoppage, fireproofing, radiator protection, sound deadeners and the lagging (covering) on piping; and

3. The removal of all insulation materials from mechanical systems, unless the mechanical system is being scrapped, whether they contain asbestos or not (pipes, boilers, ducts, flues, breechings). All cleanup required in connection with this work, shall include the sealing, labeling and dropping of scrap material into the appropriate containers. (After drop, final disposal is considered to be the class or type of work falling within the occupational title of work description for second semiskilled laborer.);

(B) Boilermaker—Applies to workers who assemble, erect and repair boilers, tanks, vats and pressure vessels according to blueprint specifications, using handtools, portable power tools and equipment. The work falling within this occupational title of work description includes:

1. Locating and marking of reference points for columns on plates or foundations,



floors and steps when part of the finishing process;

5. The installation of seamless composition floors and the installation and finishing of epoxy-based coatings or polyester-based linings to all surfaces, when the coatings or linings are applied by spraying or troweling;

6. The sandblasting or water blasting for architectural finish or preparatory to patching;

7. The cutting of joints with concrete saw for the control of cracks in buildings and sidewalks, driveways, and curbs and gutters contiguous to buildings; and

8. The setting of concrete curb, gutter and sidewalk forms one (1) board high up to twelve inches (12");

(F) Communication (Electronic/Telecommunication) Technician—Applies to workers who install, inspect, repair and service electronic and telecommunication systems. The work falling within the occupational title of Communication (Electronic/Telecommunication) Technician includes:

1. Installing, repairing and servicing of radio, television and recording systems and devices; systems for paging, intercommunication, public address, wired music, clocks, security and surveillance systems and mobile radio systems; fire alarm and burglar alarm systems;

2. Wiring of low-voltage surface wiring and wiring in nonmetallic conduits and incidental shielded metallic conduit runs of no longer than ten feet (10') nor larger than one inch (1") when required in conjunction with the work listed in this rule;

3. Installing, repairing, servicing, or a combination of these, of the Main Distribution Frame (MDF) where the permanent outside lines entering a building terminate and where the subscriber's line multiple cabling and trunk multiple cabling originate. It is usually located on the ground floor of a building;

4. Installing, repairing, servicing, or a combination of these, of the Intermediate Distribution Frames (IDF), which provides flexibility in allocating the subscriber's number to the line unit or equipment in the office that is to be associated with the particular line. These frames are located on each floor of a building;

5. Installing, repairing, servicing, or a combination of these, of the subpanels (blocks). The subpanels are connecting devices where large feed cables terminate at the distribution frames;

6. Installing, repairing common equipment or key service unit, or a combination of these. This equipment consists of a back-board assembly and an equipment mounting

frame, which are utilized for connecting external telephones;

7. Installing, repairing, servicing of the instruments, terminals and sets, or a combination of these. This equipment is at either end of a circuit, or at a subscriber's or user's terminal;

8. Installing, repairing, servicing, or a combination of these, of the ancillary or add-on equipment such as bells, buzzers, speakerphones, headsets, automatic dialers, recorders; and

9. Installing, repairing, servicing of the telephone cable, or a combination of these. Telephone cable includes: network channel service cable; riser cables between floors of a building; distribution cables installed on each floor of a building in the floor or the ceiling, and inside wires between the telephone and the connection to the distribution cable;

(G) Electrician—Encompasses two (2) sub-classifications as follows, Inside Wireman and Outside-Line Construction/Lineman:

1. Inside wireman—Applies to workers who are responsible for installation, assembly, construction, inspection, operation, and repair of all electrical work within the property lines of any given property (manufacturing plants, commercial buildings, schools, hospitals, power plants, parking lots). This scope of work shall begin at the secondary site of the transformer when the transformer is furnished by the local utility and the service conductors are installed underground. When service conductors are installed overhead in open air from wooden poles, this scope of work shall start immediately after the first point of attachment to the buildings or structures. The work falling within this occupational title of work description includes:

A. Planning and layout of electrical systems that provide power and lighting in all structures. This includes cathodic protection systems utilized to protect structural steel in buildings and parking structures;

B. All handling, moving, loading, and unloading of any electrical materials, materials used in association with an electrical system, electrical equipment, and electrical apparatus on the job site, whether by hand or where power equipment and rigging are required;

C. Welding, burning, brazing, bending, drilling, and shaping of all copper, silver, aluminum, angle iron, and brackets to be used in connection with the installation and erection of electrical wiring and equipment;

D. Measuring, cutting, bending, threading, forming, assembling, and installing of all electrical raceways (conduit, wireways, cable trays), using tools, such as hacksaw,

pipe threader, power saw, and conduit bender;

E. Installing wire in raceways (conduit, wireways, troughs, cable trays). This wire may be service conductors, feeder wiring, subfeeder wiring, branch circuit wiring;

F. Chasing and channeling necessary to complete any electrical work, including the fabrication and installation of duct banks and manholes incidental to electrical, electronic, data, fiber optic, and telecommunication installation;

G. Splicing wires by stripping insulation from terminal leads with knife or pliers, twisting or soldering wires together, and applying tape or terminal caps;

H. Installing and modifying of lighting fixtures. This includes athletic field lighting when installed on stadium structures or supports other than wooden poles, or both;

I. Installing and modifying of all electrical/fiber optic equipment (AC-DC motors, variable frequency drives, transformers, reactors, capacitors, motor generators, emergency generators, UPS equipment, data processing systems, and annunciator systems where sound is not a part thereof);

J. Installing of raceway systems utilizing conduit, conduit bodies, junction boxes, and device boxes for switches and receptacles. This also may include wiring systems utilizing other methods and materials approved by the *National Electrical Code* (MC cable, AC cable, BX, or flexible metal tubing or electrical nonmetallic tubing);

K. Installing of main service equipment, distribution panels, subpanels, branch circuit panels, motor starters, disconnect switches, and all other related items;

L. Installing and wiring of instrumentation and control devices as they pertain to heating, ventilating, air conditioning (HVAC) temperature control and energy management systems, building automation systems, and electrically or fiber optic operated fire/smoke detection systems where other building functions or systems are controlled;

M. Installing conduit or other raceway greater than ten feet (10') when used for the following: fire alarm systems, security systems, sound systems, closed circuit television systems or cable television systems, or any system requiring mechanical protection or metallic shielding (telephone systems);

N. Testing continuity of circuit to insure electrical compatibility and safety of components. This includes installation, inspecting, and testing of all grounding systems including those systems designed for lighting protection; and



removal, wrecking and dismantling of structural, architectural and reinforcing iron and steel, ornamental lead, bronze, brass, copper and aluminum, and plastics or other materials when used in place of them. The work falling within the occupational title of work description includes:

1. Structural. The unloading, erecting, bolting-up, plumbing-up, welding and installing of structural steel, including any field fabrication;

2. Reinforcing. The unloading, carrying, placing and tying of all concrete reinforcing, such as re-bar, wire mesh, expanded metal or post tensioning cable (including the tension process) or prestress cables when installed on the job site;

3. Rigging. The unloading, moving, handling, placing and setting of electrical machinery and equipment when rigging or power equipment, or both, is used (with the exception of setting of electric motors). The assembly and erection of radio and television and other structural steel towers (with the exception of electrical transmission towers). The unloading, handling, moving and placing of machinery to be assembled or dismantled, erected or installed to its approximate position (over the anchor bolts);

4. Windows. The installation of metal windows (with the exception of store fronts display windows), curtain walls and metal panels. The caulking of metal-to-metal joints and metal-to-brick;

5. Doors. The erection of curtain type doors (overhead rolling-type doors), heavy industrial doors when made of metal, fire doors and exterior metal hinged doors that carry a fire underwriters label are erected by iron workers;

6. Sheeting and decking. The installation of sheeting which is attached to metal framework including metal floor decking;

7. Metal buildings. The erection and installation of structural steel and sheet metal packaged buildings when they come in a package unit, such as Butler, Delta, Varco Prudent or other name brand packaged buildings. The installation of all doors, windows and insulation (when installed in conjunction with sheeting) in the packaged buildings. The installation of metal siding and metal roof decking, regardless of the fastening method or the object to which it is fastened;

8. Elevators. The installation of elevator doors for gates manually operated and all elevator enclosures, fronts, fascias, sills, frames and bucks;

9. Precast. The unloading and installation/erection of precast bridge girders, single T's, double T's, top panels and tilt-up slabs; and

10. Other. The installation of all catwalks, stairways and hand rails made of aluminum, bronze or any type of metal, glass or plastic. The installation of ornamental iron, such as revolving doors, gates, handrails, window grills, jail and cell work and chain link fences. The installation of dry storage bins, hoppers, chutes and conveyors where sand ore, coal or any dry component is stored or transferred. The erection, installation, removal, wrecking and dismantling of bridges, viaducts, cableways, tramway, mono-rail transportation systems. The erection, installation, removal, wrecking and dismantling of locks, gates, metal forms, railings (including pipe). The erection, installation, removal, wrecking and dismantling of frames in support of boilers. The installation of metal siding and metal roof decking, regardless of the fastening method, or the object to which it is fastened. The handling, burning, welding and tying of all materials used to reinforce concrete structures. The installation and erection of TV and microwave towers, self-supporting towers or guy towers. The installation of metal guardrails with metal posts and highway signage;

(K) Laborer—Consists of providing routine manual labor. This work encompasses several subclassifications, with the title and work description considered in light of whether the public works project pertains to building construction or heavy/highway construction.

1. Building construction. The subtitles falling within the occupational title of work description for laborer, as applicable to building construction, are as follows:

A. General laborer. The work falling within this subtitle of work description includes:

(I) Being included in one of the following categories: flagmen, heaters, material plant man, carpenter tender, landscaper, signalman, wrecker (old/new structures), form handler or posthole digger;

(II) Cleaning and clearing of all debris for all crafts, loading and unloading, conveying, distributing, construction material by hand and collecting and hoisting debris, backfilling, grading and landscaping by hand;

(III) Covering of tanks, structures and material piles with tarpaulins or other materials. Cleaning of masonry and other type walls and windows. Signaling and hoisting concrete buckets and for all other material handled by workers falling within the occupational title of work description for laborer;

(IV) Providing drinking water. Handling and cleaning of concrete chutes. Cleaning of concrete spills and chipping where hand tools are required. Performance of work necessary in remedying defects in

concrete caused by leakage, bulging, sagging or shifting of forms when finishing tools are not used. Jackhammer and paving breaker, air compressors, motor buggies, pumps (removal of water), except set-up men and nozzle men, chipping tool operator, concrete mixer operator (up to and including two (2)-bag capacity); and

(V) Laying nonpressurized pipe for downspout drain lines, header lines or laying of nonpressurized conduit, or a combination of these, for the carrying of storm water, waste, sewage, gravity flow lines, catch basins and manholes, effluent lines, originating outside the building and all those lines originating inside the building at the first Y, T or connection outside the building;

B. First semiskill laborer. The work falling within this subtitle of work description includes: hod-carriers, plasterers and cement mason tenders (who assist bricklayers, plasterers and cement masons). The mixing, packing, wheeling and tempering of mortar and fire clay. The mixing, handling and conveying of all other materials used by bricklayers, plasterers and cement masons (for example, brick, tile, stone and cast stone), whether done by hand or using a forklift (walk behind or similar types). Building of scaffolds, trestles, boxes and swinging staging for bricklayers, plasterers and cement masons; and

C. Second semiskill laborer. The work falling within this subtitle of work description includes: concrete pump set-up men and nozzle men, tile layers and bottom men, on sewers and drains, cutting torch and burning bar (demolition), trench or pier holes twelve feet (12') or over, wagon drill, air track or any mechanical drill, powder man, tamper, one hundred pounds (100 lbs.) or over, laborers working for mechanical and electric contractors (including but not limited to digging of all trenches, ditches, holes, paving of concrete and cleaning of all trash), paving breaker, jackhammer and vibrator, laser beam man for sewer, grade checker for roads and railroads, asbestos removal (except mechanical systems that are not being scrapped and any type of roofing where the roof is to be relaid), hazardous waste removal, disposal work, or any combination of these.

2. Heavy/highway construction. The subtitle falling within the occupational title of work description for laborer, as applicable to heavy/highway construction, are as follows:

A. General laborer. The work falling within this subtitle of work description includes: carpenters tenders, salamander tenders, dump man, ticket takers, flagman, loading trucks under bins, hoppers and conveyors, track men, cement handler, dump man on



of whether the public works project pertains to building construction or heavy/highway construction.

1. Building construction. The subtitles falling within the occupational title of work description for operating engineer, as applicable to building construction, are as follows:

A. Group I—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: crane (for example, crawler or truck); dragline—clam shell—gradall; Derrick (all types); kimmer scoop; power shovel or backhoe over one (1) cubic yard; pile driver (for example, land or floating); Whirley; mechanic and welder; hydraulic, self-propelled crane; stinger or cherry picker crane; switch boat; concrete portable plant/concrete mixer paver; cableways;

B. Group II—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: asphalt paver and spreader/concrete spreader; asphalt plant mixer operators; asphalt plant operator; backfillers; back hoe (under one (1) cubic yard); Barber-Green loader (similar type); blade—power, all types; boats—power; boilers; boring machine (all types, including tunnel boring); brooms—power operated (all types); concrete saw (self-propelled); chip spreader (front man); clef plane operators; combination concrete hoist and mixer such as mix or mobile; crab—power operated; crusher rock; ditching machine; dozer/dredges; finishing machine; firemen on rigs; flex plane; floating machine; form grader; greaser; hoist operator (all types); hopper—power operated; hydra hammer (all types); Lad-A-Vator—similar type; loaders—all types, including skid-steer (for example, bobcat); locomotives (all types); curb finishing machine; mucking machine; orange peels; pumps (all types); push cats; rollers (all types); scoops (all types except skimmer scoop); self-propelled rotary drill; air compressors (all types); side boom; siphons, jets and jennies; welding machine; subgrader; testhole machine; throttle man tractors over fifty (50) HP; air tugger with air compressor; anchor placing barge; Ahoy force feeder loader (self-propelled); bull float; pipe cleaning/wrapping machine; conveyor; heaters, fuel fired with forced air; quadtrack; tie tamper; vibrating machine; well drilling machine; forklift (except masonry forklift);

C. Group III—This subtitle applies to

workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: tractors (under fifty (50) HP); distributor (bituminous); scissor lift; small machine (operator); mud jack; wench truck operator; pug mill operator; elevator-push button; A-frame truck; mixers; oilers;

D. Group III-A—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as a masonry forklift;

E. Group IV—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as a self-propelled floor sweeper; and

F. Group V—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: elevator—auto; air pressure oiler; air pressure engineer.

2. Heavy/highway construction. The subtitles falling within the occupational title of work description for operating engineer, as applicable to heavy/highway construction, are as follows:

A. Group I—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: asphalt finishing machine and trench; widening spreader; asphalt plant console operator; autograder; automatic slipform paver; backhoe; blade operator (all types); boat operator (all types); boilers—two (2); central mix concrete plant operator; clamshell operator; concrete mixer paver; crane operator; Derrick or Derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; high-loader including skid steer (for example, bobcat); hoisting engine—two (2) active drums; launchhammer wheel; locomotive operator—standard gauge; mechanics and welders; mucking machine; piledriver operator; Pitman crane operator; push cat operator; quadtrack; scoop operator—all types; shovel operator; sideboom cats; skimmer scoop

operator; trenching machine operator; truck crane;

B. Group II—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: A-frame truck; asphalt hot mix silo; asphalt plant fireman, drum or boiler; asphalt plant mixer operator; asphalt plant man; asphalt roller operator; backfiller operator; Barber-Greene loader; chip spreader; concrete mixer operator, skip loader; concrete plant operator; concrete pump operator; crusher operator; dredge oiler; elevating grader operator; forklift; greaser—fleet; hoisting engine—one (1); locomotive operator—narrow gauge; multiple compactor; pavement breaker; power-broom—self-propelled; power shield; rooter; side discharge concrete spreader; slip form finishing machine; stumpcutter machine; throttle man; tractor operator—over fifty (50) HP; wench truck;

C. Group III—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: boilers—one (1); chip spreader (front man); churn drill operator; clef plane operator; concrete saw operator self-propelled; curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; roller operator, other than high-type asphalt; screening and washing plant operator; siphons and jets; subgrading machine operator; spreader box operator, self-propelled (not asphalt); tank car heater operator—combination boiler and booster; tractor operator fifty (50) HP or less; Ulmac, Ulric or similar spreader; vibrating machine operator, not hand;

D. Group IV—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as an oiler; and

E. Oiler-driver—This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: fireman—rig; maintenance operator;

(P) Painter—The work falling within the occupational title of work description for painter includes:

1. Preparation of surfaces. The washing,



metal. The work falling within this occupational title of work description includes:

1. The installation of slate and tile and all substitute materials taking the place of slate and tile used for roofing including flat or promenade slate, with necessary metal flashing to make water-tight;

2. The cementing in, on or around slate and tile roofs. The laying of felt or paper beneath the slate and tile. The dressing, punching and cutting of all roof slate or tile either by hand or machinery;

3. The installation of all forms of plastic, slate, slag, gravel; asphalt and composition roofing; rock asphalt mastic when used for damp and waterproofing; prepared paper; compressed paper and chemically prepared paper, and burlap with or without coating. The installation of all damp resisting preparations regardless of the method of application in or outside of building. The installation of damp courses, sheeting or coating on foundation work and tarred roofs. The laying of the tile or brick, when laid in asphalt or pitch tar;

4. The installation and application of new materials used in roofing, water-proofing, encapsulation and containment process including all forms of elastomeric or plastic (elastoplastic), or both, roofing systems, both sheet and liquid applied, whether single-ply or multi-ply. The installation of aggregates or stone, used as a ballast for inverted roofing membrane assembly, or roof of similar construction where insulation is laid over the roofing membrane. The sealing and caulking of seams and joints on these elastoplastic systems to insure water-tightness. The applying of liquid-type elastoplastic preparation for roofing, damp or waterproofing when applied with a squeegee, trowel, roller or spray equipment whether applied inside or outside of a building. The priming of surfaces to be roofed, damp or waterproofed, whether done by roller, mop, swab, three (3)-knot brush or spray systems. The waterproofing of all types of preformed panels;

5. The application of all types of spray-in-place such as urethane or polyurethane, and the coatings that are applied over them;

6. The application of roof insulation, when the insulation material is applied as an integral part of the roofing system, whether the insulation material is applied as the first, last or any other layer in between;

7. The operation and servicing of all kettles, bulk tankers, stationary heating tankers and other types of equipment and tools used to accomplish this work (including heating systems for the operation of the equipment); and compressors for applying roofing material components, roof and mop

cars, hydraulics, tools and equipment, be it hand or power, needed to apply waterproofing, insulated and roofing materials;

8. The handling, hoisting and storing of all roofing, damp and waterproofing materials; and

9. The tear-off, removal, or both, of any type of roofing, all spudding, sweeping, vacuuming, cleanup, or a combination of these, of any areas of any type where a roof is to be relayed;

(V) Sheet Metal Worker—The work falling within the occupational title of sheet metal worker includes:

1. The handling, conditioning, assembling, installing, servicing, repairing, altering and dismantling of the duct work for the heating, ventilation and air-conditioning systems regardless of the materials used and the setting of all equipment and all supports and reinforcements in connection with the system;

2. The installation of expansion and discharge valves, air filters, and water filters in heating, ventilation and air-conditioning systems;

3. The testing and balancing of air-handling equipment and duct work;

4. The forming, rolling, drawing, stamping or pressing of sheet metal shingles, sheet metal tile, sheet metal brick, sheet metal stone and sheet metal lumber, when specified for use as roofing, siding, waterproofing, weather proofing, fire proofing or for ornamental or any other purpose;

5. The performing of sheet metal work specified for use in connection with or incidental to steeples, domes, minarets, look outs, dormers, louvers, ridges, copings, roofing, decking, hips, valleys, gutters, outlets, roof flanges, flashings, gravel stops, leader heads, down spouts, mansards, balustrades, skylights, cornice moulding, columns, capitals, panels, pilasters, mullions, spandrils and any and all other shapes, forms and design of sheet metal work specified for use for waterproofing, weatherproofing, fire proofing, ornamental, decorative or display purposes, or as trim on exterior of the buildings;

6. The installing of sheet metal ceilings with cornices and mouldings of plain, ornamental, enameled, glazed or acoustic type;

7. The installing of side walls, wainscotting of plain, ornamental, enameled or glazed types, including sheet metal tile;

8. The application of all necessary wood or metal furring, plastic or other materials, to which they are directly applied;

9. The performing of sheet-metal work specified for use in connection with or incidental to direct, indirect or other types of heating, ventilating, air-conditioning and

cooling systems (including risers, stacks, ducts, S strips, fittings, dampers, casings, recess boxes, outlets, radiator enclosures, exhausts, ventilators, frames, grisses, louvers, registers, cabinets, fans and motors);

10. The air washers, filters, air brushes, housings, air-conditioning chambers;

11. The setting and hanging of air-conditioning units, unit heaters or air-veyor systems and air handling systems regardless of material used;

12. The assembling and setting up of all cast iron parts, warm air furnace, all stoker, gas and oil burner equipment used in connection with warm air heating, all sheet metal hoods, casings, wall stacks, smoke pipes, truck lines, cold air intake, air chambers, vent pipes, frames, registers, dampers and regulation devices;

13. The installing of equipment utilized in the operation of kitchens including ranges, canopies, steam tables, work tables, dish-washers, coffee urns, soda fountains, warming closets, sinks, drainboards, garbage chutes, incinerators and refrigerators;

14. The installing of tubing, pipes and fittings, used in connection with or incidental to coppersmithing work. The installation of fume hoods, metal toilet partitions, metal lockers, plain metal shelving; and

15. The handling, moving, hoisting and storing of all sheet metal materials on the job site, where power equipment and rigging are required;

(W) Sprinkler Fitter—Fire Protection—Applies to workers who perform the installation, adjustments and corrections, repair and dismantling of all fire protection and fire control systems and the installation of all fire piping for tubing, appurtenances and equipment. The work falling within the occupational title includes: The handling and installation of all piping and appurtenances pertaining to sprinkler equipment, including both overhead and underground water mains, fire hydrants and hydrant mains, standpipes and hose connections to the sprinkler systems, sprinkler tank heaters, air lines and thermal systems used in connection with sprinkler and alarm systems, tank and pump connections, and fire protection systems using mulsifyre, spray, water, fog, carbon dioxide (CO₂), gas and foam and dry chemical systems;

(X) Terrazzo and Marble Occupational Titles—This subsection sets forth work descriptions for three (3) occupational titles related to terrazzo and marble work.

1. Terrazzo Worker-Marble Mason—The work falling within the occupational title of work description for Terrazzo Worker-Marble Mason includes:



B. The cutting and shaping of tile with saws, tile cutters and biters; and

C. The positioning of tile and tapping it with a trowel handle to affix tile to plaster or adhesive base.

2. **Tile Finisher**—The work falling within the occupational title of work description for Tile Finisher includes:

A. The preparation of floors and/or walls by scraping, sweeping, grinding, and related methods for Tile Setter to install construction materials on floors and walls; the movement of tiles, tile setting tools, and work devices from storage area to installation site manually or using wheelbarrow;

B. The supply and mixture of materials for Tile Setter; the supply and mixture of construction materials for Tile Setter; the mixture of mortar and grout accordingly to standard formulas and request from Tile Setter using bucket, water hose, spatulas, and portable mixer; the modification of mixing, grouting, grinding, and cleaning procedures according to type of installation or material used; the supply to Tile Setter of mortar, using wheelbarrow and shovel; the application of grout between joints of installed tile, using grouting trowel; the application of grout; the cutting of installed tile;

C. The removal of excess grout from tile joints with a sponge and scraping of corners and crevices with a trowel; the application of caulk, sealers, acid, steam, or related agents to caulk, seal, or clean installed tile, using various application devices and equipment;

D. The wiping of surfaces of tile after grouting to remove grout residue and polish tile, using non-abrasive materials; the removal of Tile Setter materials and related debris from immediate work area; the cleaning of installation site, mixing and storage tools, and equipment, using water and various cleaning tools; the storing of tile setting material machines, tools, and equipment; and

E. The provision of assistance to Tile Setter to secure position of metal lath, wire mesh, felt paper, Dur/rock or wonderboard prior to installation of tile; and

(Z) **Truck Driver-Teamster/Traffic Control Service Driver**—The workers who perform work falling within the occupational title of work description for truck driver-teamster includes the operation, repair and servicing of the following mechanical equipment. This occupational title encompasses several subclassifications, with the title and work description considered in light of whether the public works project pertains to building construction or heavy/highway construction.

1. **Building construction.** The subtitles falling within the occupational title of work

description for truck driver-teamster, as applicable to building construction, are as follows:

A. **Group I**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks single axle, station wagons, pick-up trucks, material trucks single axle, tank wagon single axle;

B. **Group II**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: agitator and transit mix-trucks;

C. **Group III**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks tandem axle, articulated dump trucks, material trucks tandem axle, tank wagon tandem axle; and

D. **Group IV**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: semi and/or pole trailers, winch, fork and steel trucks, distributor drivers and operators, tank wagon semi-trailer, Insley wagons, dumpsters, half-tracks, speedace, euclids and other similar equipment, A-frame and Derrick trucks, float or low boy and boom truck.

2. **Heavy/highway construction.** The subtitles falling within the occupational title work description for truck driver-teamster, as applicable to heavy/highway construction, are as follows:

A. **Group I**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks single axle, station wagons, pick-up trucks, material trucks single axle, tank wagon single axle;

B. **Group II**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: agitator and transit mix-trucks;

C. **Group III**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks tandem axle, articulated dump trucks, material trucks tandem axle, tank wagon tandem axle; and

D. **Group IV**—This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: semi-and/or pole trailers, winch, fork and steel trucks, distributor drivers and operators, tank wagon

semi-trailer, Insley wagons, dumpsters, half-tracks, speedace, euclids and other similar equipment, A-frame and Derrick trucks, float or low boy and boom truck.

3. The workers who perform work falling within the occupational title of traffic control service driver include:

A. The delivery, installation and pick-up of traffic control devices;

B. The unloading and installation of barricades, plastic channelizer drums, safety cones and temporary flashing lights not to exceed one hundred fifteen (115) volts;

C. Regular periodic inspections to assure that traffic control devices are clean, clearly visible and properly positioned. Inspection and maintenance includes replacing batteries and bulbs in lights, cleaning reflective material and lenses and repairing or replacing damaged or missing devices when incidental to and part of a public works construction project; and

D. Removal of all traffic control devices by loading them on a truck and driving them to a storage yard where they are unloaded.

AUTHORITY: section 290.240.2., RSMo 2000. Original rule filed Sept. 15, 1992, effective May 6, 1993. Emergency amendment filed April 30, 1993, effective May 10, 1993, expired Aug. 28, 1993. Amended: Filed Aug. 13, 1996, effective Feb. 28, 1997. Amended: Filed Jan. 22, 1997, effective Sept. 30, 1997. Amended: Filed June 17, 2004, effective Dec. 30, 2004. Amended: Filed Aug. 19, 2010, effective Feb. 28, 2011. Amended: Filed Aug. 9, 2012, effective Feb. 28, 2013. Emergency amendment filed Nov. 7, 2014, effective Nov. 17, 2014, expired May 15, 2015. Amended: Filed Nov. 7, 2014, effective April 30, 2015.*

**Original authority: 290.240. RSMo 1957, amended 1969.*

Missouri Revised Statutes

Chapter 290

Wages, Hours and Dismissal Rights

[←Chapter: 288](#)

August 28, 2014

[Chapter: 291→](#)

What constitutes a day's labor.

290.010. From and after the first day of May, in the year eighteen hundred and sixty-seven, the period of eight hours shall be and constitute a legal day's work; but nothing in this section shall be so construed as to prevent parties to any contract for work, services or labor from agreeing upon a longer or shorter time. This section shall not apply to persons hired or employed by the month, nor to laborers or farm hands in the service of farmers or others engaged in agriculture.

(RSMo 1939 § 10166)

Prior revisions: 1929 § 13205; 1919 § 6766; 1909 § 7812

CROSS REFERENCE:

Election, employees allowed three hours to vote, [115.639](#)

Limitation of working hours in certain industries, exception by consent of worker.

290.020. It is hereby declared to be unlawful for any person, company or corporation engaged in carrying on any kind of mining, mechanical, chemical manufacturing or smelting business, to work their employees in any mill or mills, or plants, while engaged in crushing rocks and mine products, containing mineral or ores, or engaged in separating the minerals or ores from rock and such combination with which the mineral or ores are mixed, or reducing or roasting, or refining or smelting minerals or ores, from and after the time such rocks, or combination of rocks and mine products, or minerals or ores are taken out of the mines, at such labor or industry, for a period of time longer than eight hours in a day of twenty-four hours, without their consent, and it is hereby declared that eight hours shall constitute a day of employment, for all laborers, or employees, engaged in the kind of labor or industry aforesaid.

(RSMo 1939 § 10167, A.L. 1981 H.B. 748)

Prior revisions: 1929 § 13206; 1919 § 6767; 1909 § 7813

Penalty.

Wage subsidies, bid supplements, and rebates for employment prohibited, when--violation, penalty.

290.095. 1. No contractor or subcontractor may directly or indirectly receive a wage subsidy, bid supplement, or rebate for employment on a public works project if such wage subsidy, bid supplement, or rebate has the effect of reducing the wage rate paid by the employer on a given occupational title below the prevailing wage rate as provided in section 290.262.

2. In the event a wage subsidy, bid supplement, or rebate is lawfully provided or received under subsections 1 or 2 of this section, the entity receiving such subsidy, supplement, or rebate shall report the date and amount of such subsidy, supplement, or rebate to the public body within thirty days of receipt of payment. This disclosure report shall be a matter of public record under chapter 610.

3. Any employer in violation of this section shall owe to the public body double the dollar amount per hour that the wage subsidy, bid supplement, or rebate has reduced the wage rate paid by the employer below the prevailing wage rate as provided in section 290.262 for each hour that work was performed. It shall be the duty of the department to calculate the dollar amount owed to the public body under this section.

(L. 2007 S.B. 339)

Thirty days' notice of reduction of wages, how.

290.100. Any railway, mining, express, telegraph, manufacturing or other company or corporation doing business in this state, and desiring to reduce the wages of its employees, or any of them, shall give to the employees to be affected thereby thirty days' notice thereof. Such notice may be given by posting a written or printed handbill, specifying the class of employees whose wages are to be reduced and the amount of the reduction, in a conspicuous place in or about the shops, station, office, depot or other place where said employees may be at work, or by mailing each employee a copy of said notice or handbill, and such company or corporation violating any of the provisions of this section shall forfeit and pay each party affected thereby the sum of fifty dollars, to be recovered by civil action in the name of the injured party, with costs, before any court of competent jurisdiction.

(RSMo 1939 §§ 5066, 5067, A.L. 1943 p. 410 § 75)

Prior revisions: 1929 §§ 4590, 4591; 1919 §§ 9782, 9783; 1909 §§ 3022, 3023

Payment due discharged employee--exceptions--penalty for delay.

290.110. Whenever any person, firm or corporation doing business in this state shall discharge, with or without cause, or refuse to further employ any servant or employee thereof, the unpaid wages of the servant or employee then earned at the contract rate, without abatement or deduction, shall be and become due and payable on the day of the discharge or refusal to longer employ and the servant or employee may request in writing of his foreman or the keeper of his time to have the money due him, or a valid check therefor, sent to any station or office where a regular agent is kept; and if the money or a valid check therefor, does not reach the station or

2. Any corporation which violates the provisions of subsection 1 of this section shall be liable for compensatory but not punitive damages but in the event that the evidence establishes that the employer did not issue the requested letter, said employer may be liable for nominal and punitive damages; but no award of punitive damages under this section shall be based upon the content of any such letter.

(RSMo 1939 § 5064, A.L. 1941 p. 330, A.L. 1982 S.B. 747)

Prior revisions: 1929 § 4588; 1919 § 9780; 1909 § 3020

CROSS REFERENCE:

Employee dismissal rights, damage action, time limitation, 516.140

Discrimination, refusal to hire or discharge employee for alcohol or tobacco use not during working hours, prohibited, exception--not cause for legal actions.

290.145. It shall be an improper employment practice for an employer to refuse to hire, or to discharge, any individual, or to otherwise disadvantage any individual, with respect to compensation, terms or conditions of employment because the individual uses lawful alcohol or tobacco products off the premises of the employer during hours such individual is not working for the employer, unless such use interferes with the duties and performance of the employee, the employee's coworkers, or the overall operation of the employer's business; except that, nothing in this section shall prohibit an employer from providing or contracting for health insurance benefits at a reduced premium rate or at a reduced deductible level for employees who do not smoke or use tobacco products. Religious organizations and church-operated institutions, and not-for-profit organizations whose principal business is health care promotion shall be exempt from the provisions of this section. The provisions of this section shall not be deemed to create a cause of action for injunctive relief, damages or other relief.

(L. 1992 S.B. 509, et al. § 6, A.L. 2005 H.B. 596, A.L. 2006 S.B. 567 & 792)

Employer response to request for information about current or former employee, contents, requirements, civil immunity, when.

290.152. 1. As used in this section, the following terms shall mean:

(1) "Employer", any individual, organization, partnership, political subdivision, corporation or other legal entity which has or had in the entity's employ one or more individuals performing services for the entity within this state;

(2) "Prospective employer", any employer, as defined in this subsection, to which an individual has made application for employment, either oral or written, or forwarded a resume or other correspondence expressing an interest in employment.

2. An employer may:

(5) "Labor organization" or "union" means any entity which has been designated pursuant to the terms of the National Labor Relations Act as the exclusive bargaining representative of employees of employers engaged in the construction industry, which entity or affiliated entity has ever had a collective bargaining agreement which determined an occupational title wage rate;

(6) "Locality" means the county where the physical work upon public works is performed;

(7) "Maintenance work" means the repair, but not the replacement, of existing facilities when the size, type or extent of the existing facilities is not thereby changed or increased;

(8) "Prevailing hourly rate of wages" means the wages paid generally, in the locality in which the public works is being performed, to workmen engaged in work of a similar character including the basic hourly rate of pay and the amount of the rate of contributions irrevocably made to a fund, plan or program, and the amount of the rate of costs to the contractor or subcontractor which may be reasonably anticipated in providing benefits to workmen and mechanics pursuant to an enforceable commitment to carry out a financially responsible plan or program which was communicated in writing to the workmen affected, for medical or hospital care, pensions on retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for unemployment benefits, life insurance, disability and sickness insurance, accident insurance, for vacation and holiday pay, for defraying costs of apprenticeship or other similar programs, or for other bona fide fringe benefits, but only where the contractor or subcontractor is not required by other federal or state law to provide any of the benefits; provided, that the obligation of a contractor or subcontractor to make payment in accordance with the prevailing wage determinations of the department, insofar as sections 290.210 to 290.340 are concerned, may be discharged by the making of payments in cash, by the making of irrevocable contributions by the assumption of an enforceable commitment to bear the costs of a plan or program as provided herein, or any combination thereof, where the aggregate of such payments, contributions and costs is not less than the rate of pay plus the other amounts as provided herein;

(9) "Previous six annual wage order reporting periods" means the current annual wage order reporting period under consideration for wage rate determinations and the five immediately preceding annual wage order reporting periods*;

(10) "Public body" means the state of Missouri or any officer, official, authority, board or commission of the state, or other political subdivision thereof, or any institution supported in whole or in part by public funds;

(11) "Public works" means all fixed works constructed for public use or benefit or paid for wholly or in part out of public funds. It also includes any work done directly by any public utility company when performed by it pursuant to the order of the public service commission or other public authority whether or not it be done under public supervision or direction or paid for wholly or in part out of public funds when let to contract by said utility. It does not include any work done for or by any drainage or levee district;

(12) "Workmen" means laborers, workmen and mechanics.

(L. 1957 p. 574 § 6, A.L. 1969 S.B. 142)

Prevailing wage, incorporation into contracts--failure to pay,penalty--complaints of violation, public body or prime contractorto withhold payment--determination of a violation, investigationrequired--employer's right to dispute--enforcement proceedingpermitted, when.

290.250. 1. Every public body authorized to contract for or construct public works before advertising for bids or undertaking such construction shall request the department to determine the prevailing rates of wages for workmen for the class or type of work called for by the public works, in the locality where the work is to be performed. The department shall determine the prevailing hourly rate of wages in the locality in which the work is to be performed for each type of workman required to execute the contemplated contract and such determination or schedule of the prevailing hourly rate of wages shall be attached to and made a part of the specifications for the work. The public body shall then specify in the resolution or ordinance and in the call for bids for the contract what is the prevailing hourly rate of wages in the locality for each type of workman needed to execute the contract and also the general prevailing rate for legal holiday and overtime work. It shall be mandatory upon the contractor to whom the contract is awarded and upon any subcontractor under him to pay not less than the specified rates to all workmen employed by them in the execution of the contract. The public body awarding the contract shall cause to be inserted in the contract a stipulation to the effect that not less than the prevailing hourly rate of wages shall be paid to all workmen performing work under the contract. The employer shall forfeit as a penalty to the state, county, city and county, city, town, district or other political subdivision on whose behalf the contract is made or awarded one hundred dollars for each workman employed, for each calendar day, or portion thereof, such workman is paid less than the said stipulated rates for any work done under said contract, by him or by any subcontractor under him, and the said public body awarding the contract shall cause to be inserted in the contract a stipulation to this effect. It shall be the duty of such public body awarding the contract, and its agents and officers, to take cognizance of all complaints of all violations of the provisions of sections 290.210 to 290.340 committed in the course of the execution of the contract, and, when making payments to the contractor becoming due under said contract, to withhold and retain therefrom all sums and amounts due and owing as a result of any violation of sections 290.210 to 290.340. It shall be lawful for any contractor to withhold from any subcontractor under him sufficient sums to cover any penalties withheld from him by the awarding body on account of said subcontractor's failure to comply with the terms of sections 290.210 to 290.340, and if payment has already been made to him, the contractor may recover from him the amount of the penalty in a suit at law.

2. In determining whether a violation of sections 290.210 to 290.340 has occurred, and whether the penalty under subsection 1 of this section shall be imposed, it shall be the duty of the department to investigate any claim of violation. Upon completing such investigation, the department shall notify the employer of its findings. If the department concludes that a violation of sections 290.210 to 290.340 has occurred and a penalty may be due, the department shall notify the employer of such finding by providing a notice of penalty to the employer. Such penalty shall not be due until forty-five days after the date of the notice of the penalty.

4. Within thirty days of the receipt of the objection, the department shall set a date for a hearing on the objection. The date for the hearing shall be within sixty days of the receipt of the objection. Written notice of the time and place of the hearing shall be given to the objectors at least ten days prior to the date set for the hearing.

5. The department at its discretion may hear each written objection separately or consolidate for hearing any two or more written objections. At the hearing the department shall first introduce in evidence the investigation it instituted and the other facts which were considered at the time of the original determination which formed the basis for its determination. The department, or the objector, or any interested party, thereafter may introduce any evidence that is material to the issues.

6. Within twenty days of the conclusion of the hearing, the department must rule on the written objection and make the final determination that it believes the evidence warrants. Immediately, the department shall file a certified copy of its final determination with the secretary of state and with the department and shall serve a copy of the final determination on all parties to the proceedings by personal service or by registered mail.

7. This final decision of the department of the prevailing wages in the locality is subject to review in accordance with the provisions of chapter 536. Any person affected, whether or not the person participated in the proceedings resulting in the final determination, may have the decision of the department reviewed. The filing of the final determination with the secretary of state shall be considered a service of the final determination on persons not participating in the administrative proceedings resulting in the final determination.

8. At any time before trial any person affected by the final determination of the department may intervene in the proceedings to review under chapter 536 and be made a party to the proceedings.

9. All proceedings in any court affecting a determination of the department under the provisions of sections 290.210 to 290.340 shall have priority in hearing and determination over all other civil proceedings pending in the court, except election contests.

(L. 1957 p. 574 § 8, A.L. 1965 p. 95, A.L. 1969 S.B. 142, A.L. 2013 H.B. 34)

**Determination of hourly rate by location and occupation title, when made, where filed--
objections, hearings--final determination--notice to department by public body, when.**

290.262. 1. Except as otherwise provided in section 290.260, the department shall annually determine the prevailing hourly rate of wages in each locality for each separate occupational title. In doing so, the department shall accept and consider information regarding local wage rates that is submitted in either paper or electronic formats. A final determination applicable to every locality to be contained in an annual wage order shall be made annually on or before July first of each year and shall remain in effect until superseded by a new annual wage order or as otherwise provided in this section. The department shall, by March tenth of each year, make an initial determination for each occupational title within the locality.

(c) If no wages were reported for an occupational title within a locality within the previous six annual wage order reporting periods, the department shall examine hours and wages reported in all adjacent Missouri counties during the same periods. The most recent reported wage rate in a given wage order period in the adjacent Missouri county with the most reported hours actually worked for that occupational title in the wage period during the previous six annual wage order reporting periods shall be used to determine the prevailing wage rate;

(d) If no wages were reported for an occupational title within any adjacent Missouri county within the previous six annual wage order reporting periods, then the rate paid pursuant to the current collective bargaining agreement shall be the prevailing wage rate for that occupational title within the locality.

4. A certified copy of the initial determinations so made shall be filed immediately with the secretary of state and with the department in Jefferson City. Copies shall be supplied by the department to all persons requesting them within ten days after the filing.

5. At any time within thirty days after the certified copies of the determinations have been filed with the secretary of state and the department, any person who is affected thereby may object in writing to a determination or a part thereof that he deems objectionable by filing a written notice with the department, stating the specific grounds of the objection. If no objection is filed, the determination is final after thirty days.

6. After the receipt of the objection, the department shall set a date for a hearing on the objection. The date for the hearing shall be within sixty days of the receipt of the objection. Written notice of the time and place of the hearing shall be given to the objectors at least ten days prior to the date set for the hearing.

7. The department at its discretion may hear each written objection separately or consolidate for hearing any two or more written objections. At the hearing the department shall first introduce in evidence the investigation it instituted and the other facts which were considered at the time of the original determination which formed the basis for its determination. The department, or the objector, or any interested party, thereafter may introduce any evidence that is material to the issues.

8. Within twenty days of the conclusion of the hearing, the department shall rule on the written objection and make the final determination that it believes the evidence warrants. Immediately, the department shall file a certified copy of its final determination with the secretary of state and with the department and shall serve a copy of the final determination on all parties to the proceedings by personal service or by registered mail.

9. This final decision of the department of the prevailing wages in the locality for each occupational title is subject to review in accordance with the provisions of chapter 536. Any person affected, whether or not the person participated in the proceedings resulting in the final determination, may have the decision of the department reviewed. The filing of the final determination with the secretary of state shall be considered a service of the final determination on persons not participating in the administrative proceedings resulting in the final determination.

Declaration as to prevailing wages final--maximum wages and hours not limited.

290.270. The finding of the department ascertaining and declaring the prevailing hourly rate of wages shall be final for the locality, unless reviewed under the provisions of sections 290.210 to 290.340. Nothing in sections 290.210 to 290.340, however, shall be construed to prohibit the payment to any workman employed on any public work of more than the prevailing rate of wages. Nothing in sections 290.210 to 290.340 shall be construed to limit the hours of work which may be performed by any workman in any particular period of time.

(L. 1957 p. 574 § 7, A.L. 1969 S.B. 142)

Administration of oaths--subpoenas--enforcement of subpoenas.

290.280. The authorized representative of the department may administer oaths, take or cause to be taken the depositions of witnesses, and require by subpoena the attendance and testimony of witnesses and the production of all books, records, and other evidence relative to any matter under investigation or hearing. The subpoena shall be signed and issued by the department's authorized representative. In case of failure of any person to comply with any subpoena lawfully issued under this section, or on the refusal of any witness to produce evidence or to testify to any matter regarding which he may be lawfully interrogated, the authorized representative of the department may proceed to enforce obedience to the subpoenas in the manner provided by section 536.077 for administrative agencies. The authorized representative of the department shall have the power to certify to official acts.

(L. 1957 p. 574 § 9, A.L. 1961 p. 438)

Contractor's payroll records, contents--affidavit of compliance required--signs on motor vehicles and equipment, requirements--temporary stationary sign, when--exception.

290.290. 1. The contractor and each subcontractor engaged in any construction of public works shall keep full and accurate records clearly indicating the names, occupations and crafts of every workman employed by them in connection with the public work together with an accurate record of the number of hours worked by each workman and the actual wages paid therefor. The payroll records required to be so kept shall be open to inspection by any authorized representative of the contracting public body or of the department at any reasonable time and as often as may be necessary and such records shall not be destroyed or removed from the state for the period of one year following the completion of the public work in connection with which the records are made.

2. Each contractor and subcontractor shall file with the contracting public body upon completion of the public work and prior to final payment therefor an affidavit stating that he had fully complied with the provisions and requirements of this chapter, and no public body shall be authorized to make final payment until such affidavit is filed therewith in proper form and order.

3. Each contractor and subcontractor engaged in any construction of public works shall 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 such public works project during the

290.315. All contractors and subcontractors required in sections 290.210 to 290.340 to pay not less than the prevailing rate of wages shall make full payment of such wages in legal tender, without any deduction for food, sleeping accommodations, transportation, use of small tools, or any other thing of any kind or description. This section does not apply where the employer and employee enter into an agreement in writing at the beginning of said term of employment covering deductions for food, sleeping accommodations, or other similar items, provided such agreement is submitted by the employer to the public body awarding the contract and the same is approved by such public body as fair and reasonable.

(L. 1969 S.B. 142)

Advertising for bids before prevailing wage is determined prohibited.

290.320. No public body, officer, official, member, agent or representative authorized to contract for public works shall fail, before advertising for bids or contracting for such construction, to have the department determine the prevailing rates of wages of workmen for each class of work called for by the public works in the locality where the work is to be performed as provided in sections 290.210 to 290.340.

(L. 1969 S.B. 142)

Awarding contract or payment without prevailing wage determination prohibited.

290.325. No public body, officer, official, member, agent or representative thereof authorized to contract for public works shall award a contract for the construction of such improvement or disburse any funds on account of the construction of such public improvement, unless such public body has first had the department determine the prevailing rates of wages of workmen for the class of work called for by such public works in the locality where the work is to be performed and such determination has been made a part of the specifications and contract for such public works.

(L. 1969 S.B. 142)

Convicted violators of sections 290.210 to 290.340 listed, effect of.

290.330. The department after investigation, upon complaint or upon its own initiative, shall file with the secretary of state a list of the contractors and subcontractors who it finds have been prosecuted and convicted for violations of sections 290.210 to 290.340 and such contractor or subcontractor, or simulations thereof, shall be prohibited from contracting directly or indirectly with any public body for the construction of any public works or from performing any work on the same as a contractor or subcontractor for a period of one year from the date of the first conviction for such violation and for a period of three years from the date of each subsequent violation and conviction thereof. No public body shall award a contract for a public works to any contractor or subcontractor, or simulation thereof, during the time that its name appears on said list. The filing of the notice of conviction with the secretary of state shall be notice to all public bodies and their officers, officials, members, agents and representatives.

first class, and a request for arbitration is made by either party to the dispute, a firemen's arbitration board shall be appointed as provided in sections 290.350 to 290.380. Request for arbitration may be made by written petition signed by at least fifty-one percent of the employees of the fire department or by resolution of the county commission, council, board, or other governing body having direction and control over the fire department.

(L. 1963 p. 415 § 1)

Board members--selected, how--officers.

290.360. The board shall consist of five members, four of whom shall be appointed by the chief executive officer of the county, city, town, fire district, or other governmental unit involved, and shall be qualified voters of the county, city, town, fire district, or other governmental unit involved. Two of these appointments shall be made from a list of four or more, submitted by the employees. If the request for arbitration is initiated by petition of the employees, the petition shall be accompanied by a list of four or more persons. If the request for arbitration is initiated by the county commission, council, board or other governing body having direction and control over the fire department, the chief executive officer of the county, city, town, fire district, or other governmental unit shall mail a copy of the resolution, together with a request for the submission of a list of four or more prospective members of the firemen's arbitration board to representatives of the employees of the fire department. The four members appointed by the chief executive officer shall select the fifth member of the board, who may or may not be a registered voter of the county, city, town, fire district, or other governmental unit involved. The board shall meet and organize as soon as possible after its appointment. The board shall select from its membership a chairman and any other officers it considers necessary, and make rules of procedure governing its hearings.

(L. 1963 p. 415 § 2)

Hearing and recommendations of board.

290.370. The board shall conduct hearings, with dispatch, for the purpose of hearing evidence relevant to the subject of the dispute, and shall, as soon as practicable, report its findings and recommendations in writing to the chief executive officer of the county, city, town, fire district, or other governmental unit involved, and to any organization of firemen involved. The report shall be concurred in by at least three members of the board. The recommendation shall be advisory only and shall not be binding upon the county, city, town, fire district, or other governmental unit, or upon the members of the fire department involved.

(L. 1963 p. 415 § 3)

Expenses of board members to be paid.

290.380. Members of the board shall serve without compensation. All necessary expenses of any hearing conducted by the board members, certified to by all the members of the board, shall be paid by the county, city, town, fire district, or other governmental unit involved.

290.430. The commission shall take all proceedings necessary to mediate the dispute concerning the payment of any sums alleged to be due and unpaid to the female employees. The commission shall have the power to issue such regulations not inconsistent with the purpose and provisions of sections 290.400 to 290.450, as it deems necessary or appropriate for the administration thereof.

(L. 1963 p. 416 § 5, A.L. 1965 p. 95)

Female may recover wages, when--burden of proof.

290.440. 1. Any employer who violates section 290.410 is liable to the female employee affected in the amount of the wages of which the female employee is deprived by reason of the violation.

2. Any female employee receiving less than the wage to which she is entitled under sections 290.400 to 290.450 may recover in a civil action the balance of the wages, together with the costs of suit, notwithstanding any agreement to work for a lesser wage.

3. The burden of proof shall be upon the person bringing the claim to establish that the differentiation in rate of pay is based upon the factor of sex and not upon other differences or factors.

(L. 1963 p. 416 §§ 3, 6, 8)

Actions to be instituted in circuit court--limitations.

290.450. Any action based upon or arising under sections 290.400 to 290.450 shall be instituted in the circuit court within six months after the date of the alleged violation, but in no event shall any employer be liable for any pay due under sections 290.400 to 290.450 for more than thirty days prior to receipt by the employer of written notice of claim thereof from the female employee.

(L. 1963 p. 416 § 7)

Powers and duties of commission.

290.460. The commission shall carry on a continuing program of education, information, study, and community organization concerning the problems of female employees in seeking, obtaining and holding employment without discrimination on account of sex. The commission's power and duties shall include but not be limited to the following:

(1) Promote in cooperation with the federal government, state, local and private agencies and organizations, programs to eliminate discrimination in employment based solely on sex;

(2) Promote research with the view to reducing barriers based solely on sex in the hire, employment and retention of female employees;

(3) Sponsor and correlate in communities of the state, information and educational programs

title 49, United States Code, 49 U.S.C. §§ 10101 et seq.;

(j) Any individual employed on a casual or intermittent basis as a golf caddy, newsboy, or in a similar occupation;

(k) Any individual whose earnings are derived in whole or in part from sales commissions and whose hours and places of employment are not substantially controlled by the employer;

(l) Any individual who is employed in any government position defined in 29 U.S.C. §§ 203(e)(2)(C)(i)-(ii);

(m) Any individual employed by a retail or service business whose annual gross volume sales made or business done is less than five hundred thousand dollars;

(n) Any individual who is an offender, as defined in section 217.010, who is incarcerated in any correctional facility operated by the department of corrections, including offenders who provide labor or services on the grounds of such correctional facility pursuant to section 217.550;

(o) Any individual described by the provisions of section 29 U.S.C. 213(a) (8);

(4) "Employer", any person acting directly or indirectly in the interest of an employer in relation to an employee;

(5) "Learner and apprentice", any individual under 20 years of age who has not completed the required training for a particular job. In no event shall the individual be deemed a learner or apprentice in the occupation after three months of training except where the director finds, after investigation, that for the particular occupation a minimum of proficiency cannot be acquired in three months. In no case shall a person be declared to be a learner or apprentice after six months of training for a particular employer or job. Employees of an amusement or recreation business that meets the criteria set out in 29 U.S.C. § 213(a) (3) may be deemed a learner or apprentice for ninety working days. No individual shall be deemed a learner or apprentice solely for the purpose of evading the provisions of sections 290.500 to 290.530;

(6) "Occupation", any occupation, service, trade, business, industry, or branch or group of industries or employment or class of employment in which individuals are gainfully employed;

(7) "Wage", compensation due to an employee by reason of his employment, payable in legal tender of the United States or checks on banks convertible into cash on demand at full face value;

(8) "Person", any individual, partnership, association, corporation, business, business trust, legal representative, or any organized group of persons;

(9) "Man-day", any day during which an employee performs any agricultural labor for not less than one hour.

(L. 1990 H.B. 1881 § 1, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Minimum wage rate--increase or decrease, when.

290.507. Sections 290.500 to 290.530 shall not apply to any employee or employer engaged in agriculture, as defined in section 290.500 (A) if such employee is employed by an employer who did not, during any calendar quarter during the preceding calendar year, use more than five hundred man-days of agriculture labor, (B) if such employee is the parent, spouse, child, or other member of his employer's immediate family, (C) if such employee (i) is employed as a hand harvest laborer and is paid on a piece rate basis in an operation which has been, and is customarily and generally recognized as having been, paid on a piece rate basis in the region of employment, (ii) commutes daily from his permanent residence to the farm on which he is so employed, and (iii) has been employed in agriculture less than thirteen weeks during the preceding calendar year, (D) if such employee (other than an employee described in clause (C) of this subsection) (i) is sixteen years of age or under and is employed as a hand harvest laborer, is paid on a piece rate basis in an operation which has been, and is customarily and generally recognized as having been, paid on a piece rate basis in the region of employment, (ii) is employed on the same farm as his parent or person standing in the place of his parent, and (iii) is paid at the same piece rate as employees over age sixteen are paid on the same farm, or (E) if such employee is principally engaged in the range production of livestock.

(L. 1990 H.B. 1881 § 4, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Director may investigate to prove compliance.

290.510. The director shall have authority to investigate and ascertain the wages of persons employed in any occupation included within the meaning of sections 290.500 to 290.530.

(L. 1990 H.B. 1881 § 5, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Gratuities, goods or services as part of wages, effect on minimum wage requirements.

290.512. 1. No employer of any employee who receives and retains compensation in the form of gratuities in addition to wages is required to pay wages in excess of fifty percent of the minimum wage rate specified in sections 290.500 to 290.530, however, total compensation for such employee shall total at least the minimum wage specified in sections 290.500 to 290.530, the difference being made up by the employer.

2. If an employee receives and retains compensation in the form of goods or services as an incident of his employment and if he is not required to exercise any discretion in order to receive the goods or services, the employer is required to pay only the difference between the fair market value of the goods and services and the minimum wage otherwise required to be paid by sections 290.500 to 290.530. The fair market value of the goods and services shall be computed on a weekly basis. The director shall provide by regulation a method of valuing the goods and services received by any employee in lieu of the wages otherwise required to be paid under the provisions of sections 290.500 to 290.530. He shall also provide by regulation a method of determining those types of goods and services that are an incident of employment the receipt of which does not require any discretion on the part of the employee.

prescribed or approved by the director. All the records and information obtained by the department of labor and industrial relations are confidential and shall be disclosed only on order of a court of competent jurisdiction.

(L. 1990 H.B. 1881 § 9, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Summary of law and wage rate, employer to post, how.

290.522. Every employer subject to any provision of sections 290.500 to 290.530 or of any regulations issued under sections 290.500 to 290.530 shall keep a summary of sections 290.500 to 290.530, approved by the director, and copies of any applicable wage regulations issued under sections 290.500 to 290.530, or a summary of the wage regulations posted in a conspicuous and accessible place in or about the premises wherein any person subject thereto is employed. Employers shall be furnished copies of the summaries and regulations by the state on request without charge.

(L. 1990 H.B. 1881 § 10, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Rulemaking authority.

290.523. The department may, in accordance with chapter 536, promulgate such rules and regulations as are necessary for the enforcement and administration of sections 290.500 to 290.530. Any rule or portion of a rule, as that term is defined in section 536.010, that is created under the authority delegated in this section shall become effective only if it complies with and is subject to all of the provisions of chapter 536 and, if applicable, section 536.028. This section and chapter 536 are nonseverable and if any of the powers vested with the general assembly pursuant to chapter 536 to review, to delay the effective date, or to disapprove and annul* a rule are subsequently held unconstitutional, then the grant of rulemaking authority and any rule proposed or adopted after August 28, 2008, shall be invalid and void.

(L. 2008 H.B. 1883 merged with H.B. 2041)

*Word "annual" appears in original rolls of H.B. 1883, 2008.

Violations--penalty.

290.525. Any employer who hinders the director in the performance of his duties in the enforcement of sections 290.500 to 290.530 by any of the following acts is guilty of a class C misdemeanor:

- (1) Refusing to admit the director to any place of employment;
- (2) Failing to make, keep and preserve any records as required under the provisions of sections 290.500 to 290.530;
- (3) Falsifying any record required under the provisions of sections 290.500 to 290.530;

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Missouri General Assembly

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CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

ADDENDUM NUMBER 2

Contract Number: **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND
WATER MAIN REPLACEMENTS – PHASE I**

ISSUE DATE: June 23, 2015

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **June 23, 2015**, are amended as follows:

The Bid date for this Project stated in Document 00130 - Invitation to Bid shall be changed to: 2:00 PM, on **July 14, 2015**.

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.



ADDENDUM NUMBER 3

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND
WATER MAIN REPLACEMENTS – PHASE 1

ISSUE DATE: July 10, 2015

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **July 14, 2015**, are amended as follows:

Information to Bidders The following is provided to Bidders for information only:

1. ADD the attached Section 00005 – Certification Page

Bidding Requirements

1. DELETE Form 00410 Bid Form/Contract and REPLACE with the attached Form 00410 Bid Form/Contract
2. Delete 00210 Instructions to Bidders, Page 1, Paragraph 2.a and replace with the following 00210 Instructions to Bidders, Page 1, Paragraph 2.a:

“The City will determine the lowest and best Bid based on the Total Lump Sum Base Bid (paragraph 5.iv) or the Total Lump Sum Base Bid plus Bid Alternate No. 1 (paragraph 5.vi) in Form 00410 Bid Form/Contract. 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.”

3. ADD Form 00412 Unit Prices
4. ADD Form 00413 Allowance Form

Specifications

1. DELETE Section 01015 Specific Project Requirements, Paragraph 24, Page 17 and REPLACE with the following Section 01015 Specific Project Requirements, Paragraph 24, Page 17:

“

- A. Where Spiral Wound PVC (SPR) profile pipe renewal is specified on plans, Owner will allow Contractor to bid an approved alternate method of pipe

renewal. Pipe renewal shall meet the specifications related to the method being utilized. General Requirement Section 01290.09 Subcontractors and Major Suppliers List shall be submitted with bid specifying which renewal alternatives are included in LUMP SUM BID. Approved renewal technologies are identified as follows:

- i. Centrifugally Cast Concrete Pipe (CCCP) Sewer Rehabilitation (CentriPipe, or approved equal) will be an acceptable alternative to SPR for the existing 4-foot x 3.5-foot reinforced concrete box (RCB) under 77th Terrace.
 - ii. Centrifugally Cast Concrete Pipe (CCCP) Sewer Rehabilitation (CentriPipe, or approved equal) and Sliplining Sewer Rehabilitation (HOBAS, FlowTite, or approved equal) will be acceptable alternatives to SPR for the 108" corrugated metal pipe (CMP) under Prospect Avenue.
- B. Contractor must restore all existing or proposed lateral storm connections and relocate all lateral sanitary service connections, whether called out on plans or not. Renewal must restore structural integrity of host pipe based on a fully deteriorated condition, and structural design shall be based upon the compressive and bending strength of the liner material. The Manufacturer and/or Contractor shall certify and provide structural calculations that the product at the thickness provided will adequately support all loads accounting for cover depth, AASHTO HS-20 live loading, groundwater depths, soil fill type, and pavement structure type (rigid or flexible). Pipe renewal must meet or exceed the hydraulic capacity of the host pipe based on the following pipe parameters:
- i. The 4-foot x 3.5-foot RCB has an assumed Manning's n value of 0.018 without haunches and must meet the requirements described in Section B. The RCB has approximately 1 to 3 feet of cover depth to 77th Terrace.
 - ii. The 108 inch CMP has an assumed Manning's n Value of 0.024, and must be renewed with a minimum 96 inch diameter liner and meet the requirements described in Section B. The 108 inch CMP has approximately 16 to 18 feet of cover depth to Prospect Avenue. Open access from both ends of the CMP will be available for installation.
- C. For pipe renewal of the 4-foot x 3.5-foot RCB under 77th Terrace, Contractor shall restore buried manhole access at approximate station 12+94 as called out on plans. Contractor may also construct up to 4 temporary, 3 foot access openings on top of RCB to assist in lining. At least 2 access openings shall be provided with new manhole castings upon completion of lining. Manhole access construction shall follow Kansas City, Missouri Standard Specifications. Grout ports (3 inch) will be allowed from the surface and shall be sealed with structural grout following completion of lining."

2. DELETE Section 01015 Specific Project Requirements, Paragraph 27 and REPLACE with the following Section 01015 Specific Project Requirements, Paragraph 27:

“

27. PROJECT RECORD DOCUMENTS

- A. Record Documents for Contract Drawings: WATER MAIN REPLACEMENT, 77TH TERRACE TO 79TH STREET, EUCLID

AVENUE TO PROSPECT AVENUE shall be in accordance with DIV 02: 02506 Water Utility Facilities Paragraph Q.

- B. Record Documents for Contract Drawings: TARGET GREEN EAST MARLBOROUGH, MIDDLE BLUE RIVER GREEN INFRASTRUCTURE / DISTRIBUTED STORAGE FOR AREAS TRIBUTARY TO OUTFALL 069, PHASE 1 – 77TH TERRACE STORM SEWER SEPARATION shall be in accordance with Section 00700 General Conditions, Section 6.13, Page 37. “

3. ADD the following Section 01015 Specific Project Requirements, Paragraph 28:

“

28. EASEMENTS AND RIGHTS-OF-WAY

All Permanent and Temporary Construction Easements as shown on Contract Drawings will be the responsibility of OWNER to obtain. Additional lands and access deemed necessary by CONTRACTOR for temporary construction facilities or storage of materials and equipment shall be the responsibility of CONTRACTOR according to Section 01000 General Project Requirements, Section 4.01. “

4. ADD the following Section 02506 Water Utility Facilities, Paragraph Q

“

Q. PROJECT RECORD DOCUMENTS

1. 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.
2. 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: _____

3. 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 location and ties, number of turns (valves) make and type, date of installation, and other descriptive information on the standard WSD forms.

4. The WSD 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.”

5. Add Paragraph 29 to Section 01015 Specific Project Requirements

“

29. Rehabilitation of Approximately 841 Linear Feet of 4-foot x 3.5-foot RCB.

Rehabilitation of the existing 4-foot x 3.5-foot RCB located along E. 77th Terrace in included in Bid Alternate No. 1. The plans call for the RCB to be renewed using spiral wound PVC (SPR). Paragraph 24 of Section 01015 allows for rehabilitation of the RCB using alternate technologies. This paragraph provides further explanation regarding the Bid.

The LUMP SUM BID for “Target Green East Marlborough Middle Blue River Green Infrastructure/ Distributed Storage for Areas Tributary to Outfall 069 phase 1- 77th Terrace Storm Sewer Separation” shown on the BID FORM/CONTRACT shall include cleaning and a pre-installation inspection in accordance with Section 02662, paragraphs 3.2.B and 3.2.D, respectively. Upon completion of cleaning, the existing RCB shall be CCTV inspected. The CCTV inspection shall be provided to the OWNER for evaluation. Once the OWNER has evaluated the condition of the RCB, OWNER will determine the exact work to be performed with Bid Alternate No. 1.”

B. ADD the attached Section 02623 – Glass-Fiber-Reinforced Polyester Pipe

C. ADD the attached Section 03332 – Centrifugally Cast Concrete Pipe (CCCP)

D. ADD the attached Section 06020 – Sliplining Sewer Rehabilitation

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

CERTIFICATION PAGE

Contract Number 1183

Project Title TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1

I am responsible for the following specifications and drawings:

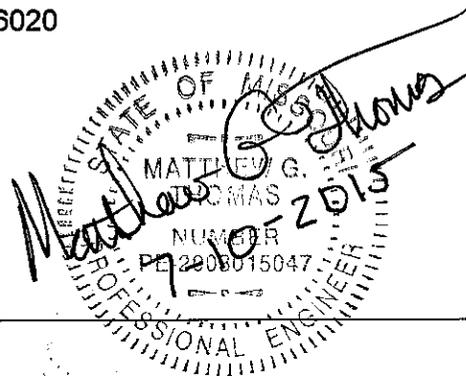
Drawings:

Specifications:

DIV 02: Section 02623

DIV 03: Section 03332

DIV 06: Section 06020



(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.

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

BID FORM/CONTRACT

Contract Number 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

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 amount for Bid Alternate No. 1 shall be as calculated in Form 00412 Unit Prices, Table A. The City may determine the lowest and best bid solely on the Base Bid, or on the Base Bid Plus Bid Alternate No. 1.
5. The Bid Price(s) shall be shown in numeric figures only.

i. **LUMP SUM BID for "Water Main Replacement 77th Terrace to 79th Street, Euclid Avenue to Prospect Avenue"** \$ _____

ii. **LUMP SUM BID for "Target Green East Marlborough Middle Blue River Green Infrastructure/ Distributed Storage for Areas Tributary to Outfall 069 phase 1-77th Terrace Storm Sewer Separation"** \$ _____

iii. **ALLOWANCE NO. 1** (see 00413 Allowance Form) \$ 60,000.00

Bidder: _____

iv. **TOTAL LUMP SUM BASE BID IN NUMERIC FIGURES (i + ii + iii)** \$ _____

v. **BID ALTERNATE NO. 1 for rehabilitation of approximately 841 linear feet of 4-foot x 3.5-foot RCB** \$ _____

vi. **BASE BID plus BID ALTERNATE NO. 1 (iv + v)** \$ _____

- 6. 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.
- 7. 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.
- 8. The undersigned Bidder certifies that this Bid contains no modifications, deviations, riders or qualifications.
- 9. Form 00413 Allowances contain prices included in the Total Lump Sum Bid, and are incorporated into this Bid. Form must be completed and returned with this Bid.
- 10. The undersigned Bidder acknowledges receipt of the following addenda listed by number and date appearing on each addendum:

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

- 11. 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.
- 12. 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: _____

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.

13. Section 11 through Section 15 constitutes the Affidavit of Intended Utilization required to be submitted by Bidders.
14. 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: 15 % MBE 9 % WBE _____ % DBE

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

15. 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 _____
 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 _____

Bidder: _____

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)

16. 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.**

17. 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.

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: _____

Bidder: _____

(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, (\$_____).

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)



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APPENDIX

Storm Water Pollution Prevention Plan (SWPPP)

SECTION 02623 – GLASS – FIBER – REINFORCED POLYESTER PIPE

PART 1 - GENERAL

1.01 SCOPE. This section covers fiberglass reinforced polyester resin pipe and accessories for use in domestic, municipal, and industrial sewage as an alternative piping material for all sewer piping with an inside diameter greater than or equal to 12 inches. Pipe shall be furnished complete with all jointing materials and other necessary appurtenances.

1.02 RELATED SECTIONS

- A. Earthwork – SECTION 02200
- B. Sewer Pipe and Manhole Testing – SECTION 02702
- C. Laser Profiling – SECTION 02687

1.03 CODES and STANDARDS. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- A. American Society for Testing and Materials (ASTM):
 - 1. D3262 – Standard Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe.
 - 2. D3681 – Standard Test Method for Chemical Resistance of “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe in a Deflected Condition.
 - 3. D3754 – Standard Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer and Industrial Pressure Pipe.
 - 4. D4161 - Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Joints Using Flexible Elastomeric Seals.
 - 5. F477 – Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- B. American Water Works Association (AWWA):
 - 1. C950 – Glass-Fiber Reinforced Thermosetting Resin Pipe.

1.04 QUALITY ASSURANCE. Work shall be performed by a Contractor with a proven record of performance for similar installations. Contractor shall submit the following quality assurance certification:

- A. Manufacturers shall be experienced in the design and manufacture of pipe, fittings, specials, or appurtenances for a minimum period of 5 years.
- B. Warranty
 - A. Terms: Standard Manufacturer’s warranty
 - B. Warranty Period: Standard Manufacturer’s warranty
 - C. Control Tests
 - 1. Control tests shall be made during the manufacture of the pipe to

determine its physical characteristics. Control tests shall be witnessed by an independent testing laboratory at the expense of the Contractor.

2. Control tests shall be performed on pipe of each diameter provided on this project in accordance with GOVERNING STANDARD. One set of tests shall be performed for each 100 pieces of pipe and to reject all pipe represented by any sample which fails to comply with the specified requirements.
3. Pipes shall meet the chemical requirements of ASTM D3262. The compliance testing must have been completed per section 9 of ASTM D3681 and shall have been conducted on the pipe specimens manufactured at the same factory proposed to fabricate the pipes for this project. Testing of products manufactured in another country or testing per section 10 of ASTM D3681 (requalification) will not be acceptable.

1.05 CONTRACTOR SUBMITTALS. Drawings, specifications, and data covering the proposed materials shall be submitted to the Owner.

- A. Prior to commencing with construction the Contractor shall submit the following for each size and class of pipe to the Owner for approval:
 1. Shop Drawings:
 - a) Pipe and joint details.
 2. Product Data:
 - a) Specifications and product data sheets.
 - b) Color code and sample pipe piece illustrating exterior color.
 - c) Laying schedule (complete with an explanation of all abbreviations used in the schedule).
 - d) Gasket material data.
 3. Certificates:
 - a) Certificate of Compliance with applicable standards.
 - b) Test reports.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING. Delivery, storage, and handling of materials shall be in accordance with manufacturer's recommendations.

- A. Pipe, fittings, and accessories shall be handled in a manner that will ensure installation in sound, undamaged condition.
- B. Use of textile slings is required for proper handling.
- C. Use of chains, cables, or hooks is not acceptable for handling pipe and fittings.

PART 2 - PRODUCTS

2.1 MATERIALS.

A. Pipe:

1. All materials used in the manufacture of pipe, fittings, and accessories shall conform to ASTM D3754.
2. The manufacturer shall use only polyester resin systems with a silica sand filler which have a minimum of three years of successful performance in this particular application. The historical data shall have been acquired from a composite material of construction and composition similar to the proposed product, and shall be submitted to the OWNER, if requested.
3. The reinforcing glass fibers shall be a commercial grade of E-glass filaments with binder and sizing compatible with impregnating resins.
4. The sand shall be a minimum 98 percent silica with a maximum moisture content of 2 percent.
5. Resin additives, such as pigments, dyes, and other coloring agents, if used, shall in no way be detrimental to the performance of the product.
6. Gaskets shall be suitable for the intended use, and shall comply with ASTM F477.
7. Acceptable manufacturers shall be HOBAS USA, Inc., Flowtite, or approved equal.
8. The internal corrosion liner resin shall be suitable for service as gravity sewer pipe, and shall be fully resistant to exposure to sulfuric acid produced by biological activity from hydrogen sulfide gases. The corrosion liner shall consist of nonreinforced thermoset polyester resin with a minimum thickness of 40 mils.
9. The minimum nominal pipe length shall be 20 feet.
10. The minimum pressure class shall be 50 psi for all pipe sizes.
11. The required pipe stiffness class (SN) shall be 115 PSI
12. Each pipe or fitting shall have the following information plainly and permanently marked with a waterproof paint thereon:
 - a) Pipe stiffness.
 - b) Date of manufacture.
 - c) Manufacturer's name or trademark.
 - d) "Sewer Pipe".
 - e) ASTM D3262.

- B. The pipe and couplings exterior color shall be **GREEN**. Joints:
 - 1. All joints shall meet the performance requirements of ASTM D4161.
 - 2. Pipe joints shall be formed using fiberglass sleeve couplings with elastomeric sealing rings.
 - 3. Joints for tunnel carrier pipe shall be a low profile or a flush “jacking type” fiberglass bell and spigot type joint that utilizes in elastomeric sealing gasket contained in a groove on the spigot as the sole means of maintaining joint water tightness.

PART 3 - EXECUTION.

3.1 SAFETY.

- A. Perform all work in accordance with applicable OSHA standards

3.2 INSTALLATION.

- A. Burial, bedding, and backfill of pipe shall conform with specifications found in SECTION 02200.
- B. Joints shall be installed in accordance with the pipe manufacturer's recommendations.
- C. Immediately before the pipe sections are joined, all pipe ends and coupling components shall be thoroughly cleaned and shall be completely free of dirt.
- D. Joint lubricant shall be applied to pipe ends and rubber seals of couplings. Only the lubricant approved by the pipe manufacturer shall be used. Petroleum or animal based lubricants will not be acceptable.
- E. Suitable auxiliary equipment shall be used to pull pipe joints together with the jointing force applied to the pipe wall, not to the coupling. Excess force shall not be applied in jointing the pipe.
- F. A shop fabricated closure piece is required at connection to existing concrete pipe.

3.3 TESTING.

- A. Testing shall conform to specifications found in SECTION 02702 and SECTION 02687

End of Section.

SECTION 03332 – CENTRIFUGALLY CAST CONCRETE PIPE (CCCP)

PART 1 - GENERAL

1.1 SCOPE. This section covers rehabilitation of existing sewer pipe (host pipe) by Centrifugally Cast Concrete Pipe—with minimum liner thickness of 1 inch. This specification provides minimum standards for materials and methods for waterproofing, sealing, structural reinforcement and corrosion protection of existing sanitary concrete, brick/mortar masonry and clay pipe. The centrifugally cast concrete pipe (CCCP) shall extend over the specified length in a continuous structural concrete pipe. This specification offers flexibility in design by offering technologies available for repairing the various defects found in these structures. The repair means and methods shall be engineered for the depth, diameter, shape, traffic loading, groundwater pressures and condition of each pipe segment.

1.2 CODES AND STANDARDS. This Specification references ASTM International (ASTM) standard specifications, which are made a part hereof by such reference and shall be the latest edition and revision thereof. In case of conflicting requirements between this Specification and these referenced documents, this Specification shall govern:

- A. ASTM C-76 Standard specifications for Fly Ash content in Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe—not to exceed 10% by weight
- B. ASTM C-109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars
- C. ASTM C-157 Modified Standard Test Method for Length Change of Hardened Hydraulic Cement Mortar and Concrete
- D. ASTM C-293 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
- E. ASTM C-309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- F. ASTM C-403 Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
- G. ASTM C-469 Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression
- H. ASTM C-496 Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
- I. ASTM C-882 Standard Test Method for Bond Strength of Epoxy Systems Used with Concrete by Slant Shear
- J. ASTM C-1202 (AASHTO T 277 Equivalent) Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
- K. ASTM C-666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- L. ASTM D-4783 Standard Test Methods for Resistance of Adhesive Preparations in Container to Attack by Bacteria, Yeast, and Fungi (Modified)
- M. ASTM C-494 Standard Specification for Chemical Admixtures for Concrete TYPE S Corrosion Inhibiting Admixture for Microbial Induced Corrosion

1.3 QUALITY ASSURANCE. Two test cubes of the PERMACAST® material or Engineer approved equal shall be taken randomly as directed by the Engineer at Contractor's expense to verify strengths. Thickness shall be verified with a wet gage at any random point of the new interior surface. Visual inspection should verify a leak-free, uniform appearance. Work shall be performed by a Contractor with a proven record of performance for similar installations.

1.4 CONTRACT SUBMITTALS.

- A. Resumes for superintendents, foremen, and other applicable lead personnel for field installation crews demonstrating competency and experience to perform the work as defined in this specification and all other applicable contract documents.
- B. All submittals shall conform to the requirements of Section 01300. In addition, the following items shall be submitted to the Engineer. This work shall not be considered complete until receipt and acceptance of the following, by the Owner:
 - 1. Design Submittal. Contractor shall provide Engineering design calculations and shop drawings for the CCCP. These calculations and drawings shall address the profile designation (geometry), grout strength and thickness. In addition, pipe renewal shall restore structural integrity of host pipe based on a fully deteriorated condition, and structural design shall be based upon the compressive and bending strength of the liner material. The Manufacturer and/or Contractor shall certify and provide structural calculations that the product at the thickness provided will adequately support all loads accounting for cover depth, AASHTO HS-20 live loading, groundwater depths, soil fill type, and pavement structure type (rigid or flexible). Pipe renewal must meet or exceed the hydraulic capacity of the host pipe. A Professional Engineer, registered in the state of Missouri, shall seal the design calculations.
 - 2. Certification.
 - a. Certification that the Contractor has 5 years of experience with CCCP and concrete additives.
 - b. Certificate of Compliance with Applicable standards for CCCP and Concrete additives.
 - c. Certification that the CCCP meets the minimum structural design criteria as specified in these contract documents.
 - 3. Product data
 - a. Patching and plugging material
 - b. Cementitious lining material
 - c. Cementitious lining with admixture
 - 4. Host pipe cleaning method(s).
 - 5. Bypass pumping plan (if required)
 - 6. Pre-installation video survey of host pipe.

7. Work plan for the CCCP process including details of all materials and equipment to be used during the CCCP process.
 8. CCCP mix design with test data showing that the proposed CCCP mix will satisfy the requirements of this specification and the Contractor's design submittal (if applicable)
- D. During construction the Contractor shall submit the following to the Owner:
1. Compressive strength test results for the CCCP (if applicable)
- E. Within 2 weeks of final acceptance of the work the Contractor shall submit the following to the Owner:
1. As-built drawings.
 2. Post-installation video survey.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. PL-12,000 Invert Repair Mortar, manufactured by PERMACAST® or Engineer approved equal, shall be used and applied according to the manufacturer's recommendations. It shall also have the following minimum physical properties.

Set Time at 70 °F ASTM C-403	
Initial Set	Approx. 1 hour 30 minutes
Final Set	Approx. 4 hours
Flexural Strength ASTM C-293	
24 hours	min. 800 psi psi
28 days	min. 1200 psi
Compressive Strength ASTM C-109	
24 hours	5,000 psi
28 days	11,500 psi
Split Tensile Strength ASTM C-496	700 psi
Shear Bond ASTM C-882	1,720 psi
Modulus of Elasticity ASTM C-469	
28 days	min. 3.48 ^{10.6}
Freeze Thaw ASTM C-666	300 Cycle Pass
Chloride Permeability ASTM C-1202	<550 Coulombs

- B. PL-8,000 Pipe Lining Mortar (CCCP), manufactured by PERMACAST® or Engineer approved equal, shall be used and applied according to the manufacturer's recommendations. It shall also have the following minimum physical properties.

Set Time at 70 °F ASTM C-403	
Initial Set	Approx. 150 minutes
Final Set	Approx. 240 minutes
Flexural Strength ASTM C-293	
24 hours	min. 600 psi
28 days	min. 1,080 psi
Compressive Strength ASTM C-109	
24 hours	3,000 psi
28 days	8,000 psi
Split Tensile Strength ASTM C-496	682 psi
Shear Bond ASTM C-882	2,100 psi
Modulus of Elasticity ASTM C-469	
28 days	min. 3.56 ^{10.6}
Freeze Thaw ASTM C-666	300 Cycle Pass
Chloride Permeability ASTM C-1202	<100 Coulombs

- C. Microbiologically Induced Corrosion (MIC).

Corrosion protection shall be liquid, ASTM C-494 Type S additive for concrete and mortars. The additive shall be Con^{mic}Shield® by Conshield Technologies Inc. or Engineer approved equal.

- D. Design Criteria

1. Liner thickness shall be applied to a minimum of 1" thickness and shall comply with the Engineering design and calculations as specified here in and as specified in the applicable contract documents.

2.2 PRODUCT HANDLING

Products shall be handled in accordance with the Manufacturer's recommendations.

PART 3 – EXECUTION

3.1 SAFETY.

- A. The Contractor shall comply with Local & Federal Safety regulations and shall perform work in strict accordance with all applicable OSHA standards.

3.2 PREPARATION

A. Host Pipe Access:

1. Unless otherwise specified by the Owner, the Contractor shall utilize existing manholes in the project area as access points.
2. Should temporary excavations be needed to access the host pipe, such work shall be coordinated with the Owner. Excavations shall be sloped or shored in accordance with all applicable safety regulations.

B. Flow Bypassing.

1. Prior to CCCP installation, all laterals and drop inlets shall be sealed with a temporary plug. The Contractor shall provide for bypass flow where the rehabilitation is located. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole. Pump and bypass lines shall be of adequate capacity to handle the flow. After liner application, CCCP material shall be allowed six hours curing time prior to all plugs being removed from the laterals and drop inlets and flows re-instated.
2. Flow interruptions shall be coordinated with the Owner at least 14 days in advance and with property owners and businesses at least 3 days in advance.

- E. CCTV Inspection: Pre and post inspection of pipelines shall be performed in accordance with the latest version of Water Services' CCTV protocols.

- F. Infiltration Control: Areas of water seepage shall be sealed off with Spetec polyurethane grout. Pools of water shall be removed; however, a dry surface is not required. The Contractor shall patch holes and fill voids in and around existing pipe as directed by the Engineer.

- G. Cleaning: All debris and obstructions shall be removed from the host pipe and disposed of in accordance with the requirements of the contract, and local codes and ordinances. It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, dropped joints, roots, protruding lateral or collapsed pipe that will prevent installation. The interior surface shall be cleaned with a high-pressure water-blast sufficient to remove all laitance and loose material and flush debris from the pipe. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment, then the Contractor shall notify the Owner of point repair excavation to remove or repair the obstruction. Such excavation shall be approved in writing by the Owner, prior to the commencement of the work.

3.3 INSTALLATION

A. Equipment.

1. Standard Commercial Models: Mortar mixers, compressors, pumps and high speed rotating applicator device.

B. Mixing.

1. Combine 50 pounds of the packaged dry mix with the manufacturer recommended amount of potable water while mixing with a high-speed shear mixer until proper consistency is obtained. Continue to agitate the mortar to prevent thickening beyond the desired fluidity.
2. Use Con^{mic}Shield[®] additive or Engineer approved equal and Microbiologically Induced Corrosion (MIC) protection in the liner material in proportions as recommended by the manufacturer. No other additives shall be used at the site without prior approval from the Owner

C. Application.

1. Position the rotating casting applicator within the center of the sewer pipe and commence pumping the mixed mortar. As the mortar begins to be centrifugally cast evenly around the interior, retrieve the applicator head at the best speed for applying the thickness. If flows are interrupted contractor shall arrest the retrieval of the applicator head until flows are restored.
2. The pressure application from the centrifugal casting of the mortar shall produce a finely textured surface that requires no additional troweling or finishing
3. Contractor shall not apply PERMACAST[®] mortar or engineer approved equal when ambient and surface temperatures are above 100° F or 35° C or below 45°F or 7° C. During hot and/or cold weather applications, curing shall be performed as recommended by the manufacturer. During cold weather applications, Contractor shall properly ventilate the area when heating and shall protect the liner from freezing.

END OF SECTION

SECTION 06020 – SLIPLINING SEWER REHABILITATION

PART 1 - GENERAL

- 1.01 **SCOPE:** This section covers rehabilitation of existing sewer pipe (host pipe) by sliplining with a new sewer pipe (liner) and grouting the annular space between the host pipe and the liner. Sliplining consists of furnishing all labor, equipment, and supplies required to perform sliplining as described herein.
- 1.02 **DESCRIPTION:** Sliplining may be done using one of the two following materials:
A. Fiberglass Sewer Pipe
B. Fusible Polyvinyl Chloride (PVC) Sewer Pipe.
- 1.03 **SPECIFICATION MODIFICATIONS.** It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 -Specific Project Requirements, or as otherwise indicated on the Contract Drawings.
- 1.04 **RELATED SECTIONS**
Section 1300 – Submittals
Section 01015 – Specific Project Requirements
- 1.05 **CODES AND STANDARDS.** The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. The version of the codes and standards in effect at the time of the Notice to Bidders shall be used, except as noted on the Drawings or in the Specific Project Requirements section of these specifications. In the event of a conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C90	AWWA Standard for Glass Fiber Reinforced Thermosetting Resin Pressure Pipe.
AWWA C110	Ductile-Iron and Gray Fittings for Water
AWWA C111	Rubber Gasket Joints for Ductile-Iron Pressure Pipe
AWWA C153	Ductile Iron Compact Fittings
AWWA C605	Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
AWWA C900	Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for Water Distribution
AWWA C905	Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 48 In. (350 mm through 1,200 mm) for Water Transmission and Distribution

ASTM INTERNATIONAL (ASTM)

ASTM C109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
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ASTM C923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
ASTM D3262	Standard Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe.
ASTM D4161	Standard Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Joints Using Flexible Elastomeric Seals.
ASTM F894	Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe

AMERICAN PETROLEUM INSTITUTE (API):

API RP 10B-2	Recommended Practice for Testing Well Cements – Second Edition.
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1.06 **CONTACTOR SUBMITTALS.** Submit the following for approval in accordance with Section 01300, Submittals:

- A. Work Plan: The Contractor shall submit for approval a description of the proposed construction methods, including details of the equipment to be used and a detailed construction schedule.
 - 1. It is intended that pipe installation pits be located where needed by the Contractor. The Contractor shall submit the following information on the jacking operation.
 - (a) Details of jacking or pulling system.
 - (b) Pit location(s) dimensions, and limits of excavation.
 - (c) Plans and specifications for supporting any existing utilities affected by the excavation.
 - (d) Plans and specifications for dewatering the excavation.
 - (e) Plans showing the equipment and methods used to bypass flows.
 - (f) Pipe proposed for liner
 - (g) Manufacturer’s recommendation for the proper maintenance of this pipe in sliplining whether done by jacking or pulling.
 - (h) Plans for traffic control.
 - 2. The pipe jacking/pulling system shall be designed to ensure that the forces are evenly distributed over the pipe section and adequately sustained by a reaction frame or by the back wall of the jacking pit. The Contractor shall submit temporary facility drawings showing detail for the Owner to determine the adequacy of the proposed system.
- B. The following product data is required from the pipe supplier and/or fusion provider:
 - 1. Pipe size
 - 2. Dimensionality
 - 3. Pressure class per applicable standard
 - 4. Color
 - 5. Recommended minimum bending radius
 - 6. Recommended maximum safe pull force
 - 7. Fusion technician qualification indicating conformance with this specification

8. Manufacturer's recommendation for the proper maintenance of this pipe in sliplining whether done by jacking or pulling.
- C. Grout
1. Test data on the design grout mix performed in accordance with ASTM C109. Data shall include grout strength at 24hours, 3 days, 7 days, and 28 days.
 2. General information on type of materials and relative proportions used in the grout. Grout mix designs.
 3. Design density of grout.
 4. Procedures for grouting annular space between liner and existing pipe including details of bulkheading, rate of pumping, maximum pressures, number of lifts, locations and size of vents, method of preventing excessive pressure (uplift forces).
 5. The manufacturer shall furnish an affidavit that all delivered materials comply with the applicable provisions of ASTM F894.
- D. Notification of Work: At least 2 weeks prior to the start of work, the Contractor shall submit the sliplining schedule that identifies daily work hours and working dates for each installation.
- E. Affidavit of Compliance: Certification from liner pipe manufacturer that he has reviewed the proposed grout and grouting procedures and they are acceptable in supporting the liner consistent with the liner design.
- F. Post-Construction Submittals
1. The following construction record information shall be submitted upon request:
 - (a) Approved data logger device reports
 - (b) Fusion joint documentation containing the following information:
 - (i) Pipe Size and Thickness
 - (ii) Machine Size
 - (iii) Fusion Technician Identification
 - (iv) Job Identification
 - (v) Fusion Joint Number
 - (vi) Fusion, Heating, and Drag Pressure Settings
 - (vii) Heat Plate Temperature
 - (viii) Time Stamp
 - (ix) Heating and Cool Down Time of Fusion
 - (x) Ambient Temperature
 - (c) Grout testing reports.

1.07 QUALITY ASSURANCE

- A. Fusion Technician Requirements: Fusion Technician shall be fully qualified by the pipe supplier to install fusible polyvinylchloride pipe of the type(s) and size(s) being used. Qualification shall be current as of the actual date of fusion performance on the project.
- B. Affidavit of Compliance: The manufacturer shall furnish an affidavit that all delivered materials comply with the applicable provisions of ASTM F894-89.

- C. Certification: Certification from liner pipe manufacturer that he has reviewed the proposed grout and grouting procedures and they are acceptable in supporting the liner consistent with the liner design.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All pipe shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the Owner.
- B. Each pipe shipment shall be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify Owner immediately if more than immaterial damage is found. Each pipe shipment shall be checked for quantity and proper pipe size, color, and type.
- C. Pipe shall be loaded, off-loaded, and otherwise handled in accordance with the manufacturer's recommendations.
- D. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.
- E. Pipe shall be handle in a manner that ensures that the it does not strike anything. Significant impact could cause damage, particularly during cold weather.
- F. If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care shall be taken to insure that pipe is not dropped or damaged. Pipe shall be carefully lowered, not dropped, from trucks.
- G. Any length of pipe showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area. Limits of the acceptable length of pipe shall be determined by the Owner.
- H. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the Owner.
- I. Pipe lengths should be stored and placed on level ground. Pipe shall be stored at the job site in the unit packaging provided by the manufacturer. Caution shall be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, shall be kept free from dirt and foreign matter.
- J. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way.
- K. If pipe is to be stored for periods of 1 year or longer, the pipe shall be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. Pipe shall be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.
- L. Pipe shall be stored and stacked per the pipe supplier's guidelines.

PART 2 - PRODUCTS

2.01 FIBERGLASS PIPE

- A. Manufacturer consistent with the requirements of ASTM D3262 and this specification.
- B. Pipe and fittings shall be homogenous throughout free from visible cracks, holes, foreign inclusion or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density and other physical properties.
- C. Gaskets shall be of elastomeric membrane meeting the requirements of ASTM D477.
- D. Piping shall be centrifugally cast with the average nominal diameter be true to the specified pipe size $\pm 1/4$ - inch. Standard laying lengths shall be no longer than the lengths of pipe being lined.
- E. All joints shall be gasketed bell Flush Jacking bell and spigot type coupling with elastomeric membrane meeting the requirements of ASTM D4161.
- F. Material Properties
 - 1. Minimum Initial Tensile Strength: 4,000 psi
 - 2. Minimum Long Term Tensile Strength: 2,400 psi
 - 3. Minimum Initial Tensile Modulus: 400,000 psi
 - 4. Minimum Long Term (50 yr.) Tensile: Modulus 250,000 psi

2.02 FUSIBLE POLYVINYLCHLORIDE (PVC)

- A. Pipe: Fusible polyvinylchloride pressure pipe for wastewater conforming to AWWA C905 dimensionality
 - 1. Fusible polyvinylchloride pipe shall conform to AWWA C905 standard.
 - 2. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
 - 3. Fusible polyvinylchloride pipe shall be manufactured in a standard 40' nominal length, or custom lengths as specified.
 - 4. Fusible polyvinylchloride pipe shall be green in color for wastewater use.
 - 5. Pipe shall be marked as follows:
 - (a) Nominal pipe size
 - (b) PVC
 - (c) Dimension Ratio, Standard Dimension Ratio, or Schedule
 - (d) AWWA pressure class
 - (e) AWWA standard designation number
 - (f) Extrusion production-record code
 - (g) Trademark or trade name
 - (h) Cell Classification 12454 and/or PVC material code 1120 may also be included
 - 6. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.
 - 7. All piping shall be made from PVC compound conforming to cell classification 12454 per ASTM D1784.

8. Pipe Supplier shall furnish fusible polyvinylchloride pipe conforming to all standards and procedures, and meeting all testing and material properties as described in this specification.
9. Pipe shall conform to the following dimensionality and general characteristics table:

<u>Pipe Description</u>	<u>Nominal Diameter (in.)</u>	<u>DR</u>	<u>Color</u>	<u>Pressure Class (psi)</u>	<u>Required Inner Diameter (in.)</u>
Force Main	20	25	Green	165	19.77

10. Specified Pipe Suppliers: Fusible polyvinylchloride pipe shall be used as manufactured under the trade names Fusible C-900®, Fusible C-905®, and FPVC®, for Underground Solutions, Inc., Poway, CA, (858) 679-9551. Fusion process shall be as patented by Underground Solutions, Inc., Poway, CA, Patent No. 6,982,051. Owner and engineer are aware of no other supplier of fusible polyvinylchloride pipe that is an equal to this specified pipe supplier and products.

B. Fusion Joints: Unless otherwise specified, fusible polyvinylchloride pipe lengths shall be assembled in the field with butt-fused joints. The Contractor shall follow the pipe supplier's written guidelines for this procedure. All fusion joints shall be completed as described in this specification.

2.03 GROUT

A. Grout shall be a portland cement and/or fly ash bentonite gel mixture with any other filler passing a No. 140 mesh. Disparants may be added to lower the viscosity for increased pumpability. The grout shall have a heat of hydration of 140 degrees F maximum and a compressive strength between 100 psi and 300 psi in 28 days. The grout shall have a maximum of 2 percent free water.

2.04 PIPE PULL HEADS

A. Pipe pull heads shall be utilized that employ a positive through-bolt design assuring a smooth wall against the pipe cross-section at all times.
 B. Pipe pull heads shall be specifically designed for use with fusible polyvinylchloride pipe, and shall be as recommended by the pipe supplier.

2.05 PIPE ROLLERS

A. Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe during handling and pullback operations.
 B. A sufficient quantity of rollers and spacing, per the pipe supplier's guidelines shall be used to assure adequate support and excessive sagging of the product pipe.

2.06 WARRANTY

A. All pipe shall be warranted for one year per the pipe supplier's standard terms.

- B. In addition to the standard pipe warranty, the fusion services shall be warranted for one year per the fusion service provider's standard terms.

2.07 CONNECTIONS AND FITTINGS FOR PRESSURE APPLICATIONS

- A. Connections shall be defined in conjunction with the coupling of project piping, as well as the tie-ins to other piping systems.
- B. Ductile Iron Mechanical and Flanged Fittings
- C. Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard ductile iron fittings conforming to AWWA C110, or AWWA C153 and AWWA C111.
 - 1. Connections to fusible polyvinylchloride pipe may be made using a restrained or non-restrained retainer gland product for PVC pipe, as well as for MJ or flanged fittings.
 - 2. Bends, tees and other ductile iron fittings shall be restrained with the use of thrust blocking or other means as indicated in the construction documents.
 - 3. Ductile iron fittings and glands must be installed per the manufacturer's guidelines.
- D. PVC Gasketed, Push-On Fittings: Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard PVC pressure fittings conforming to AWWA C900 or AWWA C905.
 - 1. Acceptable fittings for use joining fusible polyvinylchloride pipe other sections of fusible polyvinylchloride pipe or other sections of PVC pipe shall include gasketed PVC, push-on type couplings and fittings, including bends, tees, and couplings as shown in the drawings.
 - 2. Bends, tees and other PVC fittings shall be restrained with the use of thrust blocking or other restraint products as indicated in the construction documents.
 - 3. PVC gasketed, push-on fittings and mechanical restraints, if used, must be installed per the manufacturer's guidelines.
- E. Fusible Polyvinyl Chloride Sweeps or Bends
 - 1. Fusible polyvinyl chloride sweeps or bends shall conform to the same sizing convention, diameter, dimensional tolerances and pressure class of the pipe being joined using the sweep or bend.
 - 2. Fusible polyvinyl chloride sweeps or bends shall be manufactured from the same fusible polyvinyl chloride pipe being used for the installation, and shall have at least 2 feet of straight section on either end of the sweep or bend to allow for fusion of the sweep to the pipe installation. There shall be no gasketed connections utilized with a fusible polyvinyl chloride sweep.
 - 3. Standard fusible polyvinyl chloride sweep or bend angles shall not be greater than 22.5 degrees, and shall be used in nominal diameters ranging from 4 inch through 16 inch.
- F. Sleeve-Type Couplings
 - 1. Sleeve-type mechanical couplings shall be manufactured for use with PVC pressure pipe, and may be restrained or unrestrained as indicated in the construction documents.

2. Sleeve-type couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.
- G. Expansion and Flexible Couplings
 1. Expansion-type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated in the construction documents.
 2. Expansion-type mechanical couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.
- H. Connection Hardware
 1. Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in AWWA C111, regardless of any other protective coating.

2.08 CONNECTIONS FOR GRAVITY SANITARY SEWER AND NON-PRESSURE APPLICATIONS

- A. The following connections are to be used in conjunction with tie-ins to other non-pressure, gravity sewer piping and/or structures, and shall be as indicated in the construction documents.
- B. PVC Gasketed, Push-On Couplings
 1. Acceptable couplings for joining fusible polyvinylchloride pipe to other sections of fusible polyvinylchloride pipe or other sections of PVC pipe shall include gasketed PVC, push-on type couplings as indicated in the construction documents.
 2. PVC gasketed, push-on fittings and/or restraint hardware must be installed per the manufacturer's guidelines.
- C. Fusible Polyvinyl Chloride Sweeps or Bends
 1. Fusible polyvinyl chloride sweeps or bends shall conform to the same sizing convention, diameter, dimensional tolerances and pressure class of the pipe being joined using the sweep or bend.
 2. Fusible polyvinyl chloride sweeps or bends shall be manufactured from the same fusible polyvinyl chloride pipe being used for the installation, and shall have at least 2 feet of straight section on either end of the sweep or bend to allow for fusion of the sweep to the pipe installation. There shall be no gasketed connections utilized with a fusible polyvinyl chloride sweep.
 3. Standard fusible polyvinyl chloride sweep or bend angles shall not be greater than 22.5 degrees, and shall be used in nominal diameters ranging from 4 inch through 16 inch.
- D. Sleeve-Type Couplings: Sleeve-type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated in the construction documents.
- E. Expansion and Flexible Couplings: Expansion-type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated in the construction documents.
- F. Connection Hardware: Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in AWWA C111, regardless of any other protective coating.

G. Connection to Sanitary Sewer Manholes and Structures

1. Fusible polyvinylchloride pipe shall be connected to manholes and other structures to provide a leak-free, properly graded flow into or out of the manhole or structure.
2. Connections to existing manholes and structures shall be as indicated in the construction documents.
 - (a) For a cored or drilled opening provide a flexible, watertight connection that meets and/or exceeds ASTM C923.
 - (b) For a knock out opening, provide a watertight connection (waterstop or other method) meeting the material requirements of ASTM C923 that is securely attached to the pipe with stainless steel bands or other means.
 - (c) Grout opening in manhole wall with non-shrink grout. Pour concrete collar around pipe and outside manhole opening. Provide flexible pipe joint or flexible connector within 2 feet of the collar.
3. Connections to a new manhole or structure shall be as indicated in the construction documents.
 - (a) A flexible, watertight gasket per ASTM C 923 shall be cast integrally with riser section(s) for all precast manhole and structures.
 - (b) Drop connections shall be required where shown on drawings.
 - (c) Grout internal joint space with non-shrink grout.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect existing pipe by remote TV camera to locate service connections, obstructions and defects.
- B. Clear line of obstructions which may include, but not necessarily be limited to solids, dropped joints, protruding service connections or collapsed pipe. A Video Tape of the interior condition is available to the Contractor for his review and assessment of the requirements of his preparatory work.

3.02 LOCATION OF PITS

- A. It is intended that pipe installation pits be located where needed by the Contractor. Information associated with the jacking pits shall be submitted with the Work Plan described in CONTRACTOR SUBMITTALS.

3.03 FUSIBLE POLYVINYL CHLORIDE PIPE

A. General

1. Fusible polyvinylchloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.
2. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.
3. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.

4. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:
 - (a) Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's guidelines.
 - (b) Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
 - (c) Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 - (d) An approved datalogging device with the current version of the pipe supplier's recommended and compatible software shall be used. Datalogging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
5. Other equipment specifically required for the fusion process shall include the following:
 - (a) Pipe rollers shall be used for support of pipe to either side of the machine
 - (b) A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement, extreme temperatures, and /or windy weather, per the pipe supplier's recommendations.
 - (c) An infrared (IR) pyrometer for checking pipe and heat plate temperatures.
 - (d) Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
 - (e) Facing blades specifically designed for cutting fusible polyvinylchloride pipe shall be used.
- B. Joint Recording: Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of fusible polyvinyl chloride pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.
- C. Insertion and Installation
 1. Excavation and Access Pits

- (a) Access pit length shall be such that the minimum bending radius for the fusible polyvinylchloride pipe, per the pipe supplier is maintained. Sheeting, shoring and bracing requirements shall be in accordance with these specifications and applicable jurisdictional standards.
 - (b) Access pit excavations shall be performed at all points where the fusible polyvinylchloride pipe will be inserted into the existing pipeline. When possible, access pit excavations shall coincide with host pipe lateral connection points or other appurtenance installations.
2. Pulling Equipment
- (a) The pulling mechanism shall be properly connected to the end of the fusible polyvinylchloride pipe via a pulling head or arrangement approved by the pipe supplier.
 - (b) The maximum pulling tension on the fusible polyvinylchloride pipe shall not exceed the pipe supplier's safe pulling force as submitted for this project.
 - (c) Immediately following the completion of an installation by sliplining, if possible, the pipe shall be pushed back into the location of the insertion, at the pulling head, until a small amount of movement is realized at the insertion pit on the other side of the installation from the pulling equipment.
3. Pipe Care
- (a) The fusible polyvinylchloride pipe shall be handled with care to minimize the possibility of it being cut, kinked, gouged, or otherwise damaged. The use of cables or hooks will not be permitted.
 - (b) Sections of the fusible polyvinylchloride pipe damaged, cut, or gouged shall be repaired by cutting out the section of damaged pipe and rejoining.

3.04 GROUTING REQUIREMENTS

- A. The entire annular space between the outside of the liner pipe and the inside of the existing pipe shall be grouted.
- B. Grouting of the annular space shall be done in such a manner as to prevent damage or collapse of the liner pipe, in stages as required.
- C. Mix grout with colloidal grout mixer. Ready-mix or rotary bin type mixers shall not be acceptable.
- D. Grout shall be placed from bulkhead to bulkhead with no intermediate injection points. Bulkhead shall be installed at each manhole. See further requirements below.
- E. Maximum length between bulkheads shall not exceed pipe manufacturers recommendations.
- F. Provide adequate venting at bulkhead opposite the injection bulkhead to expel water and air from annular space to the required elevation for each stage.
- G. Venting tubes must be sized consistent with the rate of grout injection. That is, they must have a Flowrate capacity to freely expel the water from the annular space equal to the Pumped Flowrate.
- H. At both grout bulkheads the liner pipe must be raised to the approximate soffit elevation of the carrier pipe. This is required in order to minimize unevenness

in the liner pipe invert. (The hydrostatic pressure caused by the grouting operation will float the liner to the soffit elevation). The method selected to accomplish raising and blocking the ends of the liner pipe shall be submitted to the OWNER for approval.

- I. The final grout lift shall be pumped until a grout density within 0.3 lb/gal of that specified is ejected from the vent(s) at the opposite bulkhead from the grout injection point. Density shall be measured by the Pressurized Fluid Density Balance apparatus in accordance with the provisions of Appendix C of API Specification 10 entitled "Determination of Slurry Density".
- J. Grouting pressures shall not exceed pipe manufacturer's specifications.
- K. If required, the annular space between the outside of the fusible polyvinylchloride pipe and the inside of the existing host pipe shall be filled with a flowable grout in accordance with the contract documents.
- L. If required, samples of grout shall be obtained in accordance with ASTM C495. One set of four standard cylinders shall be cast for each batch. Special handling and sampling procedures shall be followed if indicated by the grout manufacturer. The samples must meet the design compressive strength of the grout as outlined in this specification and per the grout manufacturer. Samples shall be tested in accordance with ASTM C495.
- M. Grouting of the annular space shall be done in such a manner as to prevent damage, floating, or collapse of the fusible polyvinylchloride pipe. Grouting operations shall be properly vented. If the distance between grout points exceeds the Contractor's pumping capability additional grouting points shall be excavated. The fusible polyvinylchloride pipe at access pits, service connections, and grouting points shall not be grouted above the springline of the existing host pipe.
- N. Fusible polyvinylchloride pipe shall be filled with water prior to the grouting procedure. This shall aid in keeping the fusible polyvinylchloride pipe from floating or collapsing during grouting operation and also aid in dissipating the heat of hydration and its effects on the fusible polyvinylchloride pipe as the grout cures. This can be done in coordination with the testing performed on the fusible polyvinylchloride pipe.

3.05 PREPARATION PRIOR TO MAKING CONNECTIONS INTO EXSITING PIPING SYSTEMS

- A. Approximate locations for existing piping systems are shown in the construction documents. Prior to making connections into existing piping systems, the contractor shall:
 - 1. Field verify location, size, piping material, and piping system of the existing pipe.
 - 2. Obtain all required fittings, which may include saddles, sleeve type couplings, flanges, tees, or others as shown in the construction documents.
 - 3. Have installed all temporary pumps and/or pipes in accordance with established connection plans.
- B. Unless otherwise approved, new piping systems shall be completely assembled and successfully tested prior to making connections into existing pipe systems.

3.06 PIPE SYSTEM CONNECTIONS

A. Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines and as indicated in the construction documents. Pipe connections to structures shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines.

3.07 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS

- A. Tapping shall be performed using standard tapping saddles designed for use on PVC piping in accordance with AWWA C605. Tapping shall be performed only with use of tap saddles or sleeves. **NO DIRECT TAPPING WILL BE PERMITTED.** Tapping shall be performed in accordance with the applicable sections for Saddle Tapping per Uni-Pub-8.
- B. All connections requiring a larger diameter than that recommended by the pipe supplier, shall be made with a pipe connection as specified and indicated on the drawings.
- C. Equipment used for tapping shall be made specifically for tapping PVC pipe:
1. Tapping bits shall be slotted "shell" style cutters, specifically made for PVC pipe. 'Hole saws' made for cutting wood, steel, ductile iron, or other materials are strictly prohibited.
 2. Manually operated or power operated drilling machines may be used.
- D. Taps may be performed while the pipeline is filled with water and under pressure ('wet' tap,) or when the pipeline is not filled with water and not under pressure ('dry' tap).

3.08 FIELD QUALITY CONTROL AND GROUTING

A. Grout

1. Standard 2-inch compression test cubes shall be made in field and tested in laboratory in accordance with ASTM C109.
2. Minimum of 4 standard mortar cubes shall be made for each required test. As set of cubes shall be made for each 50 cubic yards of grout placed, with a minimum of three sets taken for each days grouting.
3. The final set of cubes shall be taken at the ejection vent at the end of the day's grouting. The other sets may be taken at the grout mixer.
4. A corresponding density test shall be done and referenced to the mortar cubes each time cubes are cast.
5. Cubes: Test at 3 days and 28 days.
6. Each set of cubes shall be marked with job name, CONTRACTOR'S name, time of sampling and measured grout density (API10).
7. A minimum of one density test shall be made each half hour during grouting operations. Variation shall not be greater than ± 0.3 lb/gal from design density. If any single density test is greater than ± 0.5 lb/gal from design density grouting operation shall cease. Grouting shall be suspended until CONTRACTOR makes the necessary adjustments to meet the density requirements.

B. Pipe

1. Infiltration/Exfiltration testing shall be conducted in accordance with ASTM C969 except the maximum leakage shall be 10 gals per inch diameter per mile of pipe, per day.
 2. Conduct an internal TV inspection of completed work. Provide OWNER with a copy of TV inspection tape, VHS format.
 3. Pipe Deflection shall not exceed 2% of the diameter.
 4. Inspect existing pipe by remote TV camera to locate service connections, obstructions and defects.
 5. Pipe Cleaning
 - (a) Clear existing pipes of obstructions that may include, but not necessarily be limited to solids, dropped joints, protruding service connections or collapsed pipe. If available, a video of the interior condition will be made available by the OWNER to the Contractor for his review and assessment of the requirements of his preparatory work.
 - (b) Host pipe shall be cleaned in accordance with all applicable standards and guidelines. Unless otherwise specified, all interior pipe surfaces shall be cleaned per AWWA M28.
 - (c) Hazardous materials shall be removed and disposed of per all applicable regulations.
 - (d) All pipelines shall be cleaned with as many passes as necessary to create a uniform interior host pipe surface free of all loose material and sharp edges. Any potentially deleterious areas of the host pipe shall be removed or secured in place, prior to the insertion the liner pipe.
- C. Hydrostatic Testing and Leakage Testing For Pressure Piping
1. Hydrostatic and leakage testing for piping systems that contain mechanical jointing as well as fused PVC jointing shall comply with AWWA C605.
 2. Unless agreed to or otherwise designated by the owner or engineer, for a simultaneous hydrostatic and leakage test following installation, a pressure equal to 150% of working pressure at point of test, but not less than 125% of normal working pressure at highest elevation shall be applied. The duration of the pressure test shall be for two (2) hours.
 3. If hydrostatic testing and leakage testing are performed at separate times, follow procedures as outlined in AWWA C605.
 4. In preparation for pressure testing the following parameters must be followed:
 - (a) All air must be vented from the pipeline prior to pressurization. This may be accomplished with the use of the air relief valves or corporation stop valves, vent piping in the testing hardware or end caps, or any other method which adequately allows air to escape the pipeline at all high points. Venting may also be accomplished by 'flushing' the pipeline in accordance with the parameters and procedures as described in AWWA C605.
 - (b) The pipeline must be fully restrained prior to pressurization. This includes complete installation of all mechanical restraints per the restraint manufacturer's guidelines, whether permanent or temporary to the final installation. This also includes the installation and curing

of any and all required thrust blocking. All appurtenances included in the pressure test, including valves, blow-offs, and air-relief valves shall be checked for proper installation and restraint prior to beginning the test.

- (c) Temporary pipeline alignments that are being tested, such as those that are partially installed in their permanent location shall be configured to minimize the amount of potentially trapped air in the pipeline.
- 5. Partial Testing: Segments of the pipe may be tested separately in accordance with standard testing procedure, as approved by the owner and engineer.
- D. CCTV Inspection: The host pipe shall be inspected by CCTV after or during the cleaning process in accordance with these specifications.
 - 1. CCTV inspection after host pipe cleaning shall indicate condition of host pipe and suitability of host pipe for fusible polyvinylchloride pipe insertion.
 - 2. Obstructions such as corporation taps, valves and valve bodies, and collapsed piping shall be remedied prior to insertion. Spot repairs shall be made in accordance with the drawings and these specifications.



CERTIFICATION PAGE

Contract Number: 1183

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS - PHASE 1**

I certify under penalty of law that the 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, and that 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.

Name

Rachelle Lynn Lowe

5/12/15
Date



[NOT APPLICABLE TO PROJECT No. 80001745]



CERTIFICATION PAGE

Contract Number 1183

Project Title TARGET GREEN EAST MARLBOROUGH AND WATER MAIN
REPLACEMENTS – PHASE 1

I am responsible for the following specifications and drawings:

Drawings:

Specifications:

DIV 00: Introductory Information, Bidding Requirements,
Contracting Requirements

DIV 01: Section 01000, 01290, 0300, 01320, 01330, 01400,
01500, 01566, 01570, 01580, 01581, 01630, 01700, 01900

DIV 02: Section 02200, 02505, 02510, 02528, 02575, 02620,
02624, 02630, 02631, 02662, 02702, 02705, 02831, 02930,
02931

DIV 03: Section 03000, 03370, 03396

DIV: Section 05010



(SEAL)

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CERTIFICATION PAGE

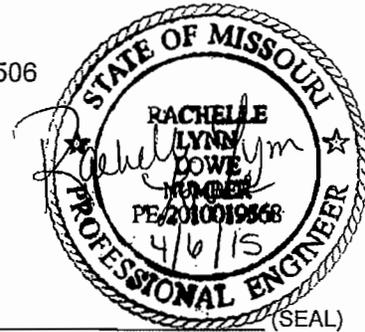
Contract Number **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS - PHASE 1**

I am responsible for the following specifications and drawings:

Drawings: D-1192.11
Sheets 1-23, 33-35

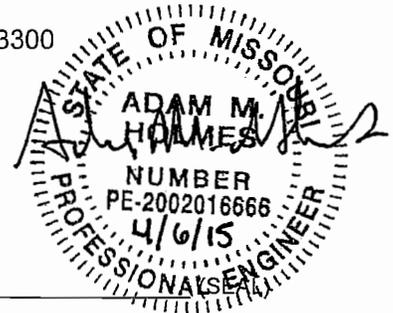
Specifications: Section 01015, 02506



I am responsible for the following specifications and drawings:

Drawings: D-1192.11
Sheets 24-32

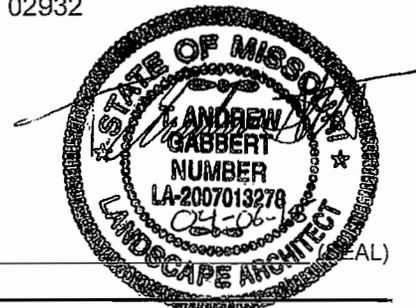
Specifications: Section 03100, 03200, 03300



I am responsible for the following specifications and drawings:

Drawings: D-1192.11
Sheet 36

Specifications: Section 02231, 02932



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CERTIFICATION PAGE

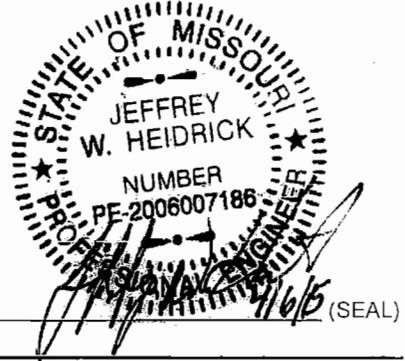
Contract Number **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS - PHASE 1**

I am responsible for the following specifications and drawings:

Drawings: D-20255
Sheets 1-19

Specifications: None



I am responsible for the following specifications and drawings:

Drawings:

Specifications:

DIV 00, DIV 01, DIV 02, DIV 03, DIV 05

(SEAL)

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Drawings:

Specifications:

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002	3 OF 36	GENERAL NOTES	1192.11	4/6/2015
003	4 OF 36	OVERALL PROJECT SITE PHASE MAP	1192.11	4/6/2015
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008	9 OF 36	OWNERSHIP AND EASEMENT MAP	1192.11	4/6/2015
C100	10 OF 36	77TH TERRACE STORM PLAN AND PROFILE STA 0+00 TO STA 7+00	1192.11	4/6/2015
C101	11 OF 36	77TH TERRACE STORM PLAN AND PROFILE STA 7+00 TO STA 14+00	1192.11	4/6/2015
C102	12 OF 36	77TH TERRACE STORM PLAN AND PROFILE STA 14+00 TO STA 20+00	1192.11	4/6/2015
C103	13 OF 36	77TH TERRACE TO 77TH STREET STORM PLAN AND PROFILE	1192.11	4/6/2015
C104	14 OF 36	79TH STREET TO 77TH TERRACE STORM PLAN AND PROFILE	1192.11	4/6/2015
C105	15 OF 36	78TH STREET AND 79TH STREET STORM PLAN AND PROFILE	1192.11	4/6/2015
C106	16 OF 36	BROOKLYN AVENUE STORM PLAN AND PROFILE STA 0+00 TO STA 5+00	1192.11	4/6/2015
C107	17 OF 36	STORM PROFILES	1192.11	4/6/2015
C108	18 OF 36	77TH TERRACE AND PROSPECT AVENUE SANITARY PLAN AND PROFILE	1192.11	4/6/2015
C109	19 OF 36	STREET RESTORATION DETAILS I	1192.11	4/6/2015
C110	20 OF 36	STREET RESTORATION DETAILS II	1192.11	4/6/2015
C111	21 OF 36	STREET RESTORATION DETAILS III	1192.11	4/6/2015
C112	22 OF 36	CIVIL DETAILS I	1192.11	4/6/2015
C113	23 OF 36	CIVIL DETAILS II	1192.11	4/6/2015
S100	24 OF 36	GENERAL NOTES AND STANDARD DETAILS	1192.11	4/6/2015
S101	25 OF 36	STANDARD DETAILS	1192.11	4/6/2015
S102	26 OF 36	DIVERSION STRUCTURE DEMOLITION PLANS	1192.11	4/6/2015
S103	27 OF 36	DIVERSION STRUCTURE BASE PLAN AND TOP PLAN	1192.11	4/6/2015
S104	28 OF 36	DIVERSION STRUCTURE SECTIONS AND DETAILS	1192.11	4/6/2015
S105	29 OF 36	DIVERSION STRUCTURE SECTIONS AND DETAILS	1192.11	4/6/2015

Item	Sheet No(s).	Set /Title /Description /Designation	Drawing No(s).	Dated
S106	30 OF 36	JUNCTION STRUCTURE DEMOLITION PLANS	1192.11	4/6/2015
S107	31 OF 36	JUNCTION STRUCTURE INTERIOR PLAN AND TOP PLAN	1192.11	4/6/2015
S108	32 OF 36	JUNCTION STRUCTURE SECTIONS AND DETAILS	1192.11	4/6/2015
T100	33 OF 36	TRAFFIC CONTROL DETAILS	1192.11	4/6/2015
T101	34 OF 36	TYPICAL LOCAL ROAD DETOUR PLAN	1192.11	4/6/2015
T102	35 OF 36	PROSPECT AVENUE AND 77TH TERRACE DETOUR PLAN	1192.11	4/6/2015
L100	36 OF 36	LANDSCAPE DETAILS	1192.11	4/6/2015
		WATER MAIN REPLACEMENT		
01	01 OF 19	TITLE SHEET	D-20255	4/6/2015
02	02 OF 19	GENERAL NOTES AND LEGEND	D-20255	4/6/2015
03	03 OF 19	LEGEND CONTINUED	D-20255	4/6/2015
04	04 OF 19	SURVEY CONTROL SHEET	D-20255	4/6/2015
05	05 OF 19	LAYOUT SHEET 1	D-20255	4/6/2015
06	06 OF 19	LAYOUT SHEET 2	D-20255	4/6/2015
07	07 OF 19	LAYOUT SHEET 3	D-20255	4/6/2015
08	08 OF 19	LAYOUT SHEET 4	D-20255	4/6/2015
09	09 OF 19	LAYOUT SHEET 5	D-20255	4/6/2015
10	10 OF 19	LINE A - PLAN AND PROFILE BOL STA 0+00 TO STA 5+00	D-20255	4/6/2015
11	11 OF 19	LINE A - PLAN AND PROFILE STA 5+00 TO EOL STA 6+78.99	D-20255	4/6/2015
		LINE B - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 1+91.49		
12	12 OF 19	LINE C - PLAN AND PROFILE BOL STA 0+00 TO STA 5+00	D-20255	4/6/2015
13	13 OF 19	LINE C - PLAN AND PROFILE STA 5+00 TO STA 10+00	D-20255	4/6/2015
14	14 OF 19	LINE C - PLAN AND PROFILE STA 10+00 TO EOL STA 15+25.79	D-20255	4/6/2015
15	15 OF 19	LINE D - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 4+04.55	D-20255	4/6/2015
		LINE E - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 0+39.28		
16	16 OF 19	CONNECTION DETAIL SHEET	D-20255	4/6/2015
17	17 OF 19	LINE F - PLAN AND PROFILE BOL STA 0+00 TO STA 3+91.50	D-20255	4/6/2015
18	18 OF 19	LINE G - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 3+15.65	D-20255	4/6/2015
19	19 OF 19	LINE H - HORIZONTAL RELOCATION BOL STA 0+00 TO EOL STA 1+08.73	D-20255	4/6/2015



INVITATION TO BID

Contract Number: **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1**

The Water Services Department of Kansas City, Missouri will receive sealed Bids until 2:00 PM, on **Tuesday June 23rd, 2015**, at the Water Services Department, 4800 E 63rd Street, Kansas City, Missouri for **Contract No.1183, Project Nos. 81000679 and 80001745; Target Green East Marlborough and Water Main Replacements – Phase 1**. Bids will be opened after that time at 4800 E 63rd Street.

Work to be done primarily consists of storm and sanitary sewer installation, water main replacements, sewer pipe rehabilitation and drainage structure construction within the City of Kansas City, Jackson County, Missouri and Contractor will be required to comply with the City of Kansas City's Federal Consent Decree.

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 (15%) MBE participation and (9%) 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.

Bidders are requested to attend the Pre-Bid Conference at **2:00 PM, June 9th, 2015**, at 4800 E 63rd Street. **Attendance is NOT MANDATORY.**

Project Manager: **Priya Iyengar**
Phone Number: **816-513-0579**
Fax Number: **816-513-0288**
E-mail: **padmavathi.iyengar@kcmo.org**

Contract Administrator: **Bridgette Atkinson**
Phone Number: **816-513-0177**
Fax Number: **816-513-0226**
E-mail: **bridgette.atkinson@kcmo.org**

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



OVERFLOW CONTROL PLAN CONSENT DECREE INSTRUCTIONS TO BIDDERS

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1

1. Sealed Bids for **Contract No.1183, Project Nos. 81000679 and 80001745; Target Green East Marlborough and Water Main Replacements – Phase 1** will be received by the Water Services Department at 4800 East 63rd Street until **2:00 P.M., June 23rd, 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 **Director of Water Services Department**, 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. Discuss generally the tasks involved in the Project.
- e. Illustrate clearly and concisely Bidder's understanding of the technical elements that must be addressed for successful completion of the Project.
- f. Submit a bid schedule with anticipated milestones for the Project using Microsoft Project 2007 or later format.
- g. Describe key issues that might affect the Project schedule and how Bidder proposes to address them.
- h. 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)
- i. 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.
- j. Identify any other special issues or problems that are likely to be encountered. Outline the manner in which Bidder suggests resolving them.
- k. Outline key community relations issues and how they might be resolved.
- l. 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.
- m. Summary of Bidder's Quality Assurance/Quality Control Plan for this project
- n. 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
- o. 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.

- p. 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.
- q. Statement that Bidder is current on payment of Federal and State income tax withholdings and unemployment insurance payments
- r. Statement of Bidder's litigation and/or arbitration history over the past five (5) years including final ruling.
- s. Statement of Bidder's bond history over the past five (5) years including any incidences of failure to perform.
- t. MBE / WBE past project performance and compliance with participation goals in comparable size commercial projects

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
- e. Fully executed Affidavit of Compliance With the Federal Consent Decree Regarding the City of Kansas City, Missouri Overflow Control Plan ("OCP") Civil Action No. 4:10-cv-0487-GAF

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 (15%) MBE participation and (9%) 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. Pre-Bid Conference The Water Services Department will hold a pre-Bid conference on Wednesday June 9th, 2015, at 2:00 PM at 4800 E 63rd Street, Kansas City, Missouri 64130. Attendance at the pre-Bid conference is encouraged for all Bidders on this Project and is **NOT MANDATORY**.

24. 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.

25. 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.

26. Forward all questions in writing to the following Project Manager and Contract Administrator. Questions received less than fourteen (10) 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.

Priya Iyengar, Project Manager
Water Services Department
4800 East 63rd street
Kansas City, Missouri 64130
(816) 513-0579
FAX: (816) 513-0288
E-mail: padmavathi.iyengar@kcmo.org

Bridgette Atkinson, Contract Administration
Water Services Department
4800 East 63rd street
Kansas City, Missouri 64130
(816) 513-0177
FAX: (816) 513-0226
E-mail: bridgette.atkinson@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.

Bidder: _____

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

BID FORM/CONTRACT

Contract Number 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1

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 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.

Bidder: _____

8. The undersigned Bidder acknowledges receipt of the following addenda listed by number and date appearing on each addendum:

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 11 through Section 15 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: 15 % MBE 9 % 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)**

Bidder: _____

- A. Name of M/WBE Firm _____
Address _____
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, (\$_____).

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

Contract Number: 1183 Project Number: _____

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

KANSAS CITY
MISSOURI

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.				



BID BOND

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1

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.

5. 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

Contract Number: 1183

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1**

_____ (“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 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.

M/WBE Monthly Utilization Report Instructions

1. Report Date: Insert the date the report was completed.
2. Project Name: Insert the name of the project for which the report is submitted.
3. City Project Number: Insert the Project Number assigned by the City.
4. Project Address: Insert the Project street address or location.
5. Contract Award Date: Insert the date the Contract was awarded.
6. City Vender ID: Insert the General Contractor's City Vender ID Number.
7. General Contractor: Insert the name of the General Contractor.
8. City Contract Number: Insert the City Contract Number.
9. Contact Person/Phone: Insert the name and phone number of the General Contractor's Contact person for the project.
10. General Contract Amount: Insert the Contract amount for the project, including all change orders or amendments.
11. Total Amount Paid by City to Date: Insert the total amount paid by the City to the General Contractor as of the end of the reporting period.
12. General Contractor Address: Insert the General Contractor's address.
13. Contract Goals: Insert the DBE, MBE, and WBE goals specified in the Contract.
14. Total Contract Days: Insert the total Contract days for this project.
15. Completion Date: Insert the scheduled maturity/completion date, including all change orders or amendments.
16. M/W/DBE Subcontractor: Insert the name of the M/W/DBE subcontractor.
17. M/W/DBE Date of Certification: Insert the date of certification of the M/W/DBE subcontractor.
18. M/W/DBE Date of Subcontract: Insert the date of the M/W/DBE subcontract.
19. M/W/DBE % of Total Contract: Insert the percentage of M/W/DBE Contract divided by General Contract amount.
20. M/W/DBE Estimated Start date: Insert the estimated start date of M/W/DBE subcontractor.
21. M/W/DBE Amount Paid This Period: Insert the dollar amount paid this period to the M/W/DBE subcontractor by the General Contractor.
22. M/W/DBE Amount Paid To Date: Insert the cumulative dollar amount paid to the M/W/DBE subcontractor by the General Contractor.
23. M/W/DBE % of Contract Paid to Date: Insert the percentage of the M/W/DBE Amount Paid to Date divided by the General Contractor's "Total Amount Paid By City to date"

Note #1: Complete one M/WBE report per project. Do not list more than one project on one report.

Note #2: If the Contract number and project number are the same, then list the number once.

Note#3: GC stands for General Contractor.

Project Specific Monthly Report

Human Relations Department - City of Kansas City Missouri

Report Date:	Reporting Period:	Project Description:
Project Name:	Contractor:	Contract Awarded Date:
City Project Number:	Contractor Address:	City Contract Number:
Project Address:	Contact Person/Phone:	City Vendor ID:
		Contractor Report <input type="checkbox"/> Subcontractor Report <input type="checkbox"/>
E-mail Address:	Final Cumulative Report: <input type="checkbox"/> Yes <input type="checkbox"/> No	

Report the total monthly hours of work performed by all workers on the City Construction Contract. Enter the total hours on all lines and in all columns. Reported
 workforce hours should be based on payroll records.

JOB CATEGORIES	OVERALL TOTAL (Sum of all Columns, A thru F Male & Female)	A Total Hours White Employees		B Total Hours Black Employees		C Total Hours Hispanic Employees		D Total Hours Asian/Pacific Islander		E Total Hours Native American Employee		F Total Hours Other/Unknown Race Employee		G KCMO Resident Hours
		M	F	M	F	M	F	M	F	M	F	M	F	Total #
		Foreman/Supervisor												
Asbestos Worker Apprentice														
Boilemaker Apprentice														
Business Apprentice														
Carpenter Apprentice														
Cement Mason Apprentice														
Electrician Apprentice														
Elevator Constructor Apprentice														
Glazier Apprentice														
Iron Worker Apprentice														
Labourer Apprentice														
Officer Engineer														
Painter														
Plumber														
Roofing														
Scaffolding														
Siding														
Tiling														
Welder Apprentice														
Monthly Total Hours														
Total % of Monthly Hrs.														

Contractor shall submit report by the 15th of each month.										Report Submitted By:				
Phillip Yelder, Director Human Relations Department														
414 E. 12th Street, 4th Floor					Kansas City, MO 64106									
Phone: 816-513-1836					Email: HRDcontractcompliance@kcmo.org					Date:				

Workforce Monthly Report Forms only apply to Construction Contracts greater than \$324,000.01 with greater than 800 projected labor hours.

Workforce Monthly Report Instructions

(Instructions for Forms: 00485.02 Project Workforce Monthly Report 020408 and 00485.03 Company Wide Workforce Monthly Report 020408)

1. **Report Date:** Insert the date the report was completed.
2. **Reporting Period:** Insert the reporting month for hours performed.
3. **Project Description:** Insert the description/type of the project.
4. **Project Name:** Insert the name of the project for which the report is submitted.
5. **Contractor:** Insert the name of the Contractor.
6. **Contract Award Date:** Insert the date the Contract was awarded.
7. **City Project Number:** Insert the Project number assigned by the City.
8. **Contractor Address:** Insert the Contractor's address.
9. **City Contract Number:** Insert the City contract number.
10. **City Vender ID:** Insert the General Contractor's City Vender ID number.
11. **Project Address:** Insert the project street address or location.
12. **Contact Person/Phone:** Insert the name and phone number of the Contractor's contact person for the project.
13. **Contractor Report / Subcontractor Report:** Please check the box to indicate whether this is the contractor's report or subcontractors' summary report.
14. **Email Address:** Insert the contact person's email address.
15. **Final Cumulative Report/Request for Retainage:** Click box to mark whether report is final.
16. **Job Categories:** Select the appropriate Job Category for the worker.
17. **Overall Total:*** Insert the total number of labor hours per trade (do not include resident hours in this total).
18. **Monthly Total Hours:*** Insert the sum of all columns, A through G, male, female and residents for the month.
19. **Total Percentages of Monthly Hours:*** Insert the total percentages of hours by race, gender and Kansas City, Mo resident for the month.
20. **Cumulative Total Hours:** Insert the total number of hours in each category plus the previous months' cumulative total hours through the duration of the project.
21. **Total Percent of Cumulative Hours:*** Insert the total percent of hours worked for the project as a whole in each category.

Notes

Note #1: Complete two Monthly Project Reports per project. Do not list more than one project on one report.

- a) One Workforce Monthly Project Report should list all data for the Contractor.
- b) A separate Monthly Project Report should list all data consolidated for the subcontractors on the project.

Note #2: Contractors are required to submit four workforce forms required per month - (see instructions for Company-Wide Report for additional 2 forms:

- a.) Contractors Monthly *Project* Report (Form No.: 00485.02);
- b.) Subcontractors' Monthly *Project* Report (Form No.: 00485.02);
- c.) Contractor's Monthly *Company Wide* Workforce Report (Form No.: 00485.03); and
- d.) Subcontractors' Monthly *Company Wide* Workforce Report (Form No.: 00485.03).

Note #3: The last Workforce Monthly Project Reports and Workforce Monthly Company-Wide Reports will also serve as the final report. The "Yes" box should be checked in the Final Cumulative Report cell.

* Self Calculating Cell



CONTRACT REQUIRED SUBMISSIONS

Contract: **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1**

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 Contract Administrator, Buyer, or Project Manager]**
 - [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:

**Affidavit of Compliance With the Federal Consent Decree Regarding the
City of Kansas City, Missouri Overflow Control Plan ("OCP")**

Civil Action No. 4:10-cv-0487-GAF

STATE OF MISSOURI)

) ss.

COUNTY OF JACKSON)

I, _____, having full authority to act on behalf of _____, do solemnly swear under oath to the following:

I certify, under penalty of law, that the City has made an electronic copy of this Consent Decree available to this organization at the following web location: <http://www.kcmo.org/idc/groups/public/documents/waterservices/consentdecree.pdf> . I further certify that the Consent Decree, along with appendices, have been reviewed in their entirety and that said review has been performed under my direction or supervision in accordance with a system designed to assure that qualified personnel properly evaluated and fully understand the information contained in this Consent Decree upon execution of any contract relating to such work, including, but not limited to, subcontractors, equipment providers, material suppliers, or sub-consultants.

Signature of affiant

On this ____ day of _____, _____ before me, _____, a Notary Public in and for said state, personally appeared (_____), known to me to be the person who executed the within affidavit, and acknowledge to me that he/she executed the same for the purposes therein stated.

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

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

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

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1

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)



**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



OVERFLOW CONTROL PROGRAM CONSENT DECREE

GENERAL CONDITIONS

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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. **Achievement of Full Operation** – shall mean completion of construction and installation of equipment or infrastructure such that the equipment or infrastructure has been placed into full operation, and is expected to both function and perform as designed.
2. **Addenda** – Written or graphic instruments issued prior to the opening of Bids that clarify, correct or change the Bidding Requirements or the Contract Documents.
3. **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.
4. **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.
5. **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.
6. **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.
7. **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.
8. **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).
9. **Bidding Requirements** – The advertisement or invitation to bid, Instructions to Bidders, Bid security, and the Bid Form/Contract with any supplements.
10. **Bonds** – Payment Bond and Performance and Maintenance Bond and other instruments of security.
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. **Consent Decree** – Shall mean Consent Decree, Civil No. 4:10-cv-0497-GAF.

- 15. 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.
- a. 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.
- 16. 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.
- 17. 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, 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 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, approved Shop Drawings, and any certifications required as part of the Consent Decree. 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.
- 18. 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.
- 19. Contract Times** – The number of days or the dates stated in the Supplementary Conditions: (a) to achieve Achievement of Full Operation, 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.
- 20. 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.
- 21. Day or Days** – The terms "day" or "days" as used herein shall mean a calendar day or calendar days. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, federal or state holiday, the period shall run until the close of the next business day
- 22. 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.

- 23. DESIGN PROFESSIONAL's Project Representative** – The authorized representative of DESIGN PROFESSIONAL who may be assigned to the Site or any part thereof.
- 24. 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.
- 25. 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.
- 26. 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.
- 27. General Requirements** – Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.
- 28. 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.
- 29. 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.
- 30. 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.
- 31. 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.
- 32. Liens** – Liens, charges, security interests or encumbrances upon real property or personal property.
- 33. Milestone** – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Achievement of Full Operation of all the Work.
- 34. 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.
- 35. 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.
- 36. Overflow Control Plan or OCP** – shall mean the Long Term Control Plan and Sanitary Sewer System Plan collectively referred to by the City as the Overflow Control Plan approved by the MDNR by letter dated April 14, 2010.

- 37. 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 Achievement of Full Operation of all the Work.
- 38. PCBs** – Polychlorinated biphenyls.
- 39. 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.
- 40. 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.
- 41. 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.
- 42. 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.
- 43. 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.
- 44. 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.
- 45. 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.
- 46. 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.
- 47. 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 portion of the work.
- 48. Substantial Completion-** When Work (or a specified part thereof) has progressed to the point where, in the opinion of CITY as evidenced by CITY'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.
- 49. Supplementary Conditions** - The part of the Contract Documents which amends and/or supplements these General Conditions.
- 50. 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.

- 51. 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.
- 52. Unpermitted CSO Discharge** – shall include any release of untreated or partially treated sewage from the City's combined sewer system that is not authorized by any of the City's NPDES permits.
- 53. Unit Price Work** – Work to be paid for on the basis of unit prices.
- 54. 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.
- 55. 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.
- 56. 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 Achievement of Full Operation 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 Affidavit of Compliance

A. CONTRACTOR shall deliver to CITY Affidavit of Compliance With the Federal Consent Decree Regarding the City of Kansas City, Missouri Overflow Control Plan (“OCP”) Civil Action No. 4:10-cv-0487-GAF

2.03 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.

2.04 Copies of Documents

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

2.05 Commencement of Contract Times; Notice to Proceed

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

2.06 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.

2.07 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 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 Achievement of Full Operation; 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 Achievement of Full Operation 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, OCP requirements, or any other applicable provisions of the Contract Documents.

2.08 Acceptable Schedules

A. Acceptable schedule: If necessary following the Preconstruction Conference, The Contractor shall update and submit to the CITY for review a revised 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 revised preliminary schedule. The Contractor shall incorporate the CITY's comments and resubmit the revised preliminary schedule within seven (7) Calendar Days from receipt of the CITY's comments.

B. Project Baseline Schedule: The accepted revised 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. Failure of the CONTRACTOR to provide the CITY with an acceptable preliminary schedule shall be cause for the CITY to suspend work and shall be considered an unexcusable delay to the Project.** 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. Approved Shop Drawings
3. Addenda, with those of later date having precedence over those of earlier date
4. Project Baseline Schedule Requirements
5. Specifications
6. Drawings
7. The Supplementary Conditions
8. The General Conditions
9. The Bid Form/Contract

D. 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 B+, 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.

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 a provision or endorsement that the coverage afforded will not be canceled or changed or renewal refused until at least thirty (30) days prior written notice has been given to CITY and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07 A.

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. contain a provision or endorsement that the coverage afforded will not be canceled, changed or renewal refused until at least thirty (30) days prior written notice has been given to CITY, CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to Paragraph 5.03 will so provide);

6. 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;

7. 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);

8. 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;

9. 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

10. 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 Achievement of Full Operation 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 complete Achievement of Full Operation;

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 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 within three (3) calendar days of demand 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 Achievement of Full Operation, 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 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 reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection. 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 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 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 38-100.7.

I. **Pay-If-Paid/Pay-When Paid Clauses:** CONTRACTOR shall not insert any provision in any subcontract or agreement associated with this Contract that explicitly states or implies that the subcontractor or supplier 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. Any such provision shall be null and void pursuant to the terms of this provision.

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, and CITY shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

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:

- a. Approvals and permits as required for construction or land disturbance activities.
- b. 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.
- c. Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).
 - (1) Contractor shall not commence land disturbance activity until the initial SWPPP has been finalized.
 - (2) Preparation and submittal of all applications, documentation and exhibits required to obtain MDNR approvals for uninterrupted Work at the Site.
 - (3) Amending/Updating SWPPP.
 - (4) Site Inspections and submittal of Inspection Reports
 - (5) Proper Operation and Maintenance to achieve compliance with the terms of the Permit.
 - (6) Maintenance of required records in accordance with MDNR requirements and requirements included in Article 6 of these Contract Documents.
- d. In addition to requirements of Article 6, Contractor shall also provide record access to Missouri Department of Natural Resources (MDNR).
- e. 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, Regulations, or stipulations of the Consent Decree, 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 2-1764, prohibiting City officers and employees from having a financial or personal interest in any contract with City, and Code Sections 2-1016 and 2-1770, 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 the Americans with Disabilities Act, 42 U.S.C. Sec. 12101 et seq., as well as 28 CFR Parts 35 and 36 and 29 CFR Part 1630, as applicable and 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 38 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 38 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 38 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 38-84 through 38-100.8 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 38-83.1 through 38-83.13 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.

3. The United States, and its representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by the Consent Decree at all reasonable times, upon presentation of credentials, to: (1) monitor the progress of activities required under the Consent Decree; (2) verify any data or information submitted to the United States and/or MDNR in accordance with the terms of the Consent Decree; (3) obtain samples and, upon request, splits of any samples taken by the City or its representatives, contractors, or consultants; (4) obtain documentary evidence, including photographs and similar data; and (5) assess the City's compliance with this Consent Decree.

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.

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 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:

a. "Certified Payroll Report" Form indicating the worker's name, address, social security number, occupation(s) and 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

b. "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; and

c. "Payroll Certification" Form. CONTRACTOR shall prepare and shall require each Subcontractor to prepare a "Payroll Certification" Form to accompany the Certified Payroll Report. 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.

Copies of CITY's "Certified Payroll Report" form, the Daily Labor Force Report and Payroll Certification Form are included in the Project Manual and 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. If this Contract involves the issuance of special assessment tax bills, to approximate the additional costs of delay in levying special assessments and issuing special assessment tax bills, additional liquidated damages shall be deducted in the amount indicated in the Supplementary Conditions per day for any delay in closing the Contract caused by CONTRACTOR's or Subcontractor's failure to pay prevailing hourly rate of wages.

3. 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. 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.

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.

1. **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.

2. **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 http://www.dhs.gov/xprevprot/programs/gc_1185221678150.shtm

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 Achievement of Full Operation 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 Achievement of Full Operation). 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 Achievement of Full Operation 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.
4. All Change Orders shall contain the following statement:

I certify under penalty of law that the 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, and that 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.

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's 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 Achievement of Full Operation. 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 the 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.

F. As a prerequisite to being considered a valid claim, any submission to the City pursuant to this Paragraph shall contain the following statement:

I certify under penalty of law that the 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, and that 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.

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 Achievement of Full Operation, 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 Achievement of Full Operation 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.
 - e. any submission to the City pursuant to this Paragraph shall contain the following statement:

I certify under penalty of law that the 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, and that 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.
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 Achievement of Full Operation, 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 Achievement of Full Operation

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 Achievement of Full Operation. 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 Achievement of Full Operation that shall establish the date of Achievement of Full Operation. 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 Achievement of Full Operation, 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 Achievement of Full Operation, 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 Achievement of Full Operation 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 Achievement of Full Operation 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 Achievement of Full Operation 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 Achievement of Full Operation 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 5.10 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 or material supplier within thirty (30) calendar days after payment was due;
5. CONTRACTOR fails to achieve the required dates of substantial and achievement of full operation;
6. CONTRACTOR disregards Laws, Regulations, or Decrees of any public body or court of law 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:

I certify under penalty of law that the 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, and that 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.

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 occurrence of the event giving rise to the Claim advising the CITY that CONTRACTOR intends to file a claim. 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, 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) submit to the jurisdiction of the state and federal courts located in Jackson County, Missouri; (2) waive any and all objections to jurisdiction and venue; and (3) will not raise forum non conveniens as an objection to the location of any litigation.



SUPPLEMENTARY CONDITIONS

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

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-2.04 A. Article 2, Paragraph 2.04, 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 four (4) 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, the following report of explorations and tests of subsurface conditions at or contiguous to the Site of the Work have been prepared.

1. Report dated March 2014, prepared by Burns & McDonnell; entitled Subsurface Information for the Middle Blue River Green Infrastructure Project, which may be obtained by the CONTRACTOR upon request. The technical data contained in such report upon which CONTRACTOR may rely is not a Contract Document, and Contractor shall make no claim against Owner, Design Professional, or Engineer's Consultant.

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-5.04 B.1. Article 5, Paragraph 5.04, CONTRACTOR's Liability Insurance, Subparagraph B.1 is amended as follows:

With respect to insurance required by Paragraphs 5.04 A.3 through 5.04 A.5, the following additional individuals or entities shall be listed as additional insureds:

NIA Property Holdings, LLC and the Missouri Department of Transportation (MoDOT), the Missouri Highways and Transportation Commission (MHTC) and each of their respective employees shall be listed as additional insureds.

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 **fourteen (14)** days prior to Bid date at the following address:

Water Services Department
4800 East 63rd Street
Kansas City, Missouri 64130
Attn: Priya Iyengar, 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 14 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, on or before within **490** 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 on or before within **60** Calendar Days after the date of Substantial Completion of the Work.

C. Actual Damages.

If the Work is not completed within the Contract Times and, as a direct result, CITY incurs additional costs, Consent Decree Stipulated Damages, MDNR fines or penalties, or loses revenues, then the amount of such additional costs and lost revenues, including but not limited to, costs for the completion, correction, replacement, or repair of the Work, lost rental income, costs of relocating tenants, costs of lease replacement or extension, any interest charges, fines or penalties imposed, and/or additional staff costs for administration, including legal costs, will be aggregated and assessed against CONTRACTOR. These and other such costs will compound and accrue until the

Achievement of Full Operation of the Work and acceptance of the Work by CITY. CONTRACTOR shall pay actual damages to CITY in the amount of those additional costs and lost revenues, and to the extent known at the time of completion, withheld from final payment to the 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 or to meet the definition of achievement of full operation, the following items of the Work must be operational and ready for CITY's continuous use as intended:
 1. New storm sewer lines installed, backfilled, tested, connected to existing system, and in service.
 2. New manholes, inlets, junction boxes and diversion structure installed, backfilled, tested, lines televised.
 3. All existing service line connections reconnected, and in service.
 4. New water lines installed, backfilled, tested, disinfected, connected to existing system and in service.
 5. Pavement and concrete work completed.

Items of the Work not essential to plant operation, which may be completed without interruption of plant operation, may be completed after the Work meets the definition of achievement of full operation, and may include the following:

1. Seeding and sodding
2. Planting trees
3. CITY shall also allow CONTRACTOR reasonable access to complete items listed in Paragraph 14.04 A which may be completed after the Work is accepted.

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.

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



JEREMIAH W. (JAY) NIXON, Governor

Annual Wage Order No. 21

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, 2014

Last Date Objections May Be Filed: April 9, 2014

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	10/14		\$35.24	52	53	\$24.48
Boilermaker	6/14		\$33.36	57	7	\$27.95
Bricklayer and Stone Mason	6/14		\$33.50	58	39	\$17.75
Carpenter	6/14		\$36.05	63	68	\$15.05
Cement Mason	6/14		\$31.08	65	4	\$17.20
Communication Technician			\$32.79	47	72	\$19.28
Electrician (Inside Wireman)	1/15		\$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			\$26.46	125	65	\$5.00 + 34.5%
Elevator Constructor	6/14	a	\$42.940	26	54	\$28.335
Glazier			\$30.97	88	32	\$16.63
Ironworker	6/14		\$30.50	50	4	\$27.35
Laborer (Building):						
General	6/14		\$26.40	30	4	\$14.75
First Semi-Skilled	6/14		\$26.80	30	4	\$14.75
Second Semi-Skilled	6/14		\$27.20	30	4	\$14.75
Lather			USE CARPENTER RATE			
Linoleum Layer and Cutter	6/14		\$33.82	46	67	\$15.05
Marble Mason	6/14		\$33.76	25	4	\$14.66
Marble Finisher	1/15		\$23.78	25	4	\$9.18
Millwright			USE CARPENTER RATE			
Operating Engineer						
Group I	6/14		\$37.35	85	4	\$15.01
Group II	6/14		\$36.54	85	4	\$15.01
Group III	6/14		\$30.99	85	4	\$15.01
Group III-A	6/14		\$35.20	85	4	\$15.01
Group IV						
Group V	6/14		\$32.59	85	4	\$15.01
Painter	7/14		\$28.13	37	4	\$15.42
Pipe Fitter	8/14		\$41.83	2	33	\$19.32
Plasterer	6/14		\$30.75	68	4	\$14.95
Plumber	6/14		\$40.24	45	33	\$20.09
Pile Driver			USE CARPENTER RATE			
Roofer \ Waterproof	6/14		\$32.25	95	2	\$15.49
Sheet Metal Worker	1/15		\$39.28	17	22	\$19.40
Sprinkler Fitter - Fire Protection			\$34.35	14	4	\$18.77
Terrazzo Worker	6/14		\$33.76	25	4	\$14.66
Terrazzo Finisher	1/15		\$23.78	25	4	\$9.18
Tile Setter	6/14		\$33.76	25	4	\$14.66
Tile Finisher	1/15		\$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

For additional information regarding the application of the Marble Finisher, Terrazzo Finisher and Tile Finisher see the Labor and Industrial Relations Commission Order of June 10, 2014, in the Matter of Objection Nos. 006-121.

**Annual Incremental Increase

**REPLACEMENT PAGE
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.

**REPLACEMENT PAGE
JACKSON COUNTY
BUILDING CONSTRUCTION OVERTIME SCHEDULE**

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 \$26.71 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.

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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.

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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.

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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	6/14	\$36.05	1	17	\$15.05
Cement Mason	6/14	\$30.34	3	2	\$15.23
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	6/14	\$28.06	3	2	\$14.25
Skilled Laborer	6/14	\$29.27	3	2	\$14.25
Millwright	6/14	\$36.05	1	17	\$15.05
Operating Engineer					
Group I	6/14	\$34.58	3	2	\$15.13
Group II	6/14	\$33.54	3	2	\$15.13
Group III	6/14	\$33.54	3	2	\$15.13
Group IV	6/14	\$29.07	3	2	\$15.13
Oiler-Driver	6/14	\$32.42	3	2	\$15.13
Pile Driver	6/14	\$36.05	1	17	\$15.05
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 (1 ½). All work performed on Saturday shall be paid at time and one-half (1 ½). 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 (1 ½) 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 (1 ½). Workers shall receive time and one-half (1 ½) 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 (1 ½).

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 (1 ½) 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 (1 ½) 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 (1 ½) 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 (1 ½) 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 (1 ½) 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.



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
DIVISION OF LABOR STANDARDS

**AFFIDAVIT
COMPLIANCE WITH THE PREVAILING WAGE LAW**

I, _____, upon being duly sworn upon my oath state that: (1) I am the
(Name)

_____ of _____; (2) all requirements of
(Title) *(Name of Company)*

§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects
have been fully satisfied with regard to this company's work on _____;
(Name of Project)

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

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

Signature

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

My commission expires _____, _____.

Notary Public

Receipt by Authorized Public Representative



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
**PREVAILING WAGE
PROJECT NOTIFICATION – CONTRACTOR INFORMATION**

The information below is requested pursuant to Sections 290.210 through 290.340, RSMo.

1. Date of Notification		2. Annual Wage Order Number Included in Bid Specifications	
3. Popular or Descriptive Name of Project			
4. Estimated Project Cost of Completion <i>(total construction contracts to be awarded)</i>		\$	
5. Exact Location of Project			
<u>County</u>		<u>City</u>	<u>Township</u>
6. Official Name of Public Body or Agency			
7. Name of Contact Person		8. Phone Number <i>(include area code)</i>	
9. Address			
10. E-mail Address		Website	
11. Anticipated Date for Soliciting or Advertising for Bids		12. Contract Award Date	
13. Estimated Start Date of Work	14. Estimated Date of Project Completion	15. Will There Be Any Federal Funds Used in this Contract? <input type="checkbox"/> Yes <input type="checkbox"/> No	
16. Contractor Information Notification			
General Contractor:			
Name		_____	
Address		_____	
City		State	ZIP
Phone Number		E-mail Address	
Type of Craftsmen Needed by Project		_____	
Scope of Work		_____	
List all Subcontractors:			
Name		_____	
Address		_____	
City		State	ZIP
Phone Number		E-mail Address	
Type of Craftsmen Needed by Project		_____	
Scope of Work		_____	
Name		_____	
Address		_____	
City		State	ZIP
Phone Number		E-mail Address	
Type of Craftsmen Needed by Project		_____	
Scope of Work		_____	

The state of Missouri requires workers on public works projects be paid the prevailing wage. Public bodies have duties as required under Section 290.210 - 290.340, RSMo.

Mail, Fax, or E-mail completed form to: **DIVISION OF LABOR STANDARDS**
Attn: Prevailing Wage Section
P.O. Box 449 Jefferson City, MO 65102-0449
Phone: 573-751-3403 Fax: 573-751-3721 E-mail: prevailingwage@labor.mo.gov Website: www.labor.mo.gov/DLS

Missouri Department of Labor and Industrial Relations is an equal opportunity employer/program.

Title 8—DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS

Division 30—Division of Labor Standards

Chapter 3—Prevailing Wage Law Rules

8 CSR 30-3.010 Prevailing Wage Rates for Public Works Projects

PURPOSE: This rule sets forth prevailing wage requirements relative to work performed by workers on public funded projects.

- (1) All public bodies of Missouri contemplating construction work must obtain from the department an annual wage order which sets forth the prevailing hourly rate of wages in the locality. The rates so determined shall be incorporated in the contract specifications and made a part of those specifications, except that construction contracts of the State Highway and Transportation Commission need not list specific wage rates to apply, but may refer to the wage rates contained in the appropriate General Wage Orders issued by the department, as applicable.
- (2) Request for annual wage orders shall be initiated at least ten (10) calendar days before advertisement of the specifications for the contract for which the determination is sought. An exception from this provision will be made by the department only upon a proper showing of extenuating circumstances. The department has prepared and printed Form No. PW-3 for use in making a request. The form may be secured by writing Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102.
- (3) A project notification form PW-2 must be filed for each separate project by the public body, except the State Highways and Transportation Commission, which will be furnished prevailing wage determinations under General Wage Orders.
- (4) The annual wage order issued by the department contains the current wage rates prevailing in the locality at the time the annual wage order is issued. Hours worked during the calendar year are used to set the prevailing wage rates in the annual wage order issued in March of the following year. Section 290.262.9, RSMo provides that the annual wage order for a particular occupational title may be altered once each year with an incremental increase. A public body shall specify in the call for bids for each contract the prevailing hourly rate of wages in the locality for each type of worker as set forth in the annual wage order or any replacement page(s) identifying the annual incremental increase issued by the department. The wage rates attached to and made a part of the call for bids for a contract shall remain in effect for the duration of that particular contract.
- (5) It should be understood by all interested parties that the certified prevailing wage rates determined by the department are minimum wage rates. The contractor may not pay less than the prevailing wage rates determined by the department for the project or contract awarded to him/her as set forth in the proposal on which s/he submitted his/her bid. Employees are free to bargain for a higher rate of pay and employers are free to pay a higher rate of pay.
- (6) Each month the successful bid contractors shall submit certified copies of their current payrolls to the contracting public body. The public body, upon receipt of the payrolls on a project, shall keep the payrolls on file for a period of one (1) year from the date of submission of the final payrolls by the contractor. The payroll records shall set out accurately and completely the following: name and address of each worker, the class or type of worker, rate of pay, daily and weekly number of hours worked for each class or type of work performed, deduction made, and actual wages paid for each class or type of

work performed by each worker. The payroll records shall be available at all times for inspection by authorized representatives of the Department of Labor and Industrial Relations.

- (7) The public body shall make examinations of the payrolls and other records of each contractor or subcontractor as may be necessary to assure compliance with the provisions of the law. In connection with those examinations, particular attention should be given to the correctness of classifications and any disproportionate employment of any workers. The examinations shall be of a frequency that may be necessary to assure conformity with the provisions of the law. An examination shall be made after the project has been substantially completed but prior to the acceptance of the affidavit as required by section 290.290, RSMo. If any violation of sections 290.210–290.580, RSMo is discovered by the inspecting public body, it is their duty under section 290.250, RSMo to withhold and retain from payments to the contractor all sums and amounts due and owing as a result of any violation. Any violation shall be immediately reported to the Division of Labor Standards at P.O. Box 449, Jefferson City, MO 65102 or by telephone.

*AUTHORITY: section 290.240(2), RSMo 2000. * Original rule filed Dec. 18, 1975, effective Dec. 28, 1975. Amended: Filed July 24, 1984, effective Nov. 11, 1984. Amended: Filed Aug. 24, 1990, effective April 29, 1991. Emergency amendment filed Sept. 15, 1994, effective Sept. 25, 1994, expired Jan. 13, 1995. Emergency amendment filed Dec. 9, 1994, effective Jan. 14, 1995, expired May 13, 1995. Emergency amendment filed May 1, 1995, effective May 14, 1995, expired Sept. 10, 1995. Amended: Filed May 1, 1995, effective Aug. 30, 1995. Amended: Filed July 17, 1995, effective Jan. 30, 1996. Amended: Filed March 27, 2000, effective Oct. 30, 2000. Amended: Filed Nov. 9, 2000, effective May 30, 2001.*

**Original authority: 290.240, RSMo 1957, amended 1969.*

Woodman Engineering Company v. Butler, 442 SW2d 83 (Mo. App. 1969). The function of reviewing court in prevailing wage cases is to decide if the determination of the commission was authorized by law and was supported by competent and substantial evidence upon the whole record. A decision clearly contrary to the evidence should be set aside. However, all pertinent evidence and factors must be considered in determining the applicable prevailing wage.

City of Joplin v. Industrial Commission of Missouri, 329 SW2d 687 (Mo. En Banc 1959). Administrative agencies do not have authority to determine constitutionality of legislation. Determination of prevailing wage earnings by commission must be based upon all current relevant factors.

8 CSR 30-3.020 Definitions

PURPOSE: This rule sets forth the definition of certain terms for purposes of issuance and use of annual and general wage orders under the Prevailing Wage Law, sections 290.210-- 290.580, RSMo and the rules in this chapter.

- (1) The term construction of public works generally includes construction activity as distinguished from manufacturing, furnishing of materials or servicing and maintenance work. The term includes, without limitation, the construction of buildings, structures and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, dredging, shoring, rehabilitation and reactivation of plants, scaffolding, drilling, blasting, excavating, clearing and landscaping. The manufacture or furnishing of materials, articles, supplies or equipment is not construction of public works within the meaning of the Prevailing Wage Law unless conducted in connection with and at the site of construction. The term construction of public works also means all work done in the construction or development of a public works project, including without limitation, altering, remodeling, demolishing existing structures, installation on the site of the construction of items fabricated off-site, painting and decorating, the transporting of materials and supplies to or from the site of the construction by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials,

articles, supplies or equipment on the site of the construction by persons employed by the contractor or subcontractor.

- (2) The term site of the building or construction job means the physical place(s) where the public works are to be constructed, and also means other adjacent or nearby property used by the contractor or subcontractor in that construction which can reasonably be said to be included in the site. Except as otherwise provided in this section, fabrication plants, mobile factories, batch plants, borrow pits, job headquarters, tool yards and the like, are part of the site of the building or construction job provided they are dedicated in a substantial degree to the performance of the public works project, and are so located in proximity to the actual construction location that it would be reasonable to include them. The dedication of seventy-five percent (75%) or more of the output of a fabrication plant, batch plant and the like, to the public works project raises a rebuttable presumption that the facility is part of the site of the building or construction job. The presumption may be rebutted by evidence showing that the facility was established for other legitimate-commercial purposes that make the facility useful well after the public works project has been completed. Not included in the site of the building or construction job are permanent home offices, branch plant establishments, fabrication plants and tool yards of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular public works project. In addition, fabrication plants, batch plants, borrow pits, job headquarters, tool yards and the like, of a commercial supplier or materialman which are established by a supplier of materials for the project before opening of bids and not on the project site are not included in the site of the building or construction job. The permanent, previously established facilities are not a part of the site of the building or construction job, even where the operations for a period of time may be dedicated exclusively, or nearly so, to the performance of a public works project.

*AUTHORITY: section 290.240, RSMo 1994. * Original rule filed Aug. 24, 1990, effective April 29, 1991. Amended: Filed July 17, 1995, effective Jan. 30, 1996.*

**Original authority 1957, amended 1959.*

8 CSR 30-3.030 Apprentices and Trainees

PURPOSE: This rule sets forth the requirements for the payment of apprentice wages for workers employed on public works subject to the Prevailing Wage Law.

Editor's Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.

- (1) Journeymen's rate of pay shall be paid to all workers employed on public works construction except apprentices and trainees registered and participating in apprentice or trainee programs registered with the United States Department of Labor, Bureau of Apprenticeship and Training; and apprentices and trainees registered and participating in apprenticeship and skill training programs certified by the Secretary of the United States Department of Transportation as promoting equal opportunity in connection with federal-aid highway construction programs.
- (2) Apprentices shall be permitted to work at less than the predetermined rate for the class or type of work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the United States Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training. The allowable ratio of apprenticeship

to journeymen on the site of the construction for any class or type of workers shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on the payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this rule, shall be paid not less than the applicable wage rate on the wage determination for the class or type of work actually performed. In addition, those apprentices performing work on the site of the construction who are in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the class or type of work actually performed. Every apprentice shall be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate for the class or type of worker specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices shall be paid the full amount of fringe benefits listed on the wage determination for the applicable class or type of work performed. In the event the Bureau of Apprenticeship and Training withdraws approval of an apprenticeship program, the contractor shall no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the class or type of work performed until an acceptable program is approved.

- (3) Trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the United States Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the jobsite shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the annual wage order for the applicable class or type of work performed. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the annual wage order for the classification of work actually performed. In addition, any trainee performing work on the jobsite in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (4) Workers employed on federal-aid highway construction projects may be paid at an apprentice or trainee rate of pay if enrolled in an apprenticeship or skill training program which has been certified by the Secretary of the United States Department of Transportation pursuant to 23 U.S.C. 113. In the event the Secretary of Transportation withdraws approval of a program, the contractor will no longer be permitted to pay workers less than the applicable predetermined rate for the work performed until an acceptable program is approved.

*AUTHORITY: section 290.240, RSMo 1994. * Original rule filed Aug. 24, 1990, effective April 29, 1991. Amended: Filed July 17, 1995, effective Jan. 30, 1996.*

**Original authority 1957, amended 1969.*

8 CSR 30-3.040 Classifications of Construction Work

PURPOSE: The Department of Labor and Industrial Relations has the responsibility under section 290.260, RSMo to determine the prevailing hourly rate of wages to be paid to workers engaged in work of a similar character. This rule establishes classifications of construction work for the department to use in determining the prevailing hourly rate of wages for work of a similar character.

- (1) All public works construction, for which the prevailing hourly rate of wages of workers are to be determined, shall be classified as either--
 - (A) Building construction; or
 - (B) Highway and heavy construction.

- (2) Building construction shall mean the following:
 - (A) Building structures, including modification, additions or repairs, or both, to be used for shelter, protection, comfort, convenience, entertainment or recreation, or for protection of people or equipment;
 - (B) Buildings at an airport project, such as terminal buildings, freight buildings and any other construction necessary for the operation of the airport facilities;
 - (C) Stadiums, athletic fields, dressing rooms, bleachers and all other buildings needed in connection with an athletic or entertainment facility;
 - (D) Entire buildings that are built aboveground in connection with highway, subway or tunnel projects, such as tool stations or housing for mechanical equipment;
 - (E) Excavation for the building itself, including backfilling inside and outside the building;
 - (F) Storm and sanitary sewers inside the building and to the curb line;
 - (G) Work in connection with telephone, electrical, water, oil, gas or fuel lines, or other utility or communication lines inside a building and to the curb line;
 - (H) Sidewalks other than those that are poured in connection with a street or road project;
 - (I) Driveways that are built to serve a building;
 - (J) Parking lots connected to a building and all structures built as parking facilities;
 - (K) Retaining walls built in conjunction with a building project;
 - (L) Demolition of a building(s) as part of the site preparation for new building construction;
 - (M) Landscaping of building sites or the planting of all shrubbery that is incidental to building construction as defined in section (2); and
 - (N) Work on water and wastewater treatment plants within the fence line.

- (3) Highway and heavy construction shall mean the following:
 - (A) Work in connection with roads, streets, parkways, alleys and highways including, but not limited to, grading, paving, curbing, signs, fences, guard rails, bridges, lighting, retaining walls and landscaping;
 - (B) Work on viaducts, overpasses, underpasses, drainage projects, aqueducts, irrigation projects, flood control projects, reclamation projects, reservoir filtration and supply projects, water power, duct lines, distribution lines, pipe lines, locks, dikes, levees, revetments projects, excluding work specifically defined as building construction;
 - (C) Work in connection with underground construction on tunnels and shafts;
 - (D) Railroad work in its entirety, including elevated railroads;
 - (E) Main and side sewers;
 - (F) Work in connection with airports, such as runways, roads and streets, but excluding that which is listed as building construction;

- (G) Work in connection with telephone, electrical, water, oil, gas or fuel lines, or any other utility or communication lines from the curb line;
- (H) Sidewalks when poured incidental to a street or road project;
- (A) Parking lots not incidental to a building construction project; and
- (B) Demolition of all buildings as part of site preparation for any highway and heavy construction as is otherwise defined in section (3).

*AUTHORITY: section 290.240, RSMo 1994. * Original rule filed Aug. 24, 1990, effective April 29, 1991. Amended: Filed July 17, 1995, effective Jan. 30, 1996.*

**Original authority 1957, amended 1969.*

8 CSR 30-3.050 Posting of Prevailing Wage Rates

PURPOSE: This rule sets forth the requirements for the posting of prevailing wage rates on public works projects subject to the Prevailing Wage Law.

- (1) Contractors and subcontractors engaged in public works projects shall post the prevailing hourly rate of wages in a dry, accessible place within the field office at the site of the building or construction job. On public works projects for which no field office is needed or established, such as road construction, sewer lines, pipelines and the like, a contractor/subcontractor may post the prevailing hourly rates of wages at the contractor/subcontractor's local office or batch plant, so long as the contractor/subcontractor provides a copy of the prevailing hourly wage rates to any worker upon request. Prevailing hourly wage rates must be posted and maintained in a clearly legible condition for the duration of the public works project as provided by law.

*AUTHORITY: section 290.240, RSMo 1986. * Original rule filed Aug. 24, 1990, effective April 29, 1991.*

**Original authority 1957, amended 1969.*

8 CSR 30-3.060 Occupational Titles of Work Descriptions

PURPOSE: The Department of Labor and Industrial Relations is required to determine the prevailing hourly rate of wages to be paid to each worker engaged in construction on a public works project, relative to the type of work performed by each worker. This rule describes by occupational title the type of work performed in the construction of a public works project in Missouri and sets forth the procedures to be followed in identifying each occupational title utilized on a public works project.

- (1) Each occupational title defines by name the type of work performed in the construction of a public works project. The description of work designated for a particular occupational title is not intended to be jurisdictional in scope or nature, and is not to be construed as limiting or prohibiting workers from engaging in construction work falling within several occupational titles.
- (2) Each occupational title of work description shall be based upon the particular nature of the work performed, with consideration given to those trades, occupations or work generally considered within the construction industry as constituting a distinct classification of work. In determining occupational titles and scope of work definitions, the department shall consider the following:
 - (A) Collective bargaining agreements;
 - (B) *Dictionary of Occupational Titles*, as published by the United States Department of Labor; and
 - (C) Opinions of experts from organized labor and the opinions of contractors and contractor associations as they relate to the custom and usage applicable to the construction industry in Missouri.

- (3) Any person wishing to add, delete or modify an occupational title of work description shall submit to the director of the Division of Labor Standards a written request containing the proposed changes. Proposals shall contain the following information:
- (A) Occupational title;
 - (B) A description of the physical duties to be performed by workers under the title;
 - (C) A copy of any current collective bargaining agreements that are relevant to the proposal, if any;
 - (D) Evidence of hours worked and wages paid while performing work under the title, including fringe benefits paid, if any;
 - (E) Identification of the county(ies) where the work was performed;
 - (F) Evidence that the proposed occupational title of work description is for a type or class of work that is commonly utilized by the construction industry on building or heavy and highway construction projects in Missouri; and
 - (G) Other information concerning the proposed addition, deletion or modification as the director of the Division of Labor Standards may deem advisable under the circumstances.
- (4) Interested parties who wish to submit wage information to be used in establishing the prevailing hourly rate of wages for a particular class or type of work are required to identify the work according to the applicable occupational title of work description set forth in this rule. Hours of work reported to the department shall not be used to establish the prevailing hourly rate of wages if the party submitting the hours of work fails to identify the work under one of the occupational titles recognized by this rule.
- (5) Any question as to the proper classification of work should be resolved before the work in question is commenced. Interested parties are encouraged to contact the Prevailing Wage Section of the Division of Labor Standards for an interpretation of these rules and for a determination of the appropriate occupational title of work description, relative to the class or type of work to be performed.
- (6) The occupational titles and work descriptions for each type or class of work contained herein are valid throughout the entire state of Missouri. Through an objection to a wage order, an interested party may assert that any given description of work, as stated within this rule, does not apply to a specific occupational title(s) and that a different work description should apply to that occupational title(s). The interested party shall have the burden of proving by a preponderance of the evidence the inapplicability of the description of work within that particular occupational title, but shall be afforded the opportunity to do so in a hearing on an objection to the wage order before the Labor and Industrial Relations Commission.
- (7) Occupational titles of work descriptions may be obtained from the department by written request to the director of the Division of Labor Standards, PO Box 449, Jefferson City, MO 65102.
- (8) The occupational titles of work descriptions set forth here are as follows:
- (A) **Asbestos Worker/Heat and Frost Insulator** – Applies to workers who apply insulation materials to mechanical systems to reduce loss or absorption of heat, prevent moisture condensation and to deaden sound and prevent vibration. The workers remove all insulation materials from mechanical systems unless the mechanical system is being scrapped. The work falling within this occupational title of work description includes:
 - 1. The preparation, including the building of enclosures and hanging polyurethane, and physical distribution on the job site of asbestos, cork, plastic, magnesia or similar materials, or other materials used as a substitute, and used as thermal insulation. The manufacture, fabrication, assembling, molding, handling, erection, spraying, pouring, making, hanging, application, adjusting, alteration, repairing, dismantling, reconditioning, corrosion control and testing of

heat or frost insulation, such as asbestos, cork, mineral wall, infusorial earth, mercerized silk, flax, fiber, fire felt, asbestos paper, asbestos curtain, asbestos millboard, fibrous glass, foam glass, styrofoam, polyurethane, polystyrene, metals, plastics, fibrous matter, roving and resins, and the erection of scaffolding up to fourteen feet (14'), working platform;

2. The covering, including encapsulation, of boilers, tanks, refrigeration units, evaporators, turbines, fittings, valves, ducts, flues, vats, equipment, hot and cold pipes or any other hot or cold surfaces with the insulation materials listed in this rule, used for the purpose of thermal insulation, fire stoppage, fireproofing, radiator protection, sound deadeners and the lagging (covering) on piping; and
3. The removal of all insulation materials from mechanical systems, unless the mechanical system is being scrapped, whether they contain asbestos or not (pipes, boilers, ducts, flues, breechings). All cleanup required in connection with this work, shall include the sealing, labeling and dropping of scrap material into the appropriate containers. (After drop, final disposal is considered to be the class or type of work falling within the occupational title of work description for second semiskilled laborer.);

(B) **Boilermaker** – Applies to workers who assemble, erect and repair boilers, tanks, vats and pressure vessels according to blueprint specifications, using handtools, portable power tools and equipment. The work falling within this occupational title of work description includes:

1. Locating and marking of reference points for columns on plates or foundations, using master straightedge, squares, transit and measuring tape;
2. Using rigging or cranes to lift parts to specified positions;
3. Aligning structures or plate sections, using plumb bobs, levels, wedges, dogs or turnbuckles;
4. Drilling, reaming, chipping, caulking and grinding of structures and sections and bolting or welding them together;
5. Setting of drums and headers and installation of tubes;
6. Cleaning up as necessary in connection with this work; and
7. Riveting, acetylene burning, rigging, fitting-up, impact machine operating, unloading and handling of material and equipment where power equipment and rigging are required;

(C) **Bricklayers and Stone Mason** – Applies to workers who prepare, lay, set, bed, point, patch, grout, caulk, cut, fit, plumb, align, level, anchor, bolt or weld brick, stone masonry, precast aggregate panels and all types of artificial or imitation masonry. Also, the workers install expansion joint materials in brick, stone masonry, precast aggregate panels and all types of artificial or imitation masonry. The work falling within this occupational title of work description includes:

1. The unloading of brick, stone masonry, precast aggregate panels and all types of artificial or imitation masonry where power equipment and rigging are required;
2. The masonry paving and rip-rapping of all types, with or without mortar;
3. The reinforcing of masonry, including placing, tying and setting of rods;
4. The application of insulation materials in or to masonry walls;
5. The caulking of abutting masonry openings in masonry walls, expansion joints and false joints in all types of masonry;
6. The waterproofing of all types of masonry, which shall include installation and application of air and/or vapor barrier systems and materials by spray, trowel, roller, adhesive, or mechanically fastened; and
7. The cleaning, tuckpointing, sandblasting, steam cleaning and Guniting work on all types of masonry;

(D) **Carpenter** – Applies to workers who construct, erect, install and repair structures, structural members and fixtures made of wood, plywood, wallboard and materials that take the place of wood, such as plastic, metals, composites, fiberglass, and Transit sheeting and Cemesto Board,

using carpenter hand tools and power tools. The work falling within this occupational title of work description includes:

1. The layout of buildings or structures on the site or plot. The installation of aluminum expansion joints for buildings and bridge structure as well as concrete strike-off machines;
2. The making and setting of all concrete forms (except curb forms on heavy construction), including establishment of building lines or flow lines (box culverts, bridges) including footing forms. The making of all forms used in tilt-up construction. The layout, installation and construction for wall forms and footing forms, all block-outs, wood or steel, layout and installation of all embedded items;
3. The building and handling of scaffolds used by carpenters to work from. All scaffolding; constructed or assembled, fourteen feet six inches (14'6") and higher for normal or specialty use – regardless of purpose;
4. The building of rough wooden structures, such as concrete forms, scaffolds, wooden bridges, trestles, coffer dams, tunnel and sewer support; welding and burning;
5. The selection of specified type of lumber or other materials. Prepare layout, using rule, framing square and calipers. Mark cutting and assembling lines on materials, using pencil, chalk and marking gauge. Shape materials to prescribed measurements, using saws, chisels and planes. Assemble, cut and shape materials and fasten them together with nails, dowel pins or glue. Erect framework for structures. Verify trueness of structure with plumb bob and carpenter's level. Apply decorative paneling to walls;
6. The installation of ladders, handrails, walkways, platforms and gangways made of wood as well as shoring and lagging. Install doors and wood and metal windows and bucks, including hardware (bucks are rough frames in which finished frames are inserted) in building framework and brace them with boards nailed to framework. Install pallet racks and metal shelving. Install subflooring in buildings. Install insulation such as batt, board, safin, thermal, styrofoam, sound attenuation, fiberglass when the installation of the insulation material is not being applied as an integral part of the roofing system. Nail plaster grounds (wood or metal strips) to studding. Fit and nail sheathing on outer walls and roofs on buildings. Install beams and trusses of wood laminate;
7. The making, handling and setting of all frames, sash, blinds, trim and other fixtures (for example, cabinets, bookcases and benches), when made of wood or any wood substitute. The handling and assembly of chairs, seats, bleachers and benches and other furniture in theaters, halls, schools and other places of assemblage on floors of any kind. Install protection screens, chalk boards, toilet partitions (plastic laminate, solid plastic). Caulking of fixtures and countertops including Corian tub and shower enclosures;
8. The installation of wood and metal studs and exterior panels;
9. The handling, cutting, sawing, fitting of drywall (sheetrock) and lead-lined drywall whether for walls, ceilings, floors, soffits or any use, no matter how installed—nailed, screwed, glued or otherwise (interior, exterior). Lead-lined drywall is used in X rays to avoid radiation exposure. Install corner guards and wooden and plastic column covers;
10. The handling and installation of acoustical and egg crate ceiling systems in its entirety (hanger wire, grid, molding, tile) whether vertically or horizontally installed;
11. The installation of all builders hardware, including door tracks of every description. The installation of all weather strips. The making, fitting and hanging of fly screens for doors, windows and other openings;
12. Installation of wood and hollow metal doors, rollup garage doors, overhead doors or rolling fire doors, automatic doors, channel iron door bucks, glass sliding and bi-fold doors; and

13. The installation of access flooring, computer floors and raised or elevated floors. Install modular headwall units and laboratory casework and fume hoods;

- (E) **Cement Mason** – Applies to workers who perform work on concrete where finishing tools are used. The work falling within this occupational title of work description includes:
1. The setting of screeds, the rodding (buildings), shaping, smoothing and finishing of the surfaces of freshly poured concrete floors, walls, sidewalks, curbs, steps and stairways, the finishing of extruded barrier rails or any other concrete surface requiring finishing, using handtools or power tools, including floats, trowels, screeds and straightedge;
 2. The removing of rough or defective spots from concrete surfaces, using grinder or chisel and hammer and patching holes with fresh concrete or epoxy compound preparatory to sacking;
 3. The molding of expansion joints and edges, using edging tools, jointers and straightedge;
 4. The application of penetrating sealer and primer protective coatings to concrete floors and steps when part of the finishing process;
 5. The installation of seamless composition floors and the installation and finishing of epoxy-based coatings or polyester-based linings to all surfaces, when the coatings or linings are applied by spraying or troweling;
 6. The sandblasting or water blasting for architectural finish or preparatory to patching;
 7. The cutting of joints with concrete saw for the control of cracks in buildings and sidewalks, driveways, and curbs and gutters contiguous to buildings; and
 8. The setting of concrete curb, gutter and sidewalk forms one (1) board high up to twelve inches (12");
- (F) **Communication (Electronic/Telecommunication) Technician** – Applies to workers who install, inspect, repair and service electronic and telecommunication systems. The work falling within the occupational title of Communication (Electronic/Telecommunication) Technician includes:
1. Installing, repairing and servicing of radio, television and recording systems and devices; systems for paging, intercommunication, public address, wired music, clocks, security and surveillance systems and mobile radio systems; fire alarm and burglar alarm systems;
 2. Wiring of low-voltage surface wiring and wiring in nonmetallic conduits and incidental shielded metallic conduit runs of no longer than ten feet (10') nor larger than one inch (1") when required in conjunction with the work listed in this rule;
 3. Installing, repairing, servicing, or a combination of these, of the Main Distribution Frame (MDF) where the permanent outside lines entering a building terminate and where the subscriber's line multiple cabling and trunk multiple cabling originate. It is usually located on the ground floor of a building;
 4. Installing, repairing, servicing, or a combination of these, of the Intermediate Distribution Frames (IDF), which provides flexibility in allocating the subscriber's number to the line unit or equipment in the office that is to be associated with the particular line. These frames are located on each floor of a building;
 5. Installing, repairing, servicing, or a combination of these, of the subpanels (blocks). The subpanels are connecting devices where large feed cables terminate at the distribution frames;
 6. Installing, repairing common equipment or key service unit, or a combination of these. This equipment consists of a backboard assembly and an equipment mounting frame, which are utilized for connecting external telephones;
 7. Installing, repairing, servicing of the instruments, terminals and sets, or a combination of these. This equipment is at either end of a circuit, or at a subscriber's or user's terminal;
 8. Installing, repairing, servicing, or a combination of these, of the ancillary or add-on equipment such as bells, buzzers, speakerphones, headsets, automatic dialers, recorders; and

9. Installing, repairing, servicing of the telephone cable, or a combination of these. Telephone cable includes: network channel service cable; riser cables between floors of a building; distribution cables installed on each floor of a building in the floor or the ceiling, and inside wires between the telephone and the connection to the distribution cable;

(G) **Electrician** – Encompasses two (2) subclassifications as follows, Inside Wireman and Outside-Line Construction/Lineman:

1. Inside wireman – Applies to workers who are responsible for installation, assembly, construction, inspection, operation and repair of all electrical work within the property lines of any given property (manufacturing plants, commercial buildings, schools, hospitals, power plants, parking lots). This scope of work shall begin at the secondary site of the transformer when the transformer is furnished by the local utility and the service conductors are installed underground. When service conductors are installed overhead in open air from wooden poles, this scope of work shall start immediately after the first point of attachment to the buildings or structures. The work falling within this occupational title of work description includes:
 - A. Planning and layout of electrical systems that provide power and lighting in all structures. This includes cathodic protection systems utilized to protect structural steel in buildings and parking structures;
 - B. All handling, moving, loading and unloading of any electrical materials, materials used in association with an electrical system, electrical equipment, and electrical apparatus on the job site, whether by hand or where power equipment and rigging are required;
 - C. Welding, burning, brazing, bending, drilling and shaping of all copper, silver, aluminum, angle iron and brackets to be used in connection with the installation and erection of electrical wiring and equipment;
 - D. Measuring, cutting, bending, threading, forming, assembling and installing of all electrical raceways (conduit, wireways, cable trays), using tools, such as hacksaw, pipe threader, power saw and conduit bender;
 - E. Installing wire in raceways (conduit, wireways, troughs, cable trays). This wire may be service conductors, feeder wiring, subfeeder wiring, branch circuit wiring;
 - F. Chasing and channeling necessary to complete any electrical work, including the fabrication and installation of duct banks and manholes incidental to electrical, electronic, data, fiber optic and telecommunication installation;
 - G. Splicing wires by stripping insulation from terminal leads with knife or pliers, twisting or soldering wires together and applying tape or terminal caps;
 - H. Installing and modifying of lighting fixtures. This includes athletic field lighting when installed on stadium structures or supports other than wooden poles, or both;
 - I. Installing and modifying of all electrical/fiber optic equipment (AC-DC motors, variable frequency drives, transformers, reactors, capacitors, motor generators, emergency generators, UPS equipment, data processing systems, and annunciator systems where sound is not a part thereof);
 - J. Installing of raceway systems utilizing conduit, conduit bodies, junction boxes, device boxes for switches and receptacles. This also may include wiring systems utilizing other methods and materials approved by the *National Electrical Code* (MC cable, AC cable, BX or flexible metal tubing or electrical nonmetallic tubing);
 - K. Installing of main service equipment, distribution panels, subpanels, branch circuit panels, motor starters, disconnect switches and all other related items;
 - L. Installing and wiring of instrumentation and control devices as they pertain to heating, ventilating, air conditioning (HVAC) temperature control and energy management

- systems, building automation systems, and electrically or fiber optic operated fire/smoke detection systems where other building functions or systems are controlled;
- M. Installing conduit or other raceway greater than ten feet (10') when used for the following: fire alarm systems, security systems, sound systems, closed circuit television systems or cable television systems, or any system requiring mechanical protection or metallic shielding (telephone systems);
 - N. Testing continuity of circuit to insure electrical compatibility and safety of components. This includes installation, inspecting and testing of all grounding systems including those systems designed for lighting protection; and
 - O. Removing electrical systems, fixtures, conduit, wiring, equipment, equipment supports or materials involved in the transmission and distribution of electricity within the parameters of the building property line if reuse of any of the existing electrical system is required. This may include the demolition and removal and disposal of the electrical system;
2. Outside-line construction/lineman – Applies to workers who erect and repair transmission poles (whether built of wood, metal or other material), fabricated metal transmission towers, outdoor substations, switch racks, or similar electrical structures, electric cables and related auxiliary equipment for high-voltage transmission and distribution powerlines used to conduct energy between generating stations, substations and consumers. The work (overhead and underground) falling within this occupational title of work description includes:
- A. Construction, repair or dismantling of all overhead and underground electrical installations. The handling and operation of all equipment used to transport men, tools and materials to and from the job site. The framing, trenching, digging and backfilling of vaults, holes and poles and anchors (by hand or mechanical equipment), guying, fastening to the stub-in on concrete footings or pads, assembling of the grillage, grounding of all structures, stringing overhead wire, installing underground wire, splicing and installation of transformers;
 - B. Construction and repair of highway and street lighting and traffic signal systems, cathodic protection systems and ball field lighting systems;
 - C. Lineman operator – Operates equipment used on the outside line portion of a project. The lineman operator assists linemen in the performance of their work but does not climb or work out of any type of aerial lift equipment. The lineman operator does not perform any work that requires the use of hand tools; and
 - D. Groundman – Work performed on the ground to assist the journeymen outside-line construction/lineman on work not energized. Groundmen use jack hammers, air drills, shovels, picks, tamps, trenching equipment and other such tools for excavating and/or compacting dirt or rock on the outside line portion of a project but do not use hand tools; and
 - E. Lineman tree trimmer – Trimming and removal of trees, stumps, limbs, brush, and other related tasks in and around electrical systems by use of chain saws, pruners, pole saws, and hand saws only when specifically required to provide clearance and right-of-way preparation for installation of overhead or underground high-voltage electric utility lines, and excluding the clearance of right-of-ways related to heavy-highway construction or other public projects not directly related to the installation of electrical utility lines. Lineman tree trimmer work may be performed on the ground and in the air; and
 - F. Groundman tree trimmer – Assists the lineman tree trimmer in the performance of their work using rakes, chain saws, chippers, and industrial mowers in and around electrical systems only when specifically required to provide clearance and right-of-way preparation for installation of overhead or underground high-voltage electric utility lines, and

excluding the clearance of right-of-ways related to heavy-highway construction or other public projects not directly related to the installation of electrical utility lines. Groundman tree trimmer work is only performed on the ground; and

3. The occupational title of electrician may include in a particular wage determination the subclassifications of lineman operator, groundman powder man, groundman, or any combination of these, pursuant to section (6). The description of work and corresponding wage rates shall be established pursuant to the proceedings set forth in section (6);

(H) **Elevator Constructor** – Applies to workers who assemble and install electric and hydraulic freight and passenger elevators, escalators, dumbwaiters and moving walks. The work falling within this occupational title of work description includes:

1. The handling, unloading and hoisting of all equipment to be assembled or installed by workers performing work within this occupational title of work description, from the time that equipment arrives at, or near the building site;
2. The wrecking or dismantling of elevator plants, to include elevators, escalators, dumbwaiters, moving walks and all other equipment to be reused and assembled or installed by workers performing work within this occupational title of work description;
3. The sinking, drilling, boring, digging cylinder wells or backfilling for hydraulic lifts, hydraulic elevators or screw lifts;
4. The layout, erecting and assembling of all elevator equipment (for example, electric, hydraulic, steam, belt, compressed air and handpowered elevators; dumbwaiters, residence elevators, parking garage elevators); and the assembly of all escalators, moving walks and link belt carriers;
5. The erecting and assembly of all theater stage and curtain equipment and guides and rigging to them, organ consoles and orchestra elevators;
6. The installing of all wiring, conduit and raceways from the first point of attachment of main feeder terminals on the controller to other apparatus and operating circuits;
7. The operating of temporary cars; and
8. The installing of all elevator enclosures, fronts, fascias, sills, frames and bucks;

(I) **Glazier** – Applies to workers who select, cut, prepare, handle, install or remove all window glass, plate and all other types of glass, including structural glass, mirror glass, tempered and laminated glass, safety or protection glass, all types of insulating glass units, all plastics or other similar materials when used in place of glass and when set or glazed with putty, moulding rubber, cement, lead and all types of mastic, or other materials used in place of same. The workers performing work within this occupational title of work description install these materials in windows, louvers, doors, partitions, skylights and on building fronts, walls, ceilings and tables, whether the materials are set in wood, stone, cement or metal of all types. The work falling within the occupational title of work description includes:

1. The installing of mirrors of all types;
2. The marking of an outline or pattern on glass and cut glass with a glasscutter;
3. The breaking off of excess glass by hand or with a notched tool;
4. The fastening of glass panes into wood sash with glazier's points, and the spreading smooth of putty around the edge of panes with a knife to seal joints;
5. The installing of metal window and door frames into which glass panels are to be fitted or sliding windows. The bolting of metal hinges, handles, locks and other hardware to prefabricated glass doors;
6. The installing of mirror or structural glass on building fronts, walls, ceilings or tables, using mastic, screws or decorative moulding;

7. The installing of metal-framed glass enclosures for showers, bathtubs and skylights; and
 8. The installing, cutting and removal of all window glass, plate and all other types of glass, including structural glass, mirror glass, tempered and laminated glass, safety or protection glass, all types of insulating glass units, all plastics or other similar materials when used in place of glass and when set or glazed with putty, molding rubber, cement, lead and all types of mastic, or other materials used in place of same;
- (J) **Ironworker** – Applies to workers who perform work in connection with field fabrication, erection, or both, installation, removal, wrecking and dismantling of structural, architectural and reinforcing iron and steel, ornamental lead, bronze, brass, copper and aluminum, and plastics or other materials when used in place of them. The work falling within the occupational title of work description includes:
1. **Structural.** The unloading, erecting, bolting-up, plumbing-up, welding and in-stalling of structural steel, including any field fabrication;
 2. **Reinforcing.** The unloading, carrying, placing and tying of all concrete reinforcing, such as re-bar, wire mesh, expanded metal or post tensioning cable (including the tension process) or prestress cables when installed on the job site;
 3. **Rigging.** The unloading, moving, handling, placing and setting of electrical machinery and equipment when rigging or power equipment, or both, is used (with the exception of setting of electric motors). The assembly and erection of radio and television and other structural steel towers (with the exception of electrical transmission towers). The unloading, handling, moving and placing of machinery to be assembled or dismantled, erected or installed to its approximate position (over the anchor bolts);
 4. **Windows.** The installation of metal windows (with the exception of store fronts display windows), curtain walls and metal panels. The caulking of metal-to-metal joints and metal-to-brick;
 5. **Doors.** The erection of curtain type doors (overhead rolling-type doors), heavy industrial doors when made of metal, fire doors and exterior metal hinged doors that carry a fire underwriters label are erected by iron workers;
 6. **Sheeting and decking.** The installation of sheeting which is attached to metal framework including metal floor decking;
 7. **Metal buildings.** The erection and installation of structural steel and sheet metal packaged buildings when they come in a package unit, such as Butler, Delta, Varco Prudent or other name brand packaged buildings. The installation of all doors, windows and insulation (when installed in conjunction with sheeting) in the packaged buildings. The installation of metal siding and metal roof decking, regardless of the fastening method or the object to which it is fastened;
 8. **Elevators.** The installation of elevator doors for gates manually operated and all elevator enclosures, fronts, fascias, sills, frames and bucks;
 9. **Precast.** The unloading and installation/erection of precast bridge girders, single T's, double T's, top panels and tilt-up slabs; and
 10. **Other.** The installation of all catwalks, stairways and hand rails made of aluminum, bronze or any type of metal, glass or plastic. The installation of ornamental iron, such as revolving doors, gates, handrails, window grills, jail and cell work and chain link fences. The installation of dry storage bins, hoppers, chutes and conveyors where sand ore, coal or any dry component is stored or transferred. The erection, installation, removal, wrecking and dismantling of bridges, viaducts, cableways, tramway, monorail transportation systems. The erection, installation, removal, wrecking and dismantling of locks, gates, metal forms, railings (including pipe). The erection, installation, removal, wrecking and dismantling of frames in

support of boilers. The installation of metal siding and metal roof decking, regardless of the fastening method, or the object to which it is fastened. The handling, burning, welding and tying of all materials used to reinforce concrete structures. The installation and erection of TV and microwave towers, self-supporting towers or guy towers. The installation of metal guardrails with metal posts and highway signage;

- (K) **Laborer** – Consists of providing routine manual labor. This work encompasses several subclassifications, with the title and work description considered in light of whether the public works project pertains to building construction or heavy/highway construction.
1. Building construction. The subtitles falling within the occupational title of work description for laborer, as applicable to building construction, are as follows:
 - A. General laborer. The work falling within this subtitle of work description includes:
 - (I) Being included in one of the following categories: flagmen, heaters, material plant man, carpenter tender, landscaper, signalman, wrecker (old/new structures), form handler or posthole digger;
 - (II) Cleaning and clearing of all debris for all crafts, loading and unloading, conveying, distributing, construction material by hand and collecting and hoisting debris, backfilling, grading and landscaping by hand;
 - (III) Covering of tanks, structures and material piles with tarpaulins or other materials. Cleaning of masonry and other type walls and windows. Signaling and hoisting concrete buckets and for all other material handled by workers falling within the occupational title of work description for laborer;
 - (IV) Providing drinking water. Handling and cleaning of concrete chutes. Cleaning of concrete spills and chipping where hand tools are required. Performance of work necessary in remedying defects in concrete caused by leakage, bulging, sagging or shifting of forms when finishing tools are not used. Jackhammer and paving breaker, air compressors, motor buggies, pumps (removal of water), except set-up men and nozzle men, chipping tool operator, concrete mixer operator (up to and including two (2)-bag capacity); and
 - (V) Laying nonpressurized pipe for downspout drain lines, header lines or laying of nonpressurized conduit, or a combination of these, for the carrying of storm water, waste, sewage, gravity flow lines, catch basins and manholes, effluent lines, originating outside the building and all those lines originating inside the building at the first Y, T or connection outside the building;
 - B. First semiskill laborer. The work falling within this subtitle of work description includes: hod-carriers, plasterers and cement mason tenders (who assist bricklayers, plasterers and cement masons). The mixing, packing, wheeling and tempering of mortar and fire clay. The mixing, handling and conveying of all other materials used by bricklayers, plasterers and cement masons (for example, brick, tile, stone and cast stone), whether done by hand or using a forklift (walk behind or similar types). Building of scaffolds, trestles, boxes and swinging staging for bricklayers, plasterers and cement masons; and
 - C. Second semiskill laborer. The work falling within this subtitle of work description includes: concrete pump set-up men and nozzle men, tile layers and bottom men, on sewers and drains, cutting torch and burning bar (demolition), trench or pier holes twelve feet (12') or over, wagon drill, air track or any mechanical drill, powder man, tamper, one hundred pounds (100 lbs.) or over, laborers working for mechanical and electric contractors (including but not limited to digging of all trenches, ditches, holes, paving of concrete and cleaning of all trash), paving breaker, jackhammer and vibrator, laser beam man for sewer, grade checker for roads and railroads, asbestos removal (except mechanical

systems that are not being scrapped and any type of roofing where the roof is to be relaid), hazardous waste removal, disposal work, or any combination of these.

2. Heavy/highway construction. The subtitle falling within the occupational title of work description for laborer, as applicable to heavy/highway construction, are as follows:
 - A. General laborer. The work falling within this subtitle of work description includes: carpenters tenders, salamander tenders, dump man, ticket takers, flagman, loading trucks under bins, hoppers and conveyors, track men, cement handler, dump man on earth fill, Georgia buggy man, material batch hopper man, spreader on asphalt machine, material mixer man (except on man holes), coffer dams, riprap pavers – rock, block or brick, signal man for materials handled by laborers, scaffolds over ten feet (10') not self-supported from ground up, skipman on concrete paving, wire mesh setters on concrete paving, work in connection with nonpressurized pipelines, such as nonpressured sewer, water, gas, gasoline, oil, drainage pipe, conduit pipe, tile and duct lines and other nonpressurized pipelines; power tool operator; work performed by hand in connection with hydraulic or general dredging operations, form setters (curb and gutter), puddlers (paving only), straw blower nozzleman, asphalt plant platform man, chuck tender, crusher feeder, men handling creosote ties or creosote materials, men working with and handling epoxy material(s), topper of standing trees, feeder man on wood pulverizers, board and willow mat weavers and cable tiers on river work, deck hands, guardrail and temporary signs, pile dike and revetment work, all laborers working on underground tunnels less than twenty-five feet (25') where compressed air is not used, abutment and pier hole men working six feet (6') or more below ground, men working in coffer dams for bridge piers and footings in the river, Barca tamper, Jackson or any other similar tamp, cutting torch man, liners, curb, gutters, ditchliners, hot mastic kettleman, hot tar applicator, hand blade operators and mortar men on brick or block manholes, rubbing concrete, air tool operator under sixty-five pounds (65 lbs.), caulker and led man, chain or concrete saw under fifteen horsepower (15 HP). The unloading, handling and carrying of concrete reinforcing bars, by hand, to the areas in which they are used, wrecking, stripping, dismantling, cleaning, moving and oiling of all concrete forms; digging and laying sewer tile; and
 - B. Skilled laborer. The work falling within this subtitle of work description includes: vibrator man, asphalt raker, head pipe layer on sewer work, batterboard man on pipe and ditch work, cliff scalers working from Bosun's chairs, scaffolds or platforms on dams or power plants over ten feet (10') high, air tool operator over sixty-five pounds (65 lbs.), stringline man on concrete paving and the like, sandblast man, laser beam man, wagon drill, churn drill, air track drill and all other similar type drills, jackhammers and other pneumatic hammers and tampers, Gunit nozzle man, pressure grout man, screed man on asphalt, concrete saw fifteen (15) HP and over, grade checker, stringline man on electronic grade control, manhole builder, dynamite man, powder man, welder, tunnel man waterblaster – one thousand pounds per square inch (1000 psi) over, asbestos (except mechanical systems that are not being scrapped), hazardous waste removal, disposal, or any combination of these;
- (L) **Lather** – Applies to workers who erect horizontal metal framework to which laths are fastened, using nails, bolts, studgun, or a combination of these, drills holes in floor and ceiling and drives ends of wooden or metal studs into holes to provide anchor for furring or rockboard laths. The occupational title of lather applies to workers who nail, clip or fasten, all types of wood, wire and metal laths, plasterboard, wallboard, rockboard, gypsum, sheetrock and acoustical materials which take the place of same to walls, ceilings and partitions of buildings to provide supporting base for plaster, fireproofing or acoustical material. The occupational title of work description for lather

applies to workers who erect all metal plastering accessories which are covered or serve as ground, or both, guard, stock or screed for plaster materials, including wire mesh. The work falling within the occupational title of work description includes:

1. The installing of carrying bars and purlins (pieces of horizontal timber), light iron and metal furring (thin strips of wood or metal to create air space) of all descriptions, such as rods, channels, flat iron, T-bar, H-bar and other ceiling bars or systems for the receipt of lath and board;
2. The wiring of plasterer channels to overhead structural framework to provide support for plaster or acoustical ceiling tile; and
3. The nailing of plaster grounds (wood or metal strips) to studding to provide a guide for those workers performing work falling within the occupational title of work description for plasterer;

(M) **Linoleum Layer and Cutter** – Applies to workers who measure, cut, sew, make-up and seam, tape, fit, lay and install and seal and wax materials to be cemented, tacked or otherwise applied to its base, wherever it may be. These materials may be used as shock-absorbing, sound-absorbing or decorative coverings. With the exception of terrazzo, magnesite and latex built-up floors, the materials include oil cloth, matting, linen, carpet, synthetic turf, linoleum, vinyl, plastic, rubber, cork, mastic, asphalt, mastipave, tile, wood tile, interlocking and magnetic tile, chalk and bulletin board, nonslip or abrasive materials, resilient, decorative seamless surface coatings, monolithic coverings (monolithic shall mean all resilient seamless material such as epoxy, polyethylene, plastics and their derivatives, components and systems) and all other resilient coverings on floors, walls, counters, table tops and ceilings. The work falling within the occupational title of work description includes:

1. The handling of materials at the point of installation;
2. The performing of all necessary preparation and finish work, such as sweeping, scraping, sanding, or chipping dirt and irregularities from base surfaces and filling cracks with putty, plaster, or cement grout to form smooth, clean foundations, drilling holes for sockets and pins;
3. The installing of underlayment, sanding and filling, fitting of metal edgings, metal corners and caps and fitting devices for attachment of these materials;
4. The spreading of adhesive cement over floor to cement foundation material to the floor;
5. The laying of covering on cement; and
6. The rolling of finished floor to smooth it out and press cement into base and covering;

(N) **Millwright** – Applies to workers who design, build, or repair mills or mill machinery; hoist, dismantle, erect, assemble, line and adjust all machines used in the transmission of power in buildings, factories or elsewhere; unload machines used in the transmission of power in buildings, factories or elsewhere, where power equipment and rigging are required. The work falling within this occupational title of work description includes: the setting of all classes of engines, direct drive motors, dynamos, turbines, generators and air compressors and pumps. The assembling, setting and packing of all compressors and pumps. The placing of all pulleys, sheaves and fly wheels on the listed equipment. The making and setting of all templates and bolts for all machinery requiring same. Drypacking for sole plates. Installation of truck and railroad scales. Installation of trash compactors. Installation of all types of conveyors. The cutting and threading of all bolts. The handling and operating of all acetylene and devices for heating, welding and cutting when used in connection with millwright work;

(O) **Operating Engineer** – The workers who perform work falling within the occupational title of work description for operating engineer/portable and hoisting operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any

power-operated equipment. This occupational title encompasses several subclassifications, with the title and work description considered in light of whether the public works project pertains to building construction or heavy/highway construction.

1. Building construction. The subtitles falling within the occupational title of work description for operating engineer, as applicable to building construction, are as follows:
 - A. Group I – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: crane (for example, crawler or truck); dragline – clam shell – gradall; Derrick (all types); kimmer scoop; power shovel or backhoe over one (1) cubic yard; pile driver (for example, land or floating); Whirley; mechanic and welder; hydraulic, self-propelled crane; stinger or cherry picker crane; switch boat; concrete portable plant/concrete mixer paver; cableways;
 - B. Group II – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: asphalt paver and spreader/concrete spreader; asphalt plant mixer operators; asphalt plant operator; backfillers; back hoe (under one (1) cubic yard); Barber-Green loader (similar type); blade – power, all types; boats – power; boilers; boring machine (all types, including tunnel boring); brooms – power operated (all types); concrete saw (self-propelled); chip spreader (front man); clef plane operators; combination concrete hoist and mixer such as mix or mobile; crab – power operated; crusher rock; ditching machine; dozer/dredges; finishing machine; firemen on rigs; flex plane; floating machine; form grader; greaser; hoist operator (all types); hopper – power operated; hydra hammer (all types); Lad-A-Vator – similar type; loaders – all types, including skid-steer (for example, bobcat); locomotives (all types); curb finishing machine; mucking machine; orange peels; pumps (all types); push cats; rollers (all types); scoops (all types except skimmer scoop); self-propelled rotary drill; air compressors (all types); side boom; siphons, jets and jennies; welding machine; subgrader; testhole machine; throttle man tractors over fifty (50) HP; air tugger with air compressor; anchor placing barge; Ahoy force feeder loader (self-propelled); bull float; pipe cleaning/wrapping machine; conveyor; heaters, fuel fired with forced air; quadtrack; tie tamper; vibrating machine; well drilling machine; forklift (except masonry forklift);
 - C. Group III – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: tractors (under fifty (50) HP); distributor (bituminous); scissor lift; small machine (operator); mud jack; wench truck operator; pug mill operator; elevator-push button; A-frame truck; mixers; oilers;
 - D. Group III-A – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as a masonry forklift;
 - E. Group IV – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as a self-propelled floor sweeper; and
 - F. Group V – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: elevator – auto; air pressure oiler; air pressure engineer.

2. Heavy/highway construction. The subtitles falling within the occupational title of work description for operating engineer, as applicable to heavy/highway construction, are as follows:
 - A. Group I – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: asphalt finishing machine and trench; widening spreader; asphalt plant console operator; autograder; automatic slipform paver; backhoe; blade operator (all types); boat operator (all types); boilers – two (2); central mix concrete plant operator; clamshell operator; concrete mixer paver; crane operator; Derrick or Derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader including skid steer (for example, bobcat); hoisting engine – two (2) active drums; launchhammer wheel; locomotive operator – standard gauge; mechanics and welders; mucking machine; piledriver operator; Pitman crane operator; push cat operator; quadtrack; scoop operator – all types; shovel operator; sideboom cats; skimmer scoop operator; trenching machine operator; truck crane;
 - B. Group II – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: A-frame truck; asphalt hot mix silo; asphalt plant fireman, drum or boiler; asphalt plant mixer operator; asphalt plant man; asphalt roller operator; backfiller operator; Barber-Greene loader; chip spreader; concrete mixer operator, skip loader; concrete plant operator; concrete pump operator; crusher operator; dredge oiler; elevating grader operator; forklift; greaser – fleet; hoisting engine – one (1); locomotive operator – narrow gauge; multiple compactor; pavement breaker; powerbroom – self-propelled; power shield; rooter; side discharge concrete spreader; slip form finishing machine; stumpcutter machine; throttle man; tractor operator – over fifty (50) HP; wench truck;
 - C. Group III – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: boilers – one (1); chip spreader (front man); churn drill operator; clef plane operator; concrete saw operator self-propelled; curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; roller operator, other than high-type asphalt; screening and washing plant operator; siphons and jets; subgrading machine operator; spreader box operator, self-propelled (not asphalt); tank car heater operator – combination boiler and booster; tractor operator fifty (50) HP or less; Ulmac, Ulric or similar spreader; vibrating machine operator, not hand;
 - D. Group IV – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as an oiler; and
 - E. Oiler-driver – This subtitle applies to workers who operate, monitor and control, repair, modify, assemble, erect, oil, service each or all electrically or electronically, hydraulically or any power-operated equipment set forth as follows: fireman – rig; maintenance operator;
- (P) **Painter** – The work falling within the occupational title of work description for painter includes:
 1. Preparation of surfaces. The washing, cleaning, pointing and taping of drywall, regardless of material used, and smoothing of surfaces, using sandpaper, brushes or steel wool. The removal

- of old paint or other coatings from surfaces, using paint remover, scraper, wire brushing, sandblasting, water blasting, liquid steam or by any other similar process. The filling of nail holes, cracks and joints with putty, plaster or other fillers;
2. Color matching and mixing. The application of paint, varnish, stain, enamel, lacquer, vinyl, wallpaper and other materials of whatever kind of quality applied to walls or ceilings with paste or adhesive, using brushes, spray gun (spray painter) or paint rollers. The application of polyurethane elastomers, vinyl plastics, neoprene, resin, polyester and epoxy as waterproofing or protective coatings to any kind of surface (except roofs) when applied with brushes, spray guns or rollers;
 3. Texturing and decorating. The erecting of scaffolding or setting up of ladders to perform the work above ground level. The paperhanging of walls and ceilings with decorative wall coverings made of fabric, vinyl or paper. The preparing of the surface to be covered by applying sizing, which seals the surface and makes the covering stick better. The removal of the old covering by soaking, steaming or applying solvents. The patching of holes and other imperfections before applying the new wall covering. The measuring of the area to be covered; the cutting of the covering into strips of the proper size, the checking of the covering for flaws and the examination of the pattern so it can be matched when the strips are hung. The preparation of paste or other adhesives according to manufacturers' directions, and the brushing or rolling it on the covering. The placing of the strips on the wall or ceiling, to match adjacent patterns. The smoothing of the strips to remove bubbles and wrinkles; the trimming of the top and bottom with a razor blade; and the painting or taping of highway striping, or both; and
 4. Cleanup. The cleanup of tools and equipment required in connection with work falling within this occupational title;

(Q) **Plasterer** – Applies to workers who apply gypsum, Portland cement, stucco, imitation stone and kindred materials and products to interior walls, ceilings and partitions and to exterior walls of buildings, and finish those materials and products. The work falling within the occupational title of work description includes:

1. The spreading of plaster over laths, masonry or any other base, using trowel; and smoothing the plaster with darby and float for uniform thickness;
2. The application of the various manufacturers' brand names of thin coat or plaster veneer;
3. The application of all bonding agents and mastic;
4. The roughing of undercoat with wire or metal scraper to provide bond for succeeding coat of plaster;
5. The application of all malleable plastic materials and epoxy materials;
6. The setting in place of plasterboard, insulation board, styrofoam and bead-board, ground, locks, patent dots, cork plates, brownstone and acoustical tile, fiberglass reinforcement and finished products;
7. The plastering of joints, nail holes and bruises on wallboard;
8. The grouting and filling of door bucks, runners and similar installations, in conjunction with plastering operations;
9. The application of scratchcoat, browncoat and finish coat of plaster to wood, metal or board laths successively to all ceilings and walls when finished with terrazzo or tile, and the application of any plastic material to same;
10. The fireproofing of all building assemblies with plaster materials, sprayed fiberglass or similar materials, whether applied to gypsum, metal lath or directly;
11. The application of crushed stone, marble or ceramic chips and broken glass where embedded in plaster, or similar materials;

12. The placing of acoustic blocks with any plastic material, regardless of thickness;
13. The placing, by any method, of plaster or composition caps and ornaments;
14. The creating of decorative textures in finish coat by marking surface of coat with brush and trowel or by spattering it with small stones (stucco) where plastering equipment or materials, or both, are used; and
15. The operation and control of all types of plastering machines, including power trowels and floats;

(R) **Plumber** – Applies to workers who install and repair domestic potable water lines, gravity waste disposal systems inside the curb or fence lines, plumbing fixtures such as: bathtubs, sinks and toilets – and appliances such as, dishwashers and water heaters. The work falling within the occupational title of work description for plumber includes:

1. Assembling and installing piping systems, fixtures and equipment for the transportation of domestic water and sewage. Piping systems installed in structures (for example, buildings, industrial plants) to the first Y, T or connection located outside the building;
2. Cutting, threading and bending pipe. Joining pipes by use of screws, bolts, fittings, solder, welding brazing and caulking or any other method of making joints in the plumbing industry;
3. Assembling, installing and repairing valves, pipe fittings and pumps. Testing the piping system. Installing and repairing plumbing fixtures, such as sinks, bathtubs, water heaters and water softeners; and
4. Cutting holes in floors and walls for pipes with point and hammer, core drill, or both;

(S) **Pile Driver** – The work falling within the occupational title of work description for pile driver includes:

1. The handling, layout, driving, cutting and splicing of wood, metal or concrete piling regardless of purpose (for example, sheets, I-beams, pile caps and welding to piling);
2. The assembly, disassembly and rigging of the pile driving equipment; and
3. The conduct of underwater diving that is incidental to pile driving work;

(T) **Pipe Fitter** – Applies to workers who fabricate, install and repair piping systems to include: water and waste processing systems; heating and air-conditioning systems, pneumatic controls and pneumatic delivery systems; powerhouse and all pressurized piping systems; gas, oxygen systems; gasoline systems not for public sale. The work falling within this occupational title of work description includes:

1. Piping systems installed in structures (for example, buildings, industrial plants and the like);
2. Cutting, threading and bending pipe. Joining pipes by use of screws, bolts, fittings, solder, welding and caulking, or any other method of making joints in the pipefitting industry;
3. Assembling, installing, and repairing valves, pipe fittings and pumps. Testing the piping system. Cutting holes in floors and walls for pipes with point and hammer, core-drill, or both;
4. Installing of distribution lines (for example, water mains, sewer mains, oil and gas lines);
5. Welding of steel pipe joints and joining pipes with screws, bolts, fittings, solder, caulking or any other method for making joints in the industry; and
6. Joining ductile iron and plastic pipes by using any method for making joints in the industry, when the pipe will be under pressure;

(U) **Roofer/Waterproofer** – Applies to workers who apply and install any and all types of roofing materials, other than sheet metal. The work falling within this occupational title of work description includes:

1. The installation of slate and tile and all substitute materials taking the place of slate and tile used for roofing including flat or promenade slate, with necessary metal flashing to make water-tight;
 2. The cementing in, on or around slate and tile roofs. The laying of felt or paper beneath the slate and tile. The dressing, punching and cutting of all roof slate or tile either by hand or machinery;
 3. The installation of all forms of plastic, slate, slag, gravel; asphalt and composition roofing; rock asphalt mastic when used for damp and waterproofing; prepared paper; compressed paper and chemically prepared paper, and burlap with or without coating. The installation of all damp resisting preparations regardless of the method of application in or outside of building. The installation of damp courses, sheeting or coating on foundation work and tarred roofs. The laying of the tile or brick, when laid in asphalt or pitch tar;
 4. The installation and application of new materials used in roofing, water-proofing, encapsulation and containment process including all forms of elastomeric or plastic (elastoplastic), or both, roofing systems, both sheet and liquid applied, whether single-ply or multi-ply. The installation of aggregates or stone, used as a ballast for inverted roofing membrane assembly, or roof of similar construction where insulation is laid over the roofing membrane. The sealing and caulking of seams and joints on these elastoplastic systems to insure water-tightness. The applying of liquid-type elastoplastic preparation for roofing, damp or waterproofing when applied with a squeegee, trowel, roller or spray equipment whether applied inside or outside of a building. The priming of surfaces to be roofed, damp or waterproofed, whether done by roller, mop, swab, three (3)-knot brush or spray systems. The waterproofing of all types of preformed panels;
 5. The application of all types of spray-in-place such as urethane or polyurethane, and the coatings that are applied over them;
 6. The application of roof insulation, when the insulation material is applied as an integral part of the roofing system, whether the insulation material is applied as the first, last or any other layer in between;
 7. The operation and servicing of all kettles, bulk tankers, stationary heating tankers and other types of equipment and tools used to accomplish this work (including heating systems for the operation of the equipment); and compressors for applying roofing material components, roof and mop carts, hydraulics, tools and equipment, be it hand or power, needed to apply waterproofing, insulated and roofing materials;
 8. The handling, hoisting and storing of all roofing, damp and waterproofing materials; and
 9. The tear-off, removal, or both, of any type of roofing, all spudding, sweeping, vacuuming, cleanup, or a combination of these, of any areas of any type where a roof is to be relayed;
- (V) **Sheet Metal Worker** – The work falling within the occupational title of sheet metal worker includes:
1. The handling, conditioning, assembling, installing, servicing, repairing, altering and dismantling of the duct work for the heating, ventilation and air-conditioning systems regardless of the materials used and the setting of all equipment and all supports and reinforcements in connection with the system;
 2. The installation of expansion and discharge valves, air filters, and water filters in heating, ventilation and air-conditioning systems;
 3. The testing and balancing of air-handling equipment and duct work;
 4. The forming, rolling, drawing, stamping or pressing of sheet metal shingles, sheet metal tile, sheet metal brick, sheet metal stone and sheet metal lumber, when specified for use as roofing, siding, waterproofing, weather proofing, fire proofing or for ornamental or any other purpose;

5. The performing of sheet metal work specified for use in connection with or incidental to steeples, domes, minarets, look outs, dormers, louvers, ridges, copings, roofing, decking, hips, valleys, gutters, outlets, roof flanges, flashings, gravel stops, leader heads, down spouts, mansards, balustrades, skylights, cornice moulding, columns, capitals, panels, pilasters, mullions, spandrils and any and all other shapes, forms and design of sheet metal work specified for use for waterproofing, weatherproofing, fire proofing, ornamental, decorative or display purposes, or as trim on exterior of the buildings;
6. The installing of sheet metal ceilings with cornices and mouldings of plain, ornamental, enameled, glazed or acoustic type;
7. The installing of side walls, wainscoting of plain, ornamental, enameled or glazed types, including sheet metal tile;
8. The application of all necessary wood or metal furring, plastic or other materials, to which they are directly applied;
9. The performing of sheet-metal work specified for use in connection with or incidental to direct, indirect or other types of heating, ventilating, air-conditioning and cooling systems (including risers, stacks, ducts, S strips, fittings, dampers, casings, recess boxes, outlets, radiator enclosures, exhausts, ventilators, frames, grisses, louvers, registers, cabinets, fans and motors);
10. The air washers, filters, air brushes, housings, air-conditioning chambers;
11. The setting and hanging of air-conditioning units, unit heaters or air-veyor systems and air handling systems regardless of material used;
12. The assembling and setting up of all cast iron parts, warm air furnace, all stoker, gas and oil burner equipment used in connection with warm air heating, all sheet metal hoods, casings, wall stacks, smoke pipes, truck lines, cold air intake, air chambers, vent pipes, frames, registers, dampers and regulation devices;
13. The installing of equipment utilized in the operation of kitchens including ranges, canopies, steam tables, work tables, dishwashers, coffee urns, soda fountains, warming closets, sinks, drainboards, garbage chutes, incinerators and refrigerators;
14. The installing of tubing, pipes and fittings, used in connection with or incidental to coppersmithing work. The installation of fume hoods, metal toilet partitions, metal lockers, plain metal shelving; and
15. The handling, moving, hoisting and storing of all sheet metal materials on the job site, where power equipment and rigging are required;

(W) **Sprinkler Fitter – Fire Protection** – Applies to workers who perform the installation, adjustments and corrections, repair and dismantling of all fire protection and fire control systems and the installation of all fire piping for tubing, appurtenances and equipment. The work falling within the occupational title includes: The handling and installation of all piping and appurtenances pertaining to sprinkler equipment, including both overhead and underground water mains, fire hydrants and hydrant mains, standpipes and hose connections to the sprinkler systems, sprinkler tank heaters, air lines and thermal systems used in connection with sprinkler and alarm systems, tank and pump connections, and fire protection systems using mulsifyre, spray, water, fog, carbon dioxide (CO₂), gas and foam and dry chemical systems;

(X) **Terrazzo Worker-Marble Mason** – The workers performing work falling within the occupational title of work description for terrazzo worker-marble mason includes:

1. The installing of marble, mosaic, venetian enamel and terrazzo; the cutting and assembling of mosaics and art ceramics; the casting of all terrazzo on the job site; all rolling of terrazzo work;

2. The preparing, cutting, layering or setting of metal, composition or wooden strips and grounds on all bedding above concrete floors or walls; and the laying and cutting of metal, strips, lath or other reinforcement, where used in terrazzo work;
 3. The installing of cement terrazzo, magnesite terrazzo, dex-o-tex terrazzo, epoxy matrix terrazzo, exposed aggregate. Rustic or rough wash of exterior or interior of buildings. The mixing or applying of any other kind of mixtures of plastics composed of chips or granules of marble, granite, blue stone, enamel, mother of pearl, quartz, ceramic colored quartz and all other kinds of chips or granules when mixed with cement, rubber, neoprene, vinyl, magnesium chloride or any other resinous or chemical substances used for seamless flooring systems. The applying of binding materials when used on walls, floors, ceilings, stairs, saddles or any other part of the interior or exterior of the building, or other work not considered a part of the building such as fountains, swimming pools;
 4. The finishing of cement floors where additional aggregate of stone is added by spreading or sprinkling on top of the finished base and troweled or rolled into the finish and then the surface ground by grinding machines (When no additional stone aggregate is added to the finished mixture, even though the surface may be ground, the work falls within the occupational title of work description for cement masons.); and
 5. The carving, cutting and setting of all marble, slate, including slate backboards, stone, alboreen, carrara, sanionyx, vitrolite and similar opaque glass, scaglia, marbleitic and all artificial, imitation or case marble of whatever thickness or dimension. This shall apply to all interior work, such as sanitary, decorative and other purposes inside of buildings of every description wherever required, including all polish, honed or sand finish;
- (Y) **Tile Setter** – Applies to workers who apply tile to floors, walls, ceilings, stair treads, promenade roof decks, garden walks, swimming pools and all places where tiles may be used to form a finished surface for practical use, sanitary finish or decorative purpose. (Tile includes all burned clay products, as used in the tile industry, either glazed or unglazed, all composition materials; all substitute materials in single units up to and including, fifteen inches by twenty inches by two inches (15" × 20" × 2") (except quarry tiles larger than nine inches by eleven inches (9" × 11")) and all mixtures in the form of cement, plastics and metals that are used as a finished surface.) The work falling within this occupational title of work description includes:
1. The cutting and shaping of tile with saws, tile cutters and biters; and
 2. The positioning of tile and tapping it with a trowel handle to affix tile to plaster or adhesive base; and
- (Z) **Truck Driver-Teamster/Traffic Control Service Driver** – The workers who perform work falling within the occupational title of work description for truck driver-teamster includes the operation, repair and servicing of the following mechanical equipment. This occupational title encompasses several subclassifications, with the title and work description considered in light of whether the public works project pertains to building construction or heavy/highway construction.
1. Building construction. The subtitles falling within the occupational title of work description for truck driver-teamster, as applicable to building construction, are as follows:
 - A. Group I – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks single axle, station wagons, pick-up trucks, material trucks single axle, tank wagon single axle;
 - B. Group II – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: agitator and transit mix-trucks;

- C. Group III – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks tandem axle, articulated dump trucks,
 - D. material trucks tandem axle, tank wagon tandem axle; and
 - E. Group IV – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: semi and/or pole trailers, winch, fork and steel trucks, distributor drivers and operators, tank wagon semi-trailer, Insley wagons, dumpsters, half-tracks, speedace, euclids and other similar equipment, A-frame and Derrick trucks, float or low boy and boom truck.
2. Heavy/highway construction. The subtitles falling within the occupational title work description for truck driver-teamster, as applicable to heavy/highway construction, are as follows:
- A. Group I – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks single axle, station wagons, pick-up trucks, material trucks single axle, tank wagon single axle;
 - B. Group II – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: agitator and transit mix-trucks;
 - C. Group III – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: flat bed trucks tandem axle, articulated dump trucks, material trucks tandem axle, tank wagon tandem axle; and
 - D. Group IV – This subtitle applies to workers who operate, monitor, control, repair, modify, assemble, erect, oil and service the following equipment: semi-and/or pole trailers, winch, fork and steel trucks, distributor drivers and operators, tank wagon semi-trailer, Insley wagons, dumpsters, half-tracks, speedace, euclids and other similar equipment, A-frame and Derrick trucks, float or low boy and boom truck.
3. The workers who perform work falling within the occupational title of traffic control service driver include:
- A. The delivery, installation and pickup of traffic control devices;
 - B. The unloading and installation of barricades, plastic channelizer drums, safety cones and temporary flashing lights not to exceed one hundred fifteen (115) volts;
 - C. Regular periodic inspections to assure that traffic control devices are clean, clearly visible and properly positioned. Inspection and maintenance includes replacing batteries and bulbs in lights, cleaning reflective material and lenses and repairing or replacing damaged or missing devices when incidental to and part of a public works construction project; and
 - D. Removal of all traffic control devices by loading them on a truck and driving them to a storage yard where they are unloaded.

*AUTHORITY: section 290.240.2, RSMo 2000. * Original rule filed Sept. 15, 1992, effective May 6, 1993. Emergency amendment filed April 30, 1993, effective May 10, 1993, expired Aug. 28, 1993. Amended: Filed Aug. 13, 1996, effective Feb. 28, 1997. Amended: Filed Jan. 22, 1997, effective Sept. 30, 1997. Amended: Filed June 17, 2004, effective Dec. 30, 2004.*

**Original authority: 290.240, RSMo 1957, amended 1969.*

Missouri Revised Statutes

Chapter 290 **Wages, Hours and Dismissal Rights**

August 28, 2013

What constitutes a day's labor.

290.010. From and after the first day of May, in the year eighteen hundred and sixty-seven, the period of eight hours shall be and constitute a legal day's work; but nothing in this section shall be so construed as to prevent parties to any contract for work, services or labor from agreeing upon a longer or shorter time. This section shall not apply to persons hired or employed by the month, nor to laborers or farm hands in the service of farmers or others engaged in agriculture.

(RSMo 1939 § 10166)

Prior revisions: 1929 § 13205; 1919 § 6766; 1909 § 7812

CROSS REFERENCE:

Election, employees allowed three hours to vote, 115.639

Limitation of working hours in certain industries, exception by consent of worker.

290.020. It is hereby declared to be unlawful for any person, company or corporation engaged in carrying on any kind of mining, mechanical, chemical manufacturing or smelting business, to work their employees in any mill or mills, or plants, while engaged in crushing rocks and mine products, containing mineral or ores, or engaged in separating the minerals or ores from rock and such combination with which the mineral or ores are mixed, or reducing or roasting, or refining or smelting minerals or ores, from and after the time such rocks, or combination of rocks and mine products, or minerals or ores are taken out of the mines, at such labor or industry, for a period of time longer than eight hours in a day of twenty-four hours, without their consent, and it is hereby declared that eight hours shall constitute a day of employment, for all laborers, or employees, engaged in the kind of labor or industry aforesaid.

(RSMo 1939 § 10167, A.L. 1981 H.B. 748)

Prior revisions: 1929 § 13206; 1919 § 6767; 1909 § 7813

Penalty.

290.030. Any person or persons, company or corporation who shall violate any of the provisions of section 290.020 shall, on conviction, be fined in a sum not less than twenty-five dollars nor more than five hundred

dollars.

(RSMo 1939 § 10168)

Prior revisions: 1929 § 13207; 1919 § 6768; 1909 § 7814

Employees paid semimonthly, exception--statement of deductions--violation, misdemeanor.

290.080. All corporations doing business in this state, and all persons operating railroads or railroad shops in this state, shall pay the wages and salaries of their employees as often as semimonthly, within sixteen days of the close of each payroll period; provided, however, that executive, administrative and professional employees, and sales people and other employees compensated in whole or in part on a commission basis, at the option of such employers, may be paid their salaries or commissions monthly. Such corporations and persons either as a part of the check, draft or other voucher paying the wages or separately, shall furnish the employee at least once a month a statement showing the total amount of deductions for the period. Any corporation or person violating this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than fifty dollars, nor more than five hundred dollars, for each offense.

(RSMo 1939 §§ 5080, 5081, 10176, A. 1949 S.B. 1105, A.L. 1955 p. 596)

Prior revisions: 1929 §§ 4608, 4609, 13215; 1919 §§ 9802, 9803, 6778; 1909 § 7820

CROSS REFERENCE:

Wages, when to be paid, interest, priority, 430.360

Factory employees paid semimonthly--amount withheld--penalty.

290.090. The employees of the operators of all manufactories, including plate glass manufactories, operated within this state shall be regularly paid in full of all wages due them at least once in every fifteen days, in lawful money, and at no pay day shall there be withheld from the earnings of any employee any sum to exceed the amount due him for his labor for five days next preceding any such pay day. Any such operator who fails and refuses to pay his employees, their agents, assigns or anyone duly authorized to collect such wages, as in this section provided, shall become immediately liable to any such employee, his agents or assigns for an amount double the sum due such employee at the time of such failure to pay the wages due, to be recovered by civil action in any court of competent jurisdiction within this state, and no employee, within the meaning of this section, shall be deemed to have waived any right accruing to him under this section by any contract he may make contrary to the provisions hereof.

(RSMo 1939 § 10175)

Prior revisions: 1929 § 13214; 1919 § 6775; 1909 § 7817

Wage subsidies, bid supplements, and rebates for employment prohibited, when--violation, penalty.

290.095. 1. No contractor or subcontractor may directly or indirectly receive a wage subsidy, bid supplement, or rebate for employment on a public works project if such wage subsidy, bid supplement, or rebate has the effect of reducing the wage rate paid by the employer on a given occupational title below the prevailing wage rate as

provided in section 290.262.

2. In the event a wage subsidy, bid supplement, or rebate is lawfully provided or received under subsections 1 or 2 of this section, the entity receiving such subsidy, supplement, or rebate shall report the date and amount of such subsidy, supplement, or rebate to the public body within thirty days of receipt of payment. This disclosure report shall be a matter of public record under chapter 610.

3. Any employer in violation of this section shall owe to the public body double the dollar amount per hour that the wage subsidy, bid supplement, or rebate has reduced the wage rate paid by the employer below the prevailing wage rate as provided in section 290.262 for each hour that work was performed. It shall be the duty of the department to calculate the dollar amount owed to the public body under this section.

(L. 2007 S.B. 339)

Thirty days' notice of reduction of wages, how.

290.100. Any railway, mining, express, telegraph, manufacturing or other company or corporation doing business in this state, and desiring to reduce the wages of its employees, or any of them, shall give to the employees to be affected thereby thirty days' notice thereof. Such notice may be given by posting a written or printed handbill, specifying the class of employees whose wages are to be reduced and the amount of the reduction, in a conspicuous place in or about the shops, station, office, depot or other place where said employees may be at work, or by mailing each employee a copy of said notice or handbill, and such company or corporation violating any of the provisions of this section shall forfeit and pay each party affected thereby the sum of fifty dollars, to be recovered by civil action in the name of the injured party, with costs, before any court of competent jurisdiction.

(RSMo 1939 §§ 5066, 5067, A.L. 1943 p. 410 § 75)

Prior revisions: 1929 §§ 4590, 4591; 1919 §§ 9782, 9783; 1909 §§ 3022, 3023

Payment due discharged employee--exceptions--penalty for delay.

290.110. Whenever any person, firm or corporation doing business in this state shall discharge, with or without cause, or refuse to further employ any servant or employee thereof, the unpaid wages of the servant or employee then earned at the contract rate, without abatement or deduction, shall be and become due and payable on the day of the discharge or refusal to longer employ and the servant or employee may request in writing of his foreman or the keeper of his time to have the money due him, or a valid check therefor, sent to any station or office where a regular agent is kept; and if the money or a valid check therefor, does not reach the station or office within seven days from the date it is so requested, then as a penalty for such nonpayment the wages of the servant or employee shall continue from the date of the discharge or refusal to further employ, at the same rate until paid; provided, such wages shall not continue more than sixty days. This section shall not apply in the case of an employee whose remuneration for work is based primarily on commissions and whose duties include collection of accounts, care of a stock or merchandise and similar activities and where an audit is necessary or customary in order to determine the net amount due.

(RSMo 1939 § 5082, A.L. 1943 p. 410 § 76, A.L. 1963 p. 414, A.L. 1972 H.B. 1203)

Prior revisions: 1929 § 4610; 1919 § 9804

Employee not entitled to benefits, when.

290.120. No such servant or employee who secretes or absents himself to avoid payment to him, or refuses to receive the same when fully tendered, shall be entitled to any benefit under sections 290.110 and 290.120 for such time as he so avoids payment.

(RSMo 1939 § 5083, A.L. 1943 p. 410 § 77)

Prior revisions: 1929 § 4611; 1919 § 9805

Action by employees for breach of employment contract.

290.130. Any such servant or employee whose employment is for a definite period of time, and who is discharged without cause before the expiration of such time, may, in addition to the penalty prescribed by this law, have an action against any such employer for any damages he may have sustained by reason of such wrongful discharge, and such action may be joined with an action for unpaid wages and penalty.

(RSMo 1939 § 5084, A.L. 1943 p. 410 § 78)

Prior revisions: 1929 § 4612; 1919 § 9806

Letter of dismissal, when--failure to issue, damages--punitive damages, limitations.

290.140. 1. Whenever any employee of any corporation doing business in this state and which employs seven or more employees, who shall have been in the service of said corporation for a period of at least ninety days, shall be discharged or voluntarily quit the service of such corporation and who thereafter within a reasonable period of time, but not later than one year following the date the employee was discharged or voluntarily quit, requests in writing by certified mail to the superintendent, manager or registered agent of said corporation, with specific reference to the statute, it shall be the duty of the superintendent or manager of said corporation to issue to such employee, within forty-five days after the receipt of such request, a letter, duly signed by such superintendent or manager, setting forth the nature and character of service rendered by such employee to such corporation and the duration thereof, and truly stating for what cause, if any, such employee was discharged or voluntarily quit such service.

2. Any corporation which violates the provisions of subsection 1 of this section shall be liable for compensatory but not punitive damages but in the event that the evidence establishes that the employer did not issue the requested letter, said employer may be liable for nominal and punitive damages; but no award of punitive damages under this section shall be based upon the content of any such letter.

(RSMo 1939 § 5064, A.L. 1941 p. 330, A.L. 1982 S.B. 747)

Prior revisions: 1929 § 4588; 1919 § 9780; 1909 § 3020

CROSS REFERENCE:

Employee dismissal rights, damage action, time limitation, 516.140

Discrimination, refusal to hire or discharge employee for alcohol or tobacco use not during working hours, prohibited, exception--not cause for legal actions.

290.145. It shall be an improper employment practice for an employer to refuse to hire, or to discharge, any individual, or to otherwise disadvantage any individual, with respect to compensation, terms or conditions of employment because the individual uses lawful alcohol or tobacco products off the premises of the employer during hours such individual is not working for the employer, unless such use interferes with the duties and performance of the employee, the employee's coworkers, or the overall operation of the employer's business; except that, nothing in this section shall prohibit an employer from providing or contracting for health insurance benefits at a reduced premium rate or at a reduced deductible level for employees who do not smoke or use tobacco products. Religious organizations and church-operated institutions, and not-for-profit organizations whose principal business is health care promotion shall be exempt from the provisions of this section. The provisions of this section shall not be deemed to create a cause of action for injunctive relief, damages or other relief.

(L. 1992 S.B. 509, et al. § 6, A.L. 2005 H.B. 596, A.L. 2006 S.B. 567 & 792)

Employer response to request for information about current or former employee, contents, requirements, civil immunity, when.

290.152. 1. As used in this section, the following terms shall mean:

(1) "Employer", any individual, organization, partnership, political subdivision, corporation or other legal entity which has or had in the entity's employ one or more individuals performing services for the entity within this state; (2) "Prospective employer", any employer, as defined in this subsection, to which an individual has made application for employment, either oral or written, or forwarded a resume or other correspondence expressing an interest in employment.

2. An employer may:

(1) Respond in writing to a written request concerning a current or former employee from an entity or person which the employer reasonably believes to be a prospective employer of such employee; and

(2) Disclose the nature and character of service rendered by such employee to such employer and the duration thereof; and

(3) Truly state for what cause, if any, such employee was discharged or voluntarily quit such service. The provisions of this section shall apply regardless of whether the employee becomes employed by the prospective employer prior to receipt of the former employer's written response. The information provided pursuant to this section shall be consistent with the content of any service letter provided pursuant to section 290.140 for the same employee.

3. The employer shall send a copy of any letter provided pursuant to subsection 2 of this section to the current employee or former employee at the employee's last known address. The current or former employee may request from the employer a copy of the letter provided pursuant to subsection 2 of this section for up to one year following the date of such letter.

4. For purposes of this section, an employer shall be immune from civil liability for any response made pursuant to this section or for any consequences of such response, unless such response was false and made with

knowledge that it was false or with reckless disregard for whether such response was true or false.

5. Any employer who violates the provisions of subsection 2 of this section shall be liable for compensatory damages but not punitive damages.

6. Any letter issued pursuant to this section shall not be admitted as evidence in an unemployment compensation claim.

(L. 1999 S.B. 32)

Definitions.

290.210. As used in sections 290.210 to 290.340, unless the context indicates otherwise:

(1) "Adjacent county", any Missouri county of the third or fourth classification having a boundary that, at any point, touches any boundary of the locality for which the wage rate is being determined;

(2) "Collective bargaining agreement" means any written agreement or understanding between an employer or employer association and a labor organization or union which is the exclusive bargaining representative of the employer's or employer association's employees pursuant to the terms of the National Labor Relations Act and which agreement or understanding or predecessor agreement or understanding has been used to determine an occupational title wage rate;

(3) "Construction" includes construction, reconstruction, improvement, enlargement, alteration, painting and decorating, or major repair;

(4) "Department" means the department of labor and industrial relations;

(5) "Labor organization" or "union" means any entity which has been designated pursuant to the terms of the National Labor Relations Act as the exclusive bargaining representative of employees of employers engaged in the construction industry, which entity or affiliated entity has ever had a collective bargaining agreement which determined an occupational title wage rate;

(6) "Locality" means the county where the physical work upon public works is performed;

(7) "Maintenance work" means the repair, but not the replacement, of existing facilities when the size, type or extent of the existing facilities is not thereby changed or increased;

(8) "Prevailing hourly rate of wages" means the wages paid generally, in the locality in which the public works is being performed, to workmen engaged in work of a similar character including the basic hourly rate of pay and the amount of the rate of contributions irrevocably made to a fund, plan or program, and the amount of the rate of costs to the contractor or subcontractor which may be reasonably anticipated in providing benefits to workmen and mechanics pursuant to an enforceable commitment to carry out a financially responsible plan or program which was communicated in writing to the workmen affected, for medical or hospital care, pensions on retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for unemployment benefits, life insurance, disability and sickness insurance, accident insurance, for vacation and holiday pay, for defraying costs of apprenticeship or other similar programs, or for other bona fide fringe benefits, but only where the contractor or subcontractor is not required by other federal or state law to provide any of the benefits; provided, that the obligation of a contractor or subcontractor to make payment in accordance with the prevailing wage determinations of the department,

insofar as sections 290.210 to 290.340 are concerned, may be discharged by the making of payments in cash, by the making of irrevocable contributions by the assumption of an enforceable commitment to bear the costs of a plan or program as provided herein, or any combination thereof, where the aggregate of such payments, contributions and costs is not less than the rate of pay plus the other amounts as provided herein;

(9) "Previous six annual wage order reporting periods" means the current annual wage order reporting period under consideration for wage rate determinations and the five immediately preceding annual wage order reporting periods*;

(10) "Public body" means the state of Missouri or any officer, official, authority, board or commission of the state, or other political subdivision thereof, or any institution supported in whole or in part by public funds;

(11) "Public works" means all fixed works constructed for public use or benefit or paid for wholly or in part out of public funds. It also includes any work done directly by any public utility company when performed by it pursuant to the order of the public service commission or other public authority whether or not it be done under public supervision or direction or paid for wholly or in part out of public funds when let to contract by said utility. It does not include any work done for or by any drainage or levee district;

(12) "Workmen" means laborers, workmen and mechanics.

(L. 1957 p. 574 § 1, A.L. 1965 p. 438, A.L. 1969 S.B. 142, A.L. 2013 H.B. 34)

*Word "period" appears in original rolls.

Policy declared.

290.220. It is hereby declared to be the policy of the state of Missouri that a wage of no less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed shall be paid to all workmen employed by or on behalf of any public body engaged in public works exclusive of maintenance work.

(L. 1957 p. 574 § 2)

Prevailing wage rates required on construction of public works.

290.230. 1. Not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, and not less than the prevailing hourly rate of wages for legal holiday and overtime work, shall be paid to all workmen employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work. Only such workmen as are directly employed by contractors or subcontractors in actual construction work on the site of the building or construction job shall be deemed to be employed upon public works.

2. When the hauling of materials or equipment includes some phase of construction other than the mere transportation to the site of the construction, workmen engaged in this dual capacity shall be deemed employed directly on public works.

(L. 1957 p. 574 § 3)

Department of labor and industrial relations to enforce--make regulations.

290.240. 1. The department shall inquire diligently as to any violation of sections 290.210 to 290.340, shall institute actions for penalties herein prescribed, and shall enforce generally the provisions of sections 290.210 to 290.340.

2. The department may establish rules and regulations for the purpose of carrying out the provisions of sections 290.210 to 290.340.

(L. 1957 p. 574 § 6, A.L. 1969 S.B. 142)

Prevailing wage, incorporation into contracts--failure to pay, penalty--complaints of violation, public body or prime contractor to withhold payment--determination of a violation, investigation required--employer's right to dispute--enforcement proceeding permitted, when.

290.250. 1. Every public body authorized to contract for or construct public works before advertising for bids or undertaking such construction shall request the department to determine the prevailing rates of wages for workmen for the class or type of work called for by the public works, in the locality where the work is to be performed. The department shall determine the prevailing hourly rate of wages in the locality in which the work is to be performed for each type of workman required to execute the contemplated contract and such determination or schedule of the prevailing hourly rate of wages shall be attached to and made a part of the specifications for the work. The public body shall then specify in the resolution or ordinance and in the call for bids for the contract what is the prevailing hourly rate of wages in the locality for each type of workman needed to execute the contract and also the general prevailing rate for legal holiday and overtime work. It shall be mandatory upon the contractor to whom the contract is awarded and upon any subcontractor under him to pay not less than the specified rates to all workmen employed by them in the execution of the contract. The public body awarding the contract shall cause to be inserted in the contract a stipulation to the effect that not less than the prevailing hourly rate of wages shall be paid to all workmen performing work under the contract. The employer shall forfeit as a penalty to the state, county, city and county, city, town, district or other political subdivision on whose behalf the contract is made or awarded one hundred dollars for each workman employed, for each calendar day, or portion thereof, such workman is paid less than the said stipulated rates for any work done under said contract, by him or by any subcontractor under him, and the said public body awarding the contract shall cause to be inserted in the contract a stipulation to this effect. It shall be the duty of such public body awarding the contract, and its agents and officers, to take cognizance of all complaints of all violations of the provisions of sections 290.210 to 290.340 committed in the course of the execution of the contract, and, when making payments to the contractor becoming due under said contract, to withhold and retain therefrom all sums and amounts due and owing as a result of any violation of sections 290.210 to 290.340. It shall be lawful for any contractor to withhold from any subcontractor under him sufficient sums to cover any penalties withheld from him by the awarding body on account of said subcontractor's failure to comply with the terms of sections 290.210 to 290.340, and if payment has already been made to him, the contractor may recover from him the amount of the penalty in a suit at law.

2. In determining whether a violation of sections 290.210 to 290.340 has occurred, and whether the penalty under subsection 1 of this section shall be imposed, it shall be the duty of the department to investigate any claim of violation. Upon completing such investigation, the department shall notify the employer of its findings. If the department concludes that a violation of sections 290.210 to 290.340 has occurred and a penalty may be due, the department shall notify the employer of such finding by providing a notice of penalty to the employer.

Such penalty shall not be due until forty-five days after the date of the notice of the penalty.

3. The employer shall have the right to dispute such notice of penalty in writing to the department within forty-five days of the date of the notice. Upon receipt of this written notice of dispute, the department shall notify the employer of the right to resolve such dispute through arbitration. The state and the employer shall submit to an arbitration process to be established by the department by rule, and in conformance with the guidelines and rules of the American Arbitration Association or other arbitration process mutually agreed upon by the employer and the state. If at any time prior to the department pursuing an enforcement action to enforce the monetary penalty provisions of subsection 1 of this section against the employer, the employer pays the back wages as determined by either the department or the arbitrator, the department shall be precluded from initiating any enforcement action to impose the monetary penalty provisions of subsection 1 of this section.

4. If the employer fails to pay all wages due as determined by the arbitrator within forty-five days following the conclusion of the arbitration process, or if the employer fails to exercise the right to seek arbitration, the department may then pursue an enforcement action to enforce the monetary penalty provisions of subsection 1 of this section against the employer. If the court orders payment of the penalties as prescribed in subsection 1 of this section, the department shall be entitled to recover its actual cost of enforcement from such penalty amount.

5. Nothing in this section shall be interpreted as precluding an action for enforcement filed by an aggrieved employee as otherwise provided in law.

(L. 1957 p. 574 § 4, A.L. 1969 S.B. 142, A.L. 2007 S.B. 339)

Determination of hourly rate for heavy and highway construction work, when made, where filed, objections, hearing, determination.

290.260. 1. The department, as it deems necessary, shall from time to time investigate and determine the prevailing hourly rate of wages for heavy and highway construction work in the localities. In doing so, the department shall accept and consider information regarding local wage rates that is submitted in either paper or electronic formats. A determination applicable to every locality to be contained in a general wage order shall be made annually on or before July first of each year for the Missouri state highways and transportation commission and shall remain in effect until superseded by a new general wage order. In determining prevailing rates, the department shall ascertain and consider the applicable wage rates established by collective bargaining agreements, if any, and the rates that are paid generally within the locality.

2. A certified copy of the determination so made shall be filed immediately with the secretary of state and with the department in Jefferson City. Copies shall be supplied by the department to all persons requesting them within ten days after the filing.

3. At any time within thirty days after the certified copies of the determinations have been filed with the secretary of state and the department, any person who is affected thereby may object in writing to the determination or the part thereof that he deems objectionable by filing a written notice with the department, stating the specific grounds of the objection.

4. Within thirty days of the receipt of the objection, the department shall set a date for a hearing on the objection. The date for the hearing shall be within sixty days of the receipt of the objection. Written notice of the time and place of the hearing shall be given to the objectors at least ten days prior to the date set for the hearing.

5. The department at its discretion may hear each written objection separately or consolidate for hearing any two

or more written objections. At the hearing the department shall first introduce in evidence the investigation it instituted and the other facts which were considered at the time of the original determination which formed the basis for its determination. The department, or the objector, or any interested party, thereafter may introduce any evidence that is material to the issues.

6. Within twenty days of the conclusion of the hearing, the department must rule on the written objection and make the final determination that it believes the evidence warrants. Immediately, the department shall file a certified copy of its final determination with the secretary of state and with the department and shall serve a copy of the final determination on all parties to the proceedings by personal service or by registered mail.

7. This final decision of the department of the prevailing wages in the locality is subject to review in accordance with the provisions of chapter 536. Any person affected, whether or not the person participated in the proceedings resulting in the final determination, may have the decision of the department reviewed. The filing of the final determination with the secretary of state shall be considered a service of the final determination on persons not participating in the administrative proceedings resulting in the final determination.

8. At any time before trial any person affected by the final determination of the department may intervene in the proceedings to review under chapter 536 and be made a party to the proceedings.

9. All proceedings in any court affecting a determination of the department under the provisions of sections 290.210 to 290.340 shall have priority in hearing and determination over all other civil proceedings pending in the court, except election contests.

(L. 1957 p. 574 § 8, A.L. 1965 p. 95, A.L. 1969 S.B. 142, A.L. 2013 H.B. 34)

Determination of hourly rate by location and occupation title, when made, where filed-- objections, hearings--final determination--notice to department by public body, when.

290.262. 1. Except as otherwise provided in section 290.260, the department shall annually determine the prevailing hourly rate of wages in each locality for each separate occupational title. In doing so, the department shall accept and consider information regarding local wage rates that is submitted in either paper or electronic formats. A final determination applicable to every locality to be contained in an annual wage order shall be made annually on or before July first of each year and shall remain in effect until superseded by a new annual wage order or as otherwise provided in this section. The department shall, by March tenth of each year, make an initial determination for each occupational title within the locality.

2. The prevailing wage rate for an occupational title in a locality shall, with the exception of localities that are counties of the third and fourth classification and any county of the second classification with more than fifty-eight thousand but fewer than sixty-five thousand inhabitants, be the wage rate most commonly paid, as measured by the number of hours worked at each wage rate, for that occupational title within that locality. In determining such prevailing wage rates, the department shall ascertain and consider the applicable wage rates established by collective bargaining agreements, if any, when no wages were reported.

3. With respect only to localities that are counties of the third and fourth classification and any county of the second classification with more than fifty-eight thousand but fewer than sixty-five thousand inhabitants, the prevailing wage rate for an occupational title within such locality shall be determined in the following manner:

(1) The total number of hours worked that are not paid pursuant to a collective bargaining agreement for the time period in that occupational title in the locality and the total number of hours worked that are paid pursuant

to a collective bargaining agreement for the time period in that occupational title in the locality shall be considered;

(2) If the total number of hours that are not paid pursuant to a collective bargaining agreement, in the aggregate, exceeds the total number of hours that are paid pursuant to such an agreement, in the aggregate, then the prevailing wage rate shall be the rate most commonly paid that is not paid pursuant to a collective bargaining agreement as measured by the number of hours worked at such rate for that occupational title within the locality;

(3) If the total number of hours that are paid pursuant to a collective bargaining agreement, in the aggregate, exceeds the total number of hours that are not paid pursuant to such an agreement, in the aggregate, then the prevailing wage rate shall be the rate most commonly paid that is paid pursuant to a collective bargaining agreement as measured by the number of hours worked at such rate for that occupational title within the locality;

(4) If no work within a particular occupational title has been performed in a locality at any wage rate, the prevailing wage rate for that occupational title in that locality shall be determined in the following manner:

(a) If wages were reported for an occupational title within a locality within the previous six annual wage order reporting periods and the prevailing wage rate was determined by a collective bargaining agreement by hours worked pursuant to such agreement in the most recent annual wage order reporting period where such wages were reported, then the wage rate paid pursuant to the current collective bargaining agreement shall be the prevailing rate for that occupational title within the locality;

(b) If wages were reported for an occupational title within a locality within the previous six annual wage order reporting periods and the prevailing wage rate was not determined by hours worked pursuant to a collective bargaining agreement in the most recent annual wage order reporting period where such wages were reported, then the wage rate paid in the most recent annual wage order reporting period when such wages were reported shall be the prevailing wage rate for that occupational title within the locality;

(c) If no wages were reported for an occupational title within a locality within the previous six annual wage order reporting periods, the department shall examine hours and wages reported in all adjacent Missouri counties during the same periods. The most recent reported wage rate in a given wage order period in the adjacent Missouri county with the most reported hours actually worked for that occupational title in the wage period during the previous six annual wage order reporting periods shall be used to determine the prevailing wage rate;

(d) If no wages were reported for an occupational title within any adjacent Missouri county within the previous six annual wage order reporting periods, then the rate paid pursuant to the current collective bargaining agreement shall be the prevailing wage rate for that occupational title within the locality.

4. A certified copy of the initial determinations so made shall be filed immediately with the secretary of state and with the department in Jefferson City. Copies shall be supplied by the department to all persons requesting them within ten days after the filing.

5. At any time within thirty days after the certified copies of the determinations have been filed with the secretary of state and the department, any person who is affected thereby may object in writing to a determination or a part thereof that he deems objectionable by filing a written notice with the department, stating the specific grounds of the objection. If no objection is filed, the determination is final after thirty days.

6. After the receipt of the objection, the department shall set a date for a hearing on the objection. The date for the hearing shall be within sixty days of the receipt of the objection. Written notice of the time and place of the hearing shall be given to the objectors at least ten days prior to the date set for the hearing.

7. The department at its discretion may hear each written objection separately or consolidate for hearing any two or more written objections. At the hearing the department shall first introduce in evidence the investigation it instituted and the other facts which were considered at the time of the original determination which formed the basis for its determination. The department, or the objector, or any interested party, thereafter may introduce any evidence that is material to the issues.

8. Within twenty days of the conclusion of the hearing, the department shall rule on the written objection and make the final determination that it believes the evidence warrants. Immediately, the department shall file a certified copy of its final determination with the secretary of state and with the department and shall serve a copy of the final determination on all parties to the proceedings by personal service or by registered mail.

9. This final decision of the department of the prevailing wages in the locality for each occupational title is subject to review in accordance with the provisions of chapter 536. Any person affected, whether or not the person participated in the proceedings resulting in the final determination, may have the decision of the department reviewed. The filing of the final determination with the secretary of state shall be considered a service of the final determination on persons not participating in the administrative proceedings resulting in the final determination.

10. At any time before trial any person affected by the final determination of the department may intervene in the proceedings to review under chapter 536 and be made a party to the proceedings.

11. Any annual wage order made for a particular occupational title in a locality, that is based on the number of hours worked under a collective bargaining agreement, may be altered once each year, as provided in this subsection. The prevailing wage for each such occupational title may be adjusted on the anniversary date of any collective bargaining agreement which covers all persons in that particular occupational title in the locality in accordance with any annual incremental wage increases set in the collective bargaining agreement. If the prevailing wage for an occupational title is adjusted pursuant to this subsection, the employee's representative or employer in regard to such collective bargaining agreement shall notify the department of this adjustment, including the effective date of the adjustment. The adjusted prevailing wage shall be in effect until the next final annual wage order is issued pursuant to this section. The wage rates for any particular job, contracted and commenced within sixty days of the contract date, which were set as a result of the annual or revised wage order, shall remain in effect for the duration of that particular job.

12. In addition to all other reporting requirements of sections 290.210 to 290.340, each public body which is awarding a contract for a public works project shall, prior to beginning of any work on such public works project, notify the department, on a form prescribed by the department, of the scope of the work to be done, the various types of craftsmen who will be needed on the project, and the date work will commence on the project.

(L. 1993 H.B. 638, A.L. 2013 H.B. 34)

Hourly wage must equal or exceed federal minimum wage.

290.263. The hourly wages to be paid as prescribed in section 290.250 to workmen upon public works shall not be less than the minimum wage specified under Section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended.

(L. 1969 S.B. 142)

Wage rates posted, where.

290.265. A clearly legible statement of all prevailing hourly wage rates to be paid to all workmen employed in order to execute the contract and employed on the construction of the public works shall be kept posted in a prominent and easily accessible place at the site thereof by each contractor and subcontractor engaged in the public works projects under the provisions of this law and such notice shall remain posted during the full time that any such workman shall be employed on the public works.

(L. 1969 S.B. 142)

Declaration as to prevailing wages final--maximum wages and hours not limited.

290.270. The finding of the department ascertaining and declaring the prevailing hourly rate of wages shall be final for the locality, unless reviewed under the provisions of sections 290.210 to 290.340. Nothing in sections 290.210 to 290.340, however, shall be construed to prohibit the payment to any workman employed on any public work of more than the prevailing rate of wages. Nothing in sections 290.210 to 290.340 shall be construed to limit the hours of work which may be performed by any workman in any particular period of time.

(L. 1957 p. 574 § 7, A.L. 1969 S.B. 142)

Administration of oaths--subpoenas--enforcement of subpoenas.

290.280. The authorized representative of the department may administer oaths, take or cause to be taken the depositions of witnesses, and require by subpoena the attendance and testimony of witnesses and the production of all books, records, and other evidence relative to any matter under investigation or hearing. The subpoena shall be signed and issued by the department's authorized representative. In case of failure of any person to comply with any subpoena lawfully issued under this section, or on the refusal of any witness to produce evidence or to testify to any matter regarding which he may be lawfully interrogated, the authorized representative of the department may proceed to enforce obedience to the subpoenas in the manner provided by section 536.077 for administrative agencies. The authorized representative of the department shall have the power to certify to official acts.

(L. 1957 p. 574 § 9, A.L. 1961 p. 438)

Contractor's payroll records, contents--affidavit of compliance required--signs on motor vehicles and equipment, requirements--temporary stationary sign, when--exception.

290.290. 1. The contractor and each subcontractor engaged in any construction of public works shall keep full and accurate records clearly indicating the names, occupations and crafts of every workman employed by them in connection with the public work together with an accurate record of the number of hours worked by each workman and the actual wages paid therefor. The payroll records required to be so kept shall be open to inspection by any authorized representative of the contracting public body or of the department at any reasonable time and as often as may be necessary and such records shall not be destroyed or removed from the state for the period of one year following the completion of the public work in connection with which the records are made.

2. Each contractor and subcontractor shall file with the contracting public body upon completion of the public work and prior to final payment therefor an affidavit stating that he had fully complied with the provisions and requirements of this chapter, and no public body shall be authorized to make final payment until such affidavit is filed therewith in proper form and order.

3. Each contractor and subcontractor engaged in any construction of public works shall 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 such public works project during the time the contractor or subcontractor is engaged on such project. The sign shall be legible from a distance of twenty feet but the size of the lettering need not be larger than two 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 subsection, at the main entrance of the construction 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.

4. The provisions of subsection 3 of this section shall not apply to construction of public works for which the contract awarded is in the amount of two hundred fifty thousand dollars or less.

(L. 1957 p. 574 § 5, A.L. 1969 S.B. 142, A.L. 1993 H.B. 416 & 417)

Actions for prevailing wages by workman authorized.

290.300. Any workman employed by the contractor or by any subcontractor under the contractor who shall be paid for his services in a sum less than the stipulated rates for work done under the contract, shall have a right of action for double whatever difference there may be between the amount so paid and the rates provided by the contract together with a reasonable attorney's fee to be determined by the court, and an action brought to recover same shall be deemed to be a suit for wages, and any and all judgments entered therein shall have the same force and effect as other judgments for wages.

(L. 1957 p. 574 § 10, A.L. 1969 S.B. 142)

Rebates by workmen prohibited, exception.

290.305. No person, firm or corporation shall violate the wage provisions of any contract contemplated in sections 290.210 to 290.340 or suffer or require any employee to work for less than the rate of wages so fixed, or violate any of the provisions contained in sections 290.210 to 290.340. Where workmen are employed and their rate of wages has been determined as provided in sections 290.210 to 290.340, no person, either for himself or any other person, shall request, demand or receive, either before or after such workman is engaged, that such workman pay back, return, donate, contribute, or give any part or all of said workman's wages, salary, or thing of value, to any person, upon the statement, representation, or understanding that failure to comply with such request or demand will prevent such workman from procuring or retaining employment, and no person shall, directly or indirectly, pay, request or authorize any other person to violate this section. This section does not apply to any agent or representative of a duly constituted labor organization acting in the collection of dues or assessments of such organization.

(L. 1969 S.B. 142)

Deductions from wages, agreement to be written, approval of public body required.

290.315. All contractors and subcontractors required in sections 290.210 to 290.340 to pay not less than the prevailing rate of wages shall make full payment of such wages in legal tender, without any deduction for food, sleeping accommodations, transportation, use of small tools, or any other thing of any kind or description. This section does not apply where the employer and employee enter into an agreement in writing at the beginning of said term of employment covering deductions for food, sleeping accommodations, or other similar items, provided such agreement is submitted by the employer to the public body awarding the contract and the same is approved by such public body as fair and reasonable.

(L. 1969 S.B. 142)

Advertising for bids before prevailing wage is determined prohibited.

290.320. No public body, officer, official, member, agent or representative authorized to contract for public works shall fail, before advertising for bids or contracting for such construction, to have the department determine the prevailing rates of wages of workmen for each class of work called for by the public works in the locality where the work is to be performed as provided in sections 290.210 to 290.340.

(L. 1969 S.B. 142)

Awarding contract or payment without prevailing wage determination prohibited.

290.325. No public body, officer, official, member, agent or representative thereof authorized to contract for public works shall award a contract for the construction of such improvement or disburse any funds on account of the construction of such public improvement, unless such public body has first had the department determine the prevailing rates of wages of workmen for the class of work called for by such public works in the locality where the work is to be performed and such determination has been made a part of the specifications and contract for such public works.

(L. 1969 S.B. 142)

Convicted violators of sections 290.210 to 290.340 listed, effect of.

290.330. The department after investigation, upon complaint or upon its own initiative, shall file with the secretary of state a list of the contractors and subcontractors who it finds have been prosecuted and convicted for violations of sections 290.210 to 290.340 and such contractor or subcontractor, or simulations thereof, shall be prohibited from contracting directly or indirectly with any public body for the construction of any public works or from performing any work on the same as a contractor or subcontractor for a period of one year from the date of the first conviction for such violation and for a period of three years from the date of each subsequent violation and conviction thereof. No public body shall award a contract for a public works to any contractor or subcontractor, or simulation thereof, during the time that its name appears on said list. The filing of the notice of conviction with the secretary of state shall be notice to all public bodies and their officers, officials, members, agents and representatives.

(L. 1969 S.B. 142)

Notice of violation, failure to comply, attorney general shall sue, injunctive relief authorized.

290.335. If it is found that a public body, contractor or subcontractor has not complied with any of the terms of sections 290.210 to 290.340, the department shall give notice of the precise violation in writing to such public body, contractor or subcontractor. Sufficient time may be allowed for compliance therewith as the department deems necessary. After the expiration of the time prescribed in said notice, the department may in writing inform the attorney general of the fact that such notice has been given and that the public body, contractor or subcontractor or the authorized representative or agent thereof to whom it was directed has not complied with such notice. Upon receipt thereof, the attorney general shall at the earliest possible time bring suit in the name of the state in the circuit court of the county in which such public body is located or where any such contractor or subcontractor is engaged in any public works to enjoin the award of such contract for a public works, or any further work or payments thereunder if the contract has been awarded, until the requirements of such notice are fully complied with. The court may issue a temporary restraining order with due notice to the defendant in such action. The plaintiff shall in any such injunctive action post an adequate bond to be set by the circuit judge. Upon final hearing thereof, if the court is satisfied that the requirements of the notice by the department to the defendant were not unreasonable or arbitrary, it shall issue an order enjoining the awarding of such contract for a public works, or any further work or payments thereunder if the contract has been awarded, until the notice is fully complied with. Such injunction shall continue operative until the court is satisfied that the requirements of such notice have been complied with and the court shall have and exercise with respect to the enforcement of such injunctions all the power in it in other similar cases. Both the plaintiff and defendant in such action have the same rights of appeal as are provided by law in other injunction proceedings.

(L. 1969 S.B. 142)

Penalty for violation.

290.340. Any officer, official, member, agent or representative of any public body, contractor or subcontractor who willfully violates and omits to comply with any of the provisions and requirements of sections 290.210 to 290.340 shall be punished for each violation thereof by a fine not exceeding five hundred dollars, or by imprisonment not exceeding six months, or by both such fine and imprisonment. Each day such violation or omission continues shall constitute a separate offense as contemplated by this section.

(L. 1969 S.B. 142)

Request for arbitration, when, how made--board to be appointed.

290.350. Whenever a dispute exists concerning wages, hours of labor, or conditions of employment of members of a paid fire department of any county, city, town, fire district, or other governmental unit having a population in excess of twenty thousand or located in a county of the first class, and a request for arbitration is made by either party to the dispute, a firemen's arbitration board shall be appointed as provided in sections 290.350 to 290.380. Request for arbitration may be made by written petition signed by at least fifty-one percent of the employees of the fire department or by resolution of the county commission, council, board, or other governing body having direction and control over the fire department.

(L. 1963 p. 415 § 1)

Board members--selected, how--officers.

290.360. The board shall consist of five members, four of whom shall be appointed by the chief executive officer of the county, city, town, fire district, or other governmental unit involved, and shall be qualified voters of the county, city, town, fire district, or other governmental unit involved. Two of these appointments shall be made from a list of four or more, submitted by the employees. If the request for arbitration is initiated by petition of the employees, the petition shall be accompanied by a list of four or more persons. If the request for arbitration is initiated by the county commission, council, board or other governing body having direction and control over the fire department, the chief executive officer of the county, city, town, fire district, or other governmental unit shall mail a copy of the resolution, together with a request for the submission of a list of four or more prospective members of the firemen's arbitration board to representatives of the employees of the fire department. The four members appointed by the chief executive officer shall select the fifth member of the board, who may or may not be a registered voter of the county, city, town, fire district, or other governmental unit involved. The board shall meet and organize as soon as possible after its appointment. The board shall select from its membership a chairman and any other officers it considers necessary, and make rules of procedure governing its hearings.

(L. 1963 p. 415 § 2)

Hearing and recommendations of board.

290.370. The board shall conduct hearings, with dispatch, for the purpose of hearing evidence relevant to the subject of the dispute, and shall, as soon as practicable, report its findings and recommendations in writing to the chief executive officer of the county, city, town, fire district, or other governmental unit involved, and to any organization of firemen involved. The report shall be concurred in by at least three members of the board. The recommendation shall be advisory only and shall not be binding upon the county, city, town, fire district, or other governmental unit, or upon the members of the fire department involved.

(L. 1963 p. 415 § 3)

Expenses of board members to be paid.

290.380. Members of the board shall serve without compensation. All necessary expenses of any hearing conducted by the board members, certified to by all the members of the board, shall be paid by the county, city, town, fire district, or other governmental unit involved.

(L. 1963 p. 415 § 4)

Definitions.

290.400. As used in sections 290.400 to 290.450 the following words have the meanings indicated unless the context clearly requires otherwise:

- (1) "Commission", the labor and industrial relations commission of Missouri;
- (2) "Employee", every woman or man in receipt of or entitled to compensation for labor performed for any employer;
- (3) "Employer", every person, firm, corporation, agent, manager, representative, contractor, subcontractor, principal or other person having control or direction of any woman or man employed at any labor, or responsible directly or indirectly for the wages of another;
- (4) "Female", a woman of eighteen years or over;
- (5) "Wage rates" or "wages", any compensation for labor measured by time, piece, or otherwise.

(L. 1963 p. 416 § 1)

Employer not to pay female lower wage.

290.410. Notwithstanding any other provisions of the law, no employer shall pay any female in his employ at wage rates less than the wage rates paid to male employees in the same establishment for the same quantity and quality of the same classification of work, provided that nothing herein shall prohibit a variation of rates of pay for male and female employees engaged in the same classification of work based upon a difference in seniority, length of service, ability, skill, difference in duties or services performed, difference in the shift or time of day worked, hours of work, or restrictions or prohibitions on lifting or moving objects in excess of specified weight, or other reasonable differentiation, or factors other than sex, when exercised in good faith.

(L. 1963 p. 416 § 2)

Female may register complaint.

290.420. Any affected female employee may register with the commission a complaint that the wages paid to her are less than the wages to which she is entitled under sections 290.400 to 290.450.

(L. 1963 p. 416 § 4)

Labor and industrial relations commission to mediate wage disputes.

290.430. The commission shall take all proceedings necessary to mediate the dispute concerning the payment of any sums alleged to be due and unpaid to the female employees. The commission shall have the power to issue such regulations not inconsistent with the purpose and provisions of sections 290.400 to 290.450, as it deems necessary or appropriate for the administration thereof.

(L. 1963 p. 416 § 5, A.L. 1965 p. 95)

Female may recover wages, when--burden of proof.

290.440. 1. Any employer who violates section 290.410 is liable to the female employee affected in the amount

of the wages of which the female employee is deprived by reason of the violation.

2. Any female employee receiving less than the wage to which she is entitled under sections 290.400 to 290.450 may recover in a civil action the balance of the wages, together with the costs of suit, notwithstanding any agreement to work for a lesser wage.

3. The burden of proof shall be upon the person bringing the claim to establish that the differentiation in rate of pay is based upon the factor of sex and not upon other differences or factors.

(L. 1963 p. 416 §§ 3, 6, 8)

Actions to be instituted in circuit court--limitations.

290.450. Any action based upon or arising under sections 290.400 to 290.450 shall be instituted in the circuit court within six months after the date of the alleged violation, but in no event shall any employer be liable for any pay due under sections 290.400 to 290.450 for more than thirty days prior to receipt by the employer of written notice of claim thereof from the female employee.

(L. 1963 p. 416 § 7)

Powers and duties of commission.

290.460. The commission shall carry on a continuing program of education, information, study, and community organization concerning the problems of female employees in seeking, obtaining and holding employment without discrimination on account of sex. The commission's power and duties shall include but not be limited to the following:

- (1) Promote in cooperation with the federal government, state, local and private agencies and organizations, programs to eliminate discrimination in employment based solely on sex;
- (2) Promote research with the view to reducing barriers based solely on sex in the hire, employment and retention of female employees;
- (3) Sponsor and correlate in communities of the state, information and educational programs intended to reduce or abolish discrimination in employment based solely on sex;
- (4) Recommend to the governor, from time to time, any specific proposals for legislation as may be deemed necessary and proper for the elimination in employment of discrimination based solely on sex.

(L. 1965 p. 439)

Definitions.

290.500. As used in sections 290.500 to 290.530, the following words and phrases mean:

- (1) "Agriculture", farming and all its branches including, but not limited to, the cultivation and tillage of the soil, dairying, the production, cultivation, growing and harvesting of any agricultural commodities, the raising of

livestock, fish and other marine life, bees, fur-bearing animals or poultry and any practices performed by a farmer or on a farm as an incident to or in conjunction with farming operations, including preparation for market, delivery to storage or to market or to carriers for transportation to market;

(2) "Director", the director of the department of labor and industrial relations or his authorized representative;

(3) "Employee", any individual employed by an employer, except that the term "employee" shall not include:

(a) Any individual employed in a bona fide executive, administrative, or professional capacity;

(b) Any individual engaged in the activities of an educational, charitable, religious, or nonprofit organization where the employer-employee relationship does not, in fact, exist or where the services rendered to the organization are on a voluntary basis;

(c) Any individual standing in loco parentis to foster children in their care;

(d) Any individual employed for less than four months in any year in a resident or day camp for children or youth, or any individual employed by an educational conference center operated by an educational, charitable or not-for-profit organization;

(e) Any individual engaged in the activities of an educational organization where employment by the organization is in lieu of the requirement that the individual pay the cost of tuition, housing or other educational fees of the organization or where earnings of the individual employed by the organization are credited toward the payment of the cost of tuition, housing or other educational fees of the organization;

(f) Any individual employed on or about a private residence on an occasional basis for six hours or less on each occasion;

(g) Any handicapped person employed in a sheltered workshop, certified by the department of elementary and secondary education;

(h) Any person employed on a casual basis to provide baby-sitting services;

(i) Any individual employed by an employer subject to the provisions of part A of subtitle IV of title 49, United States Code, 49 U.S.C. §§ 10101 et seq.;

(j) Any individual employed on a casual or intermittent basis as a golf caddy, newsboy, or in a similar occupation;

(k) Any individual whose earnings are derived in whole or in part from sales commissions and whose hours and places of employment are not substantially controlled by the employer;

(l) Any individual who is employed in any government position defined in 29 U.S.C. §§ 203(e)(2)(C)(i)-(ii);

(m) Any individual employed by a retail or service business whose annual gross volume sales made or business done is less than five hundred thousand dollars;

(n) Any individual who is an offender, as defined in section 217.010, who is incarcerated in any correctional facility operated by the department of corrections, including offenders who provide labor or services on the grounds of such correctional facility pursuant to section 217.550;

(o) Any individual described by the provisions of section 29 U.S.C. 213(a) (8);

- (4) "Employer", any person acting directly or indirectly in the interest of an employer in relation to an employee;
- (5) "Learner and apprentice", any individual under 20 years of age who has not completed the required training for a particular job. In no event shall the individual be deemed a learner or apprentice in the occupation after three months of training except where the director finds, after investigation, that for the particular occupation a minimum of proficiency cannot be acquired in three months. In no case shall a person be declared to be a learner or apprentice after six months of training for a particular employer or job. Employees of an amusement or recreation business that meets the criteria set out in 29 U.S.C. § 213(a) (3) may be deemed a learner or apprentice for ninety working days. No individual shall be deemed a learner or apprentice solely for the purpose of evading the provisions of sections 290.500 to 290.530;
- (6) "Occupation", any occupation, service, trade, business, industry, or branch or group of industries or employment or class of employment in which individuals are gainfully employed;
- (7) "Wage", compensation due to an employee by reason of his employment, payable in legal tender of the United States or checks on banks convertible into cash on demand at full face value;
- (8) "Person", any individual, partnership, association, corporation, business, business trust, legal representative, or any organized group of persons;
- (9) "Man-day", any day during which an employee performs any agricultural labor for not less than one hour.

(L. 1990 H.B. 1881 § 1, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Minimum wage rate--increase or decrease, when.

290.502. 1. Except as may be otherwise provided pursuant to sections 290.500 to 290.530, effective January 1, 2007, every employer shall pay to each employee wages at the rate of \$6.50 per hour, or wages at the same rate or rates set under the provisions of federal law as the prevailing federal minimum wage applicable to those covered jobs in interstate commerce, whichever rate per hour is higher.

2. The minimum wage shall be increased or decreased on January 1, 2008, and on January 1 of successive years, by the increase or decrease in the cost of living. On September 30, 2007, and on each September 30 of each successive year, the director shall measure the increase or decrease in the cost of living by the percentage increase or decrease as of the preceding July over the level as of July of the immediately preceding year of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) or successor index as published by the U.S. Department of Labor or its successor agency, with the amount of the minimum wage increase or decrease rounded to the nearest five cents.

(L. 1990 H.B. 1881 § 2, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Overtime compensation, applicable number of hours, exceptions.

290.505. 1. No employer shall employ any of his employees for a workweek longer than forty hours unless such employee receives compensation for his employment in excess of the hours above specified at a rate not less than one and one-half times the regular rate at which he is employed.

2. Employees of an amusement or recreation business that meets the criteria set out in 29 U.S.C. 213(a) (3) must be paid one and one-half times their regular compensation for any hours worked in excess of fifty-two hours in any one-week period.
3. With the exception of employees described in subsection (2), the overtime requirements of subsection (1) shall not apply to employees who are exempt from federal minimum wage or overtime requirements including, but not limited to, the exemptions or hour calculation formulas specified in 29 U.S.C. Sections 207 and 213, and any regulations promulgated thereunder.
4. Except as may be otherwise provided under sections 290.500 to 290.530, this section shall be interpreted in accordance with the Fair Labor Standards Act, 29 U.S.C. Section 201, et seq., as amended, and the Portal to Portal Act, 29 U.S.C. Section 251, et seq., as amended, and any regulations promulgated thereunder.

(L. 1990 H.B. 1881 § 3, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006, A.L. 2008 H.B. 1883 merged with H.B. 2041)

Effective 6-25-08 (H.B. 2041)

8-28-08 (H.B. 1883)

Agriculture, law not applicable.

290.507. Sections 290.500 to 290.530 shall not apply to any employee or employer engaged in agriculture, as defined in section 290.500 (A) if such employee is employed by an employer who did not, during any calendar quarter during the preceding calendar year, use more than five hundred man-days of agriculture labor, (B) if such employee is the parent, spouse, child, or other member of his employer's immediate family, (C) if such employee (i) is employed as a hand harvest laborer and is paid on a piece rate basis in an operation which has been, and is customarily and generally recognized as having been, paid on a piece rate basis in the region of employment, (ii) commutes daily from his permanent residence to the farm on which he is so employed, and (iii) has been employed in agriculture less than thirteen weeks during the preceding calendar year, (D) if such employee (other than an employee described in clause (C) of this subsection) (i) is sixteen years of age or under and is employed as a hand harvest laborer, is paid on a piece rate basis in an operation which has been, and is customarily and generally recognized as having been, paid on a piece rate basis in the region of employment, (ii) is employed on the same farm as his parent or person standing in the place of his parent, and (iii) is paid at the same piece rate as employees over age sixteen are paid on the same farm, or (E) if such employee is principally engaged in the range production of livestock.

(L. 1990 H.B. 1881 § 4, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Director may investigate to prove compliance.

290.510. The director shall have authority to investigate and ascertain the wages of persons employed in any occupation included within the meaning of sections 290.500 to 290.530.

(L. 1990 H.B. 1881 § 5, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Gratuities, goods or services as part of wages, effect on minimum wage requirements.

290.512. 1. No employer of any employee who receives and retains compensation in the form of gratuities in addition to wages is required to pay wages in excess of fifty percent of the minimum wage rate specified in sections 290.500 to 290.530, however, total compensation for such employee shall total at least the minimum wage specified in sections 290.500 to 290.530, the difference being made up by the employer.

2. If an employee receives and retains compensation in the form of goods or services as an incident of his employment and if he is not required to exercise any discretion in order to receive the goods or services, the employer is required to pay only the difference between the fair market value of the goods and services and the minimum wage otherwise required to be paid by sections 290.500 to 290.530. The fair market value of the goods and services shall be computed on a weekly basis. The director shall provide by regulation a method of valuing the goods and services received by any employee in lieu of the wages otherwise required to be paid under the provisions of sections 290.500 to 290.530. He shall also provide by regulation a method of determining those types of goods and services that are an incident of employment the receipt of which does not require any discretion on the part of the employee.

(L. 1990 H.B. 1881 § 6, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Physical or mental deficiency of employee, wage rate, determined by director, how.

290.515. After a public hearing at which any person may be heard, the director shall provide by regulation for the employment in any occupation of individuals whose earning capacity is impaired by physical or mental deficiency at wages lower than the wage rate applicable under sections 290.500 to 290.530. The individuals shall be employed as the director finds appropriate to prevent curtailment of opportunities for employment, to avoid undue hardship, and to safeguard the wage rate applicable under sections 290.500 to 290.530, except that no individual who maintains a production level within the limits required of other employees shall be paid less than the wage rate applicable under sections 290.500 to 290.530. Employees affected or their guardians shall be given reasonable notice of this hearing.

(L. 1990 H.B. 1881 § 7, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Learners and apprentices, wage rate, determined by director, how.

290.517. After a public hearing of which individual employees affected must be given reasonable notice, the director shall provide by regulation for the employment in any occupation, at wages lower than the wage rate applicable under sections 290.500 to 290.530, of such learners and apprentices as he finds appropriate to prevent curtailment of opportunities for employment. Such wage rate for learners and apprentices shall be not less than 90 cents less than the minimum wage established by sections 290.500 to 290.530. At no time may this provision be used for the purpose of evading the spirit and meaning of sections 290.500 to 290.530.

(L. 1990 H.B. 1881 § 8, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Employer to keep records--director may inspect, records to be confidential.

290.520. Every employer subject to any provision of sections 290.500 to 290.530 or any regulation issued under sections 290.500 to 290.530 shall make and keep for a period of not less than three years on or about the premises wherein any employee is employed or at some other premises which is suitable to the employer, a

record of the name, address and occupation of each of his employees, the rate of pay, the amount paid each pay period to each employee, the hours worked each day and each workweek by the employee and any goods or services provided by the employer to the employee as provided in section 290.512. The records shall be open for inspection by the director by appointment. Where the records required under this section are kept outside the state, the records shall be made available to the director upon demand. Every such employer shall furnish to the director on demand a sworn statement of time records and information upon forms prescribed or approved by the director. All the records and information obtained by the department of labor and industrial relations are confidential and shall be disclosed only on order of a court of competent jurisdiction.

(L. 1990 H.B. 1881 § 9, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Summary of law and wage rate, employer to post, how.

290.522. Every employer subject to any provision of sections 290.500 to 290.530 or of any regulations issued under sections 290.500 to 290.530 shall keep a summary of sections 290.500 to 290.530, approved by the director, and copies of any applicable wage regulations issued under sections 290.500 to 290.530, or a summary of the wage regulations posted in a conspicuous and accessible place in or about the premises wherein any person subject thereto is employed. Employers shall be furnished copies of the summaries and regulations by the state on request without charge.

(L. 1990 H.B. 1881 § 10, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Rulemaking authority.

290.523. The department may, in accordance with chapter 536, promulgate such rules and regulations as are necessary for the enforcement and administration of sections 290.500 to 290.530. Any rule or portion of a rule, as that term is defined in section 536.010, that is created under the authority delegated in this section shall become effective only if it complies with and is subject to all of the provisions of chapter 536 and, if applicable, section 536.028. This section and chapter 536 are nonseverable and if any of the powers vested with the general assembly pursuant to chapter 536 to review, to delay the effective date, or to disapprove and annul* a rule are subsequently held unconstitutional, then the grant of rulemaking authority and any rule proposed or adopted after August 28, 2008, shall be invalid and void.

(L. 2008 H.B. 1883 merged with H.B. 2041)

*Word "annual" appears in original rolls of H.B. 1883, 2008.

Violations--penalty.

290.525. Any employer who hinders the director in the performance of his duties in the enforcement of sections 290.500 to 290.530 by any of the following acts is guilty of a class C misdemeanor:

- (1) Refusing to admit the director to any place of employment;
- (2) Failing to make, keep and preserve any records as required under the provisions of sections 290.500 to 290.530;

- (3) Falsifying any record required under the provisions of sections 290.500 to 290.530;
- (4) Refusing to make any record required under the provisions of sections 290.500 to 290.530 accessible to the director;
- (5) Refusing to furnish a sworn statement of any record required under the provisions of sections 290.500 to 290.530 or any other information required for the proper enforcement of sections 290.500 to 290.530 to the director upon demand;
- (6) Failing to post a summary of sections 290.500 to 290.530 or a copy of any applicable regulation as required;
- (7) Discharging or in any other manner discriminating against any employee who has notified the director that he has not been paid wages in accordance with the provisions of sections 290.500 to 290.530, or who has caused to be instituted any proceeding under or related to sections 290.500 to 290.530, or who has testified or is about to testify in any such proceeding;
- (8) Paying or agreeing to pay wages at a rate less than the rate applicable under sections 290.500 to 290.530. Payment at such rate for any week or portion of a week constitutes a separate offense as to each employee;
- (9) Otherwise violating any provisions of sections 290.500 to 290.530.

Each day of violation constitutes a separate offense.

(L. 1990 H.B. 1881 § 11, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Action for underpayment of wages, employee may bring--limitation.

290.527. Any employer who pays any employee less wages than the wages to which the employee is entitled under or by virtue of sections 290.500 to 290.530 shall be liable to the employee affected for the full amount of the wage rate and an additional equal amount as liquidated damages, less any amount actually paid to the employee by the employer and for costs and such reasonable attorney fees as may be allowed by the court or jury. The employee may bring any legal action necessary to collect the claim. Any agreement between the employee and the employer to work for less than the wage rate shall be no defense to the action. All actions for the collection of any deficiency in wages shall be commenced within two years of the accrual of the cause of action.

(L. 1990 H.B. 1881 § 12, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Law not to supersede more favorable existing law.

290.528. Any standards relating to minimum wages, maximum hours, overtime compensation or other working conditions in effect under any other law of this state on August 28, 1990, which are more favorable to employees than those applicable to employees under sections 290.500 to 290.530 or the regulations issued under sections 290.500 to 290.530, shall not be deemed to be amended, rescinded, or otherwise affected by sections 290.500 to 290.530 but shall continue in full force and effect and may be enforced as provided by law.

(L. 1990 H.B. 1881 § 13, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Law not to interfere with collective bargaining rights.

290.530. Nothing in sections 290.500 to 290.530 shall be deemed to interfere with, impede, or in any way diminish the right of employees to bargain collectively with their employers through representatives of their own choosing in order to establish wages or other conditions of work in excess of the applicable minimum under the provisions of sections 290.500 to 290.530.

(L. 1990 H.B. 1881 § 14, A.L. 2006 Adopted by Initiative, Proposition B, November 7, 2006)

Definitions.

290.550. As used in sections 290.550 to 290.580, the following terms mean:

- (1) "Laborers from nonrestrictive states", persons who are residents of a state which has not enacted state laws restricting Missouri laborers from working on public works projects in that state, as determined by the labor and industrial relations commission;
- (2) "Missouri laborer", any person who has resided in Missouri for at least thirty days and intends to become or remain a Missouri resident;
- (3) "A period of excessive unemployment", any month immediately following two consecutive calendar months during which the level of unemployment in the state has exceeded five percent as measured by the United States Bureau of Labor Statistics in its monthly publication of employment and unemployment figures;
- (4) "Public works", projects defined as public works pursuant to section 290.210.

(L. 1993 H.B. 416 & 417 § 1)

Law to apply to certain projects.

290.555. Sections 290.550 to 290.580 apply to all labor on public works projects or improvements, whether skilled, semiskilled or unskilled, and whether manual or nonmanual except work done directly by any public utility company and not let to contract.

(L. 1993 H.B. 416 & 417 § 2)

Certain laborers to be used on public works projects, when--contract provisions--exceptions.

290.560. Whenever there is a period of excessive unemployment in this state, every person who is charged with the duty, either by law or contract, of constructing or building any public works project or improvement for the state or any political subdivision, municipal corporation or other governmental unit thereof shall employ only Missouri laborers and laborers from nonrestrictive states on such project or improvement, and every contract let by any such person shall contain a provision requiring that such labor be used, except that other laborers may be used when Missouri laborers or laborers from nonrestrictive states are not available, or are incapable of performing the particular type of work involved, if so certified by the contractor and approved by the contracting officer.

(L. 1993 H.B. 416 & 417 § 3)

Law not to apply to certain personnel.

290.565. The provisions of sections 290.550 to 290.580 shall not apply to regularly employed nonresident executive, supervisory or technical personnel.

(L. 1993 H.B. 416 & 417 § 4)

Federal projects, statutes not enforced, when.

290.570. In all contracts involving the expenditure of federal aid funds, sections 290.550 to 290.580 shall not be enforced in such manner as to conflict with any federal statutes or rules and regulations.

(L. 1993 H.B. 416 & 417 § 5)

Penalties for failure to use certain laborers, when.

290.575. Any person who knowingly fails to use Missouri laborers or laborers from nonrestrictive states as required in section 290.560 shall be guilty of an infraction. Each separate case of failure to use Missouri laborers or laborers from nonrestrictive states on such public works projects or improvements shall constitute a separate offense.

(L. 1993 H.B. 416 & 417 § 6)

Department to enforce law--injunctive relief, when.

290.580. Sections 290.550 to 290.580 shall be enforced by the department of labor and industrial relations, which, as represented by the attorney general, is empowered to sue for injunctive relief against the awarding of any contract or the continuation of any work under any contract for public works or improvements at a time when the provisions of sections 290.550 to 290.580 are not being met.

(L. 1993 H.B. 416 & 417 § 7)

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Missouri General Assembly



REQUEST FOR INTERPRETATION

Contract Number: 1183

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1**

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 _____



CHANGE ORDER

Contract Number: 1183

Project Title

TARGET GREEN EAST MARLBOROUGH AND WATER MAIN
REPLACEMENTS – PHASE 1

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 (<input type="checkbox"/> increased by) (<input type="checkbox"/> decreased by) (<input type="checkbox"/> unchanged)	_____	\$0.00
The new Contract Price including this Change Order will be	_____	\$0.00



Contract No. _____ **Project Title** _____
Change Order No.

I certify under penalty of law that the 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, and that 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.

[Note: Include any required additional signatures.]

DESIGN PROFESSIONAL:	By:	Date:
	Title:	
CONTRACTOR:	By:	Date:
	Title:	
CITY: Kansas City, Missouri Water Services Department	By: Andy Shively, P.E. Title: Engineering Officer	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.

By: _____
 Director of Finance _____ 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

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER
MAIN REPLACEMENTS – PHASE 1

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.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01000 - GENERAL PROJECT REQUIREMENTS

1. SCOPE. This section covers the general project requirements for all Water Service Department projects.
2. OFFSITE STORAGE. 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. Such offsite storage arrangements shall be presented in writing and shall afford adequate and satisfactory security and protection. Offsite storage facilities shall be accessible to Owner.
3. PREPARATION FOR SHIPMENT. All materials and equipment incorporated into the design shall be suitably packaged to facilitate handling and protect against damage during transit and storage. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces, which are damaged prior to acceptance of materials and equipment, shall be repainted to the satisfaction of the Engineer.

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.

4. EASEMENTS AND RIGHTS-OF-WAY. The Owner will provide rights-of-way necessary for 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 pipe materials and supplies so as to cause the least possible damage to property and least interference with public traffic.

4.01. On Private Property. The permanent easements are 10 feet wide, except where special conditions exist. No additional temporary construction easements have been obtained, unless otherwise shown on Plan. Contractor shall set stakes to mark the boundaries of construction easements across private property. The stakes shall be protected and maintained until completion of construction. After cleanup has been completed the Contractor shall remove all construction stakes.

Contractor shall not enter any private property outside the designated construction easement boundaries without written permission from the owner of the property.

Should it become necessary that the Contractor use or occupy the land outside the Owner's right-of-way, the Contractor shall obtain written consent from or execute a written agreement with the owner and tenant of such permitting operation. The Contractor shall neither enter for pipe delivery nor occupy for any other purpose with men, tools, equipment, construction materials, or

excavated materials any private property outside the right-of-way boundaries without such 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 two (2) days prior to such occupation.

Whenever the easement is occupied by crops which will be damaged by construction operations, Contractor shall notify the owner sufficiently in advance so that the crops may be removed before excavation or trenching is started. Contractor shall be responsible for all damage to crops outside the easement and shall make satisfactory settlement for the damage directly with the property owner.

Where the line crosses fields that are leveled for irrigation or terraced, Contractor shall relevel irrigated fields and replace all terraces to their original or better condition, and to the satisfaction of the property owner.

4.02. Crossing State Highways. The Owner has obtained permission from the Missouri State Highway Department for the construction of this Work, when it applied. 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 within the highway right-of-way.

5. STREAM CROSSINGS. Stream and drainage ditch crossings shall be made in accordance with the applicable Specifications and details shown on the Plans.

The trench width shall be as required for proper pipe installation and the trench depth shall be as required to give minimum cover as shown on the Plans. Pipe encasement; where required, shall be in accordance with the Specifications and placed as indicated on the Plans.

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 grout to provide a neat, uniform surface.

The Contractor shall furnish all labor, equipment, and materials, and perform all work necessary to construct water or sewer main stream crossings as required. No extra payment will be allowed for shoring, forming, dewatering, trenching, backfilling, riprap, concrete or steel, or any other items necessary in the completed work.

6. NOTICES TO PROPERTY OWNERS AND AUTHORITIES. Contractor shall, as provided in General Conditions, notify owners of adjacent property and utilities when prosecution of the Work may affect them.

When it is necessary to temporarily deny access to property, or when any utility service connection must be interrupted, Contractor shall give notices two (2) days in advance to enable the affected persons to provide for their needs. Notices will conform to any applicable local ordinances, will be delivered in writing, and will include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.

Utilities and other concerned agencies shall be notified at least two (2) days prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines.

7. MAIL BOXES. The U.S. Post Office Department's regulations prohibit the delivery of mail to addresses where there are no mailboxes or where the mailboxes are not readily accessible because of construction excavation. Hence, in areas where it is necessary to remove mail boxes to facilitate the proposed Work, it shall be the obligation of the Contractor to install any mail boxes so removed to their original position and elevations within 24 hours and the area stabilized and restored to the original condition.

Also, any and all excavated material should be removed as soon as possible from the vicinity of all mailboxes so as to minimize mail delivery inconveniences.

8. LINES AND GRADES. All Work shall be done to the lines, grades, and elevations indicated on the Plans.

Basic horizontal and vertical control points will be established or designated by Engineer to be used with Kansas City datum for the Work. All additional survey, layout, and measurement work shall be performed by Contractor as a part of the Work.

Contractor shall provide an experienced instrument person, competent assistants, and such instruments, tools, stakes, and other materials required to complete the survey, layout, and measurement work. In addition, Contractor shall furnish, without charge, competent persons and such tools, stakes, and other materials as Engineer may require on establishing or designating control points, in establishing construction easement boundaries, or in checking survey, layout, and measurement work performed by Contractor.

Contractor shall keep Engineer informed, a reasonable time in advance, of the times and places at which it wishes to do Work, so that horizontal and vertical control points may be established and any checking deemed necessary by Engineer may be done with minimum delay to Contractor.

Contractor shall remove and reconstruct work that is improperly located.

9. CONNECTIONS TO EXISTING FACILITIES. Unless otherwise specified or indicated, Contractor shall make all necessary connections to existing facilities, including structures, drainlines, and utilities such as water, sewer, gas, telephone, and electric. In each case, Contractor shall receive permission from Owner or the owning utility prior to undertaking connections. Contractor shall protect facilities against deleterious substances and damage.

Connections to existing facilities that are in service shall be thoroughly planned in advance, and all required equipment, materials, and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock) if necessary to complete connections in the minimum time. Operation of valves or other appurtenances on existing utilities when required shall be by or under the direct supervision of the owning utility.

10. UNFAVORABLE CONSTRUCTION CONDITIONS. During unfavorable weather, wet ground, or other unsuitable construction conditions, Contractor shall confine his operations to Work that will not be affected adversely by such conditions. No portion of the Work shall be constructed under conditions that would adversely affect the quality or efficiency thereof, unless special means or precautions are taken by Contractor to perform the Work in a manner acceptable to the Owner.

11. CLEARING, GRUBBING, AND TREE REMOVAL. The Contractor shall perform all clearing and grubbing as required to complete the work.

Open burning of brush or debris will not be permitted unless the Contractor obtains a permit for open burning of trade wastes from the Air Pollution Control Section of Kansas City Health Department.

If before said permit is issued, the Contractor will be required to comply with the requirements of section 18.85, "Open Burning Restrictions" of the Air Quality Control Code, latest revision.

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 shall be performed at no extra cost to the Owner.

12. CUTTING AND PATCHING. As provided in General Conditions, Contractor shall perform all cutting and patching required for the Work and as may be necessary in connection with uncovering Work for inspection or for the correction of defective Work.

Contractor shall perform all cutting and patching required for and in connection with the Work, including but not limited to the following:

Removal of improperly timed Work.

Removal of samples of installed materials for testing.

Alteration of existing facilities.

Installation of new Work in existing facilities.

Contractor shall provide all shoring, bracing, supports, and protective devices necessary to safeguard all Work and existing facilities during cutting and patching operations. Contractor

shall not undertake any cutting or demolition that may affect the structural stability of the Work or existing facilities without Owner's approval.

Materials shall be cut and removed as required to complete the Work. Materials shall be removed in a careful manner, with no damage to adjacent facilities or materials. Contractor shall remove materials that are not salvable from the site.

All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to Engineer, to obtain a finished installation with strength, appearance, and functional capacity required to match the existing area. If necessary, entire surfaces shall be patched and refinished.

The Contractor at no extra cost to the Owner shall replace any curbs removed or damaged and so designated to be replaced.

13. SITE MAINTENANCE. Contractor shall keep the premises free at all times from accumulation of waste materials and rubbish. Contractor shall provide adequate trash receptacles and shall promptly empty the containers when filled.

Contractor shall neatly stack construction materials when not in use. Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from the surfaces to prevent marring or other damage.

Volatile wastes shall be properly stored in covered metal containers and removed from the site daily.

Wastes shall not be buried on the site or disposed of into storm drains, sanitary sewers, streams, or waterways. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and antipollution laws.

Adequate cleanup will be a condition for recommendation of progress payment applications.

14. LICENSES, PERMITS, AND CERTIFICATES. All licenses, permits, and certificates, etc. required for and in connection with the Work under the provisions of these Contract Documents shall be secured by the Contractor at his sole cost and expense. However, the Contractor will not be required to pay any permit fees for water service permits or water service taps. Contractor shall comply with all requirements and recommendations of the authority or authorities issuing the license, permit, or certificate.

15. APPLICABLE CODES: The Building Code of Kansas City, Missouri and all applicable provisions of the following standard specifications of the Kansas City Department of Public Works are, by reference, hereby made a part of this contract specifications:

Standard General Provisions of Contract

Standard Supplemental General Provisions of Contract

16. REFERENCE STANDARDS: Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or laws or regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard, specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of Owner, Contractor, or Engineer, or any of their Consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Engineer, or any of Engineer's Consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the Work.

17. PRECONSTRUCTION CONFERENCE. Prior to the commencement of Work at the site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by:

Contractor and his superintendent.

Engineer.

Resident Project Representative.

Representatives of Owner.

Others as requested by Contractor, Owner, or Engineer, such as, but not limited to the following:

Principal Subcontractors.

Representative of principal Suppliers and manufacturers as appropriate.

Governmental representatives as appropriate.

Unless previously submitted to Engineer, Contractor shall bring to the conference preliminary schedules, such as, but no limited to the following:

Construction Schedule

Schedule of Values

Shop Drawings and other submittals.

The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include, but not limited to the following:

Contractor's preliminary schedules.

Transmittal, review, and distribution of Contractor's submittals.

Processing Applications for Payment.

Maintaining record documents.

Critical Work sequencing.

Field decisions and Change Orders.

Use of premises, office and storage areas, security, housekeeping, and Owner's needs.

Major equipment deliveries and priorities.

Contractor's assignments for safety and first aid.

Engineer will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

18. PROGRESS MEETINGS. Contractor shall schedule and hold progress meetings at least monthly and at other times as requested by Engineer or required by progress of the Work. Contractor, Engineer, and all Subcontractors active on the site shall be represented at each meeting. Contractor may at his discretion request attendance by representatives of his Suppliers, manufacturers, and other Subcontractors.

Contractor shall preside at the meeting. Meeting minutes will be prepared and distributed by Contractor after review by Engineer. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems, which may develop on this project.

19. SITE ADMINISTRATION. Contractor shall be responsible for all areas of the site used by him and all Subcontractors in the performance of the Work. Contractor will exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to Owner or others. Contractor has the right to exclude from the site all persons who have no purpose related

to the Work or its inspection, and may require all persons on the site to observe the same regulations as he requires of his employees.

20. CLEAN-UP. The Contractor shall replace all surface material and shall restore paving, curbing, sidewalks, gutters, shrubbery, fences, sod, and other surfaces disturbed to a condition of equal or better to that before the work began, furnishing all material and labor incidental thereto.

All excavated material shall be removed and disposed of by the Contractor so that the grounds will be left equal or better than its original state.

Any deficiency in the quantity of material for filling depressions caused by settlement shall be supplied by the Contractor.

Surplus pipe 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 in its original condition or better.

In addition, the Contractor may be required to obtain an Owner approved release form, signed by the property owner's affected by the work of this project, as directed by Owner or Engineer.

21. FINAL ACCEPTANCE. After the completion of the Testing Items as specified in the Contract and prior to the final payment, the Contractor shall notify the Engineer that the work is ready for final inspection. A final inspection will be setup at a mutually agreed time between the Contractor and Engineer. The Engineer will provide the Contractor with the results of the final inspection and will not approve final payment until all work is done to the satisfaction of the Owner. Approval of the Engineer and final payment will not relieve the Contractor of his responsibility under other terms of this Contract.

22. EROSION AND SEDIMENT CONTROL. All work shall conform to the latest revision of the Kansas City, Missouri Erosion and Sediment Control Specifications, which is made a part hereof by reference. Erosion Control Plans shall be submitted to the Engineer for review and approval prior to start of this project.

23. STREET LIGHTS. Areas where it is necessary to move streetlights due to construction interference shall be at Contractor's sole cost and responsibility. It shall also be Contractor's responsibility to notify: Public Works Engineering at (816) 513-9500; Street Lights Division, 1301 Chouteau Trafficway, Suite A, KCMO 64120; to coordinate the relocation of street lights.

24. GUIDELINES FOR OPEN EXCAVATIONS. 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 time. Every person who for any purpose 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 shall provide effective protection to the public.

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 edition of the Manual of Uniform Traffic Control Devices.

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.

Any excavation that is not covered shall be fenced in such a way that it surrounds the entire area under excavations 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.

All protective coverings and/or fences on 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.

All necessary and applicable permits shall be secured for any work contemplated on public properties before commencing any activity. In all instance 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.

25. SHORING PLAN REQUIREMENTS. Contractor shall submit a shoring design sealed by a Registered Professional Engineer in the State of Missouri for all excavations greater than twenty (20) feet in depth prior to excavation in accordance with 29 CFR Part 1926 - OSHA Subpart P - Excavations and Trenches.

End of Section.

SECTION 01015 – SPECIFIC PROJECT REQUIREMENTS

- 1. GENERAL DESCRIPTION OF WORK:** The work to be performed under these Contract Documents includes activities associated with Target Green East Marlborough Middle Blue River Green Infrastructure/Distributed Storage for areas tributary to Outfall 069 – Phase 1 and Water Main Replacement – 77th Terrace to 79th Street Euclid Avenue to Prospect Avenue, all in the area of Kansas City, Jackson County, Missouri. The project is generally described as follows:

Target Green East Marlborough Middle Blue River Green Infrastructure/Distributed Storage For Areas Tributary to Outfall 069 – Phase 1 – 77th Terrace Storm Sewer Separation is the first of three phases for the project area. Phase 1 involves utilizing a partially separated storm sewer system and additional existing pipes and completing the separation in order for, at a minimum, the Storm D event to completely bypass the Outfall 069 diversion structure. This will be accomplished by the construction of both storm and sanitary sewer in order to reduce the number of combined sewer overflow events to seven (7) for a typical design year. The project is designed to meet both the Percent Capture of Wet Weather Flows and Performance Criteria set forth in the Federal Consent Decree pertaining to the City of Kansas City, Missouri Overflow Control Program.

The project limits extend along 77th Terrace, 79th Street, and Brooklyn Aveune between The Paseo and Prospect Avenue. Construction activites will consist of storm and sanitary sewer installation, sewer pipe rehabilitation, drainage structure construction, and water main relocation. The Project shall also include traffic control, erosion control, demolition, restoration, and other miscellaneous construction activities. All of the work is in the City of Kansas City, Jackson County, Missouri.

In case of conflicting requirements between this specification and ASTM reference sections this specification will govern.

2. **PREVAILING WAGE RATE:** 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: **State Heavy**

The Contractor is required to pay the higher hourly rate for each occupational title.

3. **CONTRACT DRAWINGS:** The Contract Drawings or “Plans” on which the Proposal 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 “**Target Green East Marlborough Middle Blue River Green Infrastructure/Distributed Storage for Areas Tributary to Outfall 069 - Phase 1 – 77th Terrace Storm Sewer Separation**” and “**Water Main Replacement 77th Terrace to 79th Street Euclid Avenue to Prospect Avenue**”.

<u>DWG NO.</u>	<u>DRAWING TITLE</u>	<u>SHEET NO.</u>	<u>REV.</u>
000	GENERAL DRAWINGS		
000	COVER SHEET	1 OF 36	0
001	DRAWING INDEX AND LEGEND	2 OF 36	0
002	GENERAL NOTES	3 OF 36	0
003	OVERALL PROJECT SITE PHASE MAP	4 OF 36	0
004	PHASE 1 PROJECT KEY AND ALIGNMENT MAP	5 OF 36	0
005	OVERALL PROJECT SURVEY CONTROL SHEET	6 OF 36	0
006	DRAINAGE MAP	7 OF 36	0
007	DRAINAGE TABLE	8 OF 36	0
008	OWNERSHIP AND EASEMENT MAP	9 OF 36	0
C100	CIVIL PLANS		
C100	77TH TERRACE STORM PLAN AND PROFILE STA 0+00 TO STA 7+00	10 OF 36	0
C101	77TH TERRACE STORM PLAN AND PROFILE STA 7+00 TO STA 14+00	11 OF 36	0
C102	77TH TERRACE STORM PLAN AND PROFILE STA 14+00 TO STA 20+00	12 OF 36	0
C103	77TH TERRACE TO 77TH STREET STORM PLAN AND PROFILE	13 OF 36	0
C104	79TH STREET TO 77TH TERRACE STORM PLAN AND PROFILE	14 OF 36	0
C105	78TH STREET AND 79TH STREET STORM PLAN AND PROFILE	15 OF 36	0
C106	BROOKLYN AVENUE STORM PLAN AND PROFILE STA 0+00 TO STA 5+00	16 OF 36	0
C107	STORM PROFILES	17 OF 36	0

DWG NO.	DRAWING TITLE	SHEET NO.	REV.
C108	77TH TERRACE AND PROSPECT AVENUE SANITARY PLAN AND PROFILE	18 OF 36	0
C109	STREET RESTORATION DETAILS I	19 OF 36	0
C110	STREET RESTORATION DETAILS II	20 OF 36	0
C111	STREET RESTORATION DETAILS III	21 OF 36	0
C112	CIVIL DETAILS I	22 OF 36	0
C113	CIVIL DETAILS II	23 OF 36	0
S100	STRUCTURAL PLANS		
S100	GENERAL NOTES AND STANDARD DETAILS	24 OF 36	0
S101	STANDARD DETAILS	25 OF 36	0
S102	DIVERSION STRUCTURE DEMOLITION PLANS	26 OF 36	0
S103	DIVERSION STRUCTURE BASE PLAN AND TOP PLAN	27 OF 36	0
S104	DIVERSION STRUCTURE SECTIONS AND DETAILS	28 OF 36	0
S105	DIVERSION STRUCTURE SECTIONS AND DETAILS	29 OF 36	0
S106	JUNCTION STRUCTURE DEMOLITION PLANS	30 OF 36	0
S107	JUNCTION STRUCTURE INTERIOR PLAN AND TOP PLAN	31 OF 36	0
S108	JUNCTION STRUCTURE SECTIONS AND DETAILS	32 OF 36	0
T100	TRAFFIC CONTROL PLANS		
T100	TRAFFIC CONTROL DETAILS	33 OF 36	0
T101	TYPICAL LOCAL ROAD DETOUR PLAN	34 OF 36	0
T102	PROSPECT AVENUE AND 77TH TERRACE DETOUR PLAN	35 OF 36	0
L100	LANDSCAPE PLANS		
L100	LANDSCAPE DETAILS	36 OF 36	0
W100	WATER MAIN REPLACEMENT		
01	TITLE SHEET	01 OF 19	0
02	GENERAL NOTES AND LEGEND	02 OF 19	0
03	LEGEND CONTINUED	03 OF 19	0
04	SURVEY CONTROL SHEET	04 OF 19	0
05	LAYOUT SHEET 1	05 OF 19	0
06	LAYOUT SHEET 2	06 OF 19	0
07	LAYOUT SHEET 3	07 OF 19	0
08	LAYOUT SHEET 4	08 OF 19	0
09	LAYOUT SHEET 5	09 OF 19	0
10	LINE A - PLAN AND PROFILE BOL STA 0+00 TO STA 5+00	10 OF 19	0
11	LINE A - PLAN AND PROFILE STA 5+00 TO EOL STA 6+78.99	11 OF 19	0
	LINE B - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 1+91.49		
12	LINE C - PLAN AND PROFILE BOL STA 0+00 TO STA 5+00	12 OF 19	0
13	LINE C - PLAN AND PROFILE STA 5+00 TO STA 10+00	13 OF 19	0
14	LINE C - PLAN AND PROFILE STA 10+00 TO EOL STA 15+25.79	14 OF 19	0
15	LINE D - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 4+04.55	15 OF 19	0

DWG NO.	DRAWING TITLE	SHEET NO.	REV.
	LINE E - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 0+39.28		
16	DETAIL CONNECTION SHEET	16 OF 19	0
17	LINE F - PLAN AND PROFILE BOL STA 0+00 TO STA 3+91.50	17 OF 19	0
18	LINE G - PLAN AND PROFILE BOL STA 0+00 TO EOL STA 3+15.65	18 OF 19	0
19	LINE H - HORIZONTAL RELOCATION BOL STA 0+00 TO EOL STA 1+08.73	19 OF 19	0

4. **MATERIALS FURNISHED BY THE OWNER:** The Owner will furnish, upon written request from the Contractor and without charge to the Contractor, the materials listed below. All other materials required to complete the work in accordance with the Contract Documents shall be furnished and installed by and at the expense of the Contractor.

Items	Quantity
NONE	ZERO (0)

All materials furnished by the Owner which are damaged, lost or stolen after its acceptance by the Contractor shall be replaced at the expense of the Contractor. The Contractor, or his authorized representative, shall sign a bill of receipt for all materials withdrawn from the Water Services Department Stores. All materials withdrawn from the Water Services Department Stores that are not incorporated in the work shall be returned to the Water Services Department Stores. All such material not returned shall be charged to the Contractor and deduction therefore shall be made from the final payment.

5. **CONSTRUCTION CONSTRAINTS:** Contractor shall Construct Work in the following phases and with the following limitations:
- A. Work should begin with construction of the new diversion structure in order for dry weather and bypass flow to be pumped to the existing diversion structure or directly to the dry weather outlet (DWO). Work can then proceed upstream.
 - B. The new diversion structure should be fully online and in service before existing diversion structure is demolished, taken out of service, and replaced with the junction structure.

- C. Following completion of new diversion structure, work shall then proceed upstream, beginning with construction of storm sewer Line 'B'. Work shall be completed in this sequence to avoid potential delays at Line 'B' connection between Phase 1 and downstream end of Phase 2 at manhole MH-113. Coordinate schedule with Owner and Phase 2 contractor.
- D. All active sanitary sewer service laterals to be reconnected to the combined sewer system shall be disconnected from the 3.5 foot x 4 foot RCB (to be converted to storm sewer) prior to removal, abandonment, and disconnection of the RCB to the combined sewer system.
- E. Sanitary sewer relocation, Line 1, under 77th Terrace shall be constructed along with abandonment of 3.5 foot x 4 foot RCB and prior to construction of 60" RCP storm sewer.
- F. Construction schedule and installation of storm drainage connections at the upstream manholes of Phase 1 Line A and Phase 1 Line B should be coordinated with the respective Phase 2 and Phase 3 contractor.
- G. For bypass pumping approximation, the average base flow rate to the existing diversion structure to the DWO during non-wet weather periods is approximately 0.60 MGD. Flow and stage data for the sewer may be obtained from the Owner.
- H. The channel bed downstream from Outfall 069 is a tributary to Middle Blue River and is a perennial stream subject to varying flow rates and stages. When scheduling work at the Outfall, Contractor shall consider the potential for high flows in the creek and upstream sewer that may impact the work.

6. **CONTRACTOR'S WORK PLAN:** Prior to the start of the Work, the Contractor shall submit in accordance with Section 01300 for review and approval by the Owner a detailed Work Plan which is to include, but not limited to, the following information:

- A. General Sequence of Work: The Contractor shall provide a detailed narrative outlining the general sequence of the work and how each aspect of the task will be performed. The Work shall be divided into manageable phases. Emphasis will be placed on limiting disruption to traffic and restoration of the work area for each phase.

- B. Installation Methods: Where trenchless technologies are specified the Work Plan shall denote all pipe segments that will be installed by trenchless technologies. It shall also include a detailed description of installation methods, means and methods for trenchless technologies shall be submitted to the Owner for review and approval in accordance with Division 1.
- C. Staging Areas: The Contractor will provide a map showing the location of all staging areas needed for the project. Location of staging areas may be submitted for approval by the Owner.
- D. Contractor Parking: The Contractor will provide a map showing the location of all parking areas needed for personnel and equipment for the project. Location of parking areas may be subject to approval by the Owner.
- E. Stockpiling Areas: The Contractor shall provide a map showing the location of all stockpiling areas needed for the project. Location of the stockpiling areas may be subject to approval by the Owner. Excess material resulting from Phase 1 excavation which will not be reused for onsite backfill, and has been deemed suitable for retaining wall backfill may be hauled and stockpiled at Phase 3 Rachel Morado Gardens site located at 7701 Paseo instead of hauling offsite. Coordinate stockpiling with Owner and Phase 3 contractor.
- F. Sheeting and Shoring: The Work Plan shall identify areas where sheeting and shoring will be required.
- G. Utility Location/Potholing: The Work Plan shall identify Contractor's plan to located existing utilities at known critical crossing with proposed Work.
- H. The initial Work Plan shall be submitted for review and approval before any work is initiated.
- I. The Work Plan shall be updated on a monthly basis and will be subject to review and approval by the Owner. Updated Work Plan shall reflect all upcoming work at least 2 months into the future.

7. **SEQUENCE OF WORK:** Contractor shall proceed with the work in the following general sequence for each section of sewer.

- A. Call 1-800-DIGRITE, 811, or mo1call.com

- B. Stake easements
- C. Take Preconstruction Photographs and videos.
- D. Contact utilities and coordinate necessary relocation with them.
- E. Contractor shall set up bypass pumping operations as necessary.
- F. Rehabilitate, re-connect, or construct the water and sewer (storm and sanitary) lines, structures, and service connections
- G. Test all sanitary piping, waterline piping, and manholes as required by specifications.
- H. Perform final site grading and clean-up.
- I. Pavement and concrete restoration work.
- J. Sodding and other site restoration

8. **OPERATION OF EXISTING SEWER:** The capacity of the existing sewer must be maintained. Contractor shall provide temporary bypass facilities to maintain the capacity of the sewer during dry weather. When pumping and bypassing is required, the Contractor shall supply all equipment necessary to divert the flow of wastewater around the main sewer section being televised, cleaned, constructed or rehabilitated during dry weather. No sewage shall be discharged into surrounding waterways. The Contractor will be held responsible for any wastewater backups caused by his operations and any damage to public or private property as a result of wastewater back up.

9. **SEWER SERVICE CONNECTIONS:**

- A. Verification of Service Connections: For each service connection encountered, the Contractor shall verify the type (sanitary or storm) and status (live or inactive) by dye testing, television inspection, or a combination thereof.
- B. All live storm sewer service connections shall be reconnected to the appropriate storm sewer system. Piping for storm sewer laterals need only be installed or replaced as necessary to facilitate the connection. See plans for connection detail.
- C. Contractor shall verify the existence of service connections for pipes that are to be abandoned-in-place, removed or relocated as indicated on the plans or as

necessary. Live service connections shall be reconnected to the appropriate sewer system as specified herein.

- D. Service connections requirements specified in this section are in addition to requirements to re-establish service connections as specified for CIPP-lining, Spiral Wound PVC, or Slipling.

10. SPECIAL RESTORATION:

- A. Where pipes are installed under concrete or asphalt pavement, restoration shall be in accordance with Kansas City, Missouri, Public Works Department, STREET CUT RESTORATION, and Standard Drawing SR-1. As an option to the contractor, AB-3 aggregate per Section 1104 of the Kansas Department of Transportation 2007 Standard Specifications for State Road and Bridge Construction may be substituted for flowable backfill (CLSM) in trenches under pavement, driveways, sidewalks, and other paved areas.

Compaction tests shall be performed in accordance with City of Kansas City Missouri Public Works Department Materials Testing Requirements, at the Contractors expense, by an approved testing laboratory to ensure the compaction requirements are met. One of 3 compaction tests shall be performed per 100 LF of trench per lift when under roadway. A copy of the compaction test results shall be provided to the City prior to final inspection. Compaction testing is not required on flowable fill.

All flowable backfill (CLSM) shall have a maximum compressive strength of 100 psi and shall be removable.

Soil and untreated compacted aggregate shall not be allowed for backfill material under pavement.

- B. Unpaved grassy surfaces shall be considered as established lawn and thus backfilled with compacted material, topsoil, and sodded as specified.
- C. At minimum, parking lot and private driveway replacement shall meet the requirements of Kansas City, Missouri standards for PRIVATE STREET; standard drawings ST-PS. Pavement markings shall match existing delineation, including disabled logos in the appropriate spaces and signage.

D. Special restoration shall be included in the lump sum Contract Price.

11. RESTORATION: All restoration shall be included in the contract price.

- A. Any tree not designated to be removed as part of this project, which is damaged due to construction activities, shall be rehabilitated or replaced at contractor's expense.
- B. Tree, Shrub, and Hedge transplanting and replacement, refer to specification SECTION 02932 PLANTING.

12. CONCRETE RESTORATION: For sidewalks, curbs, and driveways, any section that is cut shall be removed to the nearest joint. If manhole cover lies in driveway apron, then contractor shall replace entire apron section to first joint. 4 x 4 – W2.9 X W2.9 reinforcement shall be installed in all street and driveway sections.

13. SECTION 02930 and 02931 – SEEDING AND SODDING: Areas with established lawns which are disturbed due to project related construction shall be restored with sod to original or better condition unless otherwise specified.

- A. If conditions and dates of seeding are not accommodated by the project schedule, contractor shall temporarily cover disturbed soil areas with erosion control blanket as specified. Blanket shall be installed per manufacture's recommendations. When appropriate planting conditions and dates become available, remove blanket, dispose of it properly off-site, and proceed with site preparation.
- B. Erosion Control Blanket shall be an erosion blanket manufactured with an engineered cut of excelsior wood fiber, provided in roll form. The fibers shall be made into blanket form without the aid of any netting, instead using a stitch material to form the continuous matrix of fibers. The blanket shall be of consistent thickness, with fibers evenly distributed throughout the entire area of the blanket creating a mat with no voids in material.

14. TRENCH LENGTH: Trench lengths for storm or sanitary excavation shall not exceed 100 feet of open trench or be open longer than two weeks at any given time without approval of the Owner. Excavation shall be protected at all times as specified in Division 1 and as required by local, state and federal regulations.

15. SECTION 02630 – STORM SEWERS:

- A. Inlet and Pipe Removal. Pipes shown to be abandoned but chosen to be left in place rather than removed shall be plugged with concrete plugs and filled with flowable fill.
- B. Installation of pipe and structures shall be in accordance with the most current version of the City of Kansas City, Missouri, Supplement to American Public Works Association Section 2600 including supplements.

16. SECTION 03396 – REINFORCED CONCRETE PIPE:

- A. Design of circular pipe shall conform to Section 03396 except as modified herein.
- B. Pipe shall be Class III, Wall B per ASTM C76 with O-rings gaskets unless otherwise specified on the plan drawings.

17. SECTION 02200 – EARTHWORK

Perform excavation as indicated or required to complete the work. All materials encountered, regardless of type, character, composition, and condition thereof, shall be unclassified. Rock encountered shall be handled at no additional cost to Owner. Blasting or other use of explosives for excavation will not be permitted.

Excess material resulting from Phase 1 excavation which will not be reused for onsite backfill, and has been deemed suitable for retaining wall backfill may be hauled and stockpiled at Phase 3 Rachel Morado Gardens site located at 7701 Paseo instead of hauling offsite. Coordinate stockpiling with Owner and Phase 3 contractor.

Sheeting and shoring shall follow SECTION 02200 Paragraph 3.06 with the following additions:

Shored excavations shall consists of furnishing, placing, maintaining and subsequently

removing, to the extent required, a positive system of temporary supports for cut and cover, open cut, and trench excavations, including bracing, dewatering, and associated items to support the sides and ends of the excavation. The support system shall limit lateral and vertical ground movements to such an extent as to prevent damage to buildings, structures, pavements, utilities, and any other adjacent infrastructure.

- A. The locations of all required shoring specified herein are shown on Drawings for the proposed sewer improvements. Contractor shall evaluate the extent of proposed construction activity, shall determine whether other areas may require shoring support based upon their intended construction procedures, and shall incorporate shoring at additional locations as necessary.
 - i. Working drawings, by a licensed professional engineer, shall be submitted for Owner information and review at least 15 business days prior to the commencement of work on each individual item of shoring.
 - ii. The following shall be included on the working drawings:
 - a) Details, arrangement, and method of assembly of the proposed system
 - b) The method of bracing and preloading.
 - c) The full excavation depth.
 - d) Loads for various stages of bracing removal during concrete placement and backfilling.
 - e) The anticipated lateral earth pressure, hydrostatic pressure, utility, traffic, and equipment loads.
 - f) The maximum design load to be carried by the various members of the support system and tabulation of the required preloads.
 - g) The depth of which the support system will be installed.
 - h) The proposed sequence of strut and shore removal as applicable and as related to concrete placement and backfilling operations.
 - i) Proposed monitoring plan, including location of monitoring points.
 - iii. Complete design calculations and the maximum theoretical deflections of the support members shall be included.

- B. Contractor shall make their own assessment of existing conditions including adjacent property, the possible effects of his proposed temporary works and construction methods, and shall select and design such support systems, methods, and details as will assure safety to the public, adjacent property, and the completed Work.
- i. A pre-construction building survey shall be completed for adjacent facilities within a minimum radius of 50 feet from the edge of any shored excavations. The survey data shall be submitted in accordance with SECTION 1300 - Submittals to the Owner prior to performing any excavation. At a minimum, a pre-construction building survey shall be completed on the structures located at the following addresses:
 - a) 7714 Prospect Avenue
 - b) 2502 E. 77th Terrace
 - c) 2424 E 79th Street
 - ii. Details of the survey should include, but not necessarily be limited to, visible structural and/or cosmetic damage to buildings, slabs and foundations, interior and exterior walls, doors, windows, decks, and retaining walls. Any damage found shall be documented thoroughly by photographs (supplemented by video as necessary), sketches of visible structural and/or cosmetic damage, and field notes as appropriate. Photographs shall be at least 3- by 5-inch (or digital) and shall provide a detailed visual explanation of the damage. Include a reference scale in each close-up photograph. Sketches shall show the general damage location and extent.
 - iii. All inspection items shall be indexed and cross-reference and shall use the stationing and locations shown on the contract drawings. Use building addresses where applicable.
 - iv. Structural damage shall be additionally documented by measuring crack or damage size, width, and length.
 - v. A post-construction survey shall be completed no sooner than 30 calendar days and no later than 60 calendar days after completion of the ground

movement monitoring program at each respective shored excavation location.

- a) Contractor's shoring engineer shall document all new damage to adjacent facilities inspected under the pre-construction survey and submit the information to the Owner within 5 business days of completion of the post-construction survey.
- b) Documentation procedures shall be identical to those performed under the pre-construction survey. Changes or deviations from the pre-construction survey conditions in any structure shall be identified and described in the post-construction survey document

18. SECTION 02510 – PORTLAND CEMENT, CONCRETE SIDEWALKS, DRIVEWAYS AND HANDICAP ACCESS RAMPS: Measurements and payment for the products and execution shall be included in the Project total contract price. Unit price for these items shall not be used.

19. EXISTING SANITARY AND STORM STRUCTURES: All existing sanitary and storm structures, not being replaced as part of the Project, shall be protected by the Contractor and replaced at no additional cost to the Owner if damaged by construction activities.

20. SECTION 02506 – WATER UTILITY FACILITIES: The work shall conform to these Project Specifications, contained within the Project Manual, 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 part hereof by reference. These Standards and Specifications can be obtained from the City.

21. ROUTE PHOTOGRAPHS: Revisions and additions to SECTION 1300 Paragraph 8 shall be as stated below:

- A. The Contractor shall have suitable digital color photographs taken along the entire construction area showing the condition of the terrain previous to any alternation 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. Two (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.

22. SECTION 1570 – TEMPORARY EROSION AND SEDIMENT CONTROL:

- A. The Contractor shall be responsible for developing the erosion control plans in accordance to SECTION 01570. Plans shall be submitted to the Owner in accordance with Section 01300 prior to the start of this project. Constructing, operating, and maintaining soil erosion and sediment control measures for the construction areas and any stockpile areas shall be the responsibility of the Contractor. The Contractor also shall remove such measures and restore the sites of erosion and sediment control facilities upon completion of construction. There shall be no separate payment for erosion and sediment control measures.
- B. Contractor shall develop and submit a Stormwater Pollution Prevention Plan (SWPPP), according to the template provided in Appendix, to the Owner 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:

- i. Watershed Information and storm drainage through construction areas.
- ii. No direct discharges to valuable resource waters from the project site.
- iii. Erosion control may be removed only after vegetation is established on at least 85% of the seeded areas and with the CITY's representative verification.
- iv. Description of non-structural Best Management Practices (BMPs), including but not limited to the following:
 - 1. Conduct operations to preserve existing vegetation in the public right-of-way to the maximum extent practicable.
 - 2. Conduct operations to preserve existing pavement and curbs to the maximum extent practicable.
 - 3. 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.
 - 4. 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.
 - 5. 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.
 - 6. Contain all concrete truck washouts and remove from project site for proper disposal.
 - 7. Do not store fuel or chemicals on the project site.
- v. Description of structural Best Management Practices (BMPs), including but not limited to the following:
 - 1. 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.

2. 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.

23. SECTION 01700 – TRAFFIC REGULATIONS:

- A. 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 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. 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 and all other governing authorities.

24. SECTION 02662 – SEWER CONDUIT RENEWAL USING SPIRAL WOUND

PVC PROFILE (SPR) METHOD:

A. Where Spiral Wound PVC (SPR) profile pipe renewal is specified on plans, liner must provide full structural strength independent of the host pipe, must restore all existing or proposed lateral storm connections and relocate all existing lateral sanitary connections as shown on plans, and must meet or exceed the hydraulic capacity of the host pipe based on the following host pipe parameters:

- i. Existing 3.5 foot height by 4.0 foot width reinforced concrete box (RCB) under 77th Terrace has an assumed Manning's n value of 0.015 without haunches.
- ii. Existing 108 inch diameter corrugated metal pipe (CMP) under Prospect Avenue has an assumed Manning's n value of 0.024, and must be renewed with a minimum 96 inch diameter liner.

25. PIPE CUTOFF COLLAR: Pipe cutoff collars (storm) shall be in accordance with Public Works Detail P-C, Pipe Collar.

26. PIPE ENCASEMENT: Sewer encasement (sanitary and storm) shall be in accordance to Public Works Detail P-E, Pipe Encasement.

27. PROJECT RECORD 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 pdf copy, 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 must include references for all beginning and ending points, bends, and elevations 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. The Record Drawings for water mains must include references for all beginning and end points, bends, hydrants, valves, tees, fittings, and beginning and end points of deflection of water mains. 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 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.”

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 location and ties, number of turns (valves), make and type, date of installation, and other descriptive information on the standard WSD forms.
- D. The WSD 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.

END OF SECITON



APPLICATION FOR PAYMENT

Contract Number: 1183

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.

 Contractor By _____ Authorized Representative (Print) _____ Signature

Date _____

State of)
)SS
 County of)

Subscribed and Sworn to before me this _____ day of _____.

My commission expires:

Notary Public: _____



City Of Kansas City, Missouri

Certified Payroll Report Instructions

GENERAL INSTRUCTIONS:

Each space on the attached Certified Payroll Report requiring information is numbered. The numbers below correspond to those spaces. When completing the Certified Payroll Report, insert the required information in each space. The Certified Payroll Report **must be complete, clear and legible** and be accompanied by a completed Payroll Certification including **original signature**. All payrolls are to be submitted within two (2) weeks after the ending date of the payroll week.

The payroll form is available on line.

INSTRUCTION FOR PAYROLL SHEETS

1. **PAYROLL NUMBER:** Insert the number of the payroll. Payrolls start with number 1 (one) for the first week of work by each contractor or subcontractor. The numbers are then continuous until the last payroll. During weeks when no work takes place a payroll for that week showing no work is to be turned in. Revised payrolls must be designated with a letter "R" following the number. Check (✓) the box by the word "FINAL" after the number to indicate that no further work will be done by the contractor or subcontractor.
2. **WEEK ENDING:** On each sheet, insert the date of the last day of this payroll.
3. **SHEET OF:** On each sheet, insert the number of each sheet and the total number of sheets submitted.
4. **GRANT AGENCY PROJECT NO:** Insert the Grant Agency Project Grant Number if this is a grant funded project.
5. **CONTRACTOR:** Insert the contractor's company name and address.
6. **SUBCONTRACTOR:** If this is a payroll for a subcontractor, insert subcontractor's name and address. For the remainder of these instructions, the word "contractor" shall apply to both contractor and subcontractor.
7. **DEPARTMENT PROJECT or CONTRACT NO:** Insert Department's Project or Contract Number.
8. **LOCATION:** Insert location of work, including address, and county.
9. **DESCRIPTION:** Insert name of the project or contract from the Agreement.
10. **FEDERAL I.D. NUMBER:** Insert the contractor (10a) and subcontractor's (10b) Federal I.D. Number.
11. **EMPLOYEE NAME:** Insert employee's full legal name and complete home address. Make sure to include Apartment #'s and zip code.

12. **SOCIAL SECURITY NO.:** Insert employee's social security number (xxx-xx-xxxx).
13. **DATE:** Insert date for each day of the payroll week for each employee (mm/dd/yyyy).
14. **REGULAR HOURS*:** Insert the regular hours worked each day.
15. **OVERTIME HOURS*:** Insert the overtime hours worked each day.
16. **DOUBLE OVERTIME HOURS*:** Insert the double overtime hours worked each day.

***Note:** Numbers 14, 15, and 16: Make sure these **hours are equal to or greater than the hours turned in on the "Daily Labor Force Report" form.** Refer to the wage order for applicable overtime schedule.

If allowed by occupational title's applicable overtime rate, Contractor may make a permanent schedule transfer to an eight (8) or ten (10) hour day work week. **Advance written notification to and approval** from the Owner's Representative **is required.**

If allowed by the occupational title's applicable overtime rate, any change in the work week schedule due to inclement weather **must** be documented on the certified payroll.

17. **TOTAL HOURS:** Insert total of *regular hours* worked for the week on this project. (The total hours will calculate automatically if you are using the electronic form.)
18. **TOTAL HOURS:** Insert total of *overtime hours* worked for the week on this project. (The total hours will calculate automatically if you are using the electronic form.)
19. **TOTAL HOURS:** Insert total of *double overtime* hours worked for the week on this project. (The total hours will calculate automatically if you are using the electronic form.)
20. **TOTAL FRINGE HOURS:** Insert total Fringe Hours (by adding the amounts in 17, 18, and 19). (The total hours will calculate automatically if you are using the electronic form.)
21. **BASE RATE*:** Insert basic hourly rate of pay. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for basic hourly rate.
22. **OVERTIME RATE*:** Insert overtime rate of pay. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for the overtime rate.
23. **DOUBLE OVERTIME RATE*:** Insert double overtime rate of pay. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for the double overtime rate.
24. **FRINGE RATE*:** Insert fringe benefit rate for this project. Check the contract's "Annual Wage Order" or the "Federal General Wage Decision" section for the fringe benefit rate.

***Note:** *The total of the basic hourly rate plus the fringe benefit rate must be equal to or greater than the total of the basic hourly rate plus the fringe benefit rate found in the contract's "Annual Wage Order" or the "Federal General Wage Decision" section. If the contract contains both of the above, the higher rate will prevail.*

25. **TOTAL:** Multiply the amounts in 17 by 21 and insert here. (The total hours will calculate automatically if you are using the electronic form.)

26. **TOTAL:** Multiply the amounts in 18 by 22 and insert here. (The total hours will calculate automatically if you are using the electronic form.)
27. **TOTAL:** Multiple the amounts in 19 by 23 and insert here. (The total hours will calculate automatically if you are using the electronic form.)
28. **TOTAL:** Multiply the amounts in 20 by 24 and insert here. (The total hours will calculate automatically if you are using the electronic form.)
29. Check (✓) the box (□) for the "*APPROVED PLAN*", "*EMPLOYEE*", or both indicating the Plan or manner in which the fringe benefit is paid. If fringe benefit is paid to both a Plan and the employee, then insert each amount that is paid to the Plan and/or the employee. If paid to a Plan, list the name(s) of Plan Programs on Payroll Certification page.

***Note:** 29a plus 29b **must equal** 28.

30. **OCCUPATIONAL TITLE/CLASSIFICATION:** Insert occupational title/classification of worker for each employee. Examples: Carpenter, laborer, electrician.
31. **GROUP:** Insert the group if, applicable for the occupational title/classification. Example: Operating Engineers Group I, II, III, IV or V.
32. **SKILL GROUP:** Insert skill group, if applicable. Example: general laborer, skilled laborer, first semi-skilled, second semi-skilled etc. or any of the listings under the federal classification such as painters.
33. **HOURS:** Insert total hours worked for all jobs for each employee during each payroll period.
34. **GROSS EARNINGS:** Insert employee's gross earnings for each payroll period.
35. **FEDERAL:** Insert the amount of the deduction from each employee's check stub.
36. **FICA:** Insert the amount of the deduction from each employee's check stub.
37. **STATE:** Insert the amount of the deduction from each employee's check stub.
38. **LOCAL E-TAX:** Insert the amount of the deduction from each employee's check stub.
39. **MISCELLANEOUS:** Insert the amount of the deduction from each employee's check stub.
40. **NET PAY:** Insert the employee's net pay for each week.
41. **EARNINGS FOR THIS JOB:** Add the amounts in 25, 26, 27, and 29b and insert here.

***Note:** If fringe benefit is paid to Approved Plan, do not add the amount in 29a to this total.

42. **KANSAS CITY EARNINGS TAX THIS JOB:** Insert Kansas City Earnings tax deducted from employee's check for this job.

Steps 11 through 42 are to be repeated for each employee working on the project site, or for the same employee working any additional Occupational Title/Classification.



CERTIFIED PAYROLL REPORT

Project Number: **1**

Project Title:

Payroll Number: **1**

Final

CONTRACTOR:		WEEK ENDING: 2		SHEET 3 of 4		GRANT AGENCY PROJECT NO. 4		DEPT PROJECT OR CONTRACT NO. 7	
ADDRESS:		PROJECT FACTOR: 6		LOCATION: 8		DESCRIPTION: 9			
CITY, STATE, ZIP:		FEDERAL ID NUMBER: 10a		FEDERAL ID NUMBER: 10b					
EMPLOYEE NAME:		First Name 11		Last Name 10a					
ADDRESS:		REG. HRS. 13		TOTAL HRS. 17		BASE RATE 21		FRINGE RATE 25	
CITY, STATE, ZIP:		TUES 14		WED 15		THUR 16		FRI 17	
SOCIAL SECURITY NO.:		SOCIAL SECURITY NO. 12		OCCUPATIONAL TITLE / CLASSIFICATION: 30		NET PAY: 40		KANSAS CITY EARNINGS TAX THIS JOB: 41	
		FICA 35		STATE: 36		LOCAL E-TAX: 37		FRINGE PAID TO: 29	
		GROSS EARNINGS: 34		FEDERAL: 33		MISC: 39		APPROVED PLAN 29a	
		HOURS: 33		FICA: 35		STATE: 36		EMPLOYEE 29b	
		Last Name		MON 13		TUES 14		WED 15	
		Address:		THUR 16		FRI 17		SAT 18	
		City, State, Zip:		TOTAL FRINGE HOURS: 20					
		Social Security No.:		TOTAL HRS: 39					
		Occupational Title / Classification:		TOTAL FRINGE HOURS: 20					
		Hours:		TOTAL HRS: 39					
		Gross Earnings:		TOTAL HRS: 39					
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		City, State, Zip:		TOTAL HRS: 39					
		Social Security No.:		TOTAL HRS: 39					
		Occupational Title / Classification:		TOTAL HRS: 39					
		Hours:		TOTAL HRS: 39					
		Gross Earnings:		TOTAL HRS: 39					
		Address:		TOTAL HRS: 39					
		City, State, Zip:		TOTAL HRS: 39					
		Social Security No.:		TOTAL HRS: 39					
		Occupational Title / Classification:		TOTAL HRS: 39					
		Hours:		TOTAL HRS: 39					
		Gross Earnings:		TOTAL HRS: 39					
		Address:		TOTAL HRS: 39					
		City, State, Zip:		TOTAL HRS: 39					
		Social Security No.:		TOTAL HRS: 39					
		Occupational Title / Classification:		TOTAL HRS: 39					
		Hours:		TOTAL HRS: 39					
		Gross Earnings:		TOTAL HRS: 39					
		Address:		TOTAL HRS: 39					
		City, State, Zip:		TOTAL HRS: 39					
		Social Security No.:		TOTAL HRS: 39					
		Occupational Title / Classification:		TOTAL HRS: 39					
		Hours:		TOTAL HRS: 39					
		Gross Earnings:		TOTAL HRS: 39					
		Address:		TOTAL HRS: 39					
		City, State, Zip:		TOTAL HRS: 39					
		Social Security No.:		TOTAL HRS: 39					
		Occupational Title / Classification:		TOTAL HRS: 39					
		Hours:		TOTAL HRS: 39					
		Gross Earnings:		TOTAL HRS: 39					
		Address:		TOTAL HRS: 39					



CERTIFICATE OF ACHIEVEMENT OF FULL OPERATION

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

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

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN
REPLACEMENTS – PHASE 1

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 _____

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 \$150,000, 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



SUBCONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

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

1. **PROGRESS SCHEDULE.** On or before the preconstruction conference, Contractor shall submit to Engineer for review a schedule of the proposed 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.

At least every 30 days the schedule shall be revised as necessary to reflect changes in the progress of the Work.

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.

2. **PROGRESS REPORTS.** A progress report shall be furnished to Engineer with each Application for Payment. If the Work falls behind schedule, Contractor shall submit additional progress reports at such intervals as Engineer may request.

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 Engineer, must be substantiated with satisfactory evidence.

Each progress report shall include three prints of the accepted graphic schedule marked to indicate actual progress.

3. **SCHEDULE OF VALUES.** As provided in the General Conditions, the Contractor shall prepare and submit to the Engineer for approval within thirty (30) days after the award of the Contract, a Schedule of Values for and covering the Lump Sum Price Bid as shown in the Proposal. The Schedule of Values shall show the estimated total number of construction units for each kind of work and the value of each unit.

Each price listed shall include all overhead, other costs, Contractor's profit and the total estimated value of the items of work listed in the Schedule of Values shall equal the Contract Lump Sum Price covered by the estimate. Overhead and profit are not to be listed as separate items.

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 Engineer. Final acceptance by Engineer 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.

4. LABOR STANDARDS PROVISION. The Contractor shall furnish the City, within seven (7) days after the regular payment date of the weekly payroll period, a statement with respect to wages paid to each of the Contractor's employees, and wages paid to each of the subcontractor's employees. The Contractor shall be responsible for the submission of the copies of payrolls of his employees and all of his subcontractors' employees.

The payroll shall be submitted on Certified Payroll Report 01290.05 only. The payrolls will not be accepted on any other form.

The copy shall be accompanied by a statement signed by the Contractor indicating that the payrolls are correct and complete, that wage rates contained therein are not less than those determined by the Missouri Department of Labor and Industrial Relations. The definition of "employee" shall not apply to persons in classification higher than that of laborers or mechanics and those who are the immediate supervisor of such employees.

5. SUBSTITUTES AND "OR-EQUAL" ITEMS. 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 Engineer to determine that the products proposed are equivalent to those named.

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.

6. SURVEY DATA. All field books, notes, videotapes, and other data developed by Contractor in performing surveys required as part of the Work shall be available to Engineer for examination throughout the construction period. All such data shall be submitted to Engineer with the other documentation required for final acceptance of the Work.

7. SHOP DRAWINGS AND ENGINEERING DATA.

7.01. General. 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 Engineer for review, at the Engineer's address given in the Agreement. The data shall include drawings and descriptive information 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.

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.

Contractor's stamp of approval is a representation to Owner and Engineer that Contractor accepts full responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that he has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.

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.

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.

Three (3) copies of each drawing and necessary data shall be submitted to the Engineer. Engineer will return one marked copy to Contractor. Facsimile (fax) copies will not be acceptable. Engineer 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.

7.02. 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.

7.03. Engineer's Review of Drawings and Data. Engineer'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. Engineer's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown. Engineer'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.

Engineer'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 Engineer'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.

When the drawings and data are returned marked "NOT ACCEPTABLE" or "RETURNED FOR CORRECTION", the corrections shall be made as noted thereon and as instructed by Engineer and three (3) corrected copies resubmitted. Facsimile (fax) copies will not be acceptable.

When the drawings and data are returned marked "EXCEPTIONS NOTED", "NO EXCEPTIONS NOTED", or "RECORD COPY", no additional copies need be furnished unless requested by Engineer at time of review.

7.04. Resubmittal of Drawings and Data. Contractor shall accept full responsibility for the completeness of each resubmittal. Contractor shall verify that all corrected data and additional information previously requested by Engineer 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 Engineer on previous submissions.

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.

Resubmittals shall be made within 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.

Any need for more than one resubmission, or any other delay in obtaining Engineer'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 Engineer to review any submittal within the submittal review period specified herein and to return the submittal to Contractor.

7.05. Distribution of Submittals. If the submittals are approved or disapproved the distribution will be as follows:

- 1 copy to Contractor
- 1 copy to Engineer
- 1 copy to Resident Inspector

8. CONSTRUCTION PHOTOGRAPHS.

8.01 The CONTRACTOR shall engage the services of a professional photographer, as supplied by P-Tn or approved equal, with five years experience in construction photography, to document the job site and adjacent private properties. Upon request, the photographer shall submit samples of prior work and/or references.

8.02 Pre-construction photographs are to be taken after the utility locations have been marked, and prior to starting work. Under no circumstances shall construction begin until the pre-construction photography has been received and approved. The purpose for pre-construction photo documentation is to record existing damage and features on or adjacent to the project site, which might come into question during or after construction. A second set of post-construction photographs, documenting these same general areas (showing finished landscape and other restoration, plus construction improvements), shall be produced after completion of the punch list items. The Owner's Representative shall be present during all photography.

8.03 Photographs shall be taken in sequence along the entire construction route, at intervals of not more than 50'; photographs shall be taken along both sides of streets when construction is in or along a roadway [use this approach along drainage channels and in other similar situations]. A log sheet listing the views photographed [including direction of view and station number or street address] shall be maintained in the field (and signed) by the photographer, including the project name, date, and a unique individual sequential photo number.

8.04 The photographs and negatives will be used by the Water Services Department and shall become the property of the City of Kansas City, Missouri. The photographer shall furnish a signed and notarized affidavit, attesting to production of the original photographs, and their authenticity.

8.05 Photographs shall be taken with a 35mm format SLR camera, using a wide-angle lens, and professional grade color negative film. Individual negatives shall be scanned to at least 1535x2285 pixels, and adjusted only for proper calibration of color / brightness / contrast; NO manipulation of the image is permitted. The project name, date of photography, image direction and description of view (from the field log sheet), name of contractor / engineer / owner, plus unique digital file and negative numbers, shall be embedded in the digital image file in a manner that is 'permanent' and is clearly legible when the image file is opened. Files will be saved at 72dpi resolution using JPEG file format [with minimum (NO) compression applied], and written to CD-ROM. No individual prints shall be required. Color contact sheets shall be created, displaying six of the digital image files per page [each image must measure at least 2-1/4 x 3-1/4 inches, and the embedded text must be legible. All Contact sheets shall be sleeved in archival-quality protective pages, and bound into labeled three-ring binders, along with copies of the field-logs; digital copies of the contact sheets (JPEG format) and field logs (PDF format) shall be included on the CD-ROM with the JPEG image files. Each CD-ROM shall bear a surface label which includes the professional photographer's name and contact information, name of the project, and description of the contents.

8.06 Negatives shall be protected in professional film sleeves, suitably identified by roll, in envelopes containing the respective original field-log, and released to the owner. Polaroid photographs will not be acceptable.

End of Section.



DAILY FIELD OBSERVATION REPORT

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

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:

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

Contract Number: 1183

Project Title: TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1

Contractor _____

Report Number _____ Date _____ Time _____

Weather

- Clear Snow
 Overcast Foggy
 Rain Cold

- Warm
 Hot
 Temperature Range _____

Site Conditions

- Clear Dusty
 Muddy _____

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 _____



TRANSMITTAL LETTER

Contract Number: **1183**

Project Title: **TARGET GREEN EAST MARLBOROUGH AND WATER MAIN REPLACEMENTS – PHASE 1**

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 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance - control of installation.
- B. Reference and standards.

1.2 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of manufactures' instructions and certificates.

1.3 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.

1.4 REFERENCES AND STANDARDS

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.

- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract, nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that existing site conditions are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Examine and verify specific conditions described in individual specification sections.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

End of Section.

SECTION 01500 - TEMPORARY FACILITIES

1. OFFICE. During the performance of this Contract, Contractor shall maintain a suitable stationary office at or near the site of the Work or shall have an assigned vehicle to serve as a mobile office at the site of the Work, which shall be the headquarters of his representative authorized to receive drawings, instructions, or other communication or articles. Any communication given to the said representative or delivered at Contractor's office at the site of the Work in his absence shall be deemed to have been delivered to Contractor.

Copies of the Drawings, Specifications, and other Contract Documents shall be kept at Contractor's office at the site of the Work and available for use at all times.

2. WATER. The Owner will furnish 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 customer's served by the facilities is not impaired. Under any conditions, water shall not be wasted. Any water furnished by the Owner must be obtained from the Owner's existing main.

The Contractor shall use a Reduced Pressure Zone (R.P.Z.) Backflow Preventer, approved by Owner, on this project at all times when connected to the Owner's water system.

All materials and services needed to obtain water for construction purposes shall be provided by the Contractor at his sole cost and expense.

2.01. Operation of Existing Valves. The Contractor shall not operate any valves on the Water Services Department's system without direct supervision from a Water Service Department Representative. The operation of all valves on the existing distribution system shall be performed by the Owner. If the Contractor desires the operation of any valves, he shall make a request at least twenty-four (24) hours in advance to the Water Services Department for such operation, also giving (24) hours notice to any consumer affected by the water main shut. The hydrant branch valves may be operated in the presence of a representative of the Water Services Department with no official advance notification. All fire hydrant and water control valves shall be kept free from obstruction and available for use at all times.

3. POWER. All power for lighting, operations of the Contractor's plant or equipment, or for any other use which may be required for proper completion of the Work shall be provided by the Contractor. Temporary heat and lighting shall be maintained until the Work is accepted.

4. TELEPHONE SERVICE. Contractor shall make all necessary arrangements and pay all installation charges for telephone lines in his office at the site and shall provide all telephone instruments.

5. SANITARY FACILITIES. Contractor shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.

Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the site.

6. BARRICADES AND LIGHTS. All streets, roads, highways, and other public thoroughfares which are closed 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.

All open trenches and other excavations shall 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.

All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.

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 thereover.

7. FENCES. Unless otherwise noted in the plans, all existing fences affected by the Work shall be maintained by Contractor until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence, and the period the fence may be left relocated or dismantled has been agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

On completion of the Work across any tract of land, Contractor shall restore all fences to their original or to better condition and to their original location.

8. PROTECTION OF PUBLIC AND PRIVATE PROPERTY. Contractor shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by his construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards, parkways, and medians, shall be restored to their original condition, whether within or outside the easement. All replacements shall be made with new materials.

No trees shall be removed outside of the permanent easement, unless otherwise noted in the plans or as authorized by the Engineer.

8.01. Damage to Existing Property. Contractor will be held responsible for any damage to existing structures, Work, materials, or equipment because of his operations and shall repair or replace any damaged structures, Work, materials, or equipment to the satisfaction of, and at no additional cost to the Owner.

Contractor shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.

Contractor shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property, which may be caused by transporting equipment, materials, or men to or from the Work. Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

9. SECURITY. Contractor shall be responsible for protection of the site, and all Work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons.

No claim shall be made against Owner by reason of any act of an employee or trespasser, and Contractor shall make good all damage to Owner's property resulting from his failure to provide security measures as specified.

10. PARKING. Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

11. NOISE CONTROL. Contractor shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.

During construction activities on or adjacent to occupied buildings, and when appropriate, Contractor shall erect screens or barriers effective in reducing noise in the building and shall conduct his operations to avoid unnecessary noise which might interfere with the activities of building occupants.

The erection, including excavation, demolition, alteration, or repair of any building in or adjacent to a residential area other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, except

in the case of urgent necessity in the interest of public safety, shall require a letter of permission from the Water Services Department of the City of Kansas City, Missouri.

12. DUST CONTROL. Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical suppressant. When practicable, dusty materials in piles or in transit shall be covered to prevent blowing.

Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels, or similar equipment shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

13. POLLUTION CONTROL. Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from the construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance will be permitted to enter sanitary sewers, and reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

End of Section.

SECTION 01566 - CLEANUP OPERATIONS

1. GENERAL. After a minimum period of fourteen (14) hours after the placement of concrete, the Contractor shall be responsible for cleanup operations related to completed concrete work as follows:

Within a maximum period of three (3) working days after tear-out of sidewalk and curb, the new concrete shall be placed.

Removal of forms, backfilling of the form excavation and debris removal from streets, sidewalks and parkway areas shall be accomplished within three (3) working days after the concrete placement. The backfilled areas within one foot of new concrete shall not be compacted until the concrete has cured a minimum of three (3) days. Backfill shall be in accordance with Sections 2100, 2200, and 2300 of the "APWA Standard Specifications and Design Criteria".

Within a maximum period of five (5) working days after the concrete is placed, the Contractor shall be required to complete all joint caulking, pavement restoration and sodding. If construction is being performed during periods other than designated sod seasons, all unsodded locations shall be completed within ten (10) working days after the beginning of the next sod season. Refer to Section 2931 - Sodding of these specifications for requirements of sod work.

If cleanup, backfilling, sodding, joint caulking or pavement restoration is not accomplished within the above limits, all tear-out operations shall cease until these items are finished or as directed by the Engineer.

All excavated material shall be removed and disposed of by the Contractor so that the grounds will be left equal or better than its original state. Any deficiency in the quantity of material for filling depressions caused by settlement shall be supplied by the Contractor.

Surplus pipe 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 in its original condition or better. Measurement for payment of completed items will be subject to the completion of these cleanup operations.

Tear-out shall not begin if unfavorable conditions for concrete placement are forecast for the next day. All cleanup operations, as stated above, shall be completed within three (3) calendar days of concrete placement.

End of Section.

SECTION 01570 - TEMPORARY EROSION AND SEDIMENT CONTROL

PART 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 where 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, engineer, 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.

PART 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. Each site must be inspected weekly, and following each heavy rain, for compliance with the SWPPP. Written inspection reports must be kept.
3. All workers at the site (employees and contractors) must be briefed on the requirements of the SWPPP.
4. A copy of the SWPPP must be present on site at any time that City employees or contractors are present at the site.
5. Quarterly reports must be filed (by City) with MDNR identifying and giving the status (percentage complete) of each project.
6. MDNR must be notified if hazardous substances or contaminated soil are discovered on site.

PART 3. EROSION CONTROL PLANS

- A. The Contractor shall follow the erosion control plans included in the Contract Drawings, unless otherwise directed by the Engineer.
- 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 Engineer, 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 Engineer, 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 Engineer.
 - 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 Engineer.
 - 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 Engineer.

PART 4. 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), 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 Engineer.
- D. Contractor shall update and maintain the SWPPP as necessary to develop ongoing site-specific control measures until the final acceptance of the Project.

PART 5. 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 6. SILT FENCE DETAIL

Shall be installed, inspected and maintained in accordance with APWA ESC-10.

PART 7. 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.

PART 8 ROCK CHECK DAM

The Rock Check Dam shall be constructed, inspected, and maintained in accordance to APWA ESC-15.

PART 9. 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 Engineer/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.

PART 10. PAYMENT

A. No separate payment shall be made for Erosion and Sediment Control. Contractor shall include in his Total Bid Price, all necessary labor, materials and equipment necessary to comply with the standards listed and to complete the work shown on the drawings.

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 seven (7) project signs (SEWER IMPROVEMENTS and WATER MAIN REPLACEMENT) as well as seven (7) lower placards to accompany the project signs before construction starts. In addition, CONTRACTOR shall order seven (7) “Thank You KC!” sign(s) and seven (7) 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.

CONTRACTOR shall obtain sign(s) stating, “**SEWER, STORMWATER & WATER IMPROVEMENTS.**” 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 **seven (7)** 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.

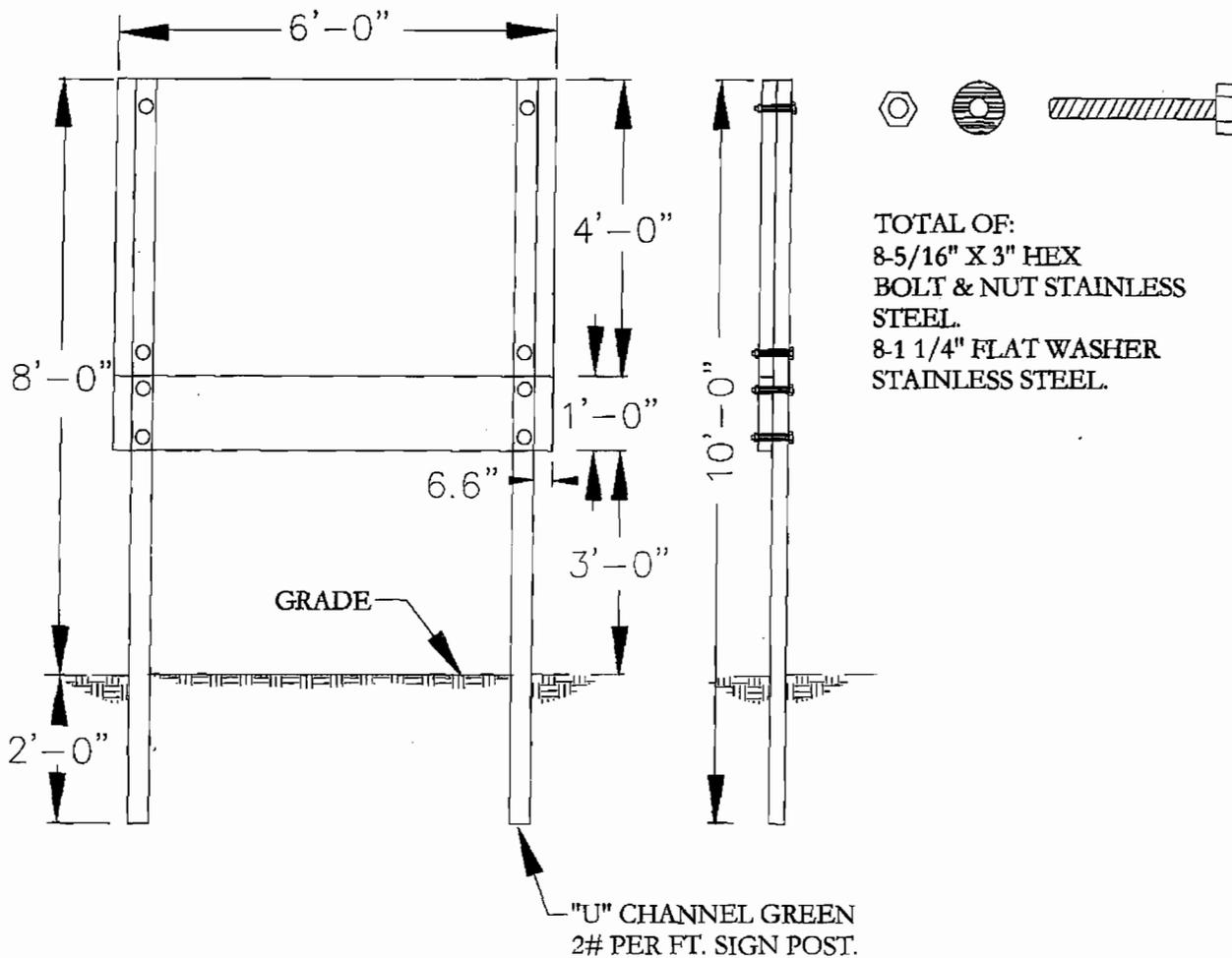
Project sign(s) shall be erected two (2) days before the start of construction activities. Project sign(s) shall remain in place for the duration of the project and be maintained true, plumb, and in neat condition. No construction activities are allowed until the project sign(s) are erected.

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

Installation Detail for Project Signs

	DATE	MAP NO.	RANGE	TWP	SEC
D-20142	07/17/2013	-	-	-	-

SECTION 01581 – PROJECT COMMUNICATIONS

1. SCOPE.

This section covers project communications for all Water Services projects prior and throughout construction.

2. GENERAL DESCRIPTION.

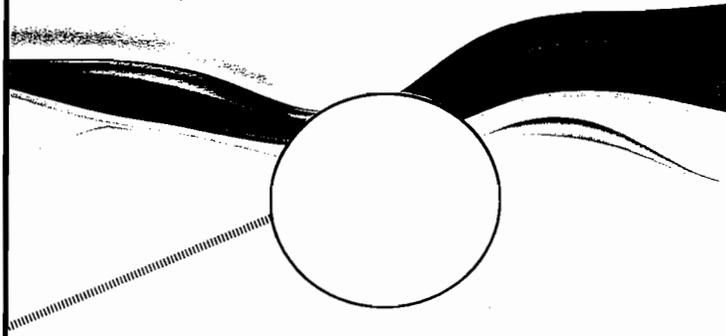
CONTRACTOR shall provide written communications to affected properties (homeowners, tenants and businesses) to inform them about the project work that will take place and may potentially disrupt their everyday activities.

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.

INVESTING IN KC



Important Notice

Date: _____ Time: _____

Water service to your residence or business will be temporarily interrupted as repairs and/or improvements are made.

Service will be interrupted on _____
from _____ a.m./p.m. until _____ a.m./p.m.

We appreciate your patience and assistance while improvements are being made. We will work to restore water service as quickly as possible.

Thank you for the opportunity to perform this work and for your investment in Kansas City's future.

Please contact the onsite contractor with questions:

(Name)

(Emergency contact number)



**KC WATER
SERVICES**

www.kcwaterservices.org

(Printed on contractor's letterhead)

DATE

Dear Customer:

As you may know, Kansas City Water Services is repairing and replacing a significant portion of the (*WATER, SEWER, STORMWATER*) infrastructure throughout Kansas City. This investment is possible thanks to customers who pay to use the system and voters who authorize the City to issue low interest-rate bonds to help finance these important upgrades.

NAME OF CONTRACTOR has been retained by Water Services to perform *DESCRIPTION OF PROJECT* in your neighborhood.

In addition to *DESCRIPTION OF PROJECT*, we may replace curbs, driveways and portions of the streets that have been affected by construction activities. We will also restore affected lawns following construction, either by sodding or seeding at the appropriate time of year.

Our goal is to complete this project as quickly and as painless as possible. We thank you in advance for your patience and understanding during this important investment in your neighborhood's (*water, sewer, stormwater*) infrastructure.

We anticipate situations that will disrupt your living conditions as construction progresses and we will make every attempt to minimize them. We will continue to communicate with you, as to what you can expect, to avoid disturbances and minimize inconveniences. Such disruptions may include:

- Ordinary travel routes may be periodically closed.
- Use of large equipment may be required and create dusty conditions in the immediate construction area (sweeping and/or spraying of water will be used to control dust as much as possible);
- Your water service may be turned off or you may experience lower water pressure for short periods of time.
- Children should stay away from the construction site and the equipment during construction hours for their safety.

Please help us resolve any issues that may occur by contacting us so we can address them as they arise.

- Kansas City Water Services Project Manager: *NAME, NUMBER, EMAIL ADDRESS*
- Kansas City Water Services Resident Inspector: *NAME, NUMBER, EMAIL ADDRESS*
- *CONTRACTOR COMPANY* Project Manager: *NAME, NUMBER, EMAIL ADDRESS*

Thank you again for your patience and understanding during this important infrastructure investment.

Signature

NAME

TITLE



SUBSTITUTION REQUEST

Contract 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 01900 - CONTRACT CLOSEOUT

1. SCOPE. This section includes administrative and procedural requirements for contract closeout.

Closeout requirements for specific construction activities are included in the appropriate Sections in Division 1 through 16.

2. SUBSTANTIAL COMPLETION. After the completion of work, the Contractor shall notify Owner in writing that the entire Work is substantially completed, as specified in the General Conditions, Article 14.04 and as supplemented in Supplementary Conditions, Article 14.04.

3. FINAL ACCEPTANCE. Contractor shall follow procedures for Final Inspection specified in the General Conditions, Article 14.06, Section 01000 and Section 01015. After Contractor has completed all corrections (after the Final Inspection) to the satisfaction of Engineer, Contractor shall submit his Final Payment Request to the Resident Project Representative. The Application for Final Payment with Schedule of Values, shall be accompanied by the following:

- a. Executed Contractor Affidavit for Final Payment (Section 01290.14–Owner’s Form).
- b. Executed Subcontractor Affidavit for Final Payment (Section 01290.15–Owner’s Form).
- c. A Clearance letter from the Finance Department, Revenue Division for the Prime Contractor is required if contract exceeds \$100,000 and if work is performed for a term longer than one (1) year. Prime Contractor shall keep a copy of all sub-contractors clearance letters in its contract files in accordance with the contract documents.

Reinspections Procedure. The Engineer or his representative will reinspect the Work upon receipt of notice that the Work, including inspection list items from first inspection, has been completed, except for items whose completion is delayed under circumstances acceptable to the Engineer. If the Work is incomplete, the Engineer will advise the Contractor of Work that is incomplete or other obligations that have not been fulfilled, but are required for final acceptance. If necessary, reinspections will be repeated.

As stated, in the General Project Requirements, Section 01000, approval of the Engineer and Final Payment will not relieve the Contractor of his responsibility under the other terms of this Contract.

End of Section.

SECTION 01700 - TRAFFIC REGULATIONS

1. GENERAL REQUIREMENTS.

1.01. Permit. Contractor must obtain a street closure permit at least 14 days in advance of the proposed closure date in order to allow sufficient time for public notification.

1.02. Traffic Control Devices. Contractor shall provide all barricades, cones, construction warning signs, flagmen and incidental devices to protect his personnel and equipment on the job site. During all phases of construction, Contractor shall display the required signs. Any traffic control device 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.

All traffic control devices shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highways" 1988 Edition, and its most current revisions. No substitutions for the devices required by the above referenced manual or changes in the methods of maintaining traffic as outlined herein, will be allowed without the written approval of the Director of Public Works - Street and Traffic Division.

1.03. Inspections. The Resident Project Representative and Contractor's representative on this project will make daily inspections of the traffic control devices installed as part of this Contract and maintain record of any maintenance required and the date on which it was completed. These records will be maintained for the duration of the project and be incorporated as part of the final records.

1.04. Contractor Maintenance. Contractor will be required at the time of the preconstruction conference to designate a specific employee to be responsible for the maintenance of the traffic control devices and establish a method of contacting this person during both working and non-working hours. This information will be provided to the Resident Project Representative, the Kansas City, Missouri Public Works - Street and Traffic Division and to the Kansas City, Missouri Public Works Department Radio Dispatcher. Contractor may, at his option, establish a maintenance agreement with a qualified firm, approved by the City, to supply, install and maintain the required traffic control devices throughout the duration of this Project.

1.05. Damages. Damage to existing utilities during construction of this Project which would require immediate repair may be considered an "emergency". Therefore, Contractor should immediately contact the utility whose facilities are involved and the Public Works - Street and Traffic Division whenever any utilities are damaged which may require immediate repair. Such repair work once declared and "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. Any costs incurred by Contractor for such "emergency" utility repair, including the cost of any additional traffic control which may be required, will be at his sole cost and expense.

1.06. Adjustments. The Kansas City, Missouri Public Works - Street and Traffic Division reserves the right to make adjustments or revisions in traffic handling requirement which may become necessary after construction on this Project has started. These changes will be determined on the basis of periodic inspections throughout the duration of the Project. Notice of such change will be transmitted to Contractor and it will be his responsibility to make the necessary changes as soon as practicable after receipt of the notification.

2. PAYMENT. No separate payment will be made for the maintenance of traffic. All labor, materials and equipment necessary to complete this item shall be considered incidental to the lump sum price Bid for this Contract.

3. SPECIFIC REQUIREMENTS.

3.01. Permits. The Contractor shall obtain a Traffic Control (Street Closure) Permit, before any activity aside from normal operating conditions occurs in any City street, (14) working days in advance.

3.02. Notification. Advance notice of construction activity shall be made to all adjacent residents no less than 48 hours, or more than 72 hours, before construction begins. The notice shall describe the activity anticipated in that area, the duration, and the effects upon the residents (such as restricted parking). A contact person, address, and direct telephone number shall be included, in addition to a contact person from the Water Services Department.

3.03. Property Access. Access to adjacent properties shall be maintained at all times. Traffic shall be carried through construction, in accordance with the typical diagrams provided at the end of this section. Designated flaggers shall coordinate the movement of traffic through construction at each staging area.

3.04. Inspections. The Contractor shall make daily inspections of the traffic control devices installed as part of this Contract. Whenever the work area changes, all construction warning signs and traffic channelization devices shall be made current in both legend and function. The roadway shall be kept clean and free of construction related debris at all times.

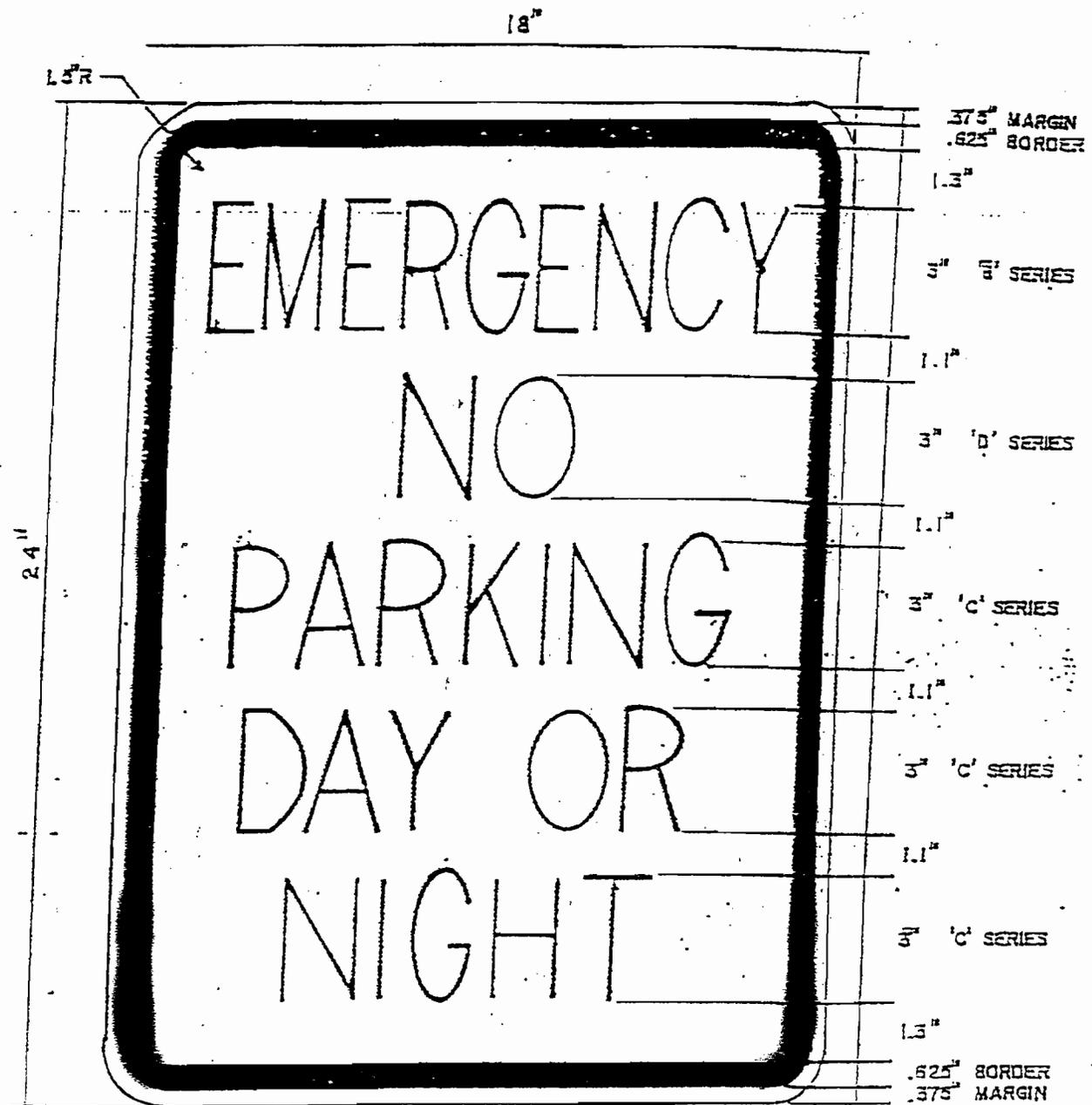
3.05. Traffic Control (non-working hours). During non-work all roadways shall be opened to normal operating conditions. No construction related equipment shall be on the roadway during non-work. Barricades (barrels, type I) equipped with appropriate warning lights shall be placed adjacent to the work area. Construction signs, except "ROAD CONSTRUCTION AHEAD" signs, shall be covered or turned from traffic.

3.06. No Parking Signs. Where agreed to by the Engineer, "Emergency No Parking" signs may be installed. The signs must read as shown in the typical diagram provided at the end of this section. The sign must be on aluminum or plywood panels. Paper or cardboard signs will not be allowed. These signs must be installed a minimum of 18 hours and a maximum of 48 hours in

advance of the time the Contractor plans to begin work. The Contractor must have the Engineer contact the Public Works Dispatcher (513-2331) as soon as the signs are installed so that the Kansas City, Missouri Police Department can be notified. The signs cannot be enforced without this notification to the City.

The signs are to be installed on either steel drive posts or existing utility poles at a height of five (5) feet to the bottom of the sign. The signs are to be installed at 150-foot intervals. If there are existing parking restrictions of a lesser degree, then the Contractor shall install the emergency sign as outlined above and cover the existing signs with permanent cover (paper and tape will not be accepted). The Contractor shall immediately remove all signs and covers as soon as work in a block has been completed. If work will cease for more than 72 hours, the signs and covers shall be removed and reinstalled subject to the minimum 18 hours advance notice. Failure by the Contractor to abide by all provisions concerning "Emergency No Parking" signs will result in the cancellation of the permit.

End of Section.



COLOR: LETTERS AND BORDER — RED
BACKGROUND — SILVER (REFLECTIVE)

* ALTERNATE FOR 7AM TO 6PM
LINES 4 & 5

CITY OF KANSAS CITY, MISSOURI
Public Works Department, Streets & Traffic Division-23rd Floor, City Hall
414 East 12th Street, Kansas City, MO 64106 Tel: (816) 513-2679 Fax: (816) 513-2715

APPLICATION FOR TRAFFIC CONTROL / RIGHT-OF-WAY PERMIT

APPLICANT Name: _____ Title _____

COMPANY Name: _____

Address: _____ Phone: _____

City/State/Zip: _____ Fax: _____

Dates Closed: _____ / _____ Hours Closed: _____
start date end date

I need a permit for the following lanes or right-of-way on: _____
which street

What sidewalk, lanes or right-of-way do you want: _____

Do you want to close the street? _____ Do you want to close traffic in one direction? _____

What are the boundaries of your closure? _____

What kind of work will you be doing? _____

Proposed detour route (only applies to full closures in any direction). _____

If this is a renewal of an old permit, what is the old permit number? _____

Other comments _____

ATTACH A COPY OF YOUR PROPOSED TRAFFIC CONTROL PLAN TO THIS APPLICATION
READ THE REQUIREMENTS ON THE REVERSE SIDE OF THIS APPLICATION AND SIGN AND DATE BELOW

CERTIFICATION BY APPLICANT:

I certify that I have read, have understood and will comply with the requirements of the Application for Traffic Control Permit on the reverse side of this form, and that all information provided in connection with this application is true.

APPLICANTS SIGNATURE: _____ DATE: _____

APPLICATION FOR TRAFFIC CONTROL PERMIT – REQUIREMENTS

AUTHORITY: This Traffic Control Permit is issued by the Public Works Director under the authority of Chapter 70, Sections 70-39 and 70-40 of the Kansas City Code. Any person or company intending to perform work, park vehicles or equipment, or otherwise block any street, sidewalk and/or other city-maintained travelway to vehicle or pedestrian traffic in excess of the legal limit, or for other than its normal and intended use shall obtain a Traffic Control Permit prior to beginning the blockage. The Kansas City Code and Policies and Procedures for issuance of Traffic Control Permits are available for viewing at the 23rd Floor of City Hall, 414 East 12th Street, Kansas City, MO 64106.

SCOPE: This Traffic Control Permit application is applicable to construction work, public safety, festivals, parking of dumpsters or trailers in streets or alleys, social events requiring street closure, and other special conditions or events. This permit application is **NOT** applicable to parades, residential block parties, oversized loads, overweight loads, residential parking, and dirt hauling – other permits are available for these purposes. Annual permits are available for short-term maintenance work by franchised utilities and their designated subcontractors.

PROCESSING TIME:

For applications which do not involve full closure in any direction for vehicular traffic, a minimum of one working day is required for processing the application. In most cases where travel lanes or sidewalks are affected, a traffic control plan will be needed showing the proposed type and location of traffic control devices.

For applications which involve full closure for vehicular traffic in any direction, a minimum of 3 working days are required for review of the traffic control/detour plan. The plan should be submitted with the application. If no plan is submitted, the City will prepare one and charge for preparation of the plan in accordance with the fee schedule given below. Failure to submit a suitable traffic control & detour plan will increase the processing time and application fee.

For projects in sensitive areas, advance notification to adjacent property owners or obtaining their approval may be required as a condition for permit issuance. This may add to the time required for issuance of the permit.

All Traffic control plans and detour plans shall comply with Chapter 6 of the Manual on Uniform Traffic Control Devices (MUTCD) with its most recent revisions.

REQUIREMENTS BEFORE COMMENCEMENT OF WORK:

Possession of a valid permit does not mean that work can commence immediately. If applicable, Emergency No Parking (ENP) procedures require appropriate signs to be placed and the Streets & Traffic Division to be notified before Noon so that the ENP signs can be enforced the following day. For large projects or projects affecting important arterial routes, advance publicity procedures may require a minimum of three days for a press release to be issued. In these cases the additional time will be needed to execute these procedures before work can commence.

FEES FOR TRAFFIC CONTROL PERMITS:

1. Fee for Construction, Safety, or Special Conditions:

<u>Length of Closure</u>	<u>Application Fee</u>	<u>Engineering Inspection Fee</u>
3 days or less	\$25	\$0
4 through 15 days	\$25	\$20
16 through 30 days	\$25	\$30
31 through 60 days	\$25	\$30 plus \$1 per day beyond 30 days
61 through 90 days	\$25	\$60 plus \$2 per day beyond 60 days
91 days through 180 days	\$25	\$120 plus \$3 per day beyond 90 days
over 180 days	\$25	\$390 plus \$5 per day beyond 180 days

Additional Traffic Control Plan Review Fee for Full Closure (in any direction):

If Traffic Control Plan is Submitted: \$25

If No Traffic Control Plan is Submitted: \$50 per hour of plan preparation time (minimum \$25)

2. Fee for Permit for a Festival: \$35

(Festival permits are only applicable to streets on the City's "List of Major Streets" – non-residential streets)

3. Fee for Permit for Trailers or Dumpsters:

Parked on a street: \$10 per day not to exceed \$1000 per year

Parked on an alley: \$100 per year if in alley for more than 10 days. A minimum clear width of 10 feet shall be maintained for Traffic.

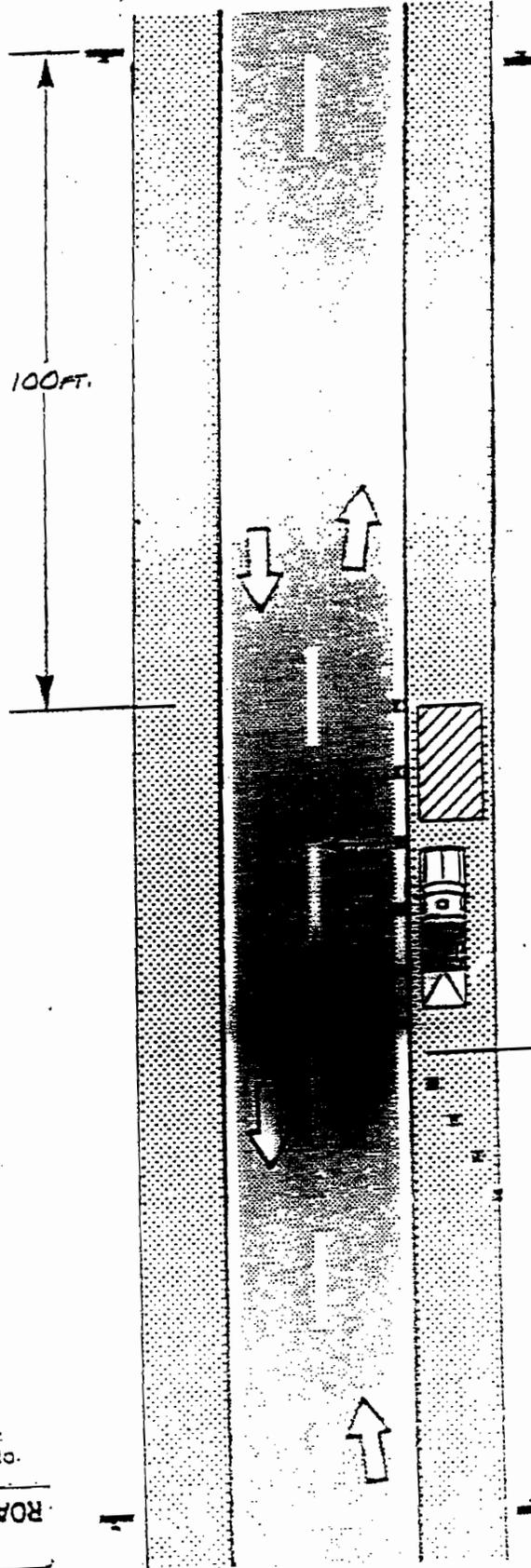
4. Additional Fees for Occupying a Metered Parking Space: \$3 per weekday per metered space.

5. Additional Fees for Commencing Work before Obtaining a Permit: All the above fees are doubled.

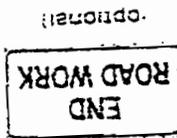
PERMIT ISSUANCE & PAYMENT METHODS: Permits must be signed in person by the Applicant or an authorized representative of the Applicant. Permits can not be issued by facsimile or by mail. Payment is due at the time of issuance of the Permit. Invoicing and purchases on credit are not accepted. Payment should preferably be by check payable to the City Treasurer. Small cash payments may be accepted. A receipt is provided for all payments.

APPLICANTS RESPONSIBILITY FOR THE CONDUCT OF THE WORK: The Applicant is responsible for complying with the requirements of the Traffic Control Permit. All traffic control used must comply with Chapter 6 of the Manual on Uniform Traffic Control Devices (MUTCD). A copy of the MUTCD is available for viewing at the 23rd Floor of the City Hall, at 414 East 12th Street, Kansas City, MO 64106. The Applicant is responsible for providing, installing, and removing all traffic control devices in accordance with the MUTCD and the approved traffic control plan and detour plan.

STEEL PLATES: Steel plates should meet the City's thickness requirements and should be secured against movement by pinning down or by a suitable alternative method. When steel plates are used during winter months a Type 1 barricade should be placed on the sidewalk at the curb adjacent to the steel plate to indicate to snow ploughs the location of the plate.



(optional)



(optional)



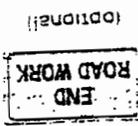
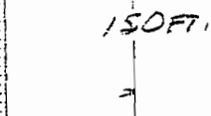
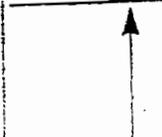
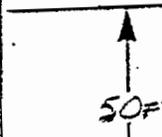
Shoulder work with minor encroachment.



(optional)



10" Min to edge of pavement or outside edge of paved shoulder.



(optional)



Work in center of low-volume road.

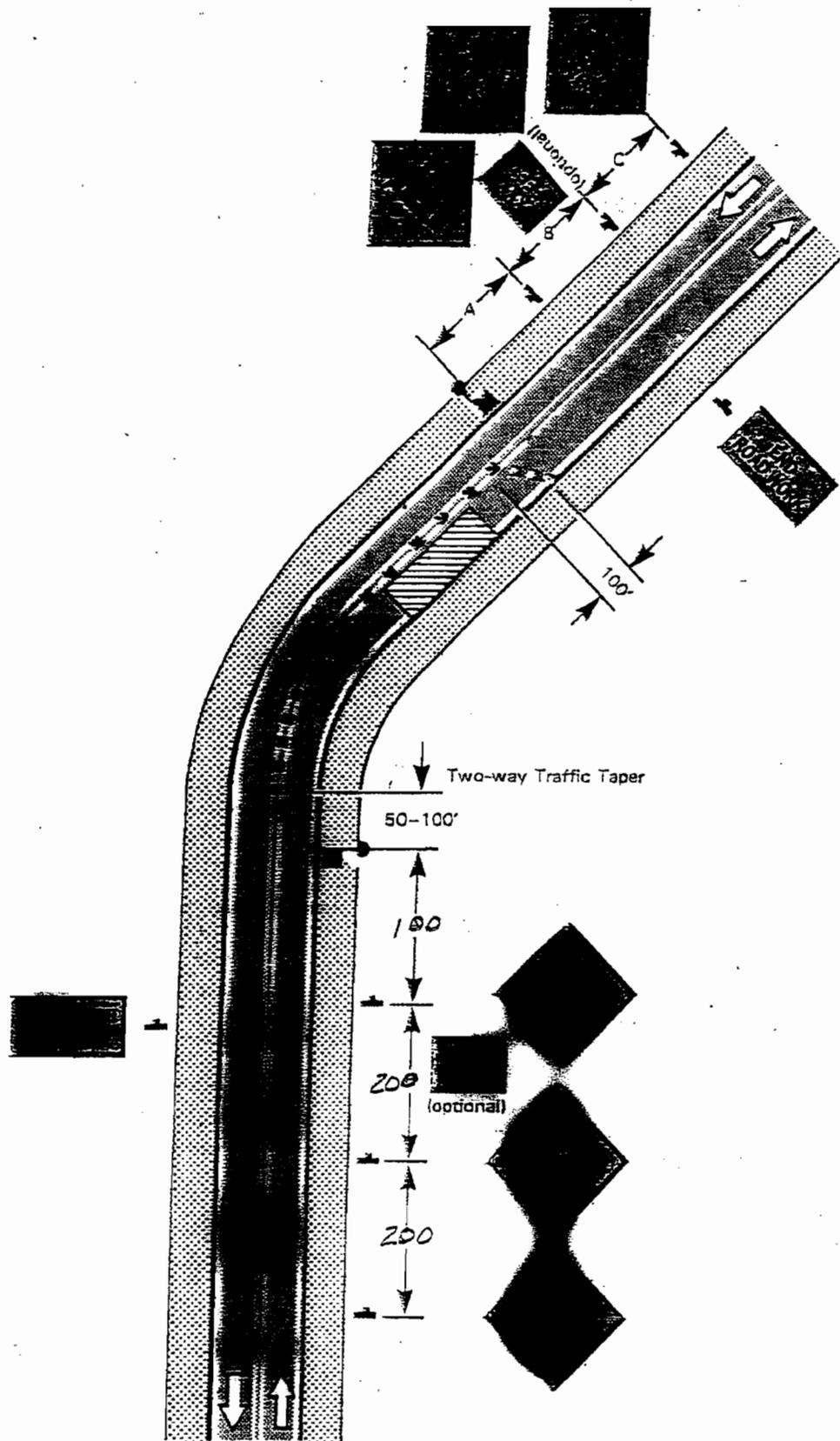


Figure TA-10. Lane closure for one lane-two way traffic control.

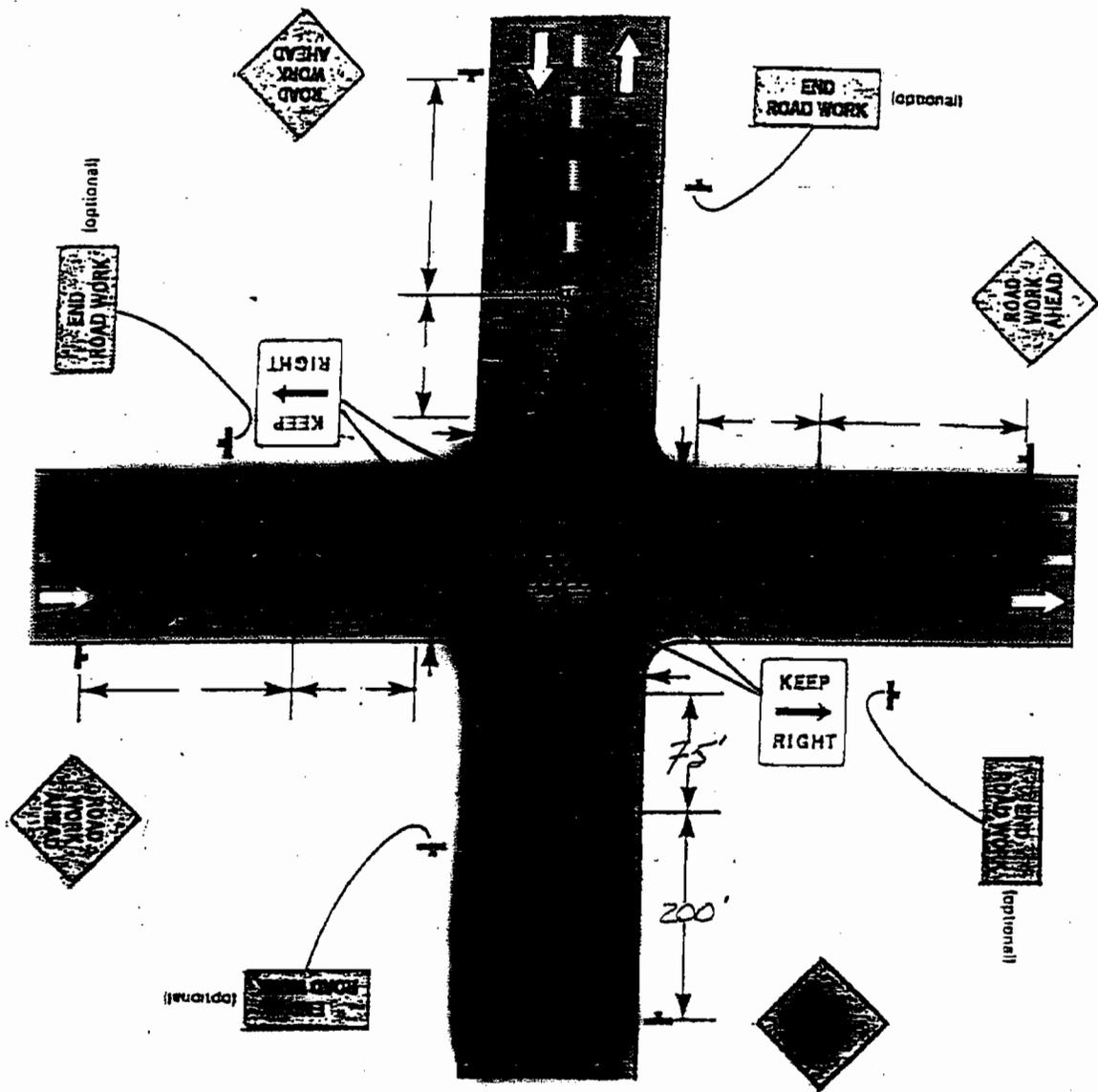


Figura TA-26. Closures in center of intersection.

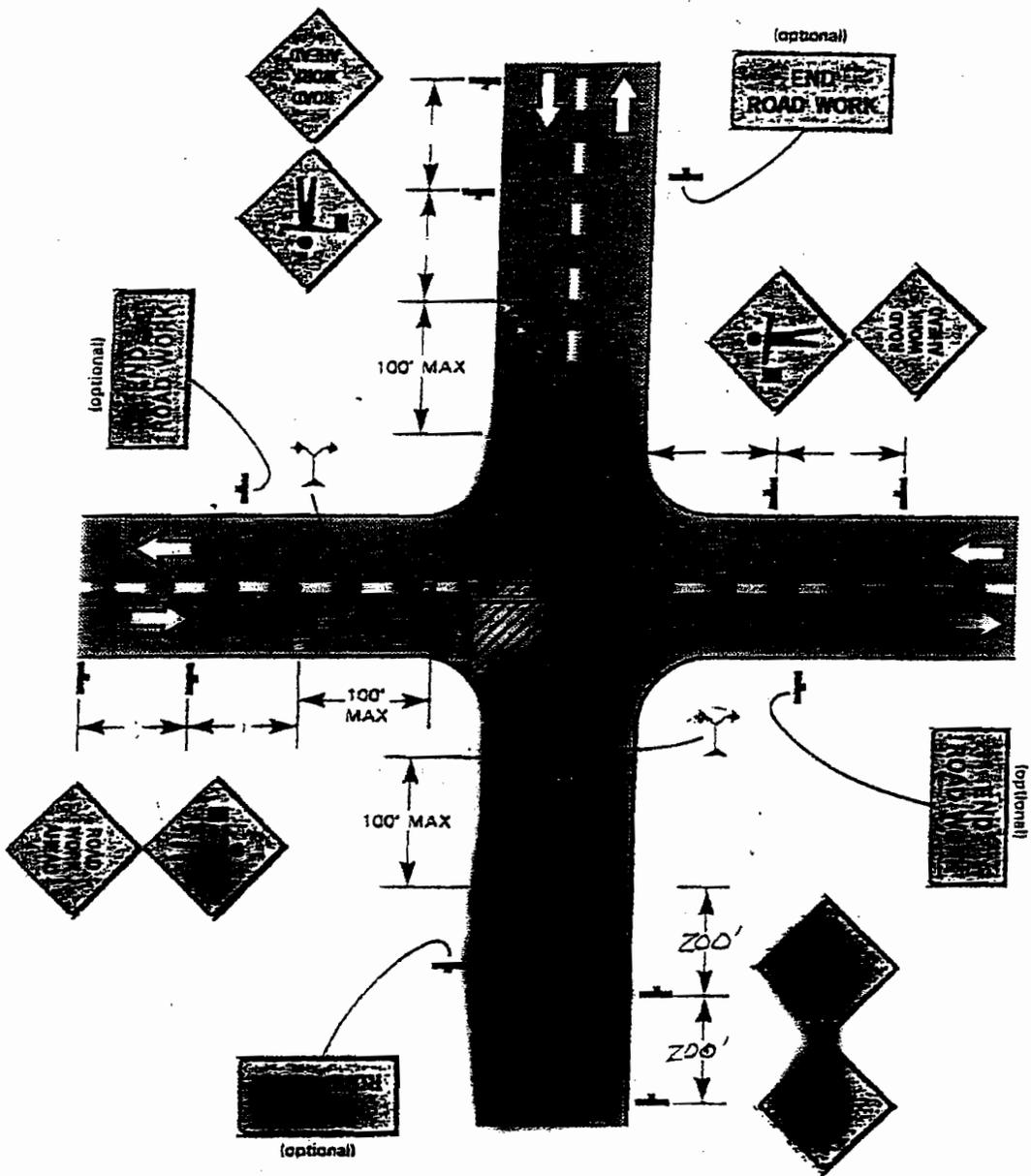
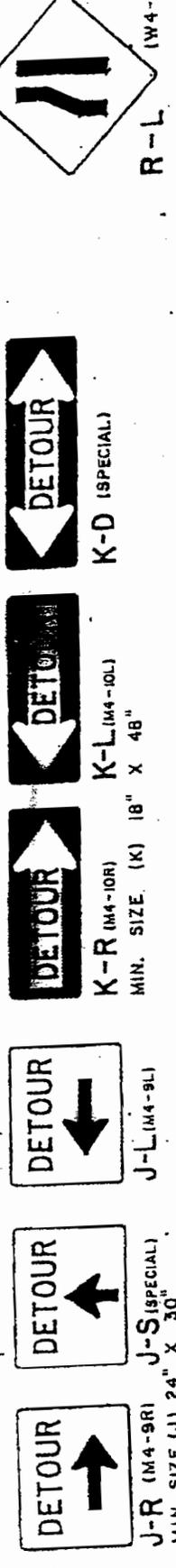
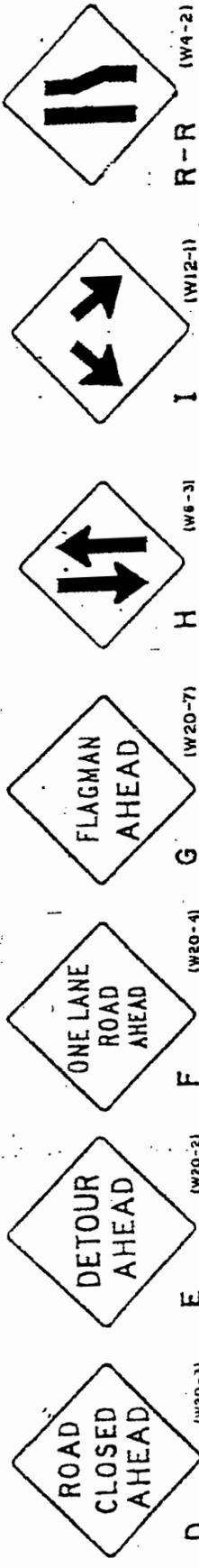
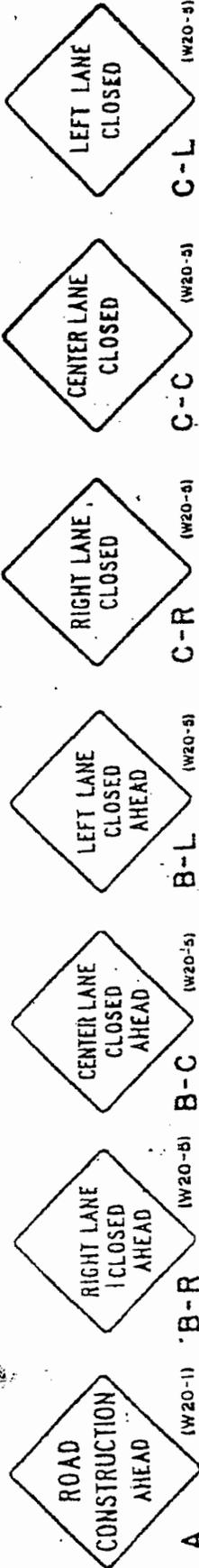
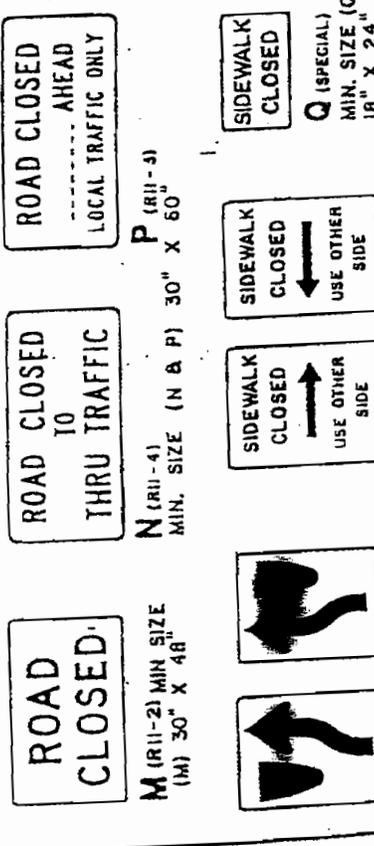


Figure TA-27. Closure at side of intersection.

BLACK MESSAGE ON ORANGE REFLECTIVE BACKGROUND - SIGNS A THRU K MIN. SIZE (A THRU I) 36" X 36"



BLACK MESSAGE ON WHITE REFLECTIVE BACKGROUND - SIGNS M THRU U



NOTE: DESIGNATE DISTANCE FROM SIGN TO CLOSURE IN BLANK SPACE (MILES OR FEET).

ALL SIGNS MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES UNLESS OTHERWISE NOTED

CHANNELIZATION DRUM DETAIL

ORANGE	30 GAL.
WHITE	35 GAL.
ORANGE	35 GAL.
WHITE	35 GAL.
ORANGE	35 GAL.
WHITE	35 GAL.

30 - 55 GAL. DRUM WITH 4" - 6" WHITE AND ORANGE HORIZONTAL, REFLECTORIZED STRIPES, MIN. - 2 WHITE AND 2 ORANGE PER DRUM. THESE MUST BE EQUIPPED WITH ONE, TYPE "C" STEADY-BURN LIGHT EACH, FOR NIGHT USE.

STANDARD LEGEND

- O - INDICATES 36" ORANGE PLASTIC CONE
- - INDICATES STEEL DRUM (SEE DETAIL)
- - INDICATES DRUM WITH SIGN AND STANDARD

KANSAS CITY, MISSOURI TRANSPORTATION DEPARTMENT

STANDARD SIGNS FOR TRAFFIC MAINTENANCE DURING CONSTRUCTION

APPROVED *[Signature]* 1/15/72

NO SCALE K.C. 6/76 A-387

Half Road Closure on Multilane High-Speed Highways

1. The traffic control devices shown are appropriate for a high-speed highway.
2. Pavement markings no longer applicable shall be removed or obliterated as soon as practicable. Interim markings shall be used as necessary.
3. Warning lights may be used to mark channelizing devices at night as needed.
4. For intermediate-term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close device spacing. This is especially important in locations of conflicting traffic motion, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended.

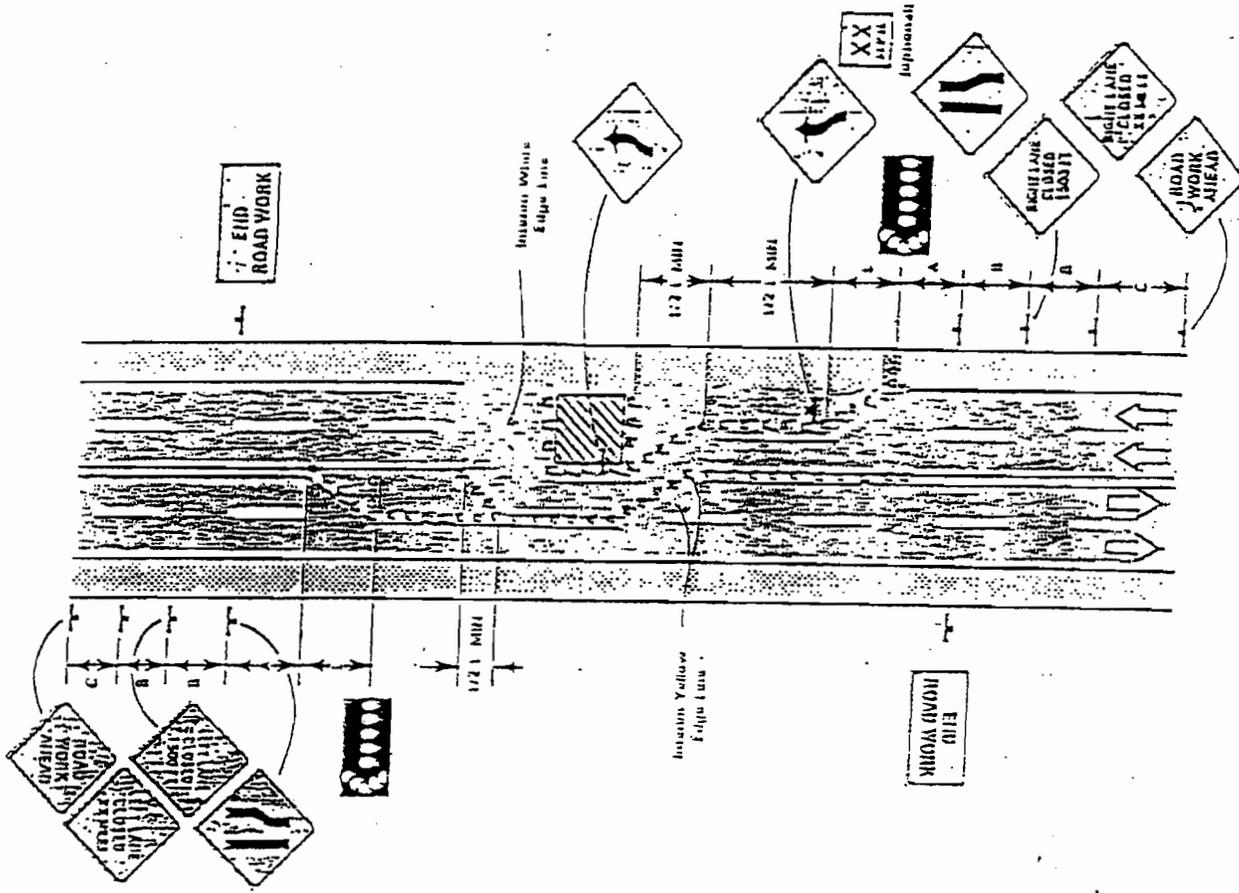
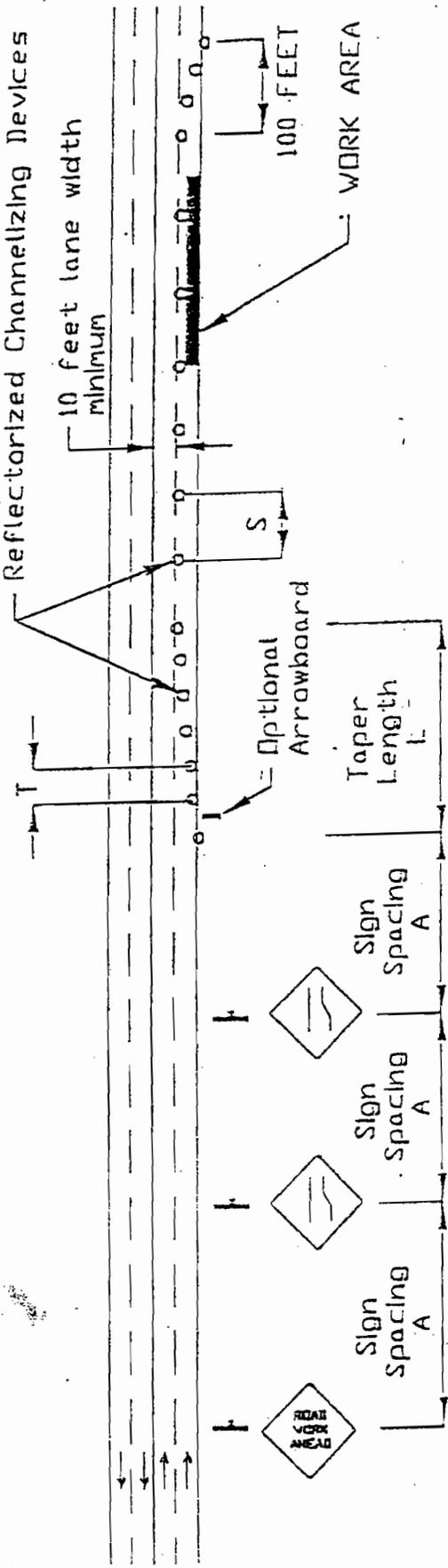


Figure TA-32. Half road closure on multilane high speed highways.

ReflectORIZED Channelizing Devices



LEGEND

- TYPIC III BARRICADE
- SIGN INDICATED ON POST
- CHANNELIZING DEVICE
- ▬ ARROW BOARD (OPTIONAL)

RECOMMENDED DISTANCES:

- L = SEE POSTED
- A = SEE POSTED TABLE
- S = SEE POSTED TABLE

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MUTCD

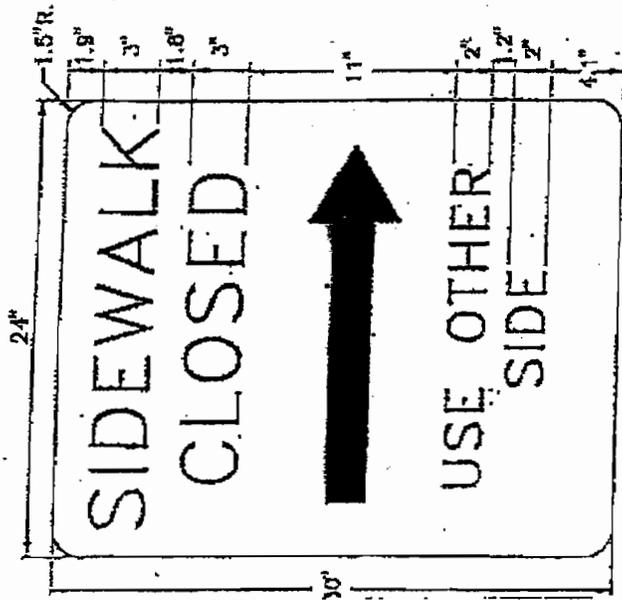
SPEED LIMIT	SINGLE 12 FT LANE TAPER LENGTH (L)	CHANNELIZER SPACINGS		TYPICAL ADVANCE WARNING SIGN SPACING (A Feet)	
		On Taper (T)	On Straight (S)	Urban	Rural
20 mph	80 feet	20 feet	40 feet	200 feet	500 feet
25 mph	125 feet	25 feet	50 feet	200 feet	500 feet
30 mph	100 feet	30 feet	60 feet	200 feet	500 feet
35 mph	245 feet	35 feet	70 feet	200 feet	500 feet
40 mph	320 feet	40 feet	80 feet	350 feet	550 feet
45 mph	540 feet	45 feet	90 feet	350 feet	550 feet
50 mph	600 feet	50 feet	100 feet	350 feet	550 feet
55 mph	660 feet	55 feet	100 feet	350 feet	550 feet

NOTES:

1. All traffic control devices shall conform to the latest edition of the MUTCD.
2. Advance Warning signs shall be placed on the right side of the road at locations of good visibility.
3. Sign spacings are typical and should be adjusted to suit field conditions with the approval of the Engineer.

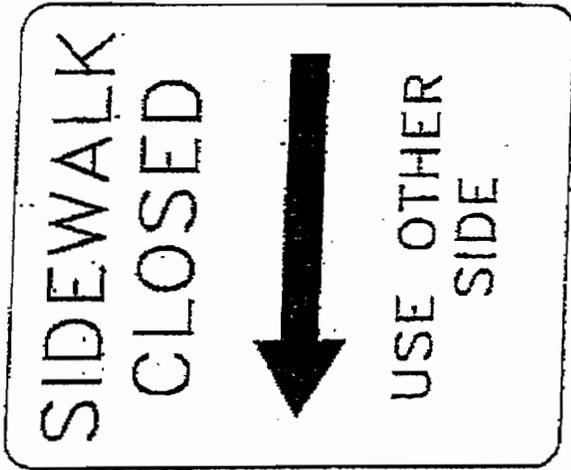
MISSOURI DEPARTMENT OF TRANSPORTATION
 PUBLIC WORKS DIVISION
 TRAFFIC CONTROL DIVISION
 TRAFFIC CONTROL FOR
 CLOSURE OF HIGHWAY
 ON MULTILANE DIVIDED STREET

DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 100' III SCALE



U--R

COLOR: Letters and Arrows -- Black
Background -- White (reflective)



U--L

SECTION 02200 – EARTHWORK

PART 1 - GENERAL

1.01 SCOPE

A. This section covers earthwork and shall include the necessary clearing, grubbing, and preparation of the site; removal and disposal of all debris; excavation and trenching as required; the handling, storage, transportation, and disposal of all excavated material; all necessary sheeting, shoring, and protection work; preparation of subgrades; pumping and dewatering as necessary or required; protection of adjacent property; backfilling; pipe embedment; construction of fills and embankments; surfacing and grading; and other appurtenant work.

1.02 GENERAL

- A. With reference to the terms and conditions of the construction standards for excavations set forth in the 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 Engineer. 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.

1.03 CONTRACTOR SUBMITTALS

- A. Drawings and Data:
1. Drawings, specifications, and data covering the proposed materials shall be submitted in accordance with Section 01300.

PART 2 - PRODUCTS

2.01 POLYETHYLENE FILM

A. Polyethylene film shall be Product Standard PS17.

2.02 GRANULAR FILLS

A. Granular fill material shall be crushed rock or gravel; shall be free from dust, clay, and trash; and shall be graded 1-1/2 inch to No. 4 as defined in ASTM C33.

2.03 GRANULAR BEDDING

A. Gravel for compacted backfill shall conform to the following gradation:

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

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.

2.03 FILTER FABRIC

- A. Filter fabric shall be a 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.	155
Grab Elongation	ASTM D4632	percent	60
Mullen Burst Strength	ASTM D3786	psi	190
Apparent Opening Size	CW-02215	U.S. Standard Sieve Size	70

The filter fabric shall be provided in rolls wrapped with protective covering to protect the fabric from mud, dirt, dust, and debris.

PART 3 - EXECUTION

3.01 TESTS

- A. As stipulated in the quality control section, all tests required for preliminary review of materials shall be made by an acceptable independent testing laboratory at the expense of the Contractor. Two initial gradation tests shall be made for each type of embedment, fill, or backfill material, and one additional gradation test shall be made for each additional 500 tons of each material. Moisture-density (Proctor) tests and relative density tests on the

materials, and all in-place field density tests, shall be made at the expense of the Contractor.

3.02 SURFACE PREPARATION

A. Clearing:

1. All clearing shall be performed as necessary for access, stringing of pipeline materials, and construction of the pipeline and appurtenant structures.

3.03 EXCAVATION

A. Excavations shall provide adequate working space and clearances for the work to be performed therein and for installation and removal of concrete forms. In no case shall excavation faces be undercut for extended footings.

Subgrade surfaces shall be clean and free of loose material of any kind when concrete is placed thereon.

B. Classification of Excavated Materials:

1. No classification of excavated materials will be made. Excavation and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the work, regardless of the type, character, composition, or condition thereof.

C. Preservation of Trees:

1. No trees shall be removed outside excavated or filled areas, unless their removal is authorized by the Owner. Trees left standing shall be adequately protected from permanent damage by construction operations.

3.04 BLASTING

- A. Blasting or other use of explosives for excavation will not be permitted, without obtaining a blasting permit from the Public Works Department of Kansas City, Missouri.

3.05 DEWATERING

- A. Dewatering equipment shall be provided to remove and dispose of all surface water and groundwater entering excavations, trenches, or other parts of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed therein, is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

- B. All excavations for concrete structures or trenches which extend down to or below groundwater shall be dewatered by lowering and keeping the groundwater level beneath such excavations 12 inches or more below the bottom of the excavation.

- C. Surface water shall be diverted or otherwise prevented from entering excavations or trenches to the greatest extent possible without causing damage to adjacent property.

- D. The Contractor shall be responsible for the condition of any pipe or conduit which he may use for drainage purposes, and all such pipe or conduit shall be left clean and free of sediment.

3.06 SHEETING AND SHORING

- A. Except where banks are cut back on a stable slope, excavations for structures and trenches shall be supported as necessary to prevent caving or sliding.
- B. 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. Trench sheeting shall not be pulled after backfilling. With the concurrence of the Engineer, sheeting shall be left permanently in the trench.
- C. Where trench sheeting is left in place, such sheeting shall not be braced against the pipe, but shall be supported in a manner which 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.

3.07 STABILIZATION

- A. Subgrades for trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workers.
- B. Subgrades for trench bottoms which are otherwise solid, but which become mucky on top due to construction operations, shall be reinforced with crushed rock or gravel. The stabilizing material shall be spread and compacted to a depth of not more than 4 inches; if the required depth exceeds 4 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 indicated on the drawings.

3.08 EARTHFILLS AND EMBANKMENTS

- A. Fills and embankments shall be constructed to the lines and grades indicated on the drawings.
- B. Materials:
 - 1. To the maximum extent available, excess suitable material obtained from structure and trench excavation shall be used for the construction of fills and embankments. Additional material shall be provided as required.
 - 2. 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.
- C. Subgrade Preparation:

1. After preparation of the fill or embankment site, the subgrade shall be leveled and rolled so that surface materials of the subgrade will be as compact and well bonded with the first layer of the fill or embankment as specified for subsequent layers.

D. Placement and Compaction:

1. All fill and embankment materials shall be placed in approximately horizontal layers not to exceed 8 inches in uncompacted thickness. Material deposited in piles or windows by excavating and hauling equipment shall be spread and leveled before compaction.
2. 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. If the material fails to meet the density specified, compaction methods shall be altered.
3. Wherever a trench is to pass through a fill or embankment, the fill or embankment material shall be placed and compacted to an elevation not less than 36 inches above the top of pipe elevation before the trench is excavated.
4. Where pipes pass through water-containing embankment, granular embedment material shall 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.

3.09 GRANULAR FILLS

- A. 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 70 percent relative density as determined by ASTM D4253 and D4254.
- B. Where granular fills are to be covered with concrete, the top surface shall be graded to the required subgrade and covered with polyethylene film.

3.10 TRENCH EXCAVATION

- A. No more trench shall be opened than is necessary to expedite the work. Except where tunneling is indicated on the drawings, is specified, or is permitted by the Engineer, all trench excavation shall be open cut from the surface.
- B. Alignment, Grade, and Minimum Cover:
 1. The alignment and grade or elevation of each pipeline shall match the existing pipe.
- C. Limiting Trench Widths:

1. Trenches shall be excavated to a width which will provide adequate working space and sidewall clearances for proper pipe installation, jointing, and embedment. Minimum trench widths shall be as follows:

Ductile Iron Pipe and PVC Pipe:

Pipe Size	Min. Trench Width in Earth	Max. Trench Width in Earth	Min. 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"
27" thru 60"	OD plus 24"	OD plus 30"	OD plus 20"

OD = Outside Diameter

Prestressed Concrete Cylinder Pipe and Reinforced Concrete Pipe

Pipe Size	Min. Trench Width in Earth	Max. Trench Width in Earth	Min. Trench Width in Rock
16"	36"	44"	36"
20"	40"	50"	40"
24"	44"	56"	48"
27" thru 60"	2 * OD	(2 * OD) + 12"	(2 * OD) - 12"

OD = Outside Diameter

D. 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 be of a type, design, and construction, and shall be so operated, that the rough trench excavation bottom elevation can be controlled, and that trench alignment is such that pipe, when accurately laid to specified alignment, will be centered in the trench with adequate sidewall clearance. Undercutting the trench sidewall to obtain sidewall clearance will not be permitted.

E. Cutting Concrete Surface Construction:

1. Cuts in concrete pavement and concrete base pavements shall be no larger than necessary to provide adequate working space for proper installation of pipe and appurtenances. Cutting shall be started with a concrete saw in

a manner which will provide a clean groove at least 1-1/2 inches deep along each side of the trench and along the perimeter of cuts for structures.

2. Concrete pavement and concrete base pavement over trenches excavated for pipelines shall be removed so that a shoulder not less than 6 inches in width at any point is left between the cut edge of the pavement and the top edge of the trench. Trench width at the bottom shall not be greater than at the top and no undercutting will be permitted. Pavement cuts shall be made to and between straight or accurately marked curved lines which, unless otherwise required, shall be parallel to the center line of the trench.
3. Pavement removal for connections to existing lines or structures shall not exceed the extent necessary for the installation.
4. Where the trench parallels the length of concrete walks, and the trench location is all or partially under the walk, the entire walk shall be removed and replaced. Where the trench crosses drives, walks, curbs, or other surface construction shall be removed and subsequently replaced between existing joints or between saw cuts as specified for pavement.

F. Excavation Below Pipe Subgrade:

1. Except where otherwise required, pipe trenches shall be excavated below the underside of the pipe, as indicated on Figure 1-02200, to provide for the installation of granular embedment.

G. Artificial Foundations in Trenches:

1. Whenever unsuitable or unstable soil conditions are encountered, trenches shall be excavated below grade and the trench bottom shall be brought to grade with suitable material. In such cases, adjustments will be made in the Contract Price in accordance with the provisions of the General Conditions.

H. 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.

3.11 PIPE EMBEDMENT

- A. Embedment materials both below and above the bottom of the pipe, classes of embedment to be used, and placement and compaction of embedment materials shall conform to the requirements indicated on Figure 1-02200 and to the following supplementary requirements.
- B. Embedment material shall contain no cinders, clay lumps, or other material which may cause pipe corrosion.
- C. Embedment Classes:
 1. Class A Bedding:
 - (a) Class A Bedding shall be used where compacted backfill is required and when Polyvinyl Chloride Pipe is used.
 2. Class B Bedding:
 - (a) Class B bedding shall be used for all pipelines except Polyvinyl Chloride Pipe.

D. Placement and Compaction:

1. 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. It will be permissible to slightly disturb the finished subgrade surface by withdrawal of pipe slings or other lifting tackle.
2. After each pipe has been graded, aligned, and placed in final position on the bedding material, and shoved home, sufficient pipe embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations.
3. Embedment material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement.
4. Granular embedment material shall be compacted to the top of the pipe in all areas where compacted backfill is specified.
5. Each lift of granular embedment material shall be 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.
6. Where indicated on the drawings, migration of soil into the embedment material shall be prevented with geotechnical fabric. Geotechnical fabric shall be placed on the trench surfaces so that it completely surrounds the embedment material. Joints shall be lapped 12 inches. Inundated sand embedment shall comply with the requirements for inundated sand backfill specified herein.

E. Groundwater Barrier:

1. Continuity of embedment material shall be interrupted by low permeability groundwater barriers to impede passage of water through the embedment. Groundwater barriers for sewer lines that contain manholes with cast-in-place bases shall be compacted soil around each manhole, meeting soil classification GC, SC, CL, or ML-CL, compacted to 95 percent of maximum density. Material may be finely divided, suitable job excavated material, free from stones, organic matter, and debris.

3.12 TRENCH BACKFILL

- A. All trench backfill above pipe embedment shall conform to the following requirements.
- B. A layer of backfill material not more than 8 inches deep may be placed over concrete arch encasement or concrete reaction blocking after the concrete has reached its initial set, to aid curing. No additional backfill shall be placed over arch encasement or blocking until the concrete has been in place for at least 3 days.
- C. Compacted Backfill:

1. Compacted backfill will be required for the full depth of the trench above the embedment in the following locations:
 - (a) Where beneath pavements, surfacings, driveways, curbs, gutters, walks, or other surface construction or structures.
 - (b) Where in street, road, or highway shoulders.
 - (c) In established lawn areas.
 2. The top portion of backfill beneath established lawn areas shall be finished with at least 12 inches of topsoil corresponding to, or better than, that underlying adjoining lawn areas.
 3. 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. Job excavated materials shall be placed in uniform layers not exceeding 8 inches in uncompacted thickness. Each layer of material shall have the best possible 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. Increased layer thickness may be permitted for noncohesive material if the Contractor demonstrates to the satisfaction of the Engineer 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 when that test is appropriate, or to 70 percent relative density, as determined by ASTM D4253 and D4254 when those tests are appropriate.
 - (b) Graded Gravel: Gravel backfill shall be deposited in uniform layers not exceeding 12 inches in uncompacted thickness. The backfill shall be compacted with a suitable vibratory roller or platform vibrator to at least 70 percent relative density as determined by ASTM D4253 and D4254. Groundwater barriers specified under pipe embedment shall extend to the top of the graded gravel backfill.
- D. Uncompacted Backfill:
1. Compaction of trench backfill above pipe embedment in locations other than those specified will not be required except to the extent necessary to prevent future settlement. The Contractor shall be responsible for backfill settlement as specified.
 2. Uncompacted earth backfill material to be placed above embedments shall be free of brush, roots more than 2 inches in diameter, debris, cinders, and any corrosive material, but may contain rubble and detritus from rock excavation, stones, and boulders in certain portions of the trench depth.

3. Uncompacted backfill material above embedments shall be placed by methods which will not impose excessive concentrated or unbalanced loads, shock, or impact on installed pipe, and which will not result in displacement of the pipe.
4. Compact masses of stiff clay or other consolidated material more than 1 cubic foot in volume shall not be permitted to fall more than 5 feet into the trench, unless cushioned by at least 2 feet of loose backfill above pipe embedment.
5. No uncompacted trench backfill material containing rocks or rock excavation detritus shall be placed in the upper 18 inches of the trench, nor shall any stone larger than 6 inches in its greatest dimension be placed within 3 feet of the top of pipe.

3.13 DRAINAGE MAINTENANCE

- A. Trenches across roadways, driveways, walks, or other trafficways adjacent to drainage ditches or watercourses shall not be backfilled prior to completion of backfilling the trench on the upstream side of the trafficway, to prevent impounding water after the pipe has been laid. Bridges and other temporary structures required to maintain traffic across such unfilled trenches shall be constructed and maintained by the Contractor. Backfilling shall be done so that water will not accumulate in unfilled or partially filled trenches. All material deposited in roadway ditches or other water courses crossed by the line of trench shall be removed immediately after backfilling is completed, and the original section, grades, and contours of ditches or watercourses shall be restored. Surface drainage shall not be obstructed longer than necessary.

3.14 FINAL GRADING AND PLACEMENT OF TOPSOIL

- A. After other outside work has been finished, and backfilling and embankments completed and settled, all areas which are to be graded shall be brought to grade at the indicated elevations, slopes, and contours. All cuts, fills, embankments, and other areas which have been disturbed or damaged by construction operations shall be surfaced with topsoil to a depth of at least 4 inches. Topsoil shall be of a quality at least equal to the existing topsoil in adjacent areas, free from trash, stones, and debris, and well suited to support plant growth.
- B. Use of graders or other power equipment will be permitted for final grading and dressing slopes, provided the result is uniform and equivalent to manual methods. All surfaces shall be graded to secure effective drainage. Unless otherwise indicated, a slope of at least 1 percent shall be provided.
- C. Final grades and surfaces shall be smooth, even, and free from clods and stones, weeds, brush, and other debris.

3.15 DISPOSAL OF EXCESS EXCAVATED MATERIALS

- A. Except as otherwise permitted, all excess excavated materials shall be disposed of away from the site of work.
- B. Broken concrete and other debris resulting from pavement or sidewalk removal, excavated rock in excess of the amount permitted to be installed in trench backfill, debris encountered in excavation work, and other similar waste materials shall be disposed of away from the site of the work.
- C. Excess earth from excavations located in unimproved property 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 at and across the trench and sloping uniformly each way. Material thus wasted shall be carefully finished with a drag, blade machine, or other suitable tool to a smooth, uniform surface without obstructing drainage at any point. Wasting of excess excavated material in the above manner will not be permitted where the line of trench crosses or is within a railroad, public road, or highway right-of-way. The disposal of waste and excess excavated materials, including hauling, handling, grading, and surfacing, shall be a subsidiary obligation of the Contractor and no separate payment will be made there for.

3.16 RESODDING

- A. All established lawn areas cut by the line of trench or damaged during the work shall be resodded as specified in Section 02931, after completion of construction, to the complete satisfaction of the property owner and the Owner.

3.17 SETTLEMENT

- A. The Contractor shall be responsible for all settlement of backfills, fills, and embankments which may occur within the correction period stipulated in the General Conditions. The Contractor shall make, or cause to be made, all repairs or replacements made necessary by settlement within 30 days after notice from the Engineer or the Owner.

End of Section.

NOTES:

1. GRANULAR EMBEDMENT MATERIAL SHALL BE CRUSHED ROCK OR PEA GRAVEL COARSE AGGREGATE SIZE NUMBER 7 (13 TO 4.75) ASTM C33. EMBEDMENT MATERIAL SHALL BE PLACED IN LAYERS NOT MORE THAN 6" (150mm) DEEP AND COMPACTED AS SPECIFIED.
2. HAND PLACED EMBEDMENT SHALL BE FINELY DIVIDED MATERIAL FREE FROM DEBRIS AND STONES.
3. COMPACTED EMBEDMENT SHALL BE FINELY DIVIDED JOB EXCAVATED MATERIAL FREE FROM DEBRIS, ORGANIC MATERIAL, AND STONES, PLACED IN UNIFORM LAYERS NOT MORE THAN 8" THICK, AND COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY ASTM D698; INUNDATED SAND; OR GRADED GRAVEL. GRANULAR EMBEDMENT MAY BE SUBSTITUTED FOR ALL OR PART OF THE COMPACTED EMBEDMENT.
4. EMBEDMENT ABOVE THE TOP OF THE PIPE SHALL BE AN UNCOMPACTED LAYER FOR ALL INSTALLATIONS.
5. REFER TO SPECIFICATIONS FOR GEOTECHNICAL FABRIC OR SPECIAL EMBEDMENT REQUIREMENTS FOR TRENCHES IN FINE SOILS EXTENDING BELOW GROUNDWATER LEVEL.
6. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.

LEGEND

- BC OUTSIDE DIAMETER OF PIPE
- H COVER ABOVE TOP OF PIPE
- D NOMINAL PIPE SIZE
- A EMBEDMENT BELOW PIPE (SEE TABLE)

-  HAND PLACED EMBEDMENT *
-  COMPACTED EMBEDMENT *
-  GRANULAR EMBEDMENT

* OR GRANULAR EMBEDMENT

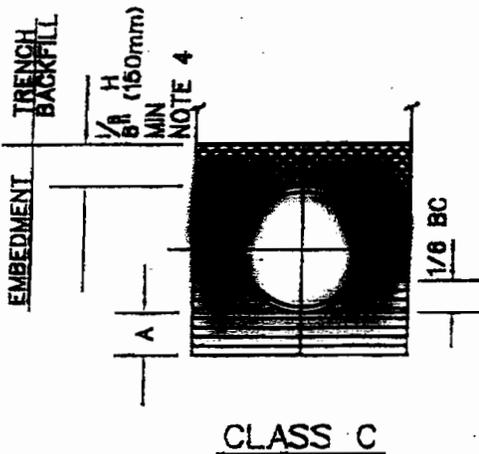
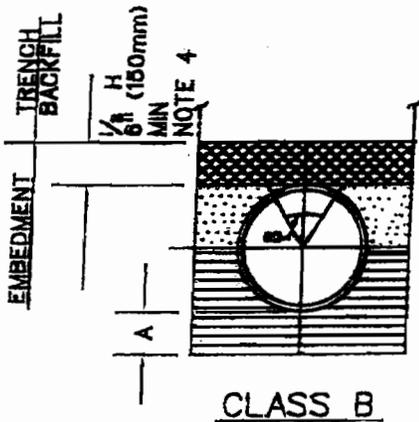
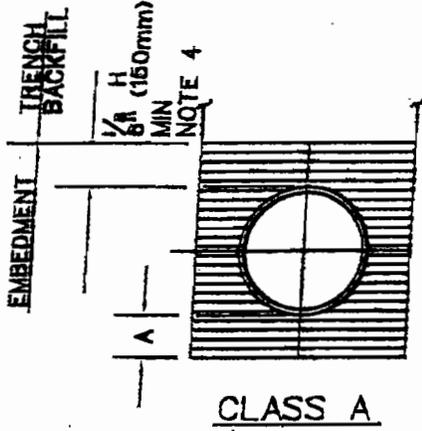


TABLE OF EMBEDMENT DEPTHS BLOW PIPE

D	A		A	
	MIN SOIL		MIN ROCK	
	in	mm	in	mm
27" (675mm) & SMALLER	3	75	6	150
30" (750 mm) TO 60" (1500 mm)	4	100	9	225
66" (1650 mm) & LARGER	6	150	12	300

EMBEDMENTS FOR CONDUITS

SECTION 02231 - TREE PROTECTION AND TRIMMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for limits placed on Contractor's use of the site.
 - 2. Division 1 Section "Temporary Facilities and Controls" for temporary tree protection.
 - 3. Division 2 Section "Site Clearing" for removal limits of trees, shrubs, and other plantings affected by new construction.
 - 4. Division 2 Section "Earthwork" for building and utility trench excavation, backfilling, compacting and grading requirements, and soil materials.
 - 5. Division 2 Section "Planting" for tree and shrub planting, tree support systems, and soil materials.

1.3 DEFINITIONS

- A. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 QUALITY ASSURANCE

- A. Pre-Construction Conference: Conduct conference at Project site to comply with requirements of OWNER and DESIGN PROFESSIONAL.

1. Before tree protection and trimming operations begin, meet with representatives of authorities having jurisdiction, (Owner, Design Professional, and other concerned entities) to review tree protection and trimming procedures and responsibilities.
- B. Tree Service Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this project and that will assign an experienced, qualified arborist to project site on a full-time basis during execution of the work.
- C. Arborist Qualifications: An arborist certified by the International Society of Arboriculture.
- D. Tree Pruning Standards: Comply with ANSI A300 (Part 1), "Trees, Shrubs and other Woody Plant Maintenance-Standard Practices (Pruning).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D 448, Size 24, with 90 to 100 percent passing a 2-1/2-inch sieve and not more than 10 percent passing a 3/4-inch sieve.
- B. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and toxic and other non-soil materials.
 1. Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes.
- C. Filter Fabric: Manufacturer's standard, non-woven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.
- D. 48" height Mesh Construction Fencing by Conwed or Approved Equal (Orange Color)
- E. Metal T-Posts & #14 gauge steel wire

PART 3 - EXECUTION

3.1 PREPARATION

- A. Temporary Fencing: Install temporary fencing around tree protection zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete.
 - 1. Dimensions of the protection barrier are as follows:
 - a. Preferred Method
 - 1) Where trees are located in open areas not constricted by existing pavement, utilities or proposed grading, the fencing shall be installed one foot outside the drip line of the tree.
 - 2) Fencing installed per the preferred method does not require written permission from the owner
 - b. Alternative Method
 - 1) Where trees are located in areas constricted by utilities or proposed grading the fencing shall be installed as close to the drip line as possible OR as follows:
 - a) Small Trees (<9" D.B.H.): Minimum of 5 feet from face of tree along the side of constriction. All other sides shall be one foot outside the dripline of the tree.
 - b) Medium (10" to 15" D.B.H.): Minimum of 10 feet from the face of the tree along the side of constriction. All other sides shall be one foot outside the drip line of the tree.
 - c) Large (>15" D.B.H.): Minimum of 15 feet from the face of the tree along the side of constriction. All other sides shall be one foot outside the drip line of the tree.
 - d) Fencing installed per the Alternative Method shall be by written permission from the Owner only.
 - 2) Where trees are located adjacent to existing pavement, install fencing adjacent to pavement. All other sides shall be one foot outside the drip line of the tree.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.

- D. Contractor is required to remove tall grass or weeds by mowing and pickup all trash within the tree protection zones at the end of work.
- E. Do not allow fires within tree protection zones.

3.2 EXCAVATION

- A. Install shoring or other protective support systems to minimize sloping or benching of excavations. Do not allow soil to erode away from tree protection zone in instances where the drip line is a point of beginning for excavation or grading operations. If erosion occurs, Contractor is required to correct the problem within 24 hours of notice from the OWNER.
- B. Do not excavate within tree protection zones, unless otherwise indicated in writing by the OWNER as described by the Alternative Method above.
- C. Where excavation for new construction is required within the drip line of the tree, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.
 - 1. Root Pruning: Per Section 3.4 Below
 - 2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
- D. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.

Root Pruning: Per Section 3.4 Below

3.3 REGRADING

- A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist, unless otherwise indicated.
 - 1. Root Pruning: Per Section 3.4 Below
- B. Minor Fill: Where existing grade is 6 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations. Do not operate equipment

within tree protection zone when fine grading topsoil placed above existing grade.

- C. Moderate Fill: Where existing grade is more than 6 inches but less than 12 inches below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:
 - 1. Carefully place drainage fill against tree trunk approximately 2 inches above elevation of finish grade and extend not less than 18 inches from tree trunk on all sides. For balance of area within drip-line perimeter, place drainage fill up to 6 inches below elevation of finish grade.
 - 2. Place filter fabric with edges overlapping 6 inches minimum.
 - 3. Place remaining fill layer of topsoil to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

3.4 ROOT PRUNING

- A. Root Pruning shall take place only where the roots of existing trees have been damaged by regrading or trenching operations and as directed by the Certified Arborist.
- B. If construction is to occur within the root zone of existing plant material, root pruning and special plant care including fertilizing and watering will be required, as directed by the Certified Arborist and hereinafter specified. Prior to root pruning, remove all weeds. Root pruning using an approved mechanical root pruning saw shall be performed prior to regrading operations, or directed by the Certified Arborist. Air Spading excavation consisting of hand and/or pneumatic excavation may be required as directed by Certified Arborist. Whenever roots of plant material to remain are exposed during construction, the damaged root ends are to be removed by cutting them off cleanly.
- C. Initial watering shall be performed on all trees, which are designated for root pruning. Water trees immediately by thoroughly saturating root balls and continue to keep root balls thoroughly saturated during first three weeks following root pruning. Thereafter water as required, according to weather conditions, to keep root balls in a moist condition during growing seasons, through the duration of the Project. Test root balls for optimal moisture once a week using a soil auger.
- D. All pruning shall be overseen by a professional arborist. All pruning shall be done according to the National Arborist Association's Pruning Standards.
- E. Any damage to the root zone, as determined by the Certified Arborist, will be compensated by pruning an equivalent amount of the top

vegetative growth of the material with one week following root damage, fertilization and supplemental watering.

- F. Fertilize damaged trees with fertilizer that promotes root growth. Fertilizer nutrients shall be applied within 48 hours after root damage occurs. Fertilizer shall be as recommended by the Certified Arborist.

3.5 TREE REPAIR AND REPLACEMENT

- A. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
- B. Remove and replace trees indicated to remain that die or are damaged during construction operations that OWNER determines are incapable of restoring to normal growth pattern.
 - 1. Provide new trees of 6-inch caliper size and of a species selected by OWNER when damaged trees more than 6 inches in caliper size, measured 12 inches above grade, are required to be replaced. Plant and maintain new trees as specified in Division 2 Section "Planting" or as directed by the OWNER.
- C. There shall be no construction traffic within the Tree Protection Zone. If no other access is obtainable, contractor shall place 4'x8' sheets of ¾" plywood covered with 9" of shredded wood pulp or mulch over entire area proposed for vehicular traffic. Contractor shall obtain written permission from the owner, clearly stating where access will be located and for the duration of temporary access prior to installation. After removal of mulch and plywood, contractor shall aerate the surface soil per Item D below. All disturbed areas shall be resodded per Specification 02931
- D. If soil within the Tree Protection Zone becomes compacted during construction, Contractor is required to aerate the surface soil a minimum of 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch- diameter holes a minimum of 12 inches deep at 24 inches on center or use a turf aerator that is approved by the OWNER. Backfill holes with an equal mix of augered soil and sand.

3.6 DISPOSAL OF WASTE MATERIALS

- A. Burning is not permitted.
- B. Disposal: Remove excess excavated material and displaced trees from Owner's property unless other arrangements are made with the OWNER.

END OF SECTION

**SECTION 02505 - STANDARD SPECIFICATIONS FOR PRIVATE BUILDING
SEWERS IN PUBLIC RIGHT-OF-WAY**

PART 1 - GENERAL

1.01 SCOPE.

These specifications shall apply to that part of a private building sewer line which lies in public right-of-way or easement.

1.02 DESCRIPTION.

Building sewer is defined as that part of the horizontal sewer line which begins and extends from the end of the building drain and receives the sewage discharge of the building drain and conveys it to a public sewer, private sewer, individual sewage disposal system or other point of disposal.

In case these specifications conflict with city job specifications for a particular project, the job specifications shall govern. In case these specifications conflict with any standard specifications, these specifications shall govern in all instances where private lines in public right-of-way are concerned.

1.03 CODES and STANDARDS. American Society for Testing and Materials (ASTM):

- A. Where reference is made to standard specifications and the date of adoption is not shown, the current standard will apply.
- B. Private sewer lines in public right-of-way shall conform to these standard specifications and to the following standard specifications, unless modified by the city job specifications.
 1. General Provisions and Covenants, Division I, Official Document No. 89528.
 2. Standard Specifications for Sanitary Sewers, Division II, Official Document No. 88738.
 3. Street Specifications and Standards, Official Document No. 80597.
- C. Pipe, American Society for Testing and Materials (ASTM):
 1. A746, Standard Specification for Ductile Iron Gravity Sewer Pipe.
 2. C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 3. C150, Standard Specification for Portland Cement.
 4. C361, Standard Specification for Reinforced Concrete Low Head Pressure Pipe.
 5. C425, Standard Specification for Compression Joints for Vitrified Clay Pipe (VCP) and Fittings.
 6. C443, Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.

7. C596, Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement.
8. D16, Standard Terminology for Paint, Related Coatings, Materials, and Applications.
9. D1784, Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds.
10. D2241, Standard Specification for Poly Vinyl Chloride (PVC) Pressure Rated Pipe (SDR Series).
11. D2412, Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading.
12. D3034, Standard Specification for Type PSM Poly Vinyl Chloride (PVC) Solid Wall Sewer Pipe and Fittings.
13. D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
14. E329, Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
15. F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
16. F679, Standard Specification for Poly Vinyl Chloride (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings.

1.04 Definitions.

- A. ABS: Acrybitrile Butadiene Styrene
- B. ANSI: American National Standards Institute
- C. ASTM: American Society for Testing and Materials
- D. AWWA: American Water Works Association
- E. CCTV: Closed Circuit Television.
- F. CPVC: Chlorinated Poly Vinyl Chloride
- G. DIP: Ductile Iron Pipe
- H. MEK: Methyl-Ethyl-Ketone
- I. PVC: Poly Vinyl Chloride
- J. RCP: Reinforced Concrete Pipe
- K. SDR: Standard Dimension Ratio.
- L. VCP: Vitrified Clay Pipe

1.05 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:

- A. A. CCTV Inspection Firm: Actively performed such services for minimum of 2 years.
- B. Warranty

1. Terms: Standard Manufacturer's warranty
2. Warranty Period: Standard Manufacturer's warranty

1.06 **CONTRACTOR SUBMITTALS.** Drawings, specifications, and data covering the proposed materials shall be submitted to the Water Services Department. Prior to commencing with construction the Contractor shall submit the following to the Water Services Department for approval:

A. Action Submittals:

1. Information on gasket polymer properties.
2. Tee fabrication details.
3. Application methods, application requirements, and chemical resistance data for coating and lining products.
4. Fabrication plans and calculations for reinforced concrete pipe, fittings, and joint details. Include concrete mix design, reinforcement dimensions, concrete cover, spacing, and placement tolerances to be used.
5. Quick setting grout design mix.

B. Informational Submittals:

1. Certificates:
 - a. Manufacturer's Certificate of Compliance, in accordance with Section 01 43 33, Manufacturers' Field Services, that products furnished meet requirements of this section.
 - b. Certification of Calibration: Approved testing laboratory certificate if pressure gauge for hydrostatic test has been previously used. If pressure gauge is new, no certificate is required.
 - c. Certified statement from manufacturer of gaskets, setting forth that basic polymer used in gaskets and test results of physical properties of compound are in accordance with ASTM C425 for clay pipe, ASTM F477 for PVC pipe, AWWA C111 for ductile iron pipe, and ASTM C361 for reinforced concrete pipe.
2. Manufacturer's Written In Plant Quality Control Program: Quality control procedures and materials testing to be used throughout manufacturing process. Submit prior to manufacture of any pipe for this Project.
3. Test or historical performance data to verify that joint design meets requirements of these specifications.
4. Provide pipe and pipe joint test results with delivery of pipe. Do not deliver pipe not meeting test requirements to Project Site.
5. Manufacturer's written recommendations for pipe handling and installation.
6. Field Leakage Testing Plan: Submit at least 15 days in advance of the testing and include at least the following:
 - a. Testing dates.
 - b. Piping systems and sections to be tested.
 - c. Test type.
 - d. Method of isolation.
 - e. Method of conveying water from source to system being tested.
 - f. Calculation of maximum allowable leakage for piping section(s) to be tested.
 - g. Method for disposal of test water, if applicable.

7. CCTV Inspection Equipment: Submit minimum 15 days prior to performing inspections:
 - a. Name and qualifications of inspection firm.
 - b. Brand name and model number of video equipment to be used.
 8. Leakage test results.
 9. PVC pipe deflection test results.
 10. CCTV inspection videotapes and inspection logs. Videotapes shall become property of Water Services Department.
- C. Permits:
1. The Contractor shall obtain all necessary permits and licenses whether issued by City, County or State.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING. Delivery of materials shall be in manufacturer's original unopened and undamaged packages. They shall be clearly marked to identify brand name, contents and order number on each package. Packages showing indication of damage that may affect condition of contents are not acceptable.

Storage of material shall provide protective cover from damage and stored at temperatures in accordance with manufacturer's recommendation. Materials shall be staked or stored in accordance with manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS.

A. Pipe:

1. Approved pipe materials shall be vitrified clay, cast iron, polyvinyl chloride and Acrylonitrile butadiene styrene.
2. Concrete pipe may be used to convey storm water but shall not be used to convey sanitary sewage.
3. Pipe materials other than these will not be used unless specified in the job specifications and approved by the City.
4. Standards:
 - a. No private sewer line shall be constructed in public right-of-way with an inside diameter of less than four (4) inches.
 - b. Clay pipe (VCP) shall conform in every respect with the "specifications for clay sewer pipe" ASTM designation C700 (extra strength).
 - c. Ductile iron pipe (DIP) shall conform in every respect to AWWA C151/A21.51.
 - d. Polyvinyl chloride pipe (PVC) shall conform in every respect to ASTM D-3034, and SDR-26, except as otherwise specified herein.
 - e. Acrylonitrile butadiene styrene (ABS) pipe shall conform in every respect to ASTM D-2661 except as otherwise specified herein.
 - f. Concrete pipe (RCP) shall conform in every respect with the "specifications for concrete sewer pipe" ASTM C-14. RCP shall not be used for sewer service connections.
5. Fittings:

- a. All fittings shall be factory-produced and shall be designed for installation on the pipe to be used. Fittings shall be of the same quality and material as the pipe used.
- b. Tapping Sewer Main:
 - i. VCP sewer main: a clay saddle, a plastic strap on saddle, a plastic (PVC) strap on saddle, a Fowler saddle shall be used.
 - ii. PVC sewer main: a plastic (PVC) saddle with a neoprene gasket under the saddle, a Fowler saddle shall be used.
 - iii. DIP sewer main: a plastic (PVC) strap on saddle, a Fowler saddle shall be used.
 - iv. ABS sewer main: a plastic (PVC) saddle, an acrylonitrile styrene (ABS) saddle, a Fowler saddle shall be used.
- c. Couplings for VCP:
 - i. All vitrified clay pipe shall have factory-molded and applied polyurethane couplings complying with ASTM C-425, or shall be plain-end pipe with polyvinyl chloride couplings conforming to ASTM D-3034.
 - ii. All couplings shall form tight compression joints.
 - iii. Repair for which no more than two (2) joints are required, the Contractor may use plain-end pipe with no plastic coupling. If plain-end pipe with no plastic coupling is used, the Contractor shall seal all joints, and use Fernco coupling or approved equal, in accordance with good construction practices; then, the joints shall be encased with a six (6) inch thick concrete collar as shown on Drawing PL-1.
- d. Couplings for DIP:
 - i. Ductile iron pipe may have bell-and-spigot or mechanical joints.
 - ii. If bell-and-spigot joints are used, they shall be joined with Rubber-Gasket Joints conforming to AWWA/ANSI C111/A21.11.
 - iii. If mechanical joints are used, manufacturer's recommendations for installation and good construction practices shall be adhered to.
- e. Couplings for PVC:
 - i. All polyvinyl chloride pipe shall be of bell-and spigot type and have a manufacturer's recommended compression rubber gasket joint conforming to ASTM D-2321 and ASTM F-477.
 - ii. If less than two joints of pipe are to be used in a repair, the Contractor may use plain-end pipe.
 - iii. If plain-end pipe is used, it shall be connected with a flexible repair coupling, Fernco coupling or approved equal.
- f. Couplings for ABSL
 - i. All Acrylonitrile butadiene styrene (ABS) pipe shall be of fitting socket-open end and are to be solvent welded by a solvent known as MEK (methyl-ethyl-ketone) or by a manufacturer's recommended solvent equal to MEK and conforming to ASTM D-2235.
 - ii. If less than two joints of pipe are to be used in a repair, the Contractor may use plain-end pipe if adequate adapters are solvent welded to it and the existing sewer pipe,
 - iii. Fernco couplings or approved equal may be used.
 - iv. The Contractor will allow the joint to set for a sufficient length of time as determined by manufacturer before backfilling or disturbing the joint.
- g. Couplings for RCP

- i. All concrete pipe shall be of bell-and-spigot type and have a manufacturer's recommended compression rubber gasket joint conforming to ASTM C-443.
- ii. If less than two joints of pipe are to be used in a repair, the Contractor may use plain-end pipe. If plain-end pipe is used, all joints without rubber gaskets shall be encased with a six (6) inch thick concrete collar (see Drawing No. PL-1).

PART 3 - EXECUTION.

3.1 SAFETY.

- A. Perform all work in accordance with applicable OSHA standards

3.2 PREPARATION.

- A. Contractor shall clear work zone for excavation. It is Contractor's responsibility to provide a photo or video log of the work zone(s) and to protect and restore the zone to a condition as good as it was before the Work was accomplished. All removed fences; shrubbery, sidewalks, planters, and landscaping shall be restored utilizing new materials unless directed otherwise in writing by the Owner/Occupant and by the Water Services Department.
- B. Existing Utilities:
 1. The Contractor is responsible for protecting all utilities in public right-of-way. All permits and licenses require in the prosecution of any and all parts of work shall be obtained by the Contractor.
 2. The Contractor shall notify all utilities at least 48 hours in advance before making excavation in accordance with Missouri State Law; Senate Bill No. 583, 78th General Assembly of the State of Missouri.
 3. When water mains or water service lines exist in the area, the Contractor shall comply with all applicable rules and regulations of Kansas City, Missouri Water Services Department and the Missouri State Board of Health.

3.3 INSTALLATION.

- A. Construction Details
 1. The maximum deflection permissible at any one fitting shall be forty-five (45) degrees (one-eighth ($\frac{1}{8}$) bend).
 2. Private sewers shall be connected to a tee, wye or a manhole on the public sewer where such is available. Where no tee, wye or manhole is available, the sewers shall be tapped. Paragraph b. of Section 2.1.5., Materials, lists what type of saddles are permissible depending on the material of the sewer to be tapped.
- B. Excavation:
 1. General: Excavation for private sewer lines shall be as specified in Standard Specifications for Sanitary Sewers except as amended herein.
 2. Width of Trench: The width of trench at the top of a pipe shall not exceed the outside diameter of the pipe plus eighteen (18) inches. Where rock is

encountered, requiring removal by blasting, this width may be increased by ten (10) inches.

3. Tunneling:

- a. Tunneling will be permitted only under existing utilities or upon permission from the Water Services Department.
- b. If tunneling is permitted, the Contractor shall submit to the Water Services Department for approval the method of tunneling, type of bracing and precautions to be used to insure against a collapse.

4. Shoring, Sheeting and Bracing:

The Contractor shall do all necessary trench bracing, shoring, or sheeting that will provide assurance against slides or cave-ins. Additional shoring, sheeting, and bracing shall be placed wherever so required for the successful and safe prosecution of the work as determined by the Water Services Department.

C. Pipe Bedding:

- 1. General: The sewer trench in earth excavation shall be carried to a point not less than four (4) inches below bottom of the pipe barrel and in rock excavation to a point not less than six (6) inches below bottom of pipe barrel.
- 2. Bedding Aggregate: All materials used for crushed stone pipe bedding shall conform to the requirements of MCIB Bulletin #2 for coarse aggregate and shall meet the graduation specified therein under Column III, Table 2, for three-quarter (¾) inch maximum size aggregate with the following modifications:

Percentage

Sieve Size

Passing

No. 4

0 – 5

No. 8

0 – 2

3. Installation:

- a. The three-fourths (¾) inch crushed stone pipe bedding shall be compacted to bottom of pipe with proper allowance for bell joints. After each joint of pipe has been shoved “home” and placed in proper alignment, crushed stone shall be placed and compacted to a minimum of six (6) inches above the pipe bell. In no case shall brick or other large stones be used as bedding, if such stones are necessary to expedite installation, they shall be removed before backfilling and replaced with crushed stone. (See Drawing No. PL-1)
- b. No more than six (6) inches of crushed stone shall be used for pipe bedding. If excavation is carried deeper than six (6) inches below bottom of pipe, the over-excavated area shall be filled with earth compacted the full width of trench. This compacted earth shall be continued until no more than six (6) inches, no less than four (4) inches, of three-fourths (¾) inch crushed stone bedding will be required to bring pipe to proper grade.

- D. Line and Grade: Minimum Grade: The minimum grade allowable for private sewers in public right-of-way will be one-fourth (1/4) inch per linear foot. A grade as little as one-eighth (1/8) inch per linear foot may be allowed in special cases upon written permission from the Water Services Department. In no case will a private sewer in public right-of-way be constructed having a grade less than one-eighth (1/8) inch per linear foot.
- E. Cover: Minimum Allowable Cover: A minimum cover of four (4) feet from top of pipe to finish grade of ground surface is required for all private lines in public right-of-way. If less cover is necessary to allow entrance into a public sewer or avoid excessive rock excavation, the private sewer line shall have a concrete encasement no less than six (6) inches thick with a minimum cover over the encasement of one (1) foot. (See Drawing No. PL-3.)
- F. Backfill:

- 1. General: Backfill of excavations for private sewer lines in public right-of-way shall be as specified in Sanitary Sewer Specifications as amended herein.
- 2. Backfill in Open Excavation:
 - a. The backfill material shall be compacted to a minimum of 90.0 percent of optimum density as determined by the Standard Proctor Test (ASTM D-698) or shall be compacted to a density equivalent to the density of the immediate adjoining soil. The top six (6) inches of backfill in minimum density of 95.0 percent of optimum density as determined by the Standard Proctor Test. Backfill material shall replaced and compacted only when its moisture content is within +/-2.0 percent of optimum moisture content as determined by Standard Proctor Test.
 - b. Acceptable backfill materials shall be earth or rock. Rock used in backfill shall have the following gradation:

Screen Size:	1 1/2"	1"	1/2"	1/4"
% Passing:	100	60-100	30-65	0-5

- c. The area between the top of crushed stone bedding and a horizontal plane one (1) foot above the top of the sewer pipe shall be backfilled with earth or stone. Such material shall be carefully tamped around the pipe with hand or mechanical tampers.
- d. The backfill above a horizontal plane one (1) foot above the top of pipe may be filled with earth or stone, except in street right-of-way where backfill material must be in stone. All backfill must be completed with mechanical tampers or other equipment to a density at least equal to the density of adjacent undisturbed soil.
- e. No rocks, boulders, concrete rubble, or other stones with any dimension greater than twelve (12) inches shall be used in the backfill. If stones smaller than twelve (12) inches, but larger than two (2) inches are used, they shall not be placed closer than two (2) feet from the top of pipe and care shall be taken to insure that proper compaction is obtained around such stones.

3. Backfill in Tunnel:

- a. Backfill in a tunnel shall consist of cement grout mixed to a ratio of twelve (12) parts sand to one (1) part cement.
- b. Grout shall be placed in a manner that will completely fill all voids between the tunnel and outside diameter of the pipe. Adequate provisions shall be made to prevent the grout mixture from slumping or running out the ends of the tunnel.
- 4. Boring: Backfill in bored tunnels shall be with cement grout mixed to a ratio of four (4) parts sand to one (1) part cement. The grout shall be placed in such a manner that will completely fill all voids between the bored tunnel and the outside diameter of the pipe.
- G. Tapping City Sewers: All applicable tapping policies and procedures are made part of these specifications by reference and are subject to change by the City without notification. Copies of current policies and procedures as well as fee schedules used in charging for City-made taps can be obtained from the Water Services Department.

3.4 COMPLETION of WORK and SITE RESTORATION.

- A. Inspection and Acceptance: All applicable inspection policies, procedures, and charges are made part of these specifications by reference and are subject to change by the City without notification. Copies of current policies, procedures, and fee schedules may be obtained from the Water Services Department.
- B. Site Restoration: All pavement, surfacing, driveways, sidewalks, curb, wall, buildings, utility poles, guy wires, and other surface structures affected by work in public right-of-way, together with all sod and shrubs, shall be maintained and, if removed or otherwise damaged, shall be restored to their original condition, and in accordance with all applicable permits and regulations.

End of Section.

SECTION 02506 – WATER UTILITY FACILITIES

A. GENERAL

1. The Water Services Department Standards and Specifications for Water Main Extensions and relocations shall be used for the construction of the water mains except for the sections, which have been modified and included herein.
2. The Work to be performed under this section consists of furnishing all labor, materials (except those materials specifically listed under MATERIALS FURNISHED BY OWNER), equipment, tools, superintendence, and all services necessary to perform the Work complete with all appurtenances:
3. The contractor shall notify water services Department, Inspection and Construction Division at least 2 working days prior to starting work on water utility and facilities.
4. The Contractor shall provide a 3-year maintenance bond in accordance with the requirements of the water Department for all water line construction.

B. CONTRACT SPECIFICATIONS

1. The work shall conform to these Project Requirements and to the latest revision of the *Standards and Specifications for Water Main Extensions and Relocations* which is made a part hereof by reference.
2. The term “Engineer” as used in the aforesaid Standards and Specifications and in this section, Section 02510 of the Project Manual, only, shall mean the Engineering Services Division of the Water Services Department of the City, or any engineer or agent designated by the DIRECTOR of the Water Service Department in responsible charge of the water line Work.
3. The Standards and Specifications for Water Main Extensions and Relocations is available on the City website at <http://www.kcwaterservices.org>. The hypertext path to click is as follows: Customer Services; Resources.

C. MATERIALS FURNISHED BY THE OWNER

1. The Owner will furnish, upon written request from the Contractor and without charge to the Contractor, the materials listed below. All other materials required to complete the Work in accordance with the Contract Documents shall be furnished and installed by and at the expense of the Contractor.

<u>Item</u>	<u>Quantity</u>
N/A	N/A

SECTION 02506 – WATER UTILITY FACILITIES

2. All material furnished by the Owner which is damaged, lost or stolen after its acceptance by the Contractor shall be replaced at the expense of the Contractor with like material purchased from the Owner.
3. The Contractor, or his authorized representative, shall sign a bill of receipt for all materials withdrawn from the Water Services Department Stores.
4. All materials withdrawn from the Water Services Department Stores that are not incorporated in the Work shall be returned to the Water Services Department Stores. All such material not returned shall be charged to the Contractor and deduction therefore shall be made from the final payment estimate.

D. CONNECTIONS TO EXISTING MAINS

1. 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. Scheduling of water main shuts and connections to existing water main shall be discretion of Water Services.
2. 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.

3. Temporary Service

- a. 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.
- b. When temporary water supply is not possible, valve shut duration shall be less than 4 hours.

E. BACKFILL

All backfill in sidewalk and street areas shall be thoroughly compacted in conformance with APWA-KCMO Section 02602.3 "Construction Details."

SECTION 02506 – WATER UTILITY FACILITIES

F. FACILITIES

- 1. Water.** The Owner will furnish 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. Under any conditions, water shall not be wasted. Any water furnished by the Owner must be obtained from the Owner's existing main.

All material and service needed to obtain water for construction purposes shall be provided by the Contractor at his sole cost and expense.

- 2. Operation of Existing Valves.**

- 1. 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 valves on the Water Services Department's transmission mains (any main larger than 12-inches) without direct supervision of the City. If the Contractor desires the operation of any transmission main valves, he shall make a written request of the Water Services Department for such operation. For transmission main shuts, Contractor shall give City at least one week's notice so a temporary test shut can be scheduled and conducted to ensure a tight shut can be made. 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 on transmission mains may be operated in the presence of a representative of the Water Services Department with no official advance notification.

- 2. Valves on Distribution Mains:**

The Contractor has the option to perform test shuts and main shuts on the City's water distribution mains (any main 12" or smaller) without direct supervision and coordination of the City at no extra cost to the City. However, all test shuts and main shuts require the City's approval. The request form for test shuts and main shuts shall be sent to the City's 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 which includes, but is not limited to, filling out and distributing shut notices. The Contractor must still coordinate with both the City's resident inspector and Project Manager. The Contractor must follow City's standard procedures when shutting, filling, and flushing distribution mains, including but limited to, notifying City's Dispatch Office.

SECTION 02506 – WATER UTILITY FACILITIES

If the Contractor chooses not to perform the test shuts and main shuts on the City's water distribution mains without direct supervision and coordination of the City, he must schedule all shuts with the City's resident inspector. For main shuts, Contractor shall give City at least two week's notice so a test shut can be scheduled and conducted. Contractor shall assist with test shuts and main shuts on distribution mains as requested by City including, but not limited to, filling out and distributing shut notices and operation of valves and hydrants under direct supervision of the City.

3. **Power.** All power for lighting, operation of the Contractor's plant or equipment, or for any other use which maybe required for proper completion of the Work to be performed shall be provided by the Contractor at his sole cost and expense.

G. WATER SERVICE PERMITS AND FEES

1. The Contractor will be required to obtain Water Service Permits as required in the Regulations of the Water Department, As Required. However, the Contractor will not be required to pay any permit fees for service permits or service taps.
2. The Contractor will be required to pay all permit fees of other City Departments, as identified in the General and Supplementary Conditions.

H. POSITION, LINE AND 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' 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,

SECTION 02506 – WATER UTILITY FACILITIES

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.

I. DISINFECTION

1. All disinfection work shall be in strict conformance with Section 02675 – Water Main Testing, Disinfection, and Dechlorination of the Standards and Specifications, with the following:

After the mains have been properly prepared, the Contractor will 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.

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. The Contractor shall do all the remaining work such as backfilling, paving, etc, which is necessary before the mains are put into service.

J. WATER SERVICES AND RECONNECTIONS

1. All existing service lines connected to existing mains that are to be abandoned shall be disconnected from said mains and reconnected to the new mains. These reconnections shall be made by the Contractor.
2. The Contractor will perform only one water service transfer at a time. After the reconnection, the immediate area will be prepared for sod restoration before the Contractor is permitted to begin additional transfers.

SECTION 02506 – WATER UTILITY FACILITIES

3. If the Contractor chooses to use multiple crews for water service transfers, one crew may perform the transfer of the water services while another crew performs restoration. Cleanup must be completed on all water service transfers each day.
4. Installation of water service lines beneath streets and driveways shall be done by drilling or approved trench less methods unless rock or other site conditions require open cut excavations.
5. Contractor will replace all non-copper service connections with Type “K” copper (with like size, ¾” minimum) from the main to curb stop. Existing copper service connections can be spliced to extend the existing service to the new main. If a shutoff does not exist within street right-of-way, a curb stop and box shall be installed at a location selected by Water Services Department.
6. The Contractor shall furnish all material, equipment, and labor for the complete installation in accordance with Rules & Regulations of the Water Department latest version. No service taps will be permitted until the new main is put in service. Existing water meters and tiles or curb stops that require relocation, either vertically or horizontally, because of construction, shall be relocated by the Contractor.
7. Meter and curb stop relocations include furnishing and installing new meter pit, new meter yoke, new curb stop, new curb box, new fittings, and all new appurtenances as required by the latest Rules & Regulation of the Water Services Department including any required upgrades to the existing service. Contractor shall coordinate with Water Services for removal and installation of new meter so as to minimize period when customer will be out of service. No additional payment to the contractor shall be allowed for any water services meter and curb stop relocations.
8. Service taps to the main shall be made in accordance with Rules & Regulations of the Water Department with the following exceptions:

Replace Section 4.02 (a) with “(a) Tapping shall be performed by the Contractor.”

9. Water meter and valve castings (curb stops or boxes) shall be relocated as necessary to match the new grades. The number of water meter or valve castings and water service line relocations are approximate only, and the actual quantities will be adjusted during construction.

K. WATER METER, VALVE AND CUT-OFF ADJUSTMENTS

1. **Water Meter Adjustment.** Adjust water meters as necessary in conformance with the "Rules & Regulations of the Water Department" as published by the

SECTION 02506 – WATER UTILITY FACILITIES

Water Department of Kansas City, Missouri. The completed work shall be subject to the approval of the Director of the Water Department.

2. **Water Valve and Cut-Off Adjustment.** Water valves and water service cut-offs which are affected by the work shall be adjusted as necessary to conform with the " Rules & Regulations of the Water Department" as published by the Water Department of Kansas City, Missouri. Once adjusted to finish grade, and following the installation of sod, each water valve box shall be blown clear of debris with compressed air. The Contractor shall be responsible for the protection of surrounding structures and/or vehicles which may be affected by this procedure. The completed work shall be subject to the approval of the Director of the Water Services Department.
3. **Covers and Stems.** Metal Water Meter, Valve Covers, and Stems shall be used in any walking or driving surface.

L. CONSTRUCTION SEQUENCE

No main will be considered substantially complete until the trenching, pipe laying, bedding, backfill, compaction and clean up are complete. In addition the main must be pressure/leakage tested and disinfected, flushed and services transferred. Service transfers, if any, are to be undertaken as soon as the main is accepted, and are to be completed before another main is started, unless multiple crews are working on the project simultaneously. Construction may not begin on subsequent mains until work on the first main is considered complete. If multiple crews are working on the project the pipe laying crews may not work more than one main ahead of the crews conducting service transfers. Where a main is constructed in established lawns, clean up must be performed before the next main is begun. (Lawn areas must be ready to accept sod.)

M. SETTING FIRE HYDRANTS

1. Setting of the fire hydrants shall be in strict conformance with Section 02645 – Hydrants, Blowoff and Flushing Assemblies of the Standards and Specifications, with the following;
2. All new hydrant settings shall be as shown on the Plans 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 of these areas.
3. The Contractor will locate the installation point of each hydrant as shown on the Plans, but not less than 2' from back of curb to face of hydrant. The Contractor shall furnish all labor and material necessary in laying out the Work. The

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Contractor shall be responsible for setting any offset stakes he may require. The Engineer shall approve the staked location of each hydrant before its installation.

N. STREAM CROSSINGS

Stream and drainage ditch crossings shall conform to the applicable Standards and Specifications and details shown on the Plans.

1. 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 Standards and Specifications and placed as indicated on the Plans.
2. The construction of riprap for erosion prevention of ditch slopes will be required at locations shown on the Plans.
3. 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.
4. 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 to complete stream or ditch crossings.

O. SUBMITTALS

1. Schedule of Values

Before submission of the first Application for Payment, Contractor shall prepare and submit to Engineer for review a Schedule of Values. The submittal of the Schedule of Values, showing the estimated quantity and value of each kind of work, shall be acceptable before the Application for Payment is prepared.

2. Shop Drawings and Engineering Data

- a. Shop Drawings and engineering data covering all equipment, fabrications, and building materials which will become a permanent part of the work under this Contract shall be submitted to Engineer for review, at the Engineer's address given in the Agreement. The data shall include drawings and descriptive information in sufficient detail to show the kind, size, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.
- b. 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

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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.

- c. Contractor's stamp of approval is a representation to Owner and Engineer that Contractor accepts full responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that he has reviewed and coordinated each submittal with the requirements of the work and the Contract Documents.
- d. 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.
- e. 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.
- f. Three (3) copies of each drawing and necessary data shall be submitted to the Engineer. Engineer will return two marked copies to Contractor. Facsimile (fax) copies will not be acceptable. Engineer 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.

P. PAYMENT

1. Water Main Relocation and Water Service Line Relocation – Main To Curb Box. Payment will be made for water main work at the lump sum price listed in the Bid Form. Such payment shall be considered as full compensation for all labor, equipment, and materials required to complete the following work in accordance with the Contract Drawings and Specifications regardless of scope changes or differing site conditions.

- a. All water mains, including all pipe, valves, fittings, hardware, polyethylene encasement, and all traffic control.
- b. All hydrant sets, including all pipe, valves, fittings, hardware, and polyethylene encasement.

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- c. All water service connections, including all costs for locating the service line, trenching, pipe, curb stop valves and boxes, and all fittings resulting in an operable water service conforming to the Plumbing Code.**

- d. All Pavement restoration, PCC driveway restoration, sidewalk, and curb ramp restoration Work associated with the water main or water service line relocation that is required to complete the water main or water service line relocation Work from the main to the curb box.**

END OF SECTION

**SECTION 02510 - PORTLAND CEMENT CONCRETE SIDEWALKS,
DRIVEWAYS AND HANDICAP ACCESS RAMPS**

PART 1 - GENERAL

1.01 SCOPE. The Contractor shall provide all concrete work, excavations, cleanup and restoration as required to complete the concrete construction as specified herein and as shown on the drawings.

1.03 CODES and STANDARDS. American Society for Testing and Materials (ASTM):

- A. Cement shall conform to ASTM C150
- B. Fine and coarse aggregate shall conform to ASTM C33
- C. All reinforcing steel shall conform to ASTM A185

1.04 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:

- A. Warranty
 - 1. Terms: Standard Manufacturer's warranty
 - 2. Warranty Period: Standard Manufacturer's warranty

1.05 CONTRACTOR SUBMITTALS. Drawings, specifications, and data covering the proposed materials shall be submitted to the Water Services Department.

- A. Prior to commencing with construction the Contractor shall submit the following to the Water Services Department for approval:
- B. Concrete mix design for Sidewalk, Handicap Access Ramp, and Driveway.
- C. Sieve analysis for concrete base rock.
- D. Manufacturers certification of concrete reinforcing
- E. Samples: Submit for specified materials 20 days prior to delivery to Site.
- F. Certified Test Results on Source Materials: Submit copies from commercial testing laboratory 20 days prior to delivery of materials to Project showing materials meeting the physical qualities specified

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING. Delivery of materials shall be in manufacturer's original unopened and undamaged packages. They shall be clearly marked to identify brand name, contents and order number on each package. Packages showing indication of damage that may affect condition of contents are not acceptable.

Storage of material shall provide protective cover from damage and stored at temperatures in accordance with manufacturer's recommendation. Materials shall be staked or stored in accordance with manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS.

A. Portland Cement Concrete:

1. Portland cement concrete shall have a minimum compression strength of 4000 psi at 28 days, and meet the requirements of these Specifications.
2. Reinforcement shall be 6" x 6" No. 4 x No. 4 Woven Wire Fabric.
3. Cement shall conform to ASTM C150, Type I, unless high early strength is required in which instance Type III shall be used. Cement may be bagged or bulk. Cements shall be used from only one mill throughout the entire project.
4. Fine aggregate: Clean natural sand, shall conform to ASTM C33 and have the following gradation:

Sieve	% Passing	% Retained
3/8"	100	0
#4	95-100	0-5
#8	80-100	0-20
#16	50-85	15-50
#30	25-60	40-75
#50	10-30	70-90
#100	2-10	90-98

5. Coarse Aggregate: Clean crushed rock, washed gravel, or other inert granular material, except that clay and shale particles shall not exceed one percent. Coarse aggregate shall conform to ASTM C33 and have the following gradation:

Sq. Sieve	% Passing	% Retained
3/4"	90-100	0-10
3/8"	20-55	45-80
#4	0-10	90-100
#8	0-5	95-100

6. Water. Treated, filtered potable water from a municipal or other public water supply district shall be used.

B. Aggregate Base and Leveling Course:

1. Clean, hard durable, pit run gravel or crushed stone graded from coarse to fine containing enough fines to bind material when compacted.
2. Physical Qualities:
 - i. Abrasion, AASHTO T96: 35 percent maximum wear.
 - ii. Fractured Face: 75 percent minimum particles.
 - iii. Liquid Limit, AASHTO T89: Maximum 35 percent.
 - iv. Plasticity Index, AASHTO T90: Maximum 10 percent.
 - v. Sand Equivalency, ASTM D2419: 35 percent, minimum.
 - vi. Resistance (R) Value, AASHTO T190: 75 minimum.

- vii. CBR Value, ASTM D1883: 100 percent, minimum.
- viii. Soundness, ASTM C88: 12 percent, maximum.
- ix. Flat and Elongated Particles, ASTM D4791: 8 percent, maximum.
- x. Gradation – see Section 02200 - Earthwork.

PART 3 - EXECUTION.

3.1 SAFETY.

- A. Perform all work in accordance with applicable OSHA standards
- B. During construction, care shall be taken to ensure public safety along the sidewalk.
- C. Contractor shall provide traffic control and advanced warning devices, flaggers, and lighting as necessary to protect the work zone and to the satisfaction of the Water Services Department.

3.2 PREPARATION.

- A. The Contractor shall be responsible for the cost of providing fill material consisting of untreated compacted aggregate within the top six (6) inches of subgrade.
- B. The Contractor shall maintain and protect any excavations or material stockpiles.

3.3 SIDEWALK INSTALLATION.

- A. Portland Cement Concrete sidewalk shall be a minimum of four (4) inches thick and shall conform to the requirements of Standard Drawings SW-1 and SW-2.
- B. Minor variations in alignment shall be permitted on all sidewalk locations to save some trees and other structures of permanent nature.
- C. All curb boxes, tile covers and meterpit covers shall be adjusted to grade and movable portions shall be left free and clean.
- D. Joints:
 - 1. All expansion and contraction joints shall be reconstructed and all catch basins, poles, fire hydrants, manholes and fire alarm bases shall be adjusted to grade and boxed in with expansion joints.
 - 2. Expansion material shall be located as directed by the Water Services Department. Wherever possible, the expansion joints shall be located in lieu of other joints giving the sidewalk an appearance of continuity.
- E. Transition from existing sidewalk to new structures:
 - 1. New catchbasin top slabs and sidewalk shall be installed at a grade and elevation matching the existing sidewalk, where applicable. If a catchbasin must be installed at an elevation higher than the existing sidewalk, the new sidewalk shall be installed with a transition from the existing elevation to the new elevation with a slope not to exceed five percent (5%).

2. New catchbasins and sidewalks will not be accepted if installed below existing elevation.

3.4 HANDICAP ACCESS RAMP INSTALLATION.

- A. Portland cement concrete handicap access ramps shall be a minimum of eight (8) inches thick and shall conform to the standards adopted by the City of Kansas City, MO and all requirements of the American's with Disabilities Act.
- B. The Water Services Department shall direct the Contractor as to location of access ramps and the applicable Standard Plan.
- C. The Contractor shall be responsible for the cost of providing fill material consisting of untreated compacted aggregate within the top six (6) inches of subgrade.
- D. During construction, care shall be taken to ensure public safety along the sidewalk.
- E. All curb boxes, tile covers and meterpit covers shall be adjusted to grade and movable portions shall be left free and clean.
- F. Ramps shall be finished with a texture or pattern that complies with current ADA standards.

3.5 DRIVEWAY INSTALLATION.

- A. Portland Cement Concrete driveways shall be a minimum of six (6) inches thick and shall conform to the requirements of Standard Drawings D-1, D-2 and D-US.
- B. The Contractor shall be responsible for the cost of providing fill material consisting of untreated compacted aggregate within the top six (6) inches of subgrade.
- C. During construction, care shall be taken to ensure public safety along the sidewalk.
- D. All curb boxes, tile covers and meterpit covers shall be adjusted to grade and movable portions shall be left free and clean.

3.6 PARKS AND RECREATION DEPARTMENT REQUIREMENTS.

All sidewalks and driveways reconstructed along streets under the jurisdiction of the Parks and Recreation Department shall be in accordance with the plans and specifications of that department, except that reinforcing shall be 6 x 6 - W2.9 x W2.9 welded steel wire fabric.

3.6 COMPLETION of WORK and SITE RESTORATION.

- A. Concrete Stamp.
 1. The Contractor shall stamp all items of work with an appropriate metal stamp approximately 4" x 6" in size.

2. The stamp shall satisfactorily identify the Contractor and shall show the year of the contract.
3. The stamp and application of the stamp to the work shall be subject to the approval of the Water Services Department.
4. Each driveway shall be stamped once near the sidewalk or property line.
5. Each individual section of sidewalk and/or curb shall be stamped at one end.
6. Work in front of each property shall be stamped.
7. Continuous sections of sidewalk and/or curb that are across an entire side of a property shall be stamped at each end.
8. No measurement or payment will be made for unstamped curb, sidewalk or driveway.

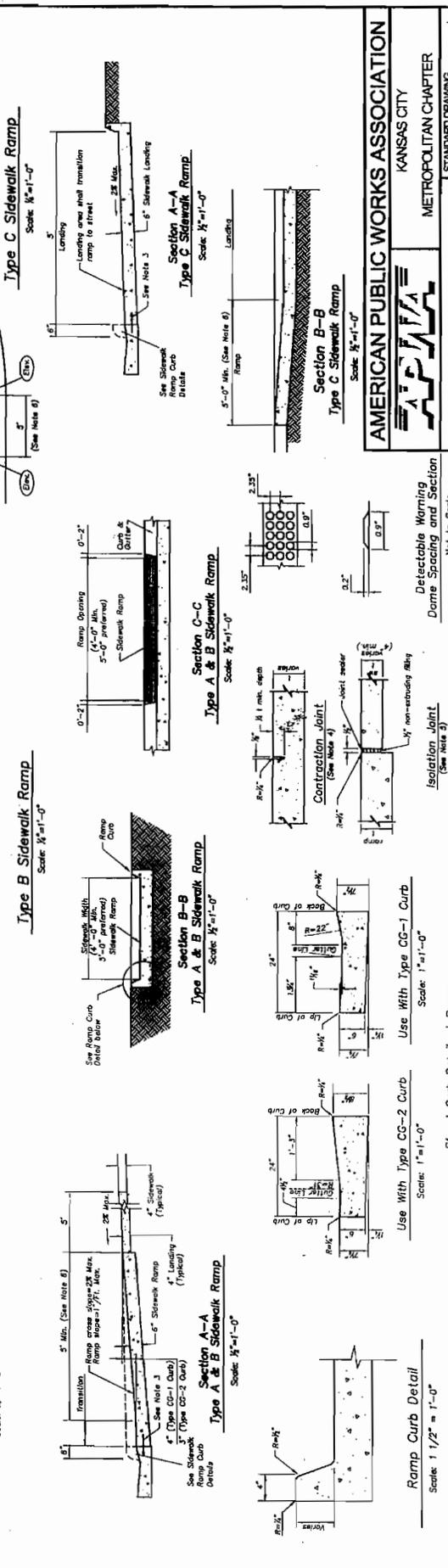
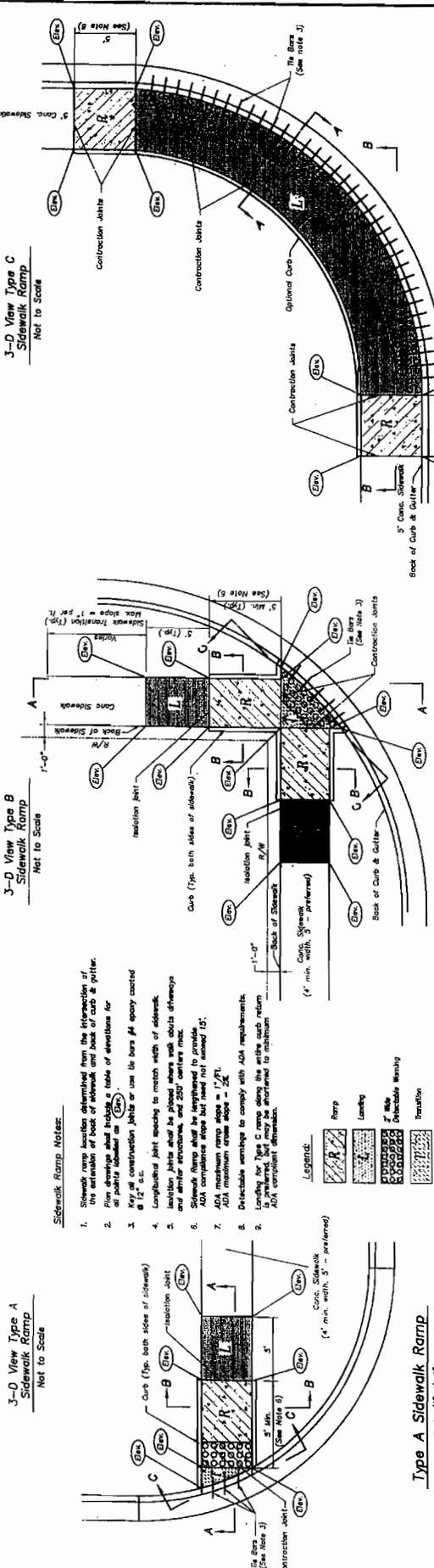
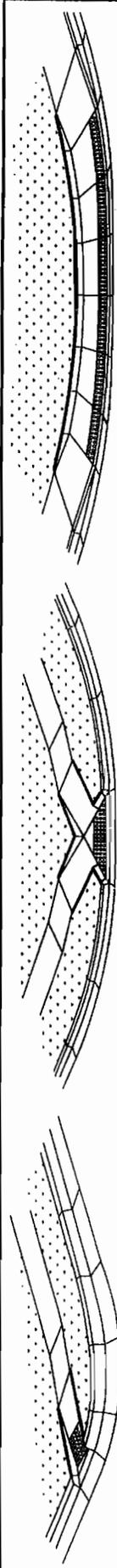
B. Cleanup.

1. Site cleanup and restoration shall be included in other items of work and will not be paid for directly.
2. Site shall be restored to the condition prior to the Work or better to the satisfaction of the Water Services Department.

C. Measurement and Payment

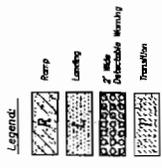
1. Sidewalk shall be paid for by the Square Yard (SY) of sidewalk properly constructed and accepted by the Water Services Department.
2. Handicap Access Ramps shall be paid for by the Square Yard (SY) of access ramp properly constructed and accepted by the Water Services Department.
3. Driveway shall be paid for by the Square Yard (SY) of driveway properly constructed and accepted by the Water Services Department.

End of Section.



Sidewalk Ramp Notes:

- Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
- Plan drawings shall include a table of elevations for at public utility as shown.
- Key all construction joints or use tie bars #4 epoxy coated @ 12" o.c.
- Lengthwise joint spacing to match width of sidewalk.
- Isolation joints shall be placed where walk abuts driveway and similar structures, and 250' centers min.
- Sidewalk ramp shall be tapered to provide a minimum slope of 1:12.
- ADA maximum slope = 1:12.
- ADA maximum cross slope = 2%.
- Detectable warnings to comply with ADA requirements is preferred, but may be alternated to minimum ADA compliant dimension.



AMERICAN PUBLIC WORKS ASSOCIATION
 KANSAS CITY METROPOLITAN CHAPTER
 STANDARD DRAWING NUMBER SW-1
 ADOPTED: DECEMBER 18, 2002

SIDEWALK RAMP DETAILS

Use With Type CG-1 Curb
 Scale: 1"=1'-0"

Use With Type CG-2 Curb
 Scale: 1"=1'-0"

Ramp Curb Detail
 Scale: 1/2" = 1'-0"

Use With Type CG-1 Curb
 Scale: 1"=1'-0"

Use With Type CG-2 Curb
 Scale: 1"=1'-0"

Ramp Curb Detail
 Scale: 1/2" = 1'-0"

Use With Type CG-1 Curb
 Scale: 1"=1'-0"

Use With Type CG-2 Curb
 Scale: 1"=1'-0"

Ramp Curb Detail
 Scale: 1/2" = 1'-0"

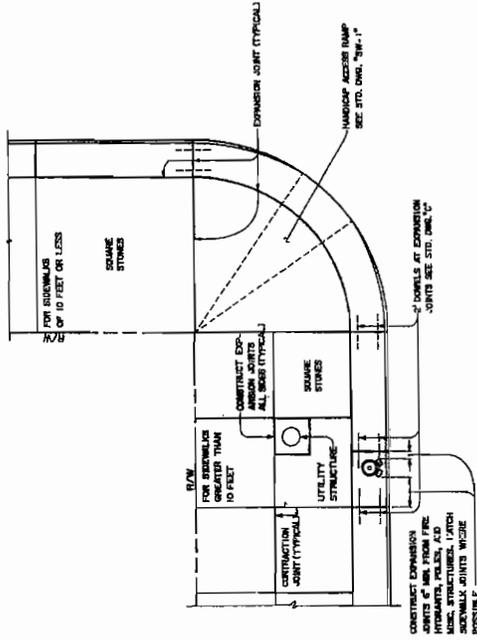
Use With Type CG-1 Curb
 Scale: 1"=1'-0"

Use With Type CG-2 Curb
 Scale: 1"=1'-0"

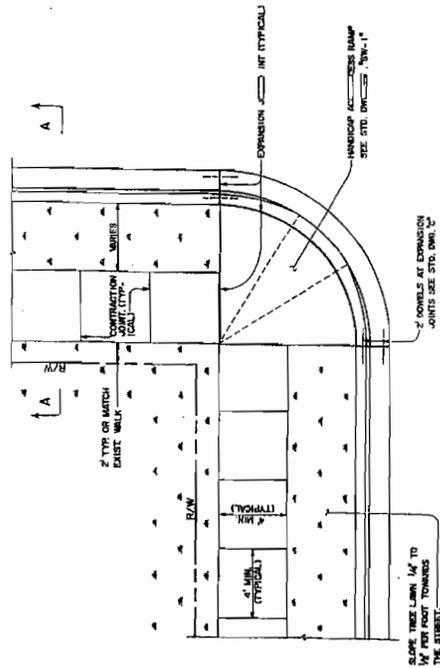
Ramp Curb Detail
 Scale: 1/2" = 1'-0"

GENERAL NOTES

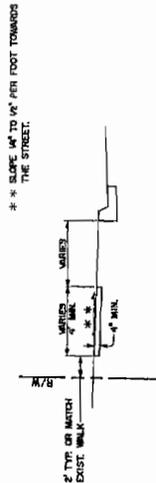
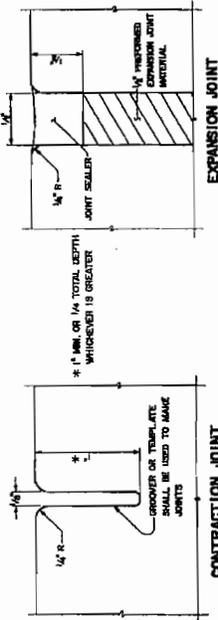
1. CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF STANDARD SPECIFICATIONS AND DESIGN CRITERIA.
2. CONCRETE JOINTS SHALL BE PLACED AT PAVERS, CURBS AND WHERE SIDEWALKS ADJUT BALCONIES, RETAINING WALLS, CURBS, DRIVEWAYS AND SIMILAR STRUCTURES. JOINTS SHALL BE PLACED AT MINIMUM 10 FEET FROM THE CENTERLINE OF THE ROADWAY. JOINTS SHALL BE SEALED IN ACCORDANCE WITH SECTION 804.02 OF THE STANDARD SPECIFICATIONS AND DESIGN CRITERIA.
3. THE SIDEWALK SURFACE SHALL BE MARKED OFF INTO SQUARE STONES BY CONSTRUCTION JOINTS. JOINTS SHALL BE PLACED AT 10 FEET FROM THE CENTERLINE OF THE ROADWAY TO 10 FEET, WHERE SIDEWALK EXTENDS 10 FEET OR MORE, A LONGITUDINAL CONTRACTION JOINT SHALL BE MARKED OFF IN THE CENTER OF THE SIDEWALK. JOINTS SHALL BE PLACED AT 10 FEET FROM THE CENTERLINE OF THE ROADWAY TO 10 FEET, WHERE SIDEWALK EXTENDS 10 FEET OR MORE, A LONGITUDINAL CONTRACTION JOINT SHALL BE MARKED OFF IN THE CENTER OF THE SIDEWALK.



**COMMERCIAL SIDEWALK
PLAN VIEW**



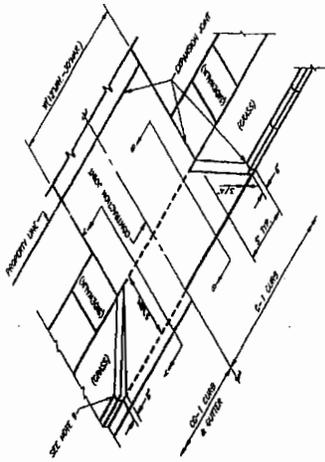
**RESIDENTIAL SIDEWALK
PLAN VIEW**



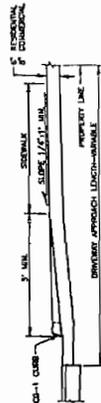
** SLOPE 1/4\"/>

ADOPTION OF THIS STANDARD WILL SUPERSEDE PREVIOUS STANDARDS FOR LIKE SUBJECTS.

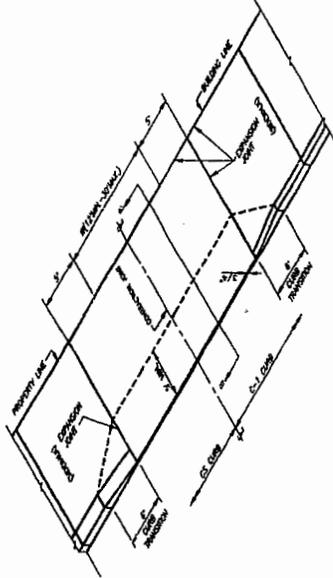
ADOPTED	DATE
DIRECTOR OF PUBLIC WORKS	
ENTRY NO.	
Kansas City, Mo. Public Works Department Engineering Division	
SIDEWALK RESIDENTIAL & COMMERCIAL	STANDARD DRAWING SW-2



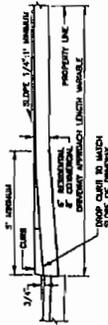
TYPE I



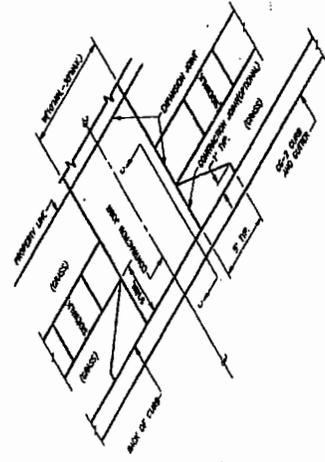
SECTION A-A (SEE 1-1 CURB SHOWN)



TYPE II



SECTION B-B (SEE C-1 CURB)



TYPE III

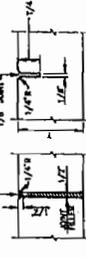


SECTION C-C (SEE 2-2 CURB)

NOTES:

1. THE TOP OF FINISH SURFACE SHALL BE COMPACTED TO USE OF STANDARD MAXIMUM DENSITY.
2. CONCRETE SHALL CONFORM TO MICH. DEPT. OF TRANSPORTATION SPEC. 203.1.1. EXCEPT IN CASE WHERE MICH. DEPT. OF TRANSPORTATION SPEC. 203.1.1. IS IN CONFLICT WITH THIS SPECIFICATION.
3. TO PREVENT SPALLING, SURFACE SHALL BE FINISHED TO STANDARD SPECIFICATION SECTION 203.1.1.
4. CURB HEIGHTS SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 203.1.1.
5. CURB TERMINATED ON IMPAVED FLANKS ARE CONSIDERED PART OF SHOULDER.
6. CURB TERMINATED ON UNPAVED FLANKS SHALL BE FINISHED IN CENTER OF CURB.
7. ON PAVEMENT, PROPERTY MARKS SHALL BE LOCATED IN CENTER OF ROAD THICKNESS AND USE THIN SET BEDDING OF PLANK.
8. CONSTRUCTION JOINTS SHALL BE SPACED AT 10' MAX. AT INTERSECTIONS.
9. 2\"/>

CONCRETE OR TYPICAL CURB TO HAVE 1/4\"/>



JOINT DETAILS

ADOPTED

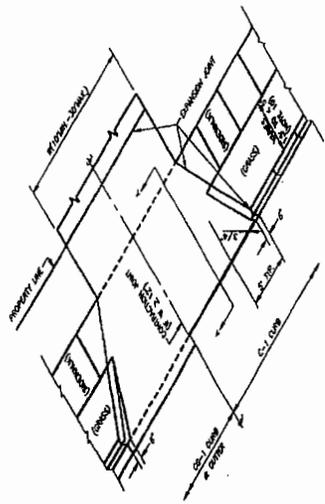
Division of Public Works

Entry No. _____ Date _____

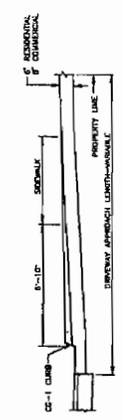
Kansas City, Missouri
Public Works Department
Engineering Division

CONCRETE DRIVEWAYS

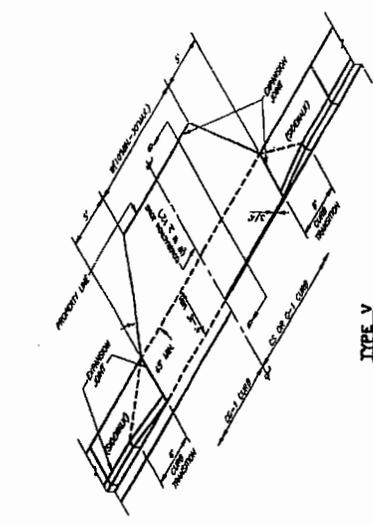
STANDARD DRAWING NUMBER
D-1



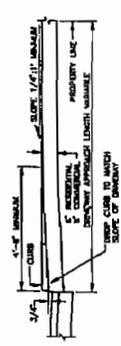
TYPE IV
(PARKWAY 1.5' TO <5')



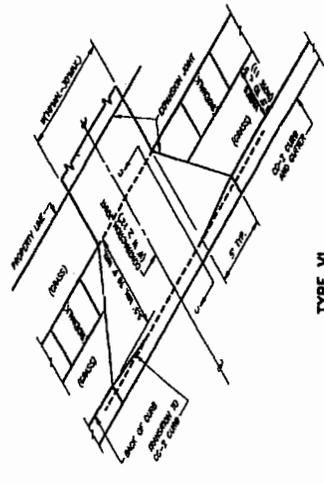
SECTION A-A (C-1 CURB SHOWN)



TYPE V



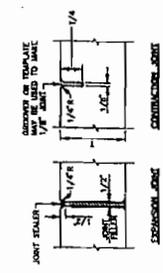
SECTION B-B (C-1 CURB SHOWN)



TYPE VI
(PARKWAY 1.5' TO <5')



SECTION C-C (C-1 CURB)



JOINT DETAILS

- NOTES:**
1. THE TYPE & OF CONCRETE MATERIAL SHALL BE COMPACTED TO MEET THE REQUIREMENTS OF THE SPECIFICATIONS.
 2. CONCRETE SHALL CONFORM TO ASTM SPEC. FOR PORTLAND CEMENT CONCRETE, SECTION 206.2.4.
 3. CURB SHALL BE 1.5' TO 4.5' HIGH WITH THE FACE FINISHED TO MATCH THE DRIVEWAY APPROACH LENGTH - VARIABLE.
 4. CURB MATERIALS SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 206.2.4.
 5. CURB THICKNESS ON DRIVEWAY SIDES AND CORNERS SHALL BE 4" MINIMUM.
 6. CURB THICKNESS ON DRIVEWAY ENDS SHALL BE 6" MINIMUM.
 7. ON PARK DRIVE, PROPERTY LINE SHALL BE PLACED IN CENTER OF CURB THICKNESS AND USE FINISH SURFACE OF CURB.
 8. CONSTRUCTION JOINTS SHALL BE SPACED AT 10' MAX. WITH DRIVEN JOINTS.
 9. THE 1/4" x 1/4" JOINT SEALER SHALL BE USED ON ALL C-1 CURBS.
 10. CURB SHALL BE 1.5' UP AT PARKWAY LINE ON SPACES IN C-1 & C-2 CURBS.
 11. IF PARKWAY IS 4.5' WIDE, CURB SHALL BE CONCRETE AS PART OF THE DRIVEWAY.

ADOPTED

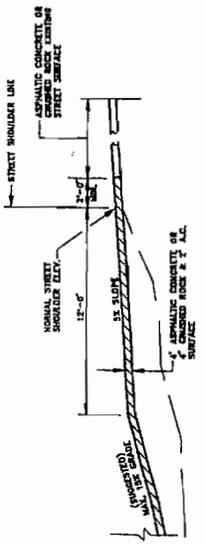
Director of Public Works _____ Date _____
City No. _____

Kansas City, Missouri
Public Works Department
Engineering Division

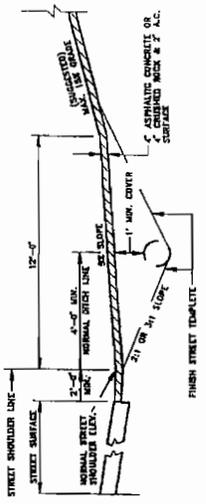
CONCRETE RECONSTRUCTION DRIVEWAYS
STANDARD DRAWING NUMBER
D-2

GENERAL NOTES

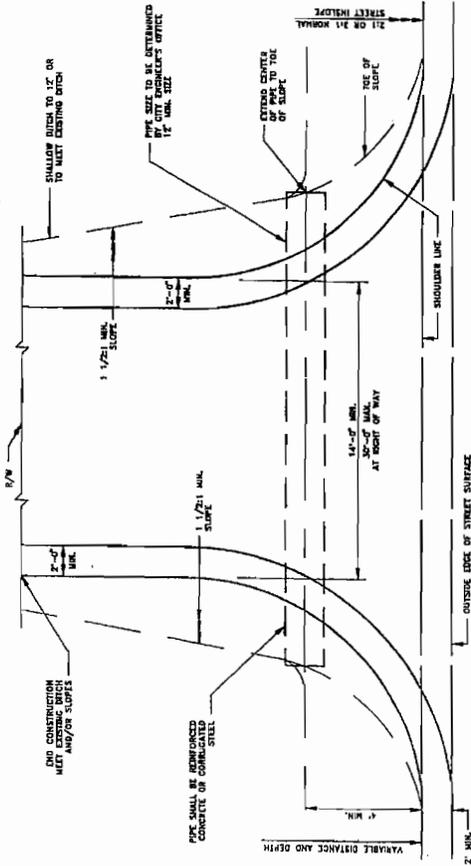
1. DRIVEWAY SHALL BE SURFACED WITH EITHER FOUR INCHES OF ASPHALTIC CONCRETE OR 2 INCHES OF PORTLAND CEMENT CONCRETE ON A 7 INCH 2 INCH COMPACTED ENHANCED ASPHALTIC SAND.
2. ALL FILL MATERIAL SHALL BE COMPACTED TO 95% OF STANDARD MAXIMUM DENSITY.



**SECTION SHOWING PROFILE
IN FILLS**



**SECTION SHOWING PROFILE
IN CUTS**



TYPICAL PLAN OF DRIVEWAY APPROACH

THIS STANDARD SUPERCEDES STANDARD PLAN D-US WITH ENTRY NO. 8402B.

ADOPTED

Division of Public Works
Entry No. 900031
Date

Kansas City, Missouri
Public Works Department
Engineering Division

STANDARD DRAWING NUMBER
D-US

SECTION 02528 - PORTLAND CEMENT CONCRETE CURBS

1. GENERAL. The curbs shall conform to the Standard Drawing C for Type C-1, CG-1, CG-2, or CS Curb. The Contractor shall be responsible for the cost of providing fill material consisting of untreated compacted aggregate within six (6) inches of subgrade.

1.1. Removal of Existing Curb. Removal of existing curb shall be considered work incidental to construction of the proposed curb or curb and gutter. Where existing pavement is damaged, pavement shall be repaired in accordance with Section 02575.

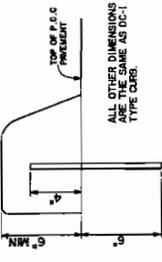
1.2. Non-Standard Curb. Where non-standard curb exists, it shall be replaced with the applicable standard curb, maintaining approximate alignment at the back of the existing curb. Where it is determined that additional asphaltic concrete fill is needed due to irregular existing curb width, pavement shall be restored as specified in Section 02575.

1.3. Curbs on Corner Radii. Where Type C-1 or Type CS curb is at a corner radius, the sidewalk and "curb section" shall be constructed monolithically and a false joint shall be tooled at the appropriate back of curb location as directed by the Engineer. Type CG-1 or CG-2 curb shall be constructed conforming to Standard Drawing SW-1.

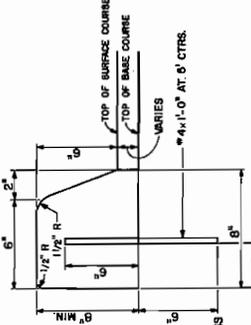
2. CURB DRAINS. Where existing curb drains are encountered within the public right-of-way, the Contractor shall restore an adequate length of drain conduit that shall extend through, but not extrude past, the face of the curb section being replaced. Curb drains shall be reinstalled at a grade adequate to facilitate drainage from the existing structure. Curb drain restoration shall be considered incidental to the curb reconstruction.

3. PARKS AND RECREATION DEPARTMENT REQUIREMENTS. All curbs reconstructed along streets under the jurisdiction of the Parks and Recreation Department shall be in accordance with the plans and specifications of that department, except that the continuous No. 4 rebar shall be placed centered two (2) inches from the top of the curb.

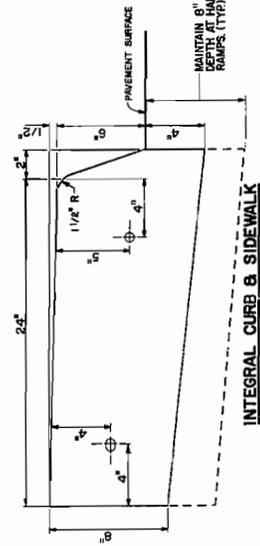
End of Section.



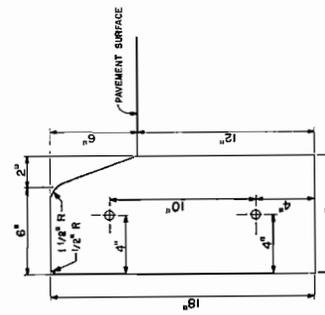
**DOWELED CONCRETE CURB
(TYPE DC-2)**



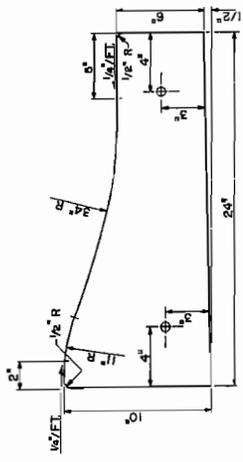
**DOWELED CONCRETE CURB
(TYPE DC-1)**



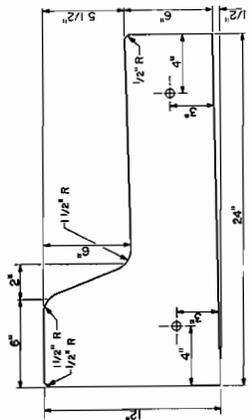
**INTEGRAL CURB & SIDEWALK
(TYPE CS)**



**STRAIGHT CURB
(TYPE C-1)**



**ROLL BACK CURB & GUTTER
(TYPE CG-2)**



**STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)**

GENERAL NOTES

1. 1/2" EXPANSION JOINTS WITH 2" DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 100' INTERVALS. THESE DOWELS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 1" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 60' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. FIX DOWELS WITH BAR SUPPORTS.
4. CONCRETE SHALL CONFORM TO M/C18 MIX NO. W.A. 810-1-4 UNLESS OTHERWISE SPECIFIED IN PLANS AND PROJECT MANUAL FOR C&D OF K.C.M.D. SEE SECTION 2500 OF STANDARD SPECIFICATIONS AND DESIGN CRITERIA.
5. USE 3/8" Ø x 2' SMOOTH DOWELS AT LOCATIONS SHOWN ON EACH TYPICAL SECTION.
6. DEPTH OF CURB SHALL BE A MINIMUM OF 8" THRU THE HANDICAP ACCESS RAMP.

ADOPTED

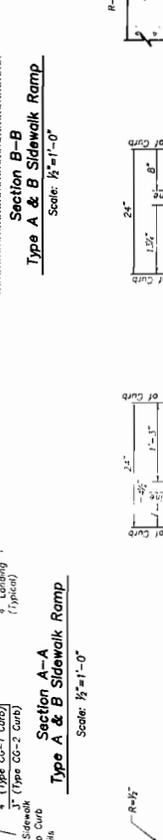
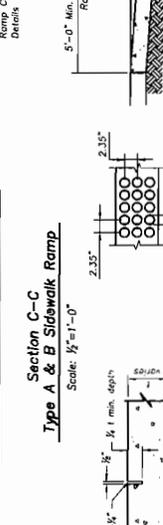
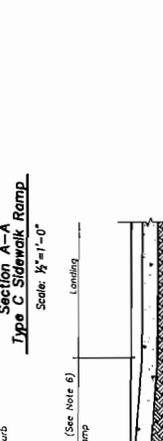
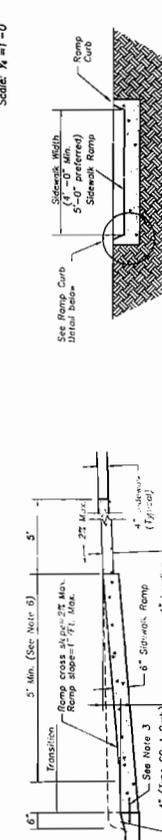
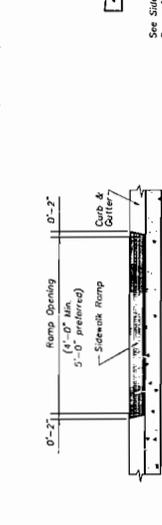
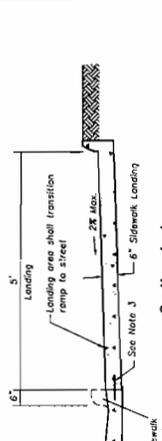
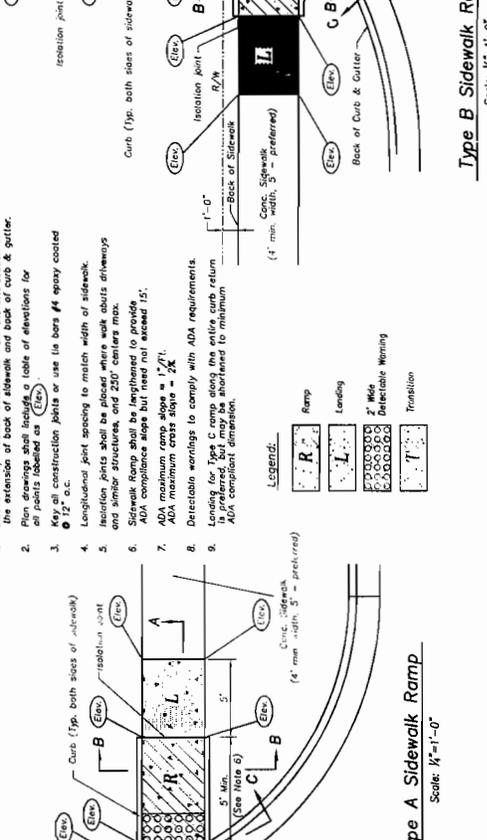
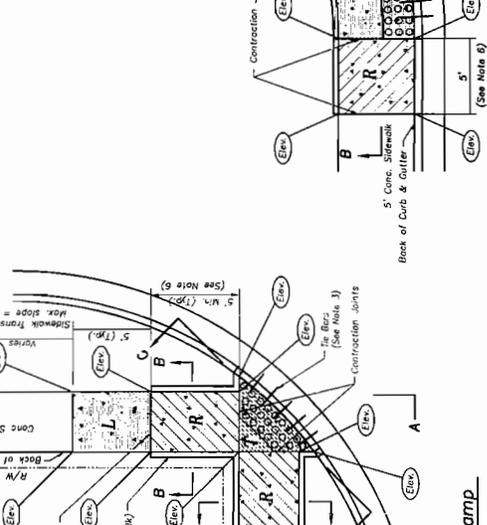
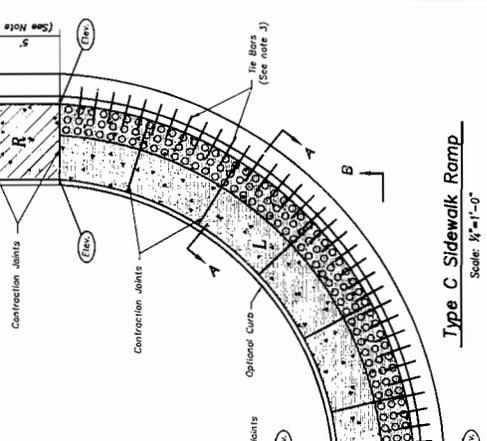
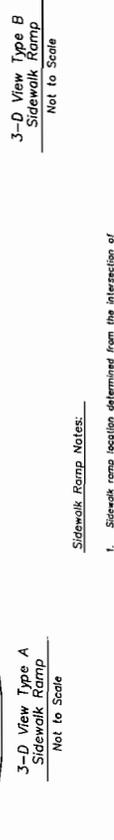
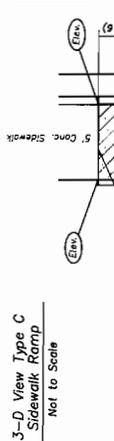
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ENTRY NO. 860935

Kansas City, Mo.
Public Works Department
Engineering Division

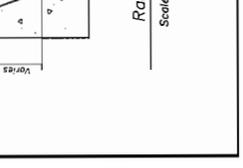
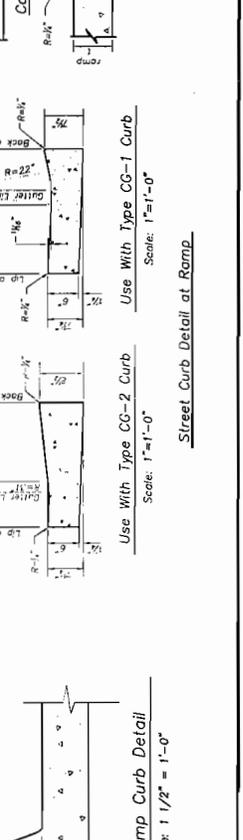
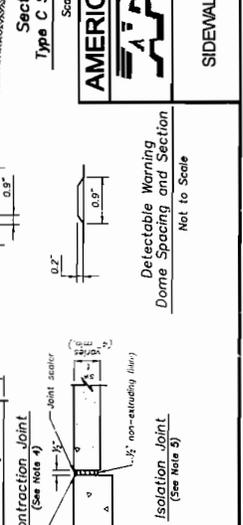
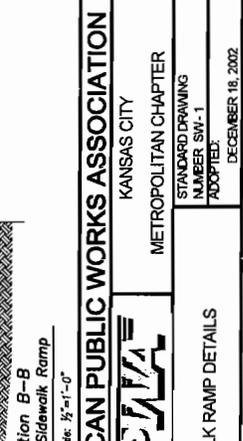
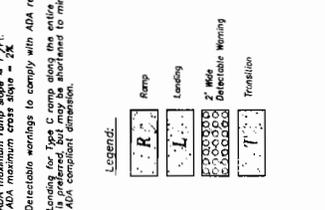
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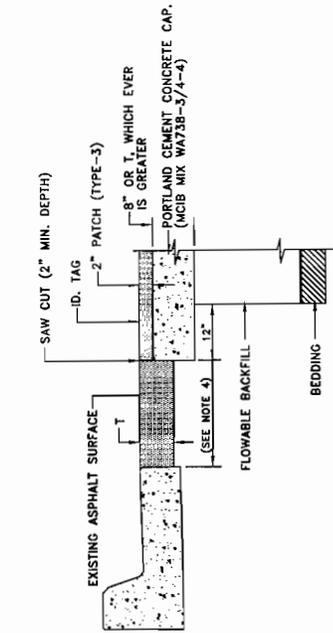
ADOPTION OF THIS STANDARD WILL SUPERSEDE PREVIOUS STANDARDS FOR LIKE SUBJECTS.



- Sidewalk Ramp Notes:**
- Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
 - Reinforcing steel shall be placed in a table of elevations for all points located at 5' intervals.
 - Key all construction joints or use tie bars #4 epoxy coated @ 12" o.c.
 - Longitudinal joint spacing to match width of sidewalk.
 - Location joints shall be placed where walk abutts driveways and similar structures, and 20' centers max.
 - Sidewalk ramp shall be implemented to provide ADA compliance slope but need not exceed 15'.
 - ADA maximum ramp slope = 1/71.
 - ADA maximum cross slope = 2%.
 - Detectable warnings to comply with ADA requirements.
 - Landing for Type C ramp along the entire curb return is preferred, but may be shortened to minimum ADA compliant dimension.



AMERICAN PUBLIC WORKS ASSOCIATION
 KANSAS CITY METROPOLITAN CHAPTER
 STANDARD DRAWING NUMBER SW-1
 ADOPTED: DECEMBER 18, 2002



DETAIL 1 - ASPHALT PAVEMENT SURFACE

TYPICAL SECTION

NO SCALE

GENERAL NOTES - All work shall conform to the latest APWA Standard Specifications and the Kansas City, Missouri Supplement. Standards and Utility Cut regulations. Excavations shall be protected at all times. Once excavation is made, work shall continue on a workday basis until final restoration is complete. Cuts in roadways shall be placed or temporarily filled and capped with cold mix asphalt when work is not being performed. Trees shall be protected. 8500 must be contacted when digging within five (5) feet of a tree or when any damage to the tree or a root over three (3) inches occurs.

- EXCAVATIONS -** The top dimension of the excavation shall be equal to or greater than the bottom dimension. (All sides of the excavation shall be vertical or lay back greater than vertical before beginning backfill.)
- BELL HOLE EXCAVATIONS -** Excavation around underground facilities wider than surface opening will be allowed if the excavation is backfilled within 24 hours with flowable backfill as stated in 3 below. If unable to complete in the time frame, then the unsupported subgrade and pavement shall be removed to meet the provisions of section 1 above.
- BEDDING -** Utility bedding shall be granular bedding meeting 2602, compacted embankment meeting 2602, or flowable fill meeting 2602 unless approved by City. Bedding may extend no greater than 12" above utility. In the downtown loop granular bedding shall not be used.
- BACKFILL -** Backfill shall not be placed in water or mud. Clean graded rock or frozen material shall not be used as backfill. Backfill material and placement shall meet the requirements of 2602.3.C. Franchise utilities with an approved compaction testing program may perform their own compaction tests. All other requirements of 2602.3.C must be met.

- ROADWAY SURFACES -** Surfacing shall be of same type of materials as the existing surface. The finished surface shall be finished with the surrounding pavement. An ID tag shall identify the contractor and the year the restoration was made.
 - Portland Cement Concrete - (Detail 4)**
If the street cut is in a concrete street, the patch shall extend to the nearest joint in all directions. The patch shall be saw cut and all load transfer devices, expansion joints and reinforcing steel placed prior to placing the new concrete. Concrete shall be placed to the current thickness of pavement and shall be compacted. The color and pattern of the concrete must match the color and pattern of the previous pavement.
 - Asphalt - (Detail 1)**
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 and shall be repaired (see 2602.3.C). The surface shall be placed and compacted (Section 2205.3) and joints sealed (Section 2206.2). If asphalt is not available at the time repairs are made, concrete may be brought to the surface on a temporary repair. Once asphalt is available, the top 2" of the concrete shall milled out and 2" of asphalt put back.

- Other Materials**
 - Brick and other paver type materials shall be replaced with matching materials placed over eight (8) inch concrete base similar to DETAIL 1.
 - Oiled crushed rock roads shall have four (4) inches of Type 3 asphaltic concrete placed over a minimum of six (6) inches of untreated compacted aggregate base.
 - Earth or crushed rock roads shall have a minimum of twelve (12) inches of untreated compacted aggregate.
 - All others shall be replaced as directed by the City.

- OTHER SURFACES (Backfill under all surfaces shall be as shown in details for pavement.)**
 - Sidewalks, Curbs and Driveways -** Any section that is cut shall be removed to the nearest joint (Section 2209.3A and 2301.3A). Restoration shall match the existing surface material and joint pattern and shall comply with the appropriate standards.
 - Grass Areas -** Finish to grade with six (6) inch topsoil compacted to 90%. Seed or sod (Section 2400) area as appropriate.
 - All Other Areas -** Replace as directed by the City.

- MISCELLANEOUS REGULATIONS**
 - Permits are required before working in right-of-way, which must be on file during work.
 - Excavation Permits: Public Works 513-2574 or 513-2679 Park Dept. (513-7606)
 - Traffic Control Permit: 513-2646

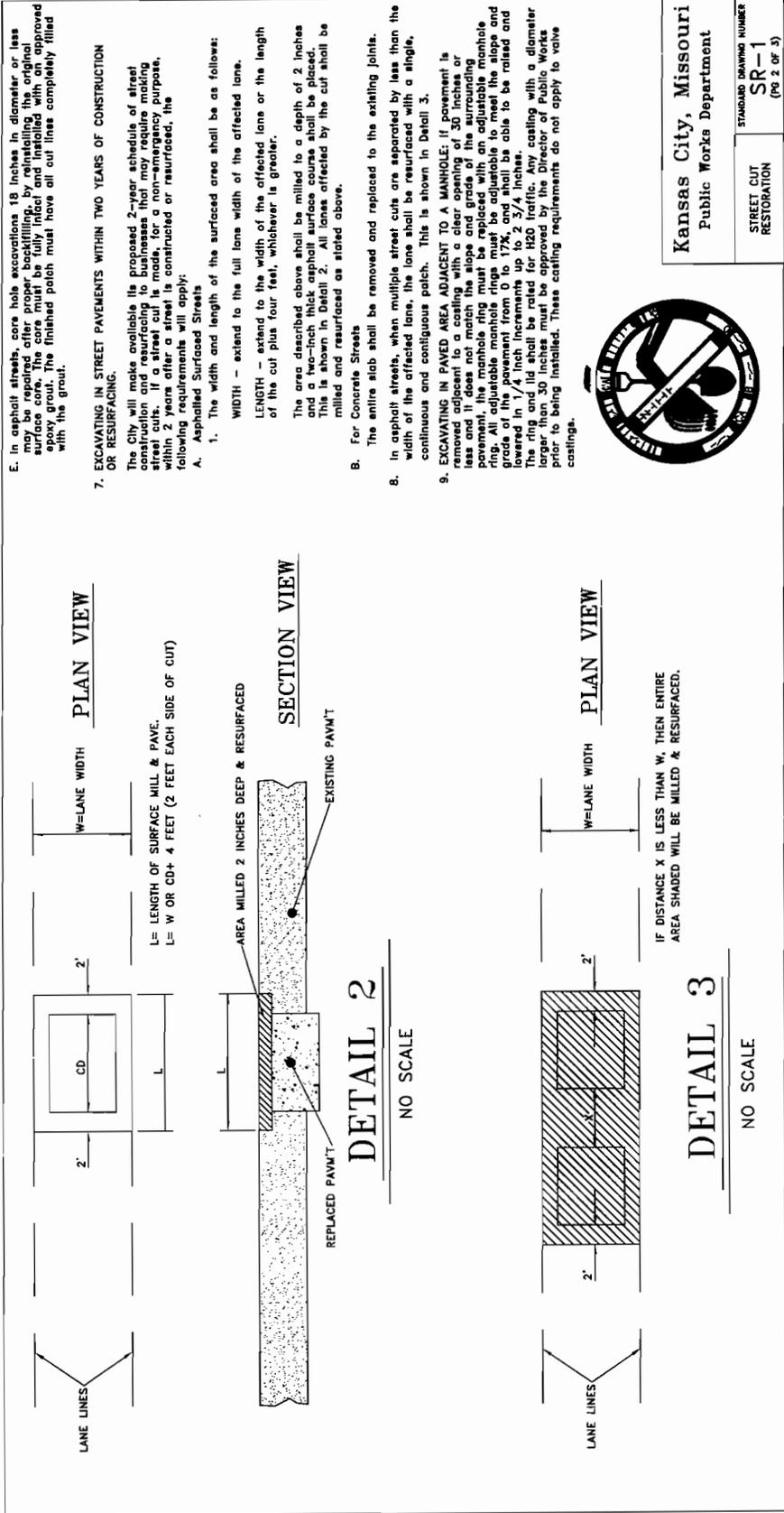
- Notifications required before actual excavation begins:
 - 2 Working Day Minimum: MO. ONE CALL 1-800-344-7483.
 - 24-Hour Minimum: Public Works 513-8700.
- Permit holder must have inspection of backfill or permit will be void. Contact utility cut inspection section @ 513-8700, for 513-8822, to request inspection in advance.
- Repairs match existing street slope and grade and shall be maintained for three (3) years or bond period.



Kansas City, Missouri
Public Works Department

STREET CUT RESTORATION
SR-1
(pg. 1 of 3)
Revised May, 2008

Drawn by R.S.F.



E. In asphalt streets, core hole excavations 18 inches in diameter or less may be repaired after proper backfilling, by reinstalling the original surface core. The core must be fully intact and installed with an approved epoxy grout. The finished patch must have all cut lines completely filled with the grout.

7. EXCAVATING IN STREET PAVEMENTS WITHIN TWO YEARS OF CONSTRUCTION OR RESURFACING.

The City will make available its proposed 2-year schedule of street construction. If a street cut is made for a non-emergency purpose, within 2 years after a street is constructed or resurfaced, the following requirements will apply:

A. Asphalted Surfaced Streets

1. The width and length of the surfaced area shall be as follows:
 - LENGTH - extend to the full lane width of the affected lane.
 - WIDTH - extend to the width of the affected lane or the length of the cut plus four feet, whichever is greater.

The area described above shall be milled to a depth of 2 inches and a two-inch thick asphalt surface course shall be placed. This is shown in Detail 2. All lanes affected by the cut shall be milled and resurfaced as stated above.

B. For Concrete Streets

8. The entire slab shall be removed and replaced to the existing joints.
9. In asphalt streets, when multiple street cuts are separated by less than the width of the affected lane, the lane shall be resurfaced with a single, continuous and contiguous patch. This is shown in Detail 3.

9. EXCAVATING IN PAVED AREA ADJACENT TO A MANHOLE: If pavement is removed adjacent to a casting with a clear opening of 30 inches or less and it does not match the slope and grade of the surrounding pavement, the manhole ring must be replaced with an adjustable manhole ring. All adjustable manhole rings must be adjustable to meet the slope and grade of the pavement from 0 to 17% and shall be able to be raised and lowered in 1/2 inch increments. The ring and lid shall be rated for H20 traffic. Any casting with a diameter larger than 30 inches must be approved by the Director of Public Works prior to being installed. These casting requirements do not apply to valve castings.



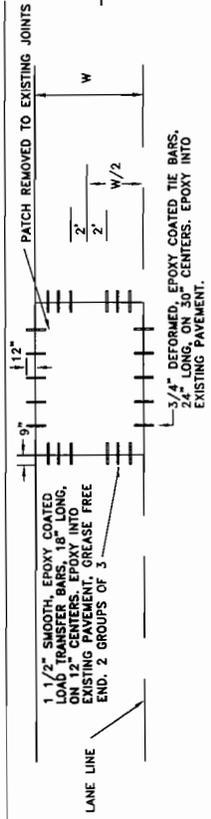
Kansas City, Missouri
Public Works Department

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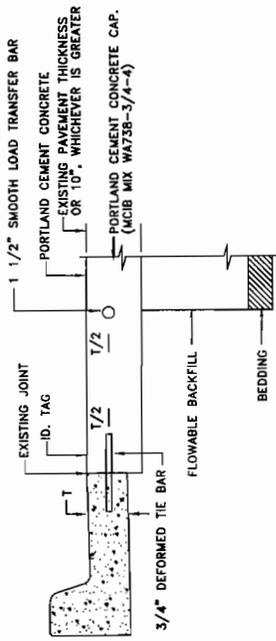
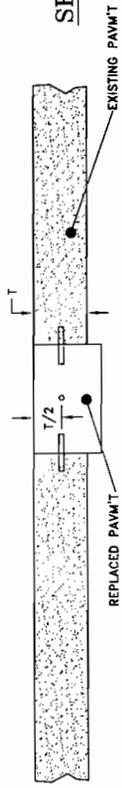
Drawn by B.S.F. Revised July 17, 2008

10. UTILITY APPURTENANCE SLOPE AND GRADE. All utility appurtenances shall be installed in accordance with the slope and grade tolerance surrounding pavement within 1/4 inch. The slope and grade tolerance shall be measured by placing a 6 foot straightedge across the manhole and measuring the distance between it and the pavement. One end of the straightedge shall be placed on the casting ring and the straightedge shall cross the opposite edge of the ring. This measurement shall be made on both sides in the direction of travel. All appurtenances shall be adjusted to the proper slope and grade prior to any street paving or patching. The standard shall be applicable to all utility appurtenances installed on this street paving or patching. Note 7 of this standard shall be applicable.

PLAN VIEW



SECTION VIEW



P.C. CONCRETE PAVEMENT SURFACE

DETAIL 4

NO SCALE



Kansas City, Missouri
Public Works Department

STANDARD DRAWING NUMBER
SR-1
(of 3 of 3)

Drawn by R.S.F.
Revised January, 2008

SECTION 02575 - SURFACE RESTORATION

PART 1 - GENERAL

1.01 SCOPE.

All work shall conform to the latest APWA Standard Specifications and KCMO supplements pertaining thereto. Street cuts under Permit Work shall comply with Public Works Rules and Regulations for Excavation Permits. Excavations shall be protected at all times. Cuts in roadways shall be plated or temporarily filled and capped with cold mix asphalt when work is not being performed.

1.02 DESCRIPTION.

- A. Restore the project site to conditions not less than that existing prior to starting construction unless otherwise required by these specifications, Permits and/or Licenses, or shown on the Drawings.
- B. Coordinate surface restoration work with the affected private property owners and the Water Services Department.
- C. Private property over which the Water Services Department has prior rights (i.e. utility easement, sewer easement) and/or has obtained rights-of-way, agreements, licenses and/or agreements from the property owner to allow construction of a sanitary sewer pipeline and appurtenances, shall be restored in conformance with these Contract Documents.
- D. Restore Public property with strict adherence to the requirements of the public body having jurisdiction therein.
- E. No restoration shall occur until testing is complete and accepted by the Water Services Department's Representative.
- F. Complete final surface restoration within three weeks of the repair or as directed by the Water Services Department's Representative.

1.03 CODES and STANDARDS. American Society for Testing and Materials (ASTM):

- A. ASTM D 422 – Standard Test Method for Particle-Size Analysis of Soils , grain-size, hydrometer analysis, hygroscopic moisture, particle-size, sieve analysis
- B. ASTM C 309, Type I – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- C. ASTM A 615, Grade 40 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- D. ASTM D 977 – Standard Specification for Emulsified Asphalt
- E. ASTM D 2397 – Standard Specification for Cationic Emulsified Asphalt
- F. ASTM D 2027 – Standard Specification for Cutback Asphalt (Medium-Curing Type)
- G. ASTM D 2028 – Standard Specification for Cutback Asphalt (Rapid Curing Type)

- H. ASTM E11 – Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
- I. ASTM D448 for a Standard Aggregate Size Number 67 – Standard Classification for Sizes of Aggregate for Road and Bridge Construction
- J. ASTM C131 – Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

- 1.04 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:
- A. All materials used shall be of equal or better quality to the materials used in the original construction of the surface.
 - B. Warranty
 - 1. Terms: Standard Manufacturer’s warranty, minimum of 1 year from acceptance by the Water Services Department.
 - 2. Warranty Period: Standard Manufacturer’s warranty, minimum of 1 year from acceptance by the Water Services Department.

- 1.05 CONTRACTOR SUBMITTALS.
- A. Drawings, specifications, and data covering the proposed materials shall be submitted to the Water Services Department.
 - B. Prior to commencing with construction the Contractor shall submit the following to the Water Services Department for approval:
 - 1. Contractor Restoration Plan and Schedule

- 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING.
 Delivery of materials shall be in manufacturer’s original unopened and undamaged packages. They shall be clearly marked to identify brand name, contents and order number on each package. Packages showing indication of damage that may affect condition of contents are not acceptable.

Storage of material shall provide protective cover from damage and stored at temperatures in accordance with manufacturer’s recommendation. Materials shall be staked or stored in accordance with manufacturer’s recommendations.

PART 2 - PRODUCTS

- 2.01 MATERIALS.
- A. Topsoil
 - 1. Topsoil shall be free from large roots, sticks, weeds, brush, stones or other litter and waste products. A minimum of 4 inches compacted depth of topsoil shall be used.
 - 2. The soil texture shall be classified as loam or sandy loam according to the following criteria:

Soil Type	Loam	Sand Loam
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sand (2.0 to 0.05 mm diameter) (No. 10 sieve)	25%-50%	45-85%
silt (0.05 to 0.002 mm diameter) (No. 270 sieve)	30-50%	Less than 50%
clay (smaller than 0.002 mm diameter) (Hydrometer analysis)	5-25%	Less than 20%

3. Soil texture shall be determined by utilizing processes as prescribed in ASTM D 422 using the No. 20 and No. 270 sieves and a hydrometer analysis.

B. Fertilizer

1. Fertilizer shall be a standard commercial 16-8-8, uniform in composition, free from and suitable for application with approved equipment, delivered to the site in bags or other convenient containers each fully labeled, conforming to applicable State laws.

C. Sod and Seed: See Section 02930 Seeding and Section 02931 Sodding.

D. Portland Cement Concrete

1. Portland cement concrete shall have minimum compression strength of 5000 psi at 28 days, and meet the requirements of these Specifications. Reinforcement shall be 6" x 6" No. 4 x No. 4 Woven Wire Fabric. No. 4 dowel bars shall be provided of 3 foot centers, each side. Minimum length of extension into existing base shall be 12 inches.

E. Curing Compound Commercial grade conforming to ASTM C 309, Type I.

F. Reinforcing Steel: Conform to ASTM A 615, Grade 40.

G. Asphalt Cement: Asphalt cement for binder shall be AC 85-100 paving asphalt conforming to these Specifications unless otherwise specified.

H. Prime Coat: Asphalt to be used for a prime coat shall be asphalt emulsion Type RS-2, CRS-2, or liquid asphalt MC-70, MC-250, or RC-250 conforming to ASTM D 977, D 2397, D 2027, or D 2028.

I. Tack Coat: Asphalt emulsion conforming to ASTM D 977 or D 2397, unless otherwise specified.

J. Asphalt Concrete: Asphalt for paving shall be as per Water Services Department Standards, specifications contained herein and details on the Plans.

K. Gravel Resurfacing: Wearing surface on gravel surfaced streets or drives shall be replaced with 9 inches (as specified on the Plans or in the Specifications) of compacted gravel backfill with a minimum P.I. of 4. The material shall be required to meet the sieve test of the current ASTM E11 for conformity to ASTM D448 for a Standard Aggregate Size Number 67 and a percent of wear test not to exceed 35 when tested in accordance with ASTM C131.

PART 3 - EXECUTION.

3.01 SAFETY

A. Perform all work in accordance with applicable OSHA standards.

3.02 COMPLETION of WORK and SITE RESTORATION

- A. Cleanup: Upon completion of installation and backfill operations, clean and dress up the work area as follows.
 - 1. Remove construction debris and litter from the site.
 - 2. Remove excess excavation material from the site including material which has washed into stream beds, storm water facilities, streets, culverts, etc.
 - 3. Remove tools, equipment and construction materials except for designated storage areas along the pipeline route. Maintain designated storage areas in a neat appearing manner.
 - 4. Restore surface and subsurface drainage and provide drainage wash checks necessary to prevent soils from being washed downstream.
 - 5. Machine grade the area in preparation of final grading, seeding, sodding, pavement replacement, etc.
 - 6. Restore all street signs and mail boxes.
 - 7. Maintain adequate safety signs, barricades and lights until final restoration of work area is completed
- B. Finish Grading: Finish grade the area to lines and grades which existed prior to the area being disturbed, with special attention directed to proper surface drainage, and the refilling of settled excavations with earth compacted to densities required. The area shall be smoothed by raking or dragging. Flower and vegetable gardens in existence prior to this project shall have the separately stored top soils restored unless other-wise required. Areas to be sodded or seeded shall have a minimum four inch depth of topsoil. Cultivated areas shall be left in tillable condition; compacted areas shall be plowed or cultivated to loosen and aerate the soil.
- C. Sod and Seed: See Section 02930 Seeding and Section 02931 Sodding.
- D. Tree, Bush, and Hedge Transplanting and Replacement
 - 1. Existing trees, bushes, and hedges which cannot be tied back or trimmed to prevent damage and require removal because of the proposed construction shall be transplanted with a tree spade or replaced. Tree removal shall include removal of stump and roots four inches below grade. Transplanting shall be at the location directed by the Water Services Department's Representative. After digging the plants, properly store them until they can be transplanted. Replacement plants shall not be delivered until they can be planted.
 - 2. Plant during the proper seasons. Do not plant in frozen soil or during unfavorable weather conditions. Dig tree pits of such size as to provide ample space for the entire root system, as the tree comes from the nursery, without crowding or bending the roots. The pits shall be 12 inches wider than the ball diameter, have vertical sides, and be six inches deeper than the thickness of the ball. Thoroughly loosen the soil in the bottom of the pit by spading to a depth of six inches. Dig

holes immediately before planting. Dispose of soil earth dug from the tree pits.

3. Set trees at a depth slightly below finished grade, half-fill the hole with planting soil and thoroughly water. Loosen and fold down the upper half of the burlap, fill the hole with planting soil and thoroughly water. Fill the top two inches with a well-rotted mulch.
4. After planting, prune the branches in proportion to the amount of root system lost in the transplanting operations but in such a manner as to retain the form typical of the tree. In general, remove approximately one-third of the branch structure. Pruning shall be done by expert workmen in such a manner as to insure healthy and symmetrical growth of new wood.
5. After planting, wrap trunks of trees planted after October 15 with special tree wrap from the crotch of the first major branches down to the ground. Tie wrapping with cotton twine to keep the wrapping in place.
6. Plant trees vertically. Trees found leaning during the guarantee period shall immediately be staked with two 2-inch by 3-inch wood stakes, eight feet long, pointed on one end. The stake shall be long enough to properly support the tree. Drive the stakes to a depth of 18 inches below the bottom of the tree pit. Locate the stakes on the north side and of the south side of the tree, and 12 inches to 18 inches from the trunk. Do not drive stakes into the ball and burlap. Guy the trees using a figure eight hitch consisting of No. 14 gauge wire encased in a section of rubber hose.

E. Restoration of Pavement Surfaces

1. General

All restoration work in streets shall conform to SR-1 detail attached.

- a. Restore (unless otherwise specified or ordered by the Water Services Department's Representative) permanent type pavements, sidewalks, driveways, curbs, gutters, and surface structures removed or disturbed during or as a result of construction operations to a condition which is equal in appearance and quality to the condition that existed before the work began. The surface of all improvements shall match the appearance of the existing surface.
- b. Pour concrete only after inspection by the Water Services Department of the pouring site to verify proper forms and reinforcement. Reinforcement shall be equal in quantity and type of materials to reinforcement that existed prior to the work, or as indicated in the plans or specifications.
- c. Saw-cut existing paved surfaces to provide a straight joint between the existing and new surface. Saw cutting shall be full depth and square or rectangular in shape.

- d. Cure and protect all exposed concrete installed under this contract in accordance with the reference standard.
 - e. Allow concrete to attain minimum 7-day strength before allowing traffic or construction equipment on the concrete.
 - f. Remove entire sidewalk squares. Removal of partial squares shall not be allowed.
2. Concrete Sidewalks
- a. Concrete sidewalks shall consist of a minimum thickness of five inches of non-reinforced Portland cement concrete over four inches of compacted granular material.
 - b. Increase sidewalk thickness to six inches when crossing driveways.
 - c. Place one-half inch preformed bituminous expansion joints at junctions with existing work and at intervals not exceeding 50 feet, or as directed by the Water Services Department.
 - d. Saw-cut existing sidewalks at construction joints. Patching existing sidewalk squares damaged during construction activities shall not be allowed.
 - e. When removing portions of a concrete sidewalk, an entire square shall be removed. Removal of a partial sidewalk square shall not be allowed.
 - f. At locations where sidewalks intersect with streets and sidewalk restoration is required, Contractor shall construct wheelchair ramps.
3. Concrete Curb and Gutter
- a. Curb and Gutter dimensions and cross sections shall conform to existing installations.
 - b. Place two dowels at each junction with existing work. Dowels shall be 3/4-inch diameter and a minimum of 12 inches in length.
 - c. Place one-half inch preformed bituminous expansion joints at junctions with existing work and at intervals not exceeding 50 feet, or as directed by the Water Services Department.
 - d. Place doweled expansion joints at intervals not exceeding 50 feet, or as directed by the Water Services Department's Representative.
 - e. Saw-cut control joints at intervals not exceeding 20 feet and at junctions with existing traverse cracks in the pavement, or as directed by the Water Services Department.
4. Concrete Driveways: Replace concrete driveways to the condition and thickness which existed prior to construction. Minimum thickness shall be 6 inches.
5. Bituminous Concrete Driveway: Replace bituminous driveways to the condition and thickness which existed prior to construction. Minimum thickness shall be 2 inches. Construction shall be executed in accordance with Asphalt Concrete Pavement Replacement for Pipe Trenches.

6. Tack Coat: Apply a tack coat on existing asphalt concrete pavement and to each lift of new pavement that is to receive a succeeding lift in conformance with applicable requirements.
7. Prime Coat: The prime coat shall be applied to the leveling course in accordance with applicable requirements at the rate of 0.20 to 0.30-gallon per square yard of surface area. The exact amount is to be determined by the Water Services Department.
8. Construction Of Asphalt Concrete Pavement:
 - a. Lay asphalt concrete over the base course in a single lift and the compacted depth shall be 3-inches. The method of proportioning, mixing, transporting, laying, processing, rolling the material and the standards of workmanship shall conform to the applicable requirements.
 - b. The Water Services Department will examine the base before the paving is begun and bring any deficiencies to the Contractor's attention to be corrected before the paving is started. Roll each lift of the asphalt concrete and compact to the density specified in the referenced Standard Specification for Highway Construction. The grade, line, and cross section of the finished surface shall conform to the Drawings. Asphalt or asphalt stains which are noticeable upon surfaces of concrete or materials which will be exposed to view shall be promptly and completely removed.
9. Asphalt Highway Repair: Asphalt Highway Repair shall be in accordance with the Missouri Department of Transportation Standard Specifications for Highway Construction.
10. Concrete Highway Repair: Concrete Highway repair shall be in accordance with the Missouri Department of Transportation Standard Specifications for Highway Construction.
11. Weather Conditions: Asphalt shall not be applied to wet material. Asphalt shall not be applied during rainfall, sand or dust storm, or any imminent storms that might adversely affect the construction. The Water Services Department will determine when surfaces and material are dry enough to precede with construction. Asphalt concrete shall not be placed (1) when the atmospheric temperature is lower than 40 degrees F, (2) during heavy rainfall, or (3) when the surface upon which it is to be placed is frozen or wet. Asphalt for prime coat shall not be applied when the surface temperature is less than 50° F. Exceptions will be permitted only in special cases and only with prior written approval of the Water Services Department.
12. Concrete Pavement:
 - a. Pavement replacement shall be as shown on the typical section for Manhole restoration. Protect the newly placed concrete from traffic for a-period of 7 days and cure by covering with burlap, sand, earth, or sawdust, which is kept continuously wet.

- b. Handle and place concrete pavement in accordance with the Standard Specifications for Highway Construction of the Missouri Department of Transportation.

F. Final Inspection and Acceptance:

1. Water Services Department shall schedule a final inspection of the work included in the work order within ten (10) days after receipt of written notification from the contractor that the work is completed. If the work is not acceptable to the Water Services Department, the contractor shall be advised as to the particular defects to be remedied before final acceptance can be made.
2. Failure of the Water Services Department to make this inspection within the time specified in no way relieves the contractor of any of his obligations under the purchase order.
3. Only written notification from the Water Services Department will constitute final acceptance of any part of the work under a purchase order.

End of Section.



GENERAL NOTES - All work shall conform to the latest APWA Standard Specifications for Kansas and Missouri Streets, Sidewalks and Utility Cuts regulations. Excavations shall be protected at all times. Once excavation is made, work shall continue on a workday basis until final restoration is complete. Cuts in roadways shall be placed or temporarily filled and capped with cold mix asphalt when work is not being performed. Trees shall be protected from damage and above and below ground utilities shall be protected at 3'-8" minimum and shall be dug with the (5) feet of trench when any damage to the tree or a root over three (3) inches occurs.

1. **EXCAVATIONS** - The top dimension of the excavation shall be equal to or greater than the bottom dimension. (All sides of the excavation shall be vertical or lay back greater than vertical before beginning backfill.)

BELL HOLE EXCAVATIONS - Excavation around underground facilities wider than surface opening will be allowed if the excavation is backfilled within 24 hours with flowable backfill as stated in 3 below. If unable to complete in the time frame, then the unsupported subgrade and pavement shall be removed to meet the provisions of section 1 above.

2. **BEDDING** - Utility bedding shall be granular bedding meeting 2602, compacted embankment meeting 2602, or flowable fill meeting 2602 above utility. In the downtown loop granular bedding shall not be used.

3. **BACKFILL** - Backfill shall not be placed in water or mud. Clean graded rock or frozen material shall not be used as backfill. Backfill material and placement shall meet the requirements of 2602.3.C. Franchise utilities with an approved compaction testing program may perform their own compaction tests. All other requirements of 2602.3.C must be met.

4. **ROADWAY SURFACES** - Surfacing shall be of some type of materials as the existing surface. The finished surface shall be flush with the surrounding surface and finished with the same material and color as the existing pavement. The ID tag shall identify the contractor and the year the restoration was made.

A. **Portland Cement Concrete** - (Detail 4) if the street cut is in a concrete street, the patch shall extend to the nearest joint in all directions. The patch shall be saw cut and all load transfer devices, expansion joints and reinforcing steel placed prior to placing the new concrete. Concrete shall be placed to the current thickness of pavement or ten (10) inches, whichever is thicker. The concrete must meet the color and pattern of the previous pavement.

B. **Asphalt** (Detail 1) 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. Tack coat shall be applied (Section 2204). Surface placed and compacted (Section 2205.3) and joints sealed (Section 2206.2). If asphalt is not available at the time repairs are made, concrete may be brought to the surface as a temporary repair. Once asphalt is available, the top 2" of the concrete shall milled out and 2" of asphalt put back.

C. **Other Materials**

- Back and other cover type materials shall be placed and all matching materials placed over eight (8) inch concrete base similar to DETAIL 1.
- Oiled crushed rock roads shall have four (4) inches of Type 3 asphaltic concrete placed over a minimum of six (6) inches of untreated compacted aggregate base.
- Earth or crushed rock roads shall have a minimum of twelve (12) inches of untreated compacted aggregate.
- All others shall be replaced as directed by the City.

5. **OTHER SURFACES** (Backfill under all surfaces shall be as shown in details for pavement.)

A. **Sidewalks, Curbs and Driveways** - Any section that is cut shall be removed to the nearest joint (Section 2209.3A and 2301.3A). Restoration shall match the existing surface material and joint pattern and shall comply with the appropriate standards.

B. **Grass Areas** - Finish to grade with six (6) inch topsoil compacted to 90%. Seed or sod (Section 2400) area as appropriate.

C. **All Other Areas** - Replace as directed by the City.

6. **MISCELLANEOUS REGULATIONS**

A. **Permits** are required before working in right-of-way, which must be on site during work.

1. **Excavation Permits:** Public Works 513-2574 or 513-2679 Park Dept. (513-7605)

2. **Traffic Control Permit:** 513-2646

B. **Notifications** required before actual excavation begins:

- 2 Working Day Minimum: MO. ONE CALL 1-800-344-7483.
- 24-Hour Minimum: Public Works 513-8700.

C. **Permit holder** must have inspection of backfill or permit will be void. Contact utility cut inspection section @ 513-8700, fax 513-8822, to request inspection in advance.

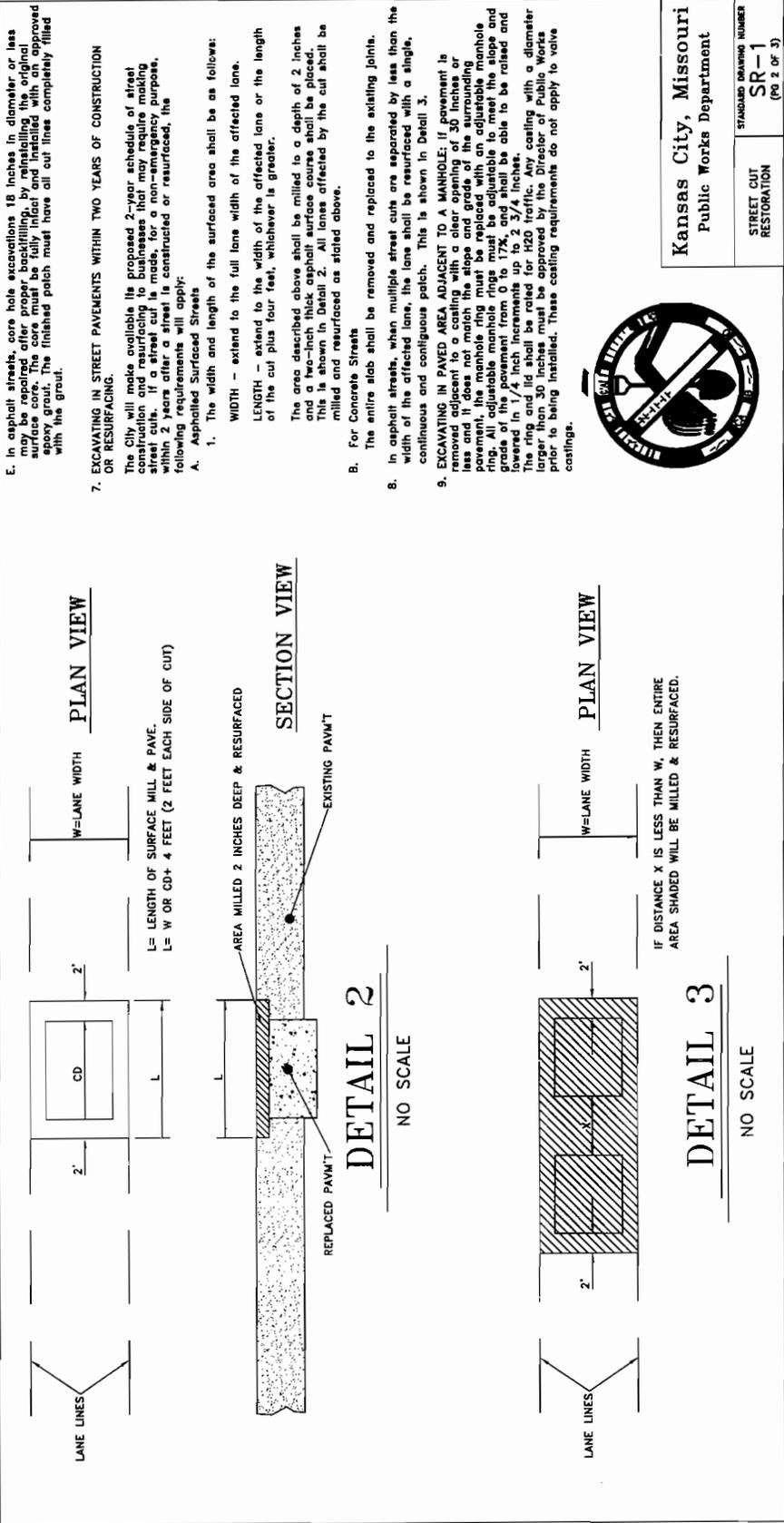
D. **Repairs** match existing street slope and grade and shall be maintained for three (3) years or bond period.

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Public Works Department

STREET CUT RESTORATION	STANDARD DRAWING NUMBER SR-1 (Pg 1 of 3)
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Drawn by R.S.F. Revised May, 2008





E. In asphalt streets, core hole excavations 18 inches in diameter or less may be required after proper backfilling, by reinstalling the original surface core. The core must be fully infilled and installed with an approved epoxy grout. The finished patch must have all cut lines completely filled with the grout.

7. EXCAVATING IN STREET PAVEMENTS WITHIN TWO YEARS OF CONSTRUCTION OR RESURFACING.
 The City will make available its proposed 2-year schedule of street paving and resurfacing to the contractor. The contractor shall schedule street cuts, if a street cut is made for a non-emergency purpose, within 2 years after a street is constructed or resurfaced, the following requirements will apply:
 A. Asphalt Surfacd Streets

1. The width and length of the surfaced area shall be as follows:
 WIDTH - extend to the full lane width of the affected lane.
 LENGTH - extend to the width of the affected lane or the length of the cut plus four feet, whichever is greater.
 The area described above shall be milled to a depth of 2 inches and a two-inch thick asphalt surface course shall be placed. This is shown in Detail 2. All lanes affected by the cut shall be milled and resurfaced as stated above.

B. For Concrete Streets
 The entire slab shall be removed and replaced to the existing joints. In asphalt streets, when multiple street cuts are separated by less than the width of the affected lane, the lane shall be resurfaced with a single, continuous and contiguous patch. This is shown in Detail 3.

9. EXCAVATING IN PAVED AREA ADJACENT TO A MANHOLE: If pavement is removed adjacent to a casing with a clear opening of 30 inches or less and it does not match the slope and grade of the surrounding pavement, the manhole ring must be replaced with an adjustable manhole ring. All adjustable manhole rings must be adjustable to meet the slope and grade of the pavement from 16:1 to 17:1. The ring shall be able to be raised and lowered in increments of 1/4 inch. The manhole ring shall be 30 inches larger than 30 inches must be approved by the Director of Public Works prior to being installed. These casing requirements do not apply to valve casings.



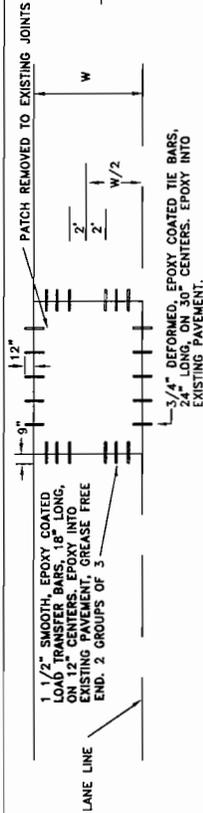
Kansas City, Missouri
 Public Works Department
 STANDARD DRAWING NUMBER
 SR-1
 (PG 2 OF 3)
 Drawn by R.S.F.
 Revised July 17, 2008

DETAIL 2
 NO SCALE

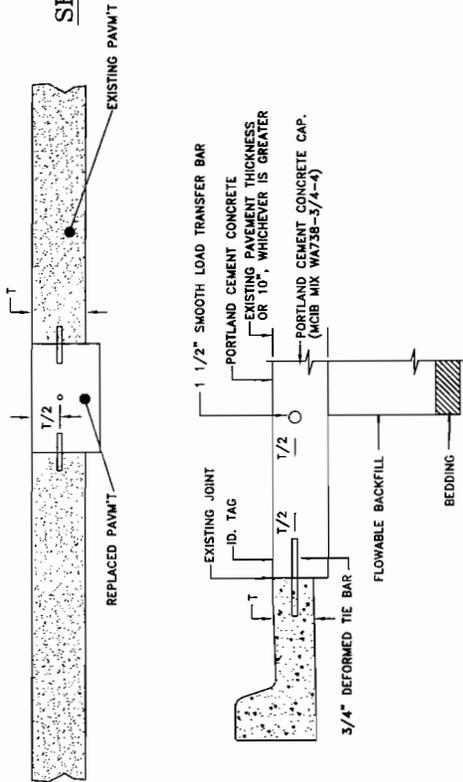
DETAIL 3
 NO SCALE

10. UTILITY APPURTENANCE SLOPE AND GRADE: All utility appurtenances shall be installed and maintained at a slope and grade that meets the minimum standards of the City of Kansas City. The slope and grade tolerance shall be maintained by placing a 1/4" foot straightedge across the utility and measuring the distance between it and the pavement. One end of the straightedge shall be placed on the casting ring and the straightedge shall cross the opposite edge of the ring. This measurement shall be made on both sides in the direction of travel. All appurtenances shall be adjusted to the proper slope and grade prior to any street paving or patching. Adjustments are not completed prior to the street paving or patching, note 7 of this standard shall be applicable.

PLAN VIEW



SECTION VIEW



P.C. CONCRETE PAVEMENT SURFACE

DETAIL 4

NO SCALE



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(PG 3 OF 3)
Revised January, 2008

Drawn by R.S.F.

SECTION 02620 – DUCTILE IRON PIPE FOR WASTE WATER USE

PART 1 - GENERAL

- 1.01 SCOPE. This section covers ductile iron pipe for wastewater use. Ductile iron pipe shall be furnished complete with all fittings, jointing materials, pipe hangers and supports, anchors, blocking, encasement, polyethylene encasement and any other necessary appurtenances. All pipeline materials shall be furnished by the Contractor. All material shall be new and shall comply with the specifications that follow.
- 1.02 RELATED SECTIONS
- A. Earthwork – SECTION 02200
 - B. Sewer Pipe and Manhole Testing – SECTION 02702
 - C. Miscellaneous Concrete – SECTION 03000
- 1.03 CODES and STANDARDS The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- A. American Society for Testing and Materials (ASTM):
 - 1. A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 2. A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
 - 3. D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
 - 4. D1330 - Standard Specification for Rubber Sheet Gaskets.
 - B. American Water Works Association (AWWA):
 - 1. C105 – Polyethylene Encasement for Ductile-Iron Pipe Systems.
 - 2. C110 – Ductile-Iron and Gray-Iron Fittings, 3 Inches Through 48 Inches (75 mm Through 1,200 mm) for Water and Other Liquids.
 - 3. C111 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - 4. C115 – Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
 - 5. C150 – Thickness Design of Ductile-Iron Pipe.
 - 6. C151 – Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
 - 7. C153 – Ductile-Iron Compact Fittings, 3 In. Through 24 In. (76 mm Through 610 mm) and 54 In. Through 64 In. (1,400 mm Through 1,600 mm), for Water Service.
 - 8. C210 – Liquid Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines.

- 9. C600 – Installation of Ductile-Iron Mains and Their Appurtenances.
- C. American Society of Mechanical Engineers (ASME):
 - 1. B18.2.2 – Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series).
 - 2. B18.21.1 – Washers: Helical Spring-Lock, Tooth Lock, and Plain Washers (Inch Series).

1.04 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:

- A. Manufacturers shall be experienced in the design and manufacture of pipe, fittings, specials, or appurtenances for a minimum period of 5 years.
- B. Warranty
 - 1. Terms: Standard Manufacturer's warranty
 - 2. Warranty Period: Standard Manufacturer's warranty

1.05 CONTRACTOR SUBMITTALS.

- A. Shop Drawings:
 - 1. Pipe and joint details.
 - 2. Special, fitting, and coupling details.
- B. Product Data:
 - 1. Specifications, data sheets, and affidavits of compliance for protective shop coatings and linings.
 - 2. Laying and installation schedule.
- C. Certificates:
 - 1. Affidavit of compliance with applicable standards.
 - 2. Test certificates.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING.

- A. Pipe, fittings, and accessories shall be handled in a manner that will ensure installation in sound, undamaged condition.
- B. Equipment, tools, and methods used in handling and installing pipe and fittings shall not damage the pipe and fittings.
- C. Hooks inserted in ends of pipe shall not be allowed. Hooks, wire brushes, or other abrasive tools shall not be permitted to contact lining.
- D. Under no circumstances shall the pipe, fittings, or accessories be dropped.
 - 1. Pipe and fittings in which the lining has been damaged shall be replaced. With the concurrence of the Owner, small and readily accessible damaged areas may be repaired.
 - 2. All pipe coating which has been damaged shall be repaired by the Contractor before the pipe is installed.

PART 2 - PRODUCTS

2.01 MATERIALS.

A. Pipe:

1. Ductile-iron pipe shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51, or ANSI/AWWA C115/A21.15 as applicable.
2. Ductile-iron shall be grade 60-42-10.
3. Pipe shall be of the thickness specified herein or shown on the Drawings.
4. The minimum thickness allowed is Special Call 52.
5. The minimum thickness for ductile-iron pipe threaded for screw-on flanges shall be in accordance with AWWA C115.

B. Fittings:

1. Fittings shall be ductile-iron conforming to ANSI/AWWA C110/A21.10, and or ANSI/AWWA C153/A21.53.
2. Ductile-iron shall be grade 70-50-05.
3. Fittings shall have pressure rating of not less than that specified for the pipe.
4. All fittings shall have pressure rating and letters "DI" or "DUCTILE" cast on the fitting.

C. Joints:

1. Push-On Joints:
 - a) Provide push-on joints where indicated on Drawings.
 - b) Joints shall comply with ANSI/AWWA C111/A21.11.
 - c) Gaskets shall be neoprene or other synthetic rubber. Natural rubber will not be acceptable.
2. Restrained Push-On Joints:
 - a) Provide restrained push-on joints where indicated and required.
 - b) Joints shall be American "Flex-Ring" or "Lok-Ring"; Clow "TR Flex"; U.S. Pipe "TR Flex"; or Griffin "Snap-Lok".
 - c) Push style restraining gaskets shall be US Pipe Field Lok, Gripper Gasket or engineer pre approved equal.
3. Flanged Joints:
 - a) Provide flanged joints where indicated on Drawings.
 - b) Flanges shall be ductile-iron.
 - c) Flanges shall conform to ANSI/AWWA C115/A21.15 flat faced.
 - d) Bolts shall conform to ASTM A307, Type Steel with chamfered or rounded ends projecting $\frac{1}{4}$ to $\frac{1}{2}$ inch beyond outer face of nut.
 - e) Nuts shall conform to ASTM A307, Type Steel, hexagonal, ANSI/ASME B18.2.2 heavy semi-finished pattern.
 - f) Gaskets shall conform to ASTM D1330, Grade I rubber, full face type, 1/8 inch thick. Natural rubber will not be acceptable.
4. Mechanical Joints:
 - a) Provide mechanical joints where indicated on Drawings.

- b) Joints shall conform to ANSI/AWWA C111/A21.11, except gaskets shall be neoprene or other synthetic rubber. Natural rubber will not be acceptable.
- c) Joint restraints, where required, shall be EBBA "Mega Lugs" or City pre approved equal. Bolts shall be T-head type complying with AWWA C111.
- d) Mechanical Joints with Tie-Rods:
 - i. Tie rods shall conform to ASTM A307.
- f) Steel pipe and standard weight washers used in mechanical joint assemblies shall comply with ASTM A53 and ASME B18.21.1.

D. Mechanical Couplings:

- 1. Provide where indicated and required.
- 2. Couplings shall be Dresser "Style 38" or Rockwell Smith-Blair "441 or 411 flexible coupling"; without pipe stop.
- 3. Coupling gaskets shall be oil-resistant synthetic rubber material.
- 4. Couplings shall have liquid epoxy coating.
- 5. Provide anchored couplings where restraint is required to withstand specified operating or hydrostatic pressure and where indicated.

2.02 SHOP COATING AND LINING.

- A. The exterior surfaces of all pipe and fittings which will be exposed in interior locations shall be shop primed. Flange faces shall be coated with rust-preventive compound. Exterior surfaces of all other pipe and fittings, including flanged piping in vaults shall be asphaltic coated.
 - 1. Shop Primer shall be Kop-Coat "340 Gold Primer", Sherwin Williams "B50AZ6 Kem Kromik", PPG "185H Amercoat", or Tnemec "37-77 Chem-Prime".
 - 2. Liquid Epoxy Rust-Preventive Compound shall conform to AWWA C210, and be either Houghton "Rust Veto 344" or Rust-Oleum "R-9".
 - 3. Asphaltic Coating shall be the manufacturer's standard.
 - 4. Coal Tar Coating shall be Thixotropic coal tar, MIL-C-18480; Carboline "Bitumastic No. 50" or Tnemec "46-465 H.B. Tnemecol".
- B. All pipe and fittings shall have Special Protective Lining.
 - 1. Lining shall be TNEMEC Series 431 Perma-Sheild ® PL.

PART 3 - EXECUTION.

3.01 CUTTING PIPE

- A. Cutting shall be done in a neat manner, without damage to the pipe or the lining.
- B. Cuts shall be smooth, straight, and at right angles to the pipe axis.
- C. After cutting, the end of the pipe shall be dressed with a file or power grinder to remove all roughness and sharp edges.
- D. The cut ends of push-on joint pipe shall be suitably beveled.

- E. Ends of ductile iron pipe shall be cut with a portable guillotine saw, abrasive wheel saw, or milling cutter. The use of hydraulic squeeze type cutters or oxyacetylene torch will not be permitted.
- F. Field-cut holes for saddles shall be cut with mechanical cutters; oxyacetylene cutting will not be permitted.

3.02 CLEANING

- A. The interior of all pipe and fittings shall be thoroughly cleaned of all foreign matter prior to installation and shall be kept clean until the work has been accepted.
- B. Before jointing, all joint contact surfaces shall be wire brushed if necessary, wiped clean, and kept clean until jointing is completed.
- C. Precautions shall be taken to prevent foreign material from entering the pipe during installation. Debris, tools, clothing, or other materials shall not be placed in or allowed to enter the pipe.
- D. Whenever pipe laying is stopped, the open end of the pipe shall be sealed with a watertight plug which will prevent trench water from entering the pipe.

3.03 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.
- B. All defective pipe and fittings shall be marked as such and removed from the site of the work.

3.04 ALIGNMENT

- A. Piping shall be laid to the lines and grades indicated on the drawings.
- B. Pipelines or runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the values stipulated in Table 2 or Table 3 of AWWA C600, unless specially designed bells and spigots are provided.
- C. Either shorter pipe sections or fittings shall be installed where required to conform to the alignment or grade indicated on the drawings.
- D. Contractor shall furnish and install, at no extra cost, all fittings necessary for horizontal and/or vertical alignment.
- E. Laser beam equipment or surveying instruments shall be used to maintain alignment and grade.
 - 1. When laser beam equipment is used, periodic elevation measurements shall be made with surveying instruments to verify accuracy of grades.
 - 2. If such measurements indicate thermal deflection of the laser beam due to differences between ground temperature and the air temperature within the pipe, precautions shall be taken to prevent or minimize further thermal deflections.

3.05 LAYING PIPE

- A. Pipe shall be protected from lateral displacement by placing the specified pipe embedment material, as specified in SECTION 02200 - EARTHWORK.
- B. Under no circumstances shall pipe be laid in water, and no pipe shall be laid under unsuitable weather or trench conditions.
- C. Pipe shall be laid with the bell ends facing the direction of laying except when reverse laying is specifically authorized by the Owner.

3.06 FIELD JOINTS

- A. Joints in buried locations shall be push-on type unless otherwise indicated on the drawings.
- B. Bells on wall castings and wall sleeves shall be mechanical-joint type with tapped holes for tie rods or stud bolts.
- C. All other joints shall be flanged unless otherwise indicated on the drawings.
- D. All buried fittings shall be mechanical joint.

3.07 MECHANICAL JOINTS

- A. Mechanical joints shall be carefully assembled in accordance with the manufacturer's recommendations.
- B. All joint surfaces shall be lubricated with heavy vegetable soap solution immediately before the joint is assembled. Lubricant shall be suitable for use in potable water, shall be stored in closed containers, and shall be kept clean.
- C. If effective sealing is not obtained, the joint shall be disassembled, thoroughly cleaned, and reassembled.
- D. Bolts shall be uniformly tightened to the torque values listed in Appendix A of ANSI/AWWA C111/A21.11. Over tightening of bolts to compensate for poor installation practice will not be permitted.
- E. The holes in mechanical joints with tie rods shall be carefully aligned to permit installation of the tie rods.
- F. In flange and mechanical joint pieces, holes in the mechanical joint bells and the flanges shall straddle the top (or side for vertical piping) center line. The top (or side) center line shall be marked on each flange and mechanical joint piece at the foundry.

3.08 PUSH-ON JOINTS

- A. The pipe manufacturer's instructions and recommendations for proper jointing operations shall be followed.
- B. All joint surfaces shall be lubricated with heavy vegetable soap solution immediately before the joint is completed. Lubricant shall be suitable for use in potable water, shall be stored in closed containers, and shall be kept clean.
- C. Each spigot end shall be suitably beveled to facilitate assembly.

3.09 FLANGED JOINTS

- A. Pipe shall extend completely through screwed-on flanges.
- B. The pipe end and flange face shall be finish machined in a single operation.
- C. Flange faces shall be flat and perpendicular to the pipe center line.

- D. When bolting flanged joints, care shall be taken to avoid restraint on the opposite end of the pipe or fitting which would prevent uniform gasket compression or which would cause unnecessary stress in the flanges. One flange shall be free to move in any direction while the flange bolts are being tightened.
- E. Bolts shall be tightened gradually and at a uniform rate, to ensure uniform compression of the gasket.
- F. After installation all bolts and nuts shall be cleaned and then coated with coal-tar coating, minimum of 2 coats, minimum 20 mil thickness.

3.10 RESTRAINED JOINTS

- A. Restrained joints and anchoring joints shall be installed in strict accordance with the pipe manufacturer's recommendations.
- B. Pipe ends for restrained joint pipe shall be prepared in accordance with the pipe manufacturer's recommendations.

3.11 SOLID SLEEVES

- A. Solid sleeves shall be installed as shown on the drawings or when directed to do so by the Owner.
- B. Solid sleeves shall be carefully installed in accordance with the manufacturer's recommendations.
- C. Pipe and coupling surfaces which contact gaskets shall be clean and free from dirt and other foreign matter during assembly.
- D. All assembly bolts shall be uniformly tightened so that the sleeve is free from leaks and all parts of the sleeve are square and symmetrical with the pipe.
- E. After installation the bolts, nuts and glands shall be cleaned and then coated with coal-tar coating, minimum of 2 coats, minimum 20 mil thickness.

3.12 MECHANICAL COUPLINGS

- A. Mechanical couplings shall be used only when shown on the drawings or when directed to be installed by the Owner.
- B. Couplings shall be carefully installed in accordance with the manufacturer's recommendations.
- C. Pipe and coupling surfaces which contact gaskets shall be clean and free from dirt and other foreign matter during assembly.
- D. All assembly bolts shall be uniformly tightened so that the coupling is free from leaks and all parts of the coupling are square and symmetrical with the pipe.
- E. Following installation of the coupling, damaged areas of shop coatings on the pipe and coupling shall be repaired to the satisfaction of the Owner.
- F. After installation the coupling, glands, nuts and bolts shall be cleaned and then coated with coal-tar coating, minimum of 2 coats, minimum 20 mil thickness.

3.13 POLYETHYLENE TUBE PROTECTION

- A. All buried ductile iron pipe, fittings, valves and accessories shall be provided with Green polyethylene tube protection to prevent contact between the pipe and the surrounding backfill.
- B. Polyethylene tube shall have a minimum thickness of 0.008" (8 mils) and conforming to ASTM D-1248, Type 1, installed in accordance with AWWA C105, Method A.
- C. For Method A installation, 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.
- D. Tube ends need not be taped in place unless Contractor is directed to do so by the Inspector.
- E. Repair any 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.
- F. Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene in the same manner as the pipe.
- G. Valves, tees, crosses, and other odd-shaped pieces which 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 stems, and other penetrations.
- H. Openings for branches, 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 film securely to the appurtenance and repair the cut as well as any other damaged areas in the polyethylene with tape.
- I. When joining with unwrapped pipe, extend the polyethylene tube to cover the unwrapped pipe a distance of at least two (2) feet. Secure the end with circumferential turns of tape.

3.14 WALL CASTINGS

- A. Unless otherwise indicated on the drawings, wall castings shall be provided where ductile iron pipes pass through concrete walls.
- B. Where a flange and mechanical joint piece is to connect to a mechanical joint wall casting, the bolt holes in the bell of the wall casting shall straddle the top (or side for vertical piping) center line of the casting and shall align with the bolt holes in the flange and mechanical joint piece. The top center line shall be marked on the wall casting at the foundry.

3.15 REDUCERS

- A. Where indicated on the drawings, reducers shall be eccentric pattern, installed with the straight side on top so that air traps are not formed.

3.16 OUTLETS

- A. Where a 12 inch or smaller branch outlet is indicated and the diameter of the line pipe is at least twice the diameter of the branch, either a tee or a tapping saddle will be acceptable.

3.17 CONNECTIONS WITH EXISTING PIPING

- A. Connections between new work and existing piping shall be made using fittings suitable for the conditions encountered.
- B. Connections to oversize lead joint pipe shall be made with mechanical couplings as directed by the Owner.
- C. Each connection with an existing pipe shall be made at a time and under conditions which will least interfere with service to customers, and as authorized by the Owner.
- D. Owner will operate all plug valves, ball valves, gate valves, sluice gates, electric switchgear, and pumps for isolation relating to the work.
- E. Contractor shall not operate any existing appurtenances without authorization from Owner.

3.18 CONCRETE ENCASEMENT

- A. Concrete encasement shall be installed if indicated on the drawings.
- B. Concrete and reinforcing steel shall be as specified in SECTION 03000 – MISCELLANEOUS CONCRETE.
- C. All pipe to be encased shall be suitably supported and blocked in proper position, and shall be anchored to prevent flotation.

3.19 REACTION ANCHORAGE AND BLOCKING

- A. All exposed piping with mechanical couplings, push-on or mechanical joints, or similar joints subject to internal pressure shall be blocked, anchored, or harnessed to preclude separation of joints.
- B. All buried push-on and mechanical joint bends deflecting 11-1/4 degrees or more shall be provided with suitable reaction blocking, anchors, joint harness, or other acceptable means for preventing movement of the pipe caused by internal pressure.
- C. 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.
- D. Concrete and reinforcing steel shall be as specified in SECTION 03000 - MISCELLANEOUS CONCRETE.
- E. The dimensions of concrete reaction blocking shall be as indicated on drawings.
- F. If adequate support against undisturbed ground cannot be obtained, metal harness anchorages shall be installed to provide the necessary support. Metal harness anchorages shall consist of steel rods extending across the joint and securely anchored to pipe and fitting, or other adequate anchorage facilities shall be installed to provide the necessary support. If the lack of suitable solid vertical excavation face is due to improper trench excavation, metal harness anchorages shall be furnished and installed by and at the expense of the Contractor.

- G. 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 drawings or as directed by the Owner.
- H. All steel clamps, rods, bolts, and other metal accessories used in tapping saddles, 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 thixotropic 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 Owner.

End of Section.

SECTION 02624 – POLYVINYL CHORIDE (PVC) GRAVITY SEWER PIPE

PART 1 - GENERAL

1.01 **SCOPE.** This section covers all work, materials, and testing for installation of PVC gravity sewer pipe by the open-cut method as shown on the Drawings and in conformity with these specifications. All pipelines shall be constructed to proper line and grade as shown on the Drawings and shall result in an unobstructed, smooth and uniform conduit.

1.02 **DESCRIPTION.** Sanitary sewer construction shall consist of furnishing all labor, materials and equipment for the complete installation of PVC gravity sewer pipe and appurtenances in accordance with Contract Drawings and these specifications.

1.03 **SPECIFICATION MODIFICATIONS.** It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 - Specific Project Requirements, or as otherwise indicated on the Contract Drawings.

1.04 RELATED SECTIONS

Section 01015 – Specific Project Requirements
Section 02200 – Earthwork
Section 02702 - Sewer Pipe and Manhole Testing
Section 02687 – Laser Profiling

1.05 **CODES AND STANDARDS.** The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. The version of the codes and standards in effect at the time of the Notice to Bidders shall be used, except as noted on the Drawings or in the Specific Project Requirements section of these specifications.

	ASTM INTERNATIONAL (ASTM)
ASTM D3034	Standard Specification for Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	Standard Specification for Type PSM Poly Vinyl Chloride (PVC)

1.06 CONTACTOR SUBMITTALS

- A. Shop Drawings: Not applicable.
- B. Product Data: Submit manufacturer's product data for all pipe, fittings, and accessories to be used.
- C. Test Reports: Manufacturer's report of the test results shall be furnished upon request of the City.
- D. Certificates: A manufacturer's certification shall be submitted indicating that the pipes and fittings were manufactured, sampled, tested, and inspected in accordance

with this specification, and has been found to meet the minimum requirements. Each certification furnished shall be signed by an authorized agent of the manufacturer.

1.07 QUALITY ASSURANCE

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Inspect materials delivered to site for damage
- B. Store materials with minimum of handling. Store materials on site in enclosures or under protective coverings. Store plastic piping, jointing materials, and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground.
- C. Keep interior of pipes and fittings free of dirt and debris.
- D. Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Carry, do not drag, pipe to trench.

PART 2 - PRODUCTS

2.01 **REQUIREMENTS.** Furnish pipe materials, joint types, sizes, and strength classes indicated and specified. Higher strengths may be furnished at the Contractor's option at no additional cost to the Owner.

2.02 **MANUFACTURER.** The manufacturer shall be experienced in the design, manufacture and commercial supplying of the specific material.

2.03 **INSPECTION AND TESTING:** Inspection and testing shall be performed by the Manufacturer's quality control personnel in conformance with applicable standards. Testing may be witnessed by Owner, Engineer, or approved independent testing laboratory. The contractor shall provide certified test reports indicating that materials conform to these specifications.

2.04 PIPE, FITTINGS, JOINTS, COATINGS

- A. Pipes and fittings six (6) through fifteen (15) inches in diameter shall conform to ASTM D3034 except as otherwise specified herein.
 1. Furnish maximum pipe length normally produced by the manufacturer except for fittings, closures and specials.
 2. Pipe shall have an integral wall bell and spigot joint.
 3. The minimum pipe wall thickness shall be SDR 26.
 4. Joints shall conform to ASTM D3212. Joints shall be push-on type only with the bell-end grooved to receive a gasket.
 5. Elastomeric seals (gaskets) shall conform to ASTM F477. Natural rubber gaskets shall not be used.
 6. Fittings (tee or wye connections) suitable for assembly to four (4) inch or six (6) inch building service lines shall be bell-end with a minimum wall thickness conforming to SDR 26.
 7. A special design is required for service connections 8 inches and larger. Special designs shall be as shown on the Contract Drawings.
 8. Saddle connections will not be permitted during sewer main installation.

- B. Pipes and fittings eighteen (18) through (60) inches in diameter shall conform to ASTM F679 except as otherwise specified herein.
 - 1. Furnish maximum pipe length normally produced by the manufacturer except for fittings, closures and specials.
 - 2. Pipe shall have an integral bell gasketed joint to form a water tight seal.
 - 3. Pipe shall have a minimum wall thickness conforming to ASTM F679 (PS115) unless otherwise noted.
 - 4. Joints shall conform to ASTM D3212. Joints shall be push-on type only with the bell-end grooved to receive a gasket.
 - 5. Elastomeric seals (gaskets) shall conform to ASTM F477. Natural rubber gaskets shall not be used.
 - 6. The minimum wall thickness of the fittings shall be the same as the minimum wall thickness of the equivalent size of the pipe as specify in ASTM F679,
 - 7. The minimum pipe stiffness shall be as specified in ASTM F679 (PS115) when tested at 5% deflection datum in accordance with Test method D2412.

PART 3 - EXECUTION

3.01 HANDLING

- A. Pipe and accessories shall be handled in a manner that will ensure their installation in the work 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 is not damaged.
- B. Pipe having premolded joints shall be handled in such a manner that no weight, including the weight of the pipe itself, will bear on or be supported by the spigot end or bell end at any time. Pipe and pipe fittings which have been damaged in any way will not be accepted and shall be removed from the project site.

3.02 TRENCHING AND BACKFILL. Trenching, backfill, compaction, and other efforts related to earthwork shall conform to Section 02200 – Earthwork.

3.03 PIPE INSTALLATION

- A. Install pipe and fittings in accordance with the requirements of ASTM D2321 for laying and joining pipe and fittings.
- B. Inspect each pipe and fitting before and after installation; replace those found defective and remove from site.
- C. Provide proper facilities for lowering sections of pipe into trenches.
- D. Lay pipe with the bell ends in the upgrade direction. Adjust spigots in bells to give a uniform space all around. Blocking or wedging between bells and spigots will not be permitted. Replace by one of the proper dimensions, pipe or fittings that do not allow sufficient space for installation of joint material.
- E. At the end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads.
- F. Provide batterboards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batterboards for the same purpose.
- G. Pipe shall be protected from lateral displacement by means of pipe embedment material installed as provided in the Section 02200 - Earthwork.
- H. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or trench conditions.

- I. When jointed in the trench, the pipe shall form a true and smooth line. Pipe shall not be trimmed except for closures, and pipe not making a good fit shall be removed.

3.04 ALIGNMENT AND GRADE

- A. All pipe shall be laid straight between changes in alignment and at a uniform grade between changes in grade. All lines shall be laid so that each section between manholes will lamp.
- B. Pipe shall be aligned and constructed to grades as shown on the Drawings.

3.05 JOINTING. All instructions and recommendations of the pipe manufacturer, relative to gasket installation and other jointing operations, shall be observed and followed by the Contractor. All joint surfaces shall be heavily lubricated with vegetable soap solution immediately before the joint is completed.

3.06 CUTTING PIPE. Cutting of pipe shall be done in a neat manner, without damage to the pipe. Pipe cuts shall be smooth, straight and at right angles to the pipe axis. All cutting of pipe shall be done with mechanical pipe cutters of an approved type except that in locations where the use of mechanical cutters would be impracticable, existing pipe may be cut with diamond point chisels, saws, or other tools which will cut the pipe without a damaging impact or shock.

3.07 CLEANING

- A. The interior of all pipe shall be cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. All lumps, blisters and excess coating shall be removed from exterior spigot and interior bell surfaces. Such surfaces shall be wired brushed and wiped clean, dry, and free from oil and grease before placing the spigot in the bell. All joint contact surfaces shall be kept clean until the jointing is completed.
- B. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being installed. No debris, tools, clothing, or other materials shall be placed in the pipe.
- C. Whenever pipe laying is stopped at the end of the work day, the open end of the line shall be sealed with a watertight plug. Whenever a tie-in to the existing collection system is made, a plug shall be installed in the new line to prevent water and/or debris from entering the existing collection system.

3.08 PIPE EMBEDMENT AND TRENCH BACKFILL. All pipe embedment and trench backfill shall conform to the Section 02200 - Earthwork of these specifications and the Contract Drawings.

3.09 FIELD QUALITY CONTROL. All pipelines shall be tested in accordance with Section 02702 - Sewer Pipe and Manhole Testing.

End of Section

02630 – STORM SEWERS

I. GENERAL

- A. Storm sewer pipe structures and appurtenances shall be installed and constructed at the locations shown on the Drawings. Materials and construction shall be in compliance with Section 2600 of the “APWA-KCMO Standard Drawings and Specifications”.
- B. Prior to constructing the new sewers, the CONTRACTOR shall physically locate all unforeseen utility service lines within ten (10) feet of the proposed sewers. If there is a utility conflict with the proposed sewers, the CONTRACTOR shall notify the ENGINEER and survey the existing service top elevation and horizontal coordinates. Certified as-built redlines and the utility investigation surveying are the sole responsibility of the CONTRACTOR.
- C. Existing sewer mains and sewer & water service lines that require new construction, relocation or adjustment, in the vertical or horizontal alignments shall be performed by the Contractor. Repairs to damages caused by the CONTRACTOR shall be responsibility of the CONTRACTOR.
- D. The CONTRACTOR shall perform acceptance testing for all “Manholes”, “Sewer Pipe”, and all “Appurtenances” in accordance with Section 2510.9 of the APWA-KCMO Standard Drawings and Specifications.
- E. Storm Sewer Construction and/or Relocation shall be conducted in accordance with Section 2600 of the “APWA-KCMO Standard Drawings and Specifications”, except as herein amended.

II. ADDITIONAL SPECIFIC REQUIREMENTS

Service Line locations, as shown or indicated on the plans are all assumed. The CONTRACTOR (prior to construction of the new sewer systems) with approval of the Engineer shall be responsible to perform dye tests, digging potholes and establish the exact numbers and the actual surveyed horizontal and vertical location of all existing services within 10’ of the proposed storm sewer. The Contractor subsequently shall be responsible to determine the actual conflicted crossings at the proposed storm sewer and submit his service-relocation shop drawings and/or certified sketches for the Engineer’s review and approval. (Contractor also shall be responsible to provide field electronic data such as the location coordinates and service line spot elevations for the Engineer use.) It shall be the responsibility of the Contractor to obtain necessary field information for aiding him in determining the required minimum length of the existing sanitary or any other services necessary to clear for the construction of proposed sewers.

02630 – STORM SEWERS

III. MATERIALS

- A. Storm Sewer Pipe: All reinforced concrete pipe (RCP) as called out on the Contract Drawings, shall be of standard manufacture in accordance with the applicable sections of the Standard Specifications. Pipe materials shall meet or exceed APWA-KCMO 2600 standards for ASTM C76, Class III, wall B, Reinforced Concrete Pipe (RCP). Reinforced concrete storm sewer pipe shall use synthetic rubber “O-ring” gasketed joints (APWA-KCMO 2602.3.B.5.a.ii) where specified on the plans. Circular reinforced concrete storm sewer pipe equal to or greater than 36” in diameter shall use steel end ring joints in accordance with ASTM C361 Standard Specification for reinforced concrete low-head pressure pipe.
- B. Dual Wall and Triple Wall Polypropylene Storm Sewer Pipe: Dual wall pipe and fittings 12 inch through 24 inch diameter shall conform to ASTM F2736 and triple wall pipe 30 inch through 60 inch shall conform to ASTM F2764, except as otherwise specified herein. Dual wall polypropylene pipe shall have a smooth interior and annular exterior corrugation. Triple wall polypropylene pipe shall have a smooth interior and exterior with annular inner corrugations. Pipe shall have a minimum pipe stiffness of 46 pii when tested in accordance with ASTM D2412. Pipe shall be joined with an integral bell and spigot joint on all sizes. The joints shall be watertight in accordance with ASTM D3212. The spigot shall have two gaskets meeting the requirements of ASTM F477. The gaskets shall be installed by the pipe manufacturer and shall be covered with a removable, protective wrap to ensure the gaskets are free from debris. A joint lubricant shall be used on the gasket and pipe bell during assembly. Pipe shall have a reinforced bell with a polymer composite band installed by the manufacturer. Pipe materials shall meet or exceed APWA-KCMO 2500 standards.
- C. High Density Polyethylene Pipe: High density polyethylene (HDPE) pipe and fittings shall conform to ASTM F2306 with annual corrugations and an integral bell and spigot. The manufacturer of the pipe must participate in the AASHTO/National Transportation Product Evaluation Program (NTPEP). The maximum cover depth shall be 30 feet.
1. Materials: Virgin material for pipe and fitting production shall be HDPE conforming with the minimum requirements of cell classification 435400C for 12” to 60” diameters as defined in ASTM D3350, except carbon black content shall not exceed 4%.
 2. Joints: Joint tightness shall conform to ASTM D3212. Elastomeric seal (gasket) shall have a basic polymer of synthetic rubber conforming to ASTM F477. Natural rubber gaskets will not be used. Bells shall span over three corrugations.

02630 – STORM SEWERS

- D. Curb Inlets: New curb inlets shall conform to the KCMO Standard Drawings "CI-1, Curb Inlet Type 1" or "CI-2, Curb Inlet Type 2" with steel frame throat. The structure(s) shall be constructed to the size and type as specified in the plans; the throat height(s) shall be as shown on the standard drawings unless otherwise specified on the plans. Precast top slabs shall be formed with the steel frame in place. Until it is poured in place with the concrete gutter throat, the steel framework shall not be used to lift or to support the weight of the top slab. The curb inlet top slab shall have a type RC4C shallow ring & cover (without cam locks).
- E. Field Inlets and Grate Inlets: Field inlets and grate inlets shall conform to APWA-KCMO Drawing "FI-1" and GI-1, respectively. Field inlet openings shall be as specified in the Contract Drawings.
- F. Manholes and Junction Boxes: Manholes and Junction Boxes shall conform to KCMO Standard Drawings, MH-1 and JB-1, respectively. Sizes shall be as shown in the Contract Drawings. Shrink wrap shall be used to seal the manhole joints between the precast cone barrel and the manhole ring casting wherever storm sewer manholes are located adjacent to or within driveway or street pavements.
- G. Manhole Ring and Covers: Inlet manhole ring and covers shall be "MH-RC4C" without cam locks. Storm sewer manhole ring and covers shall be "MH-RC3". Cam locks are only required where specifically called out on field inlet tops in residential areas, curb inlet tops in non-sump areas, all areas subject to flooding – such as in a floodplain or within a creek channel, and whenever bolt down rings are specified. Manhole rings are only required to be bolted-down on 'pressure' piped sewers. Vented covers will not be used in new construction. Covers shall be marked "STORM".

IV. Execution

- A. Connection to Existing System: Where a storm sewer pipe is being connected to an existing drainage structure, the work shall be constructed by sawing and chipping a hole through its sidewall to allow a minimum of three-inches of new concrete around the pipe. The invert shall be chipped away and replaced to shape a new doghouse collar and invert. The interior concrete surfaces shall be grouted smooth with non-shrink grout. Depending on the method and extent of the sidewall demolition, reinforcing bars may need to be doveled into the existing structure at the direction of the Owner's Representative.
- B. Pipe Trimming: Pipes connecting to structures shall be cut parallel with the inside face of structures with plane walls. Pipes connecting to other pipes shall be cut parallel with the spring line of the pipe. Projection of the pipe beyond the inside face shall not exceed one inch. Voids shall be grouted with non-shrink grout.
- C. Connection of Existing Pipes to New Pipes: Connection to and/or extension of an existing pipe shall be accomplished by construction of a concrete collar between

02630 – STORM SEWERS

the old and new pipes. The collar shall be a minimum of 6" thick and 3' long using MCIB Mix No. A558-1-2 and shall encircle the pipe. The connection shall be properly supported to prevent settlement. All work shall be performed to the satisfaction of the OWNER'S Representative.

- D. Inlet and Pipe Removal: This Section consists of removing an inlet and associated pipe. Backfill shall be in accordance with Figure 1 APWA-KCMO 2602.3.C. The existing pipe removed shall be plugged with concrete plugs. Any abandoned pipes left in place shall be filled with Fly Ash Slurry or as specified in the Contract Drawings
- E. Tunneling: Storm sewer pipes within the drip line of a tree marked "Save" shall be installed by tunneling under the roots. Drip line is defined as the diameter of the tree in inches x 10 = drip line diameter in feet. One joint of RCP may be pushed with the excavator bucket. Boring and jacking shall be accomplished in accordance with APWA 2603.3; steel casing is not required. There will be no separate payment for tunneling operations of 30' or less.

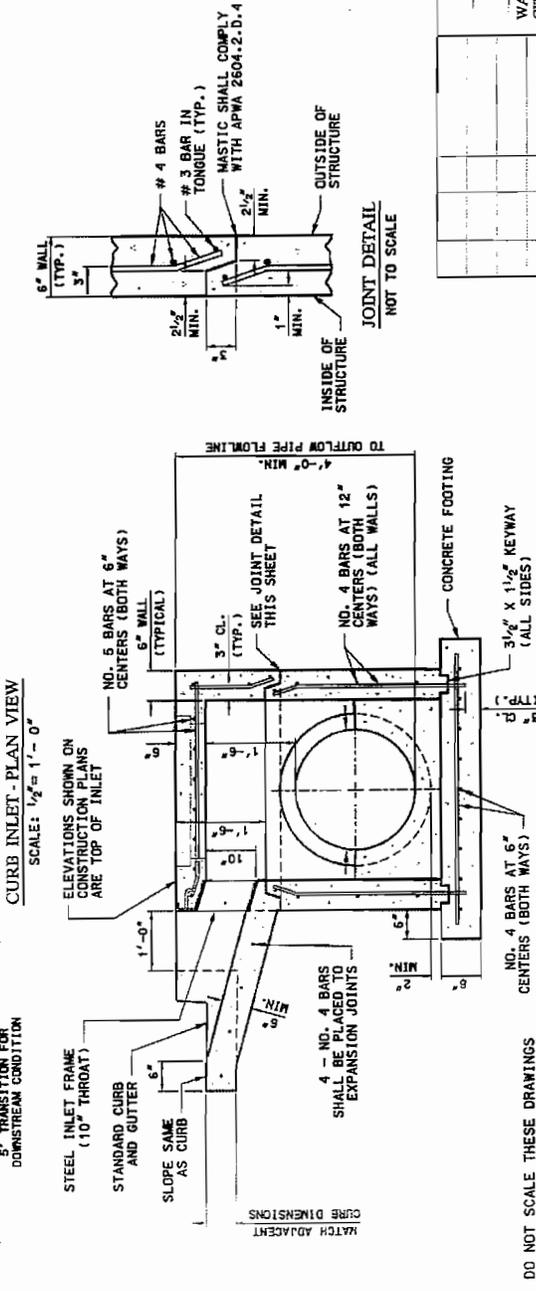
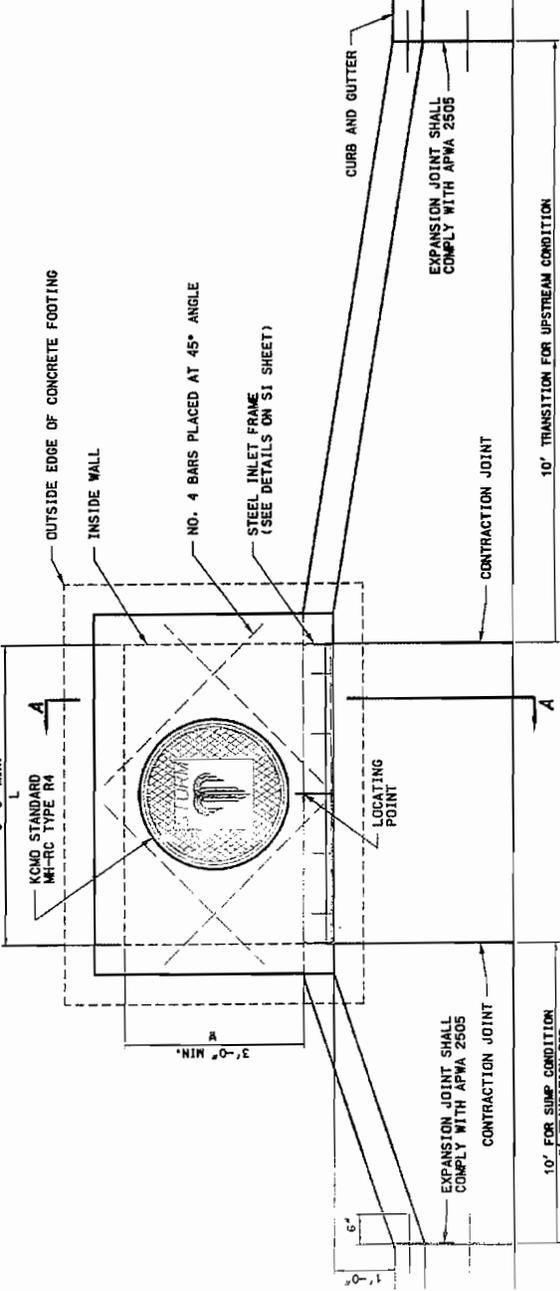
V. EXFILTRATION AND OUTFLOW TESTING OF SEWER LINE

For all gasketed storm sewers, exfiltration tests shall be performed by the CONTRACTOR in accordance with APWA-KCMO 2510.9. The CONTRACTOR shall furnish all labor, equipment, materials, and reports for the required acceptance tests. Pipelines that do not conform to the requirements shall be repaired and/or replaced and shall be retested until the pipeline meets the project requirements. Testing shall be recorded by the CONTRACTOR and a copy shall be submitted to the Engineer. No testing shall be performed before backfill and compaction operation has been completed.

END OF SECTION

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KCWD 2500.
2. CURB INLET TYPE 1, CI-1, IS THE PREFERRED CURB INLET TYPE. CI-1 IS NOT ALLOWED WITHIN 30 FEET OF END OF CURB RETURN IN INDUSTRIAL DISTRICTS OR COMMERCIAL DRIVeways. CI-3 SHALL BE USED IN PLACE OF CI-1 OR CI-2 UNDER THESE CONDITIONS.
3. INLETS SHALL BE SET LEVEL.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "M" DIMENSION. "L" DIMENSION. THE SECOND DIMENSION IS THE "M" DIMENSION.
5. LOCATE KCWD STANDARD MH-RC RING AND COVER IN CENTER OF LID FOR INLETS 8 FEET AND LESS. LOCATE KCWD STANDARD MH-RC RING AND COVER (WITHOUT CAMLOCKS) AT EACH END WHEN INLET IS OVER 8 FEET IN LENGTH.
6. BEVEL ALL EXPOSED EDGES WITH 3/4" CHAMFER OR 1/2" TOOLED EDGE.
7. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
8. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
9. FLOOR OF INLET SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
10. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
11. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/2" SHALL BE PERMITTED.
12. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
13. ALL CURB INLET TOPS ARE TO BE CONSTRUCTED AFTER FINAL CURB LINE HAS BEEN APPROVED BY THE CITY AND PRIOR TO CURB CONSTRUCTION. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
15. BACKFILL AROUND STRUCTURES SHALL BE CLASS 11 GRANULAR BACKFILL MATERIAL CONFORMING TO ASTM D2321.
16. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
17. ALL SURFACES CONTACTING SIDE AND BACK OF INLET SHALL MATCH AT TOP EDGE OF LID.
18. FOR DEPTH GREATER THAN 7 FEET:
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS EWEF AT 6" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS ENTB AT 6" O.C.



DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

CURB INLET
SETBACK - TYPE DETAILS

STORMWATER UTILITY

WATER SERVICES
CITY OF KANSAS CITY, MISSOURI

DRAWING NO. **CI-1**

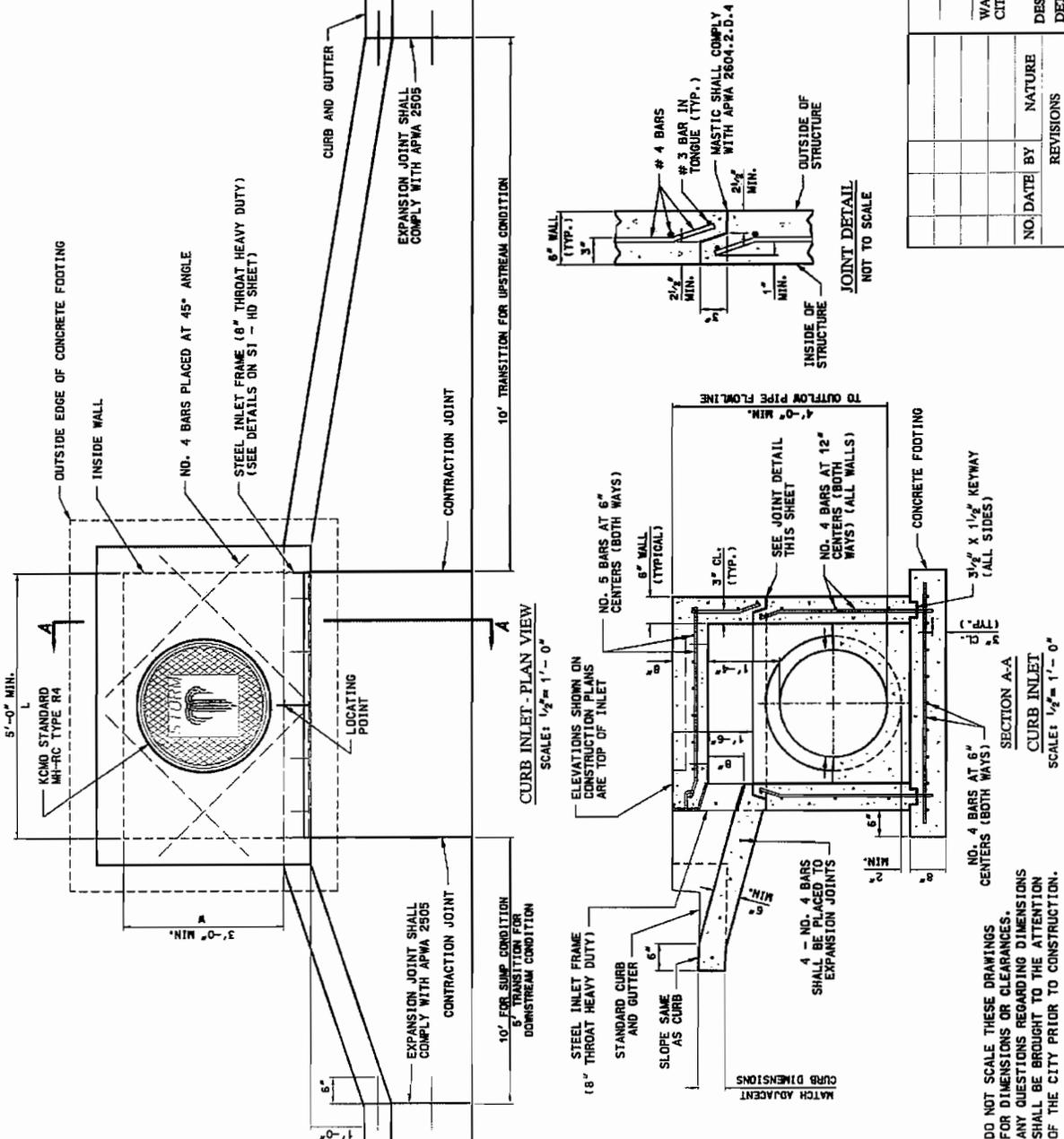
DESIGNED BY: **D. LOOMIS** APPROVED BY: _____
 DETAILED BY: **H. BEITLING/A.Z.** DATE: **01/16/2013**

NO.	DATE	BY	NATURE	REVISIONS

1 OF 1

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KCNO 2600.
2. CURB INLET TYPE 3, CI-3, SHALL BE USED WHEN CI-1 AND CI-2 ARE NOT ALLOWED.
3. INLETS SHALL BE SET LEVEL.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "M" DIMENSION, THE SECOND DIMENSION IS THE "L" DIMENSION.
5. LOCATE KCNO STANDARD MH-RC RING AND COVER IN CENTER OF LID FOR INLETS 8 FEET AND LESS. LOCATE KCNO STANDARD MH-RC RING AND COVER (WITHOUT CAMLOCKS) AT EACH END WHEN INLET IS OVER 8 FEET IN LENGTH.
6. BEVEL ALL EXPOSED EDGES WITH 3/4" CHAMFER OR 1/2" TOOLED EDGE.
7. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
8. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
9. FLOOR OF INLET SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
10. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
11. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8" SHALL BE PERMITTED.
12. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
13. ALL CURB INLET TOPS ARE TO BE CONSTRUCTED AFTER FINAL CURB LINE HAS BEEN APPROVED BY THE CITY AND PRIOR TO CURB CONSTRUCTION. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
15. BACKFILL AROUND STRUCTURES SHALL BE CLASS II GRANULAR BACKFILL MATERIAL CONFORMING TO ASTM D2321.
16. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
17. ALL SURFACES CONTACTING SIDE AND BACK OF INLET SHALL MATCH AT TOP EDGE OF LID.
18. FOR DEPTH GREATER THAN 7 FEET:
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS EWF AT 9" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS EWB AT 6" O.C.



CURB INLET

HEAVY DUTY - TYPE DETAILS

WATER SERVICES
CITY OF KANSAS CITY, MISSOURI

DRAWING NO. **CI-3**

DESIGNED BY: **D. LOOMIS** APPROVED BY: _____

DETAILED BY: **H. BEITLING/A.Z.** DATE: **01/14/2013**

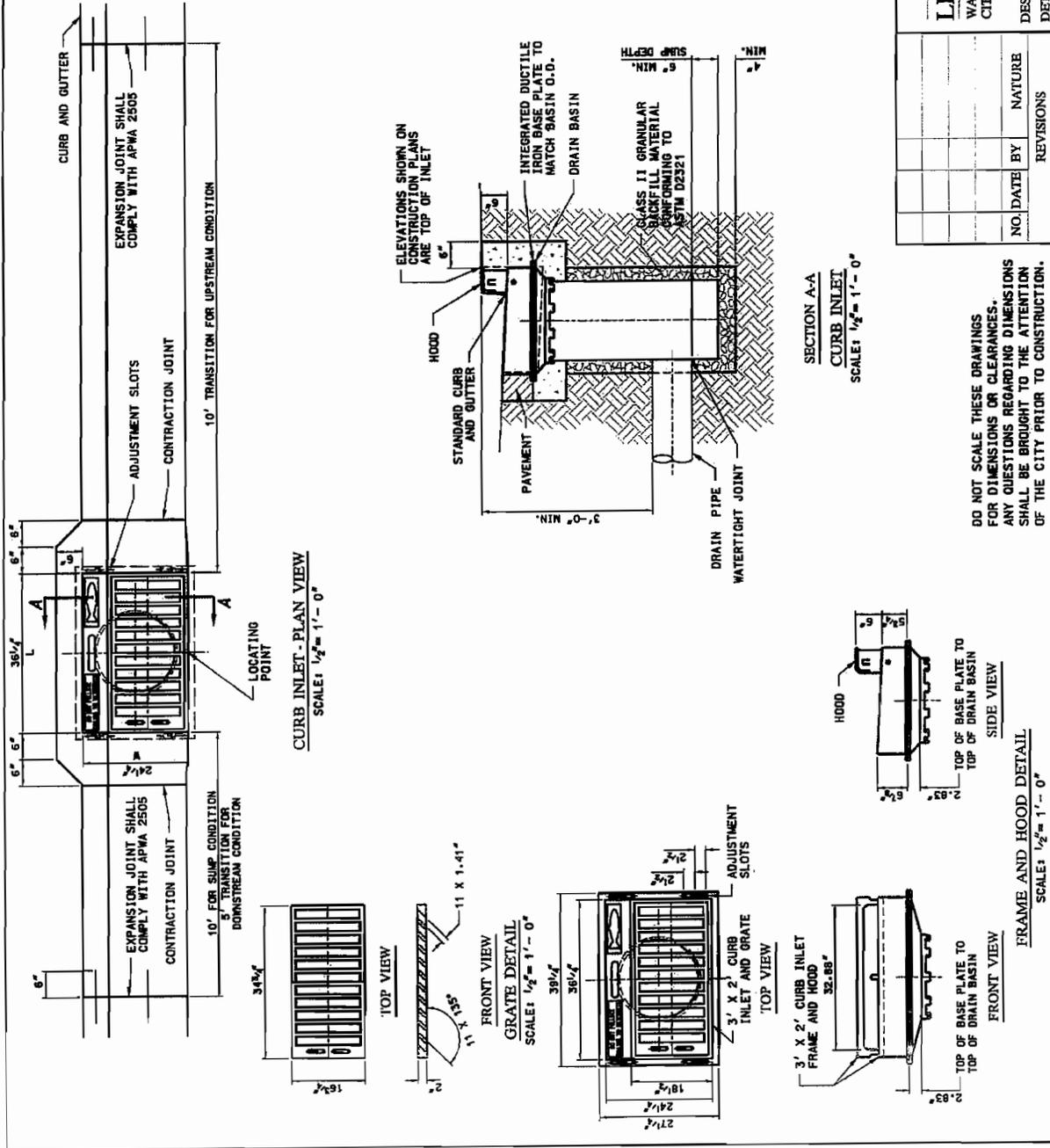
1 OF 1

NO.	DATE	BY	NATURE	REVISIONS

DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KCMO 2600.
2. CURB INLET TYPE 4, CI-4.
3. INLETS SHALL BE SET LEVEL.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "M" DIMENSION. THE SECOND DIMENSION IS THE "N" DIMENSION. LOCATE KCMO STANDARD MI-RC RING AND COVER IN CENTER OF LID FOR INLETS 8 FEET AND LESS. LOCATE KCMO STANDARD MI-RC RING AND COVER AT EACH END WHEN INLET IS OVER 8 FEET IN LENGTH.
5. BEVEL ALL EXPOSED EDGES WITH $\frac{1}{4}$ " CHAMFER OR $\frac{1}{2}$ " TOOLED EDGE.
6. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
7. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
8. FLOOR OF INLET SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
9. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
10. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF $\pm \frac{1}{8}$ " SHALL BE PERMITTED.
11. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
12. ALL CURB INLET TOPS ARE TO BE CONSTRUCTED AFTER FINAL CURB LINE HAS BEEN APPROVED BY THE CITY AND PRIOR TO CURB CONSTRUCTION. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
13. BACKFILL AROUND STRUCTURES SHALL COMPLY WITH APWA-KCMO 2604-3-D.
14. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
15. ALL SURFACES CONTACTING SIDE AND BACK OF INLET SHALL MATCH AT EDGE OF LID TOP.
16. FOR DEPTH GREATER THAN 7 FEET:
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS EWFB AT 9" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS EWFB AT 6" O.C.

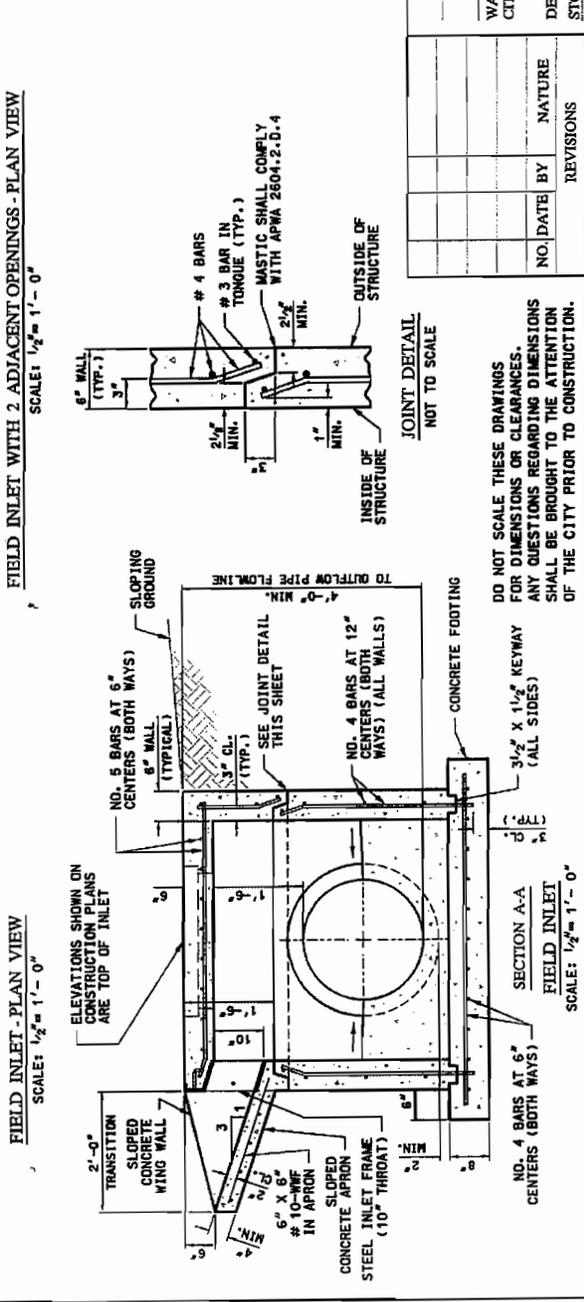
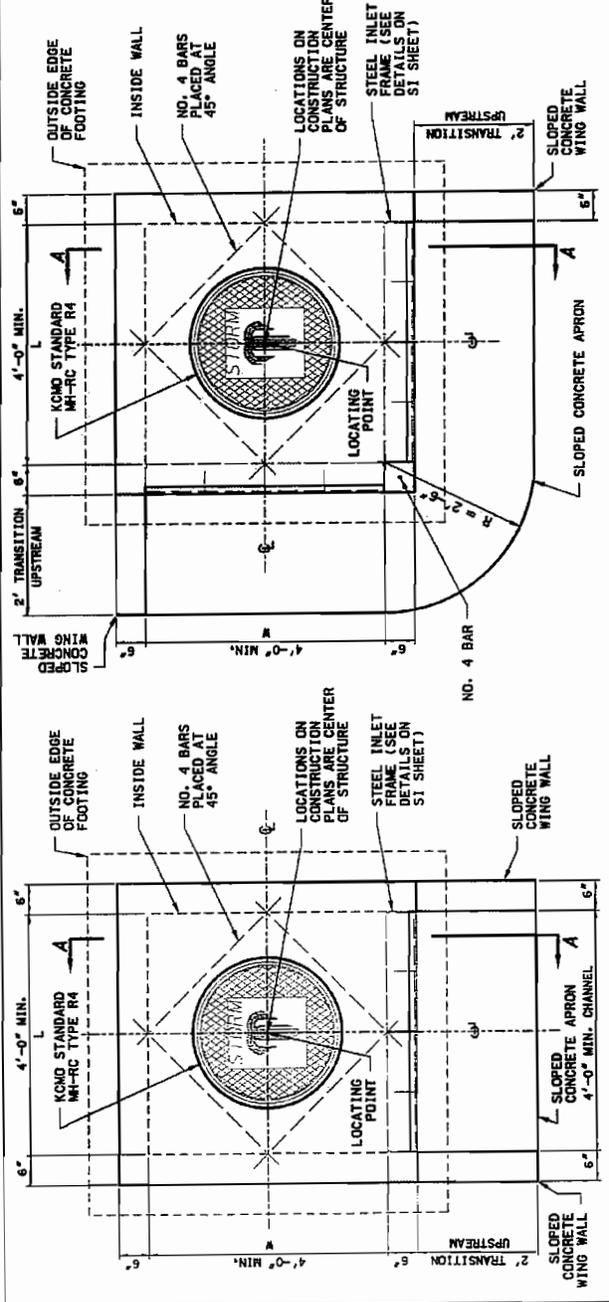


LIMITED SPACE IN GUTTER - TYPE DETAILS
 WATER SERVICES
 CITY OF KANSAS CITY, MISSOURI
 DRAWING NO. CI - 4
 DESIGNED BY: D. LOOMIS
 APPROVED BY:
 STORMWATER UTILITIES
 DATE: 01/09/2013

NO.	DATE	BY	NATURE	REVISIONS

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KOMO 2600.
2. FIELD INLET, FI, FOR USE IN OFF-STREET APPLICATIONS IN INDUSTRIAL AREAS.
3. INLETS SHALL BE SET LEVEL.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "M" DIMENSION, "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
5. LOCATE KOMO STANDARD MI-RC RING AND COVER IN CENTER OF LID FOR INLETS 8 FEET AND LESS. LOCATE KOMO STANDARD MI-RC RING AND COVER AT EACH END WHEN INLET IS OVER 8 FEET IN LENGTH.
6. BEVEL ALL EXPOSED EDGES WITH 3/4" CHAMFER OR 1/2" TOLDED EDGE.
7. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
8. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
9. FLOOR OF INLET SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
10. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
11. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8" SHALL BE PERMITTED.
12. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
13. ALL FIELD INLET TOPS ARE TO BE CONSTRUCTED AFTER FINAL CURB LINE HAS BEEN APPROVED BY THE CITY AND PRIOR TO CURB CONSTRUCTION.
14. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
15. BACKFILL AROUND STRUCTURES SHALL BE CLASS II GRANULAR BACKFILL MATERIAL CONFORMING TO ASTM D2321.
16. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
17. ALL SURFACES CONTACTING NON-OPEN SIDE AND/OR BACK OF INLET SHALL MATCH AT TOP EDGE OF LID.
18. APRON SHALL HAVE THE WALL WHEN VELOCITY OF FLOW MEETS OR EXCEEDS 5 FT./SEC.
19. FOR DEPTH GREATER THAN 7 FEET:
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS EWFB AT 9" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS EWFB AT 6" O.C.



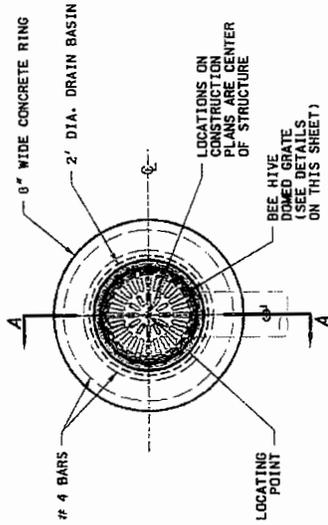
DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

FIELD INLET DETAILS

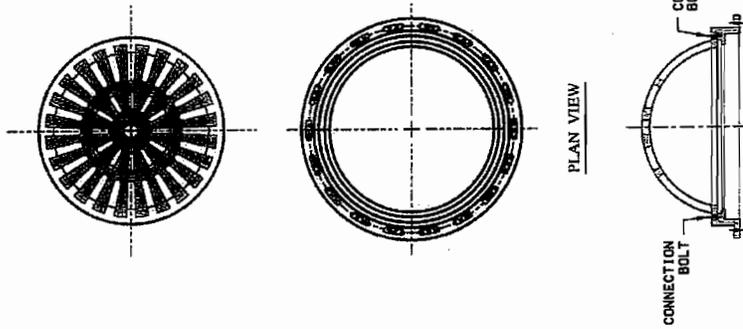
NO.	DATE	BY	NATURE	REVISIONS

NOTES:

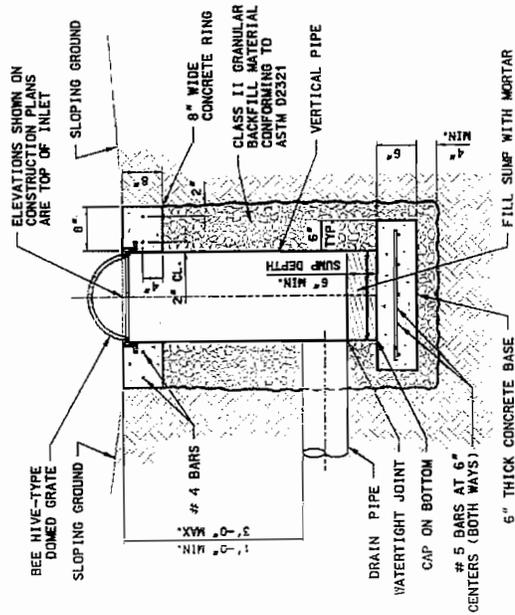
1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KCNO 2600.
2. FIELD INLET, BEE HIVE TYPE, FI-BH, SHALL BE USED IN NON-TRAFFIC LOCATIONS ONLY WITH WATER SERVICES' APPROVAL.
3. INLETS SHALL BE SET LEVEL.
4. BEVEL ALL EXPOSED EDGES WITH $\frac{3}{8}$ " CHAMFER OR $\frac{1}{2}$ " TOOLED EDGE.
5. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
6. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
7. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF $\pm \frac{1}{8}$ " SHALL BE PERMITTED.
8. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
9. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
10. THE VERTICAL PIPE SHALL BE RCP CLASS III OR HIGHER DUCTILE IRON PIPE, CLASS 521 PVC SDR 26 OR APPROVED EQUAL.



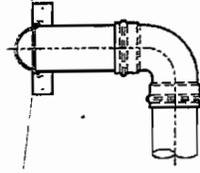
FIELD INLET - PLAN VIEW
SCALE: $\frac{1}{2}$ " = 1'-0"



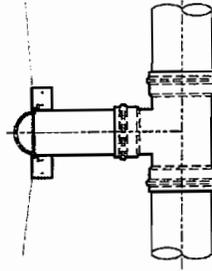
BEE HIVE GRATE DETAIL
SCALE: 1" = 1'-0"



SECTION A-A
FIELD INLET
SCALE: $\frac{1}{2}$ " = 1'-0"



SECTION A-A
ALTERNATE BEND OPTION DETAIL
NOT TO SCALE



SECTION A-A
ALTERNATE TEE OPTION DETAIL
NOT TO SCALE

FIELD INLET

BEE HIVE - TYPE DETAILS

STORMWATER UTILITY

WATER SERVICES
CITY OF KANSAS CITY, MISSOURI

DRAWING NO. **FI - BH**

DESIGNED BY: **D. LOOMIS**

APPROVED BY:

DETAILED BY: **A. ZUMBRUM**

DATE: **01/25/2013**

1 OF 1

DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

NO.	DATE	BY	NATURE	REVISIONS

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KOMO 2600.
2. GRATE INLET TYPE 1, GI-1, SHALL BE USED IN LIMITED SPACE CONDITIONS THAT DO NOT ALLOW USE OF GI-2.
3. INLETS SHALL BE SET LEVEL.
4. BEVEL ALL EXPOSED EDGES WITH $\frac{3}{4}$ " CHAMFER OR $\frac{1}{2}$ " TOOLED EDGE.
5. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
6. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
7. FLOOR OF INLET SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
8. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
9. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF $\pm \frac{1}{8}$ " SHALL BE PERMITTED.
10. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
11. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
12. BACKFILL AROUND STRUCTURES SHALL BE CLASS II GRANULAR BACKFILL MATERIAL CONFORMING TO ASTM D2321.
13. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
14. ALL SURFACES CONTACTING SIDE AND BACK OF INLET SHALL MATCH AT TOP EDGE OF L.I.D.
15. CONCRETE APRONS MAY BE REQUIRED TO PROVIDE POSITIVE FLOW TO INLET.
16. FOR DEPTH GREATER THAN 7 FEET:
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS EWF AT 9" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS ENTB AT 6" O.C.

DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

GRATE INLET - 1

LIMITED SPACE - TYPE DETAILS

WATER SERVICES
CITY OF KANSAS CITY, MISSOURI

STORMWATER UTILITY

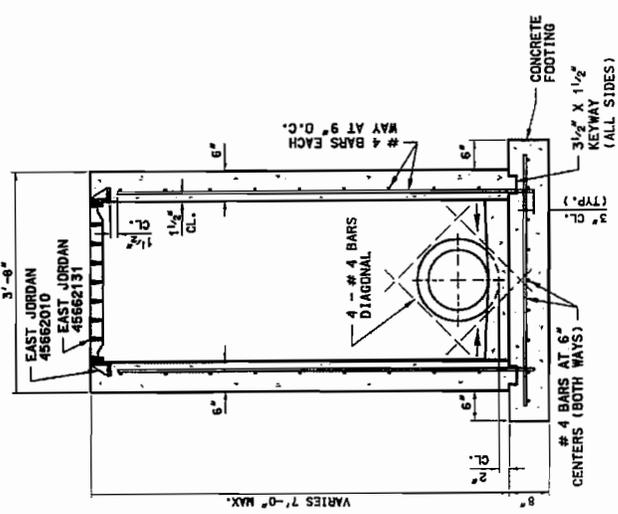
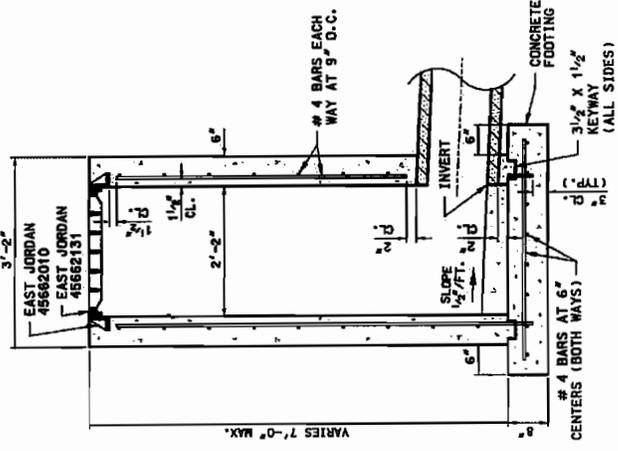
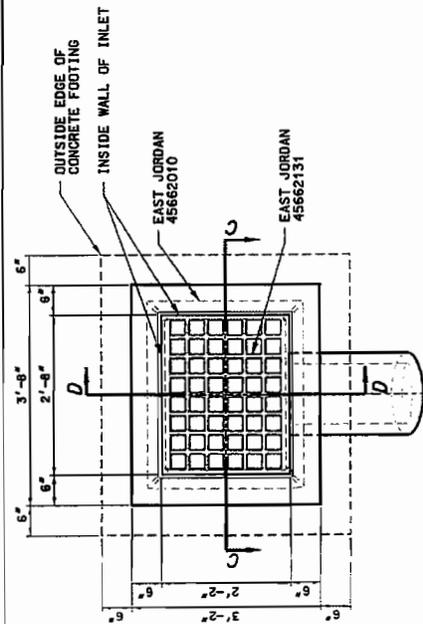
DRAWING NO. **GI-1**

APPROVED BY:

1 OF

DATE: 05/03/2013

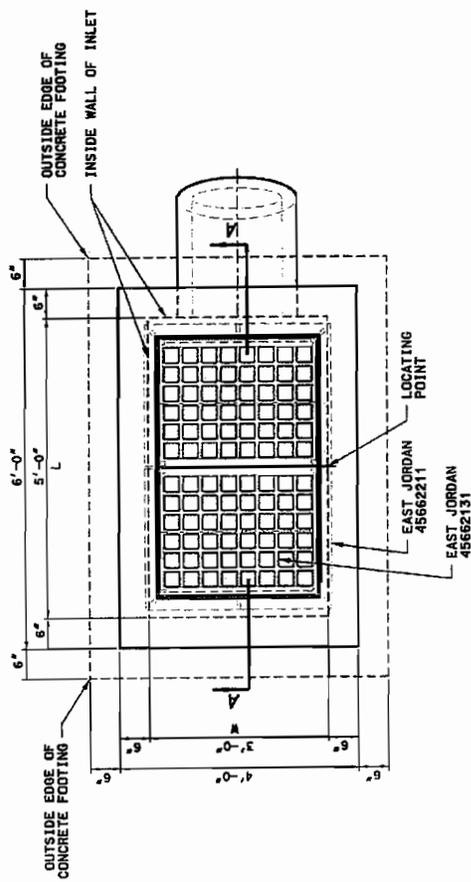
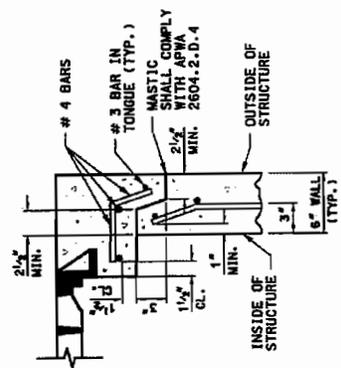
DEVELOPED BY:
STORMWATER STANDARDS COMMITTEE



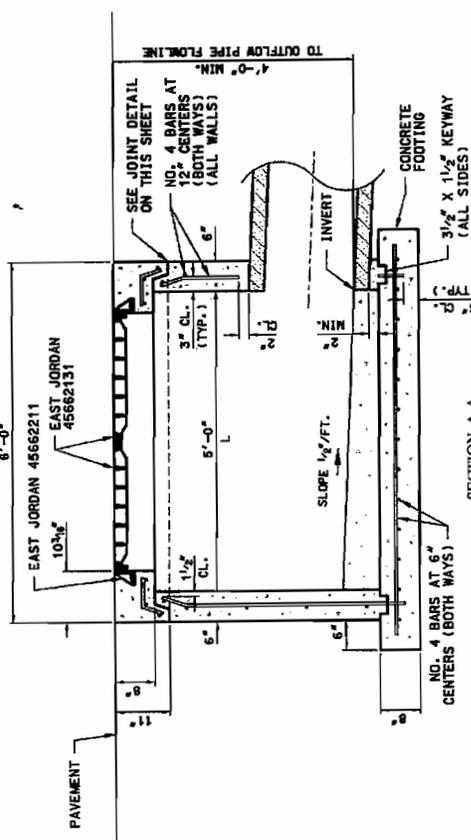
NO.	DATE	BY	NATURE	REVISIONS

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KMO 2600.
2. GRATE INLET TYPE 2, GI-2, IS THE PREFERRED INLET TYPE ON UNIMPROVED STREETS AND SHALL BE PLACED HORIZONTALLY AND VERTICALLY TO ACCOMMODATE A C1-1, 2, OR 3 TOP UPON FUTURE STREET IMPROVEMENT.
3. INLETS SHALL BE SET LEVEL.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
5. BEVEL ALL EXPOSED EDGES WITH 3/4" CHAMFER OR 1/2" TOOLED EDGE.
6. STORM SEWER STRUCTURES MAY BE POURED IN PLACE AS APPROVED BY WATER SERVICES.
7. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
8. FLOOR OF INLET SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
9. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
10. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 3" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/4" SHALL BE PERMITTED.
11. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
12. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 5" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
13. BACKFILL AROUND STRUCTURES SHALL BE CLASS II GRANULAR BACKFILL MATERIAL CONFORMING TO ASTM D2321.
14. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
15. ALL SURFACES CONTACTING SIDE AND BACK OF INLET SHALL MATCH AT TOP EDGE OF LID.
16. CONCRETE APRONS MAY BE REQUIRED TO PROVIDE POSITIVE FLOW TO INLET.
17. FOR DEPTH GREATER THAN 7 FEET:
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS EMB AT 9" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS EMB AT 6" O.C.



PLAN VIEW
SCALE: 1/2" = 1'-0"



SECTION A-A
DOUBLE GRATE INLET
SCALE: 1/2" = 1'-0"

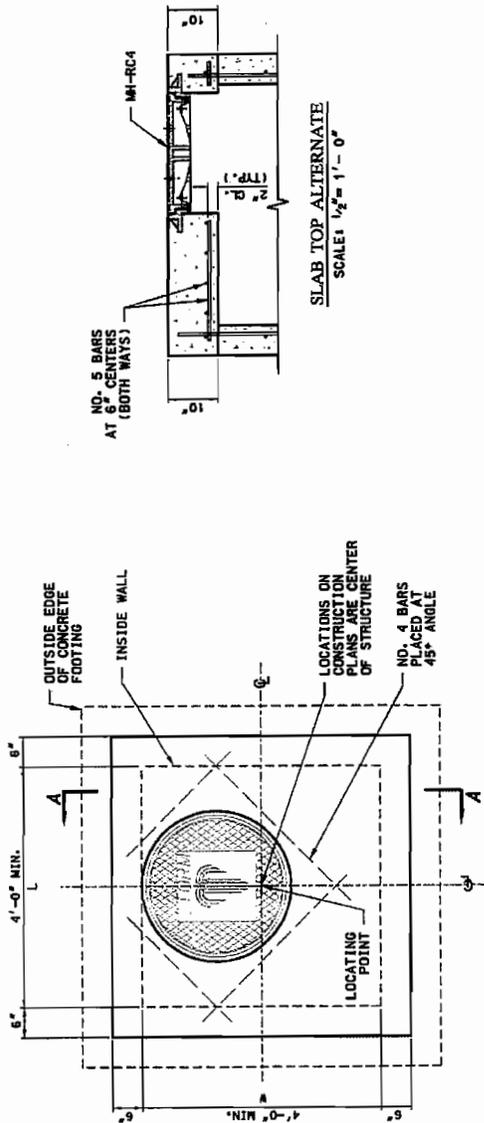
DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

GRATE INLET - 2	
STANDARD - TYPE DETAILS	
STORMWATER UTILITY	
WATER SERVICES CITY OF KANSAS CITY, MISSOURI	
DRAWING NO. GI-2	APPROVED BY: _____
DEVELOPED BY: _____	DATE: 05/06/2013
1 OF 1	

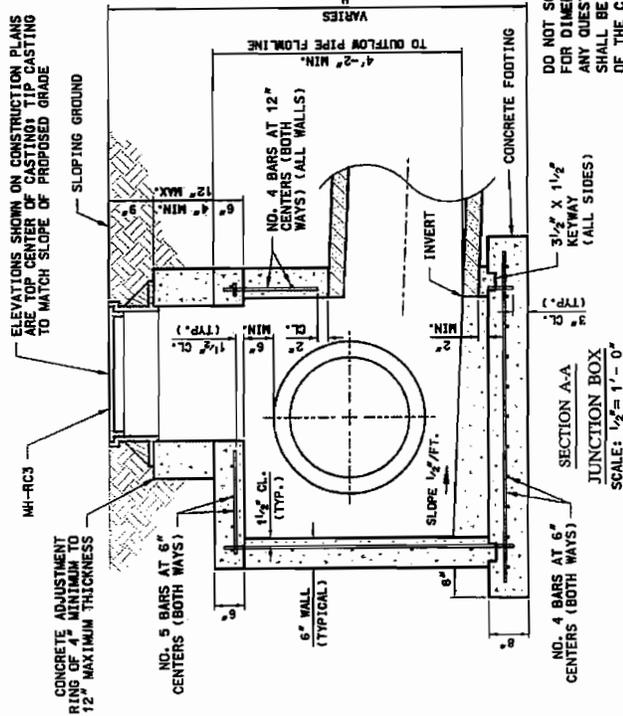
NO.	DATE	BY	NATURE	REVISIONS

NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF APWA-KC-MO 2600.
2. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
3. LOCATE KCMO STANDARD MI-RC RING AND COVER OVER OUTLET.
4. BEVEL ALL EXPOSED EDGES WITH 3/4" CHAMFER OR 1/2" TOOLED EDGE.
5. EXPANSION JOINT MATERIAL SHALL COMPLY WITH APWA 2805.
6. BOXOUTS SHALL NOT PROJECT THROUGH THE STRUCTURE CORNERS. REINFORCING SHALL BE BENT AROUND PIPE OPENINGS WHEN POSSIBLE. WHEN REINFORCING IS CUT, A DIAGONAL BAR SHALL BE USED TO TIE ALL CUT ENDS TOGETHER.
7. FLOOR OF JUNCTION BOX SHALL BE SHAPED WITH INVERT TO PROVIDE SMOOTH FLOW.
8. REINFORCING STEEL SHALL BE NEW BILLET. MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
9. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8" SHALL BE PERMITTED.
10. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
11. THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
12. PIPE CONNECTIONS TO PRECAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2 FEET OF THE STRUCTURE, UNLESS SEALED WITH APPROVED FLEXIBLE WATERPROOF GASKETS IN PRECAST OPENINGS. MINIMUM CLEARANCE BETWEEN PIPE BOXOUTS AND BARREL JOINTS IS 8" WITHOUT SPECIAL DESIGN.
13. BACKFILL AROUND STRUCTURES SHALL BE CLASS II GRANULAR BACKFILL MATERIAL CONFORMING TO ASTM D2321.
14. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.
15. THE STRUCTURE ELEVATION SHOWN ON THE PLANS IS THE TOP SURFACE OVER THE LOCATING POINT.
 - A. WALLS SHALL BE 8" THICK WITH # 5 BARS ENFB AT 9" O.C.
 - B. BASE SHALL BE 12" THICK WITH # 5 BARS ENFB AT 6" O.C.



JUNCTION BOX - PLAN VIEW
SCALE: 1/2" = 1'-0"



DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY PRIOR TO CONSTRUCTION.

**JUNCTION BOX
DETAILS**

WATER SERVICES
CITY OF KANSAS CITY, MISSOURI
DRAWING NO. **JB**
DEVELOPED BY:
STORMWATER STANDARDS COMMITTEE
DATE: 06/04/2013

NO.	DATE	BY	NATURE	REVISIONS

SECTION 02631 – POLYVINYL CHLORIDE (PVC) PRESSURE PIPE

PART 1 - GENERAL

- 1.01 SCOPE. This section covers the furnishing and installation of buried polyvinyl chloride (PVC) pressure pipe for domestic, municipal, and industrial sewage. PVC pressure pipe shall be furnished complete with all jointing materials, and other necessary appurtenances. PVC is an alternative piping material for all sewer piping shown on the drawings. All pipeline materials shall be furnished by the Contractor. All material shall be new and shall comply with the specifications that follow.
- 1.02 RELATED SECTIONS
- A. Submittals – SECTION 01300
 - B. Earthwork – SECTION 02200
 - C. Sewer Pipe and Manhole Testing – SECTION 02702
- 1.03 CODES and STANDARDS. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- A. American Society for Testing and Materials (ASTM):
 - 1. F477 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 - 2. D2241 – Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
 - B. American Water Works Association (AWWA):
 - 1. C110 – Ductile-Iron and Gray-Iron Fittings, 3 Inches Through 48 Inches (75 mm Through 1,200 mm) for Water and Other Liquids.
 - 2. C153 – Ductile-Iron Compact Fittings, 3 In. Through 24 In. (76 mm Through 610 mm) and 54 In. Through 64 In. (1,400 mm Through 1,600 mm), for Water Service.
 - 3. C900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
 - 4. C905 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 60 In. (350 mm Through 1,524 mm), for Water Transmission and Distribution.
 - 5. Manual M23 - PVC Pipe - Design and Installation.
- 1.04 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:
- A. Manufacturers shall be experienced in the design and manufacture of pipe, fittings, specials, or appurtenances for a minimum period of 5 years.
 - B. Warranty

1. Terms: Standard Manufacturer's warranty
2. Warranty Period: Standard Manufacturer's warranty

1.05 CONTRACTOR SUBMITTALS.

A. Shop Drawings:

1. Pipe and joint details, including pipe sample piece.
2. Special, fitting, and coupling details.
3. Gasket material details.

B. Product Data:

1. Laying and installation schedule complete with an explanation of all abbreviations used in the schedule.

C. Certificates:

1. Affidavit of compliance with applicable standards.
2. Test certificates.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING.

A. Pipe, fittings, and accessories shall be handled in accordance with the pipe manufacturers recommendations.

B. Equipment, tools, and methods used in handling and installing pipe and fittings shall not damage the pipe and fittings.

C. Pipe shall not be stored uncovered in direct sunlight.

PART 2 - PRODUCTS

2.01 MATERIALS.

A. Pipe:

1. Pipe shall conform to ANSI/AWWA C900, ANSI/AWWA or ANSI/AWWA C905 as applicable.
2. At a minimum, the dimension ratio of all pipe sizes shall be DR 25 in accordance with ANSI/AWWA C900/C905.
3. The pipe minimum inside diameter and location shall be as indicated on the drawings.
4. Gaskets shall conform to ASTM F477 and be synthetic rubber. Natural rubber gaskets will not be acceptable.
5. Pipe Color:
 - i. Pipe interior and exterior shall be **GREEN**. Blue pipe is not acceptable.
 - ii. Color Code and sample piece shall be supplied with shop drawings prior to pipe approval.
6. Each pipe and fitting shall have the following information plainly and permanently marked with waterproof paint thereon:
 - i. Pipe stiffness
 - ii. Date of manufacture
 - iii. Manufacturer's name or trademark
 - iv. "SEWER PIPE"
7. Control tests:

- i. Control tests shall be made during the manufacture of the pipe to determine its physical characteristics.
- ii. Control tests shall be witnessed by an independent testing laboratory at the expense of the Contractor.
- iii. Control tests shall be performed on each pipe of each diameter provided on this project in accordance with applicable governing standard.
- iv. One set of tests shall be performed for each 100 pieces of pipe. All pipes within the representative sample which fails to comply with the specified requirements shall be rejected.

B. Fittings:

1. Fittings shall conform to AWWA C110 or AWWA C153 and be ductile iron. Fittings shall be mechanical joint or push-on-type joint.
2. Fittings shall have pressure rating of not less than that specified for the pipe.
3. All fittings shall have pressure rating and letters "DI" or "DUCTILE" cast on the fitting.

C. Joints:

1. Stab type with elastomeric synthetic rubber gaskets. Gaskets of natural rubber will not be acceptable.
2. Joint lubricant shall be a vegetable based lubricant. Petroleum or animal based lubricants will not be acceptable.
3. Restrained Joint PVC 4" -24" shall be C900/905, Eagle Loc, Diamond Lok, Certainteed Certa-lok or Fusible C900/905

PART 3 - EXECUTION

3.01 INSPECTION

- A. Pipe shall be carefully examined for cracks and other defects immediately before installation; spigot ends and bells shall be examined with particular care.
- B. All defective pipe and fittings shall be marked as such removed from the site of the work.

3.01 CUTTING PIPE

- A. Cutting shall comply with the pipe manufacturer's recommendations and with Chapter 7 of AWWA Manual M23.
- B. Cuts shall be smooth, straight, and at right angles to the pipe axis.
- C. After cutting, the end of the pipe shall be dressed to remove all roughness and sharp edges and shall be beveled in accordance with the manufacturer's instructions.

3.03 JOINTING

- A. Jointing shall conform to the pipe manufacturer's instructions and recommendations.

- B. All surfaces for gasketed joints shall be lubricated immediately before the joint is complete.
- C. Gaskets and lubricants shall be supplied by the pipe manufacturer, shall be suitable for use in potable water, shall be compatible with the pipe materials, shall be stored in closed containers, and shall be kept clean.
- D. Each spigot shall be suitably beveled to facilitate assembly.

3.04 CLOSURE PIECES

- A. A shop fabricated closure piece is required at connection to existing concrete pipe.

End of Section

SECTION 02662 – SEWER CONDUIT RENEWAL USING SPIRAL WOUND PVC PROFILE METHOD

PART 1 - GENERAL

1.1 **SCOPE.** The spiral wound PVC profile renewal process utilizes an extruded polyvinyl chloride (PVC) single profile strip that is machine spiral wound into an existing conduit (host pipe). The extruded profile strip is mechanically double locked together on the grouting side by virtue of the profile design and the use of the winding machine. There shall be no internal adhesive, locking strip, or hand applied device to secure the profile. Welding of the seam may be acceptable if approved by the design engineer. This section covers both structural and non-structural conduit renewal applications. The renewal system is intended for circular and non-circular, low pressure, gravity, pipe-work systems and shall be capable of being installed with little or no surface excavation and some pipeline flow. A typical entry point into the system will be from a manhole or outfall. When completed, the continuous, machine wound profile liner pipe shall extend over the contractually specified renewal limits.

1.2 **DESCRIPTION.** The conduit renewal process utilizes an extruded polyvinyl chloride (PVC) single profile strip that is machine spiral wound into an existing conduit (host pipe). The spiral wound profile renewal process shall create a rehabilitated conduit with improved chemical resistance characteristics, improved flow coefficients, and, where required, structural enhancement.

A single PVC extruded profile strip, with or without steel reinforcement, shall be mechanically locked together by virtue of the profile design and the use of a proprietary winding machine. The installation system shall provide precise control of the internal dimensions of the newly formed PVC conduit that will ensure the specified annular grout space is maintained throughout the renewal length. Host pipe round and non-round shapes can be accommodated with this process. The annular space is to be filled with a purpose designed thixotropic cementitious grout.

The Contractor shall furnish all tools, equipment, materials and supplies and shall perform all labor required to complete the conduit renewal process in full conformity with the Contract Documents.

1.3 **CODES and STANDARDS.** This Specification references ASTM International (ASTM) standard specifications, which are made a part hereof by such reference and shall be the latest edition and revision thereof. In case of conflicting requirements between this Specification and these referenced documents, this Specification shall govern:

- A. A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

- B. C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. Cube Specimen)
- C. C940 Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Pre-placed Aggregate Concrete in the Laboratory.
- D. C1090 Standard Test method for Measuring Changes in Height of Cylindrical Specimens of Hydraulic Cement Grout
- E. D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
- F. D638 Standard Test Method for Tensile Properties of Plastics
- G. D648 Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
- H. D1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compound.
- I. F1697 Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Strip for Machine Spiral Wound Liner Pipe Rehabilitation of Existing Sewers and Conduits.
- J. F1741 Standard Practice for Installation of Machine Spiral Wound Poly (Vinyl Chloride) (PVC) Liner Pipe for Rehabilitation of Existing Sewers and Conduits.

1.4 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:

- A. Resumes for superintendents, foremen, and other applicable lead personnel for field installation crews demonstrating competency and experience to perform the work scope as defined in this specification and all other applicable contract documents.
- B. Letters of qualification by the spiral wound profile manufacturer certifying the fitness of their products for use in the spiral wound lining system and conformance to the requirements of this specification and all other applicable contract requirements. Certification shall also provide the history of successful application of the product. The installation contractor shall be approved and qualified by the Manufacturer.
- C. Final Inspection: The renewed conduit shall be subject to a final inspection, and no such work shall be scheduled or started without having made prior arrangements with the Owner to provide for the required inspections. Not less than 24 hours notice shall be provided to the Owner for scheduling such inspections.
- D. Warranty:
 - 1. Terms: Standard Manufacturer's warranty
 - 2. Warranty Period: Standard Manufacturer's warranty

1.5 CONTRACTOR SUBMITTALS.

- A. Prior to commencing with construction the Contractor shall submit the following to the Owner for approval:

1. Design Submittal: Engineering design calculations and shop drawings for the renewed conduit. These calculations and drawings shall address the profile designation (geometry), grout strength and thickness (if any) that may be required. The calculations shall be based on an evaluation of the existing condition of the host pipe, the long-term design loads on the renewed conduit, loads on the spiral wound lining conduit during installation, and the required chemical resistance and flow capacity of the renewed pipe. A Professional Engineer, registered in the state in which the project will be constructed, shall seal the design calculations.
 2. Host pipe cleaning method(s).
 3. Bypass pumping plan (if required)
 4. Pre-installation video survey of host pipe.
 5. Work plan for spiral winding process including details of all materials and equipment to be used during the winding process.
 6. Grout mix design with test data showing that the proposed grout mix will satisfy the requirements of this specification and the Contractor's design submittal (if applicable)
 7. Work plan for annulus grouting that addresses the spacing and details of bulkheads, details of the bracing system (including design calculations), grout injection/vent holes, the number of grout lifts required to fill the annular space, and methods for repairing holes in the spiral wound lining (if applicable)
 8. Documentation for the steel strip reinforcing, if applicable, confirming that the steel satisfies the requirements of this specification and the Contractor's design submittal.
 9. Documentation for the profile strip material confirming that the material satisfies the requirements of this specification and the Contractor's design submittal.
- B. During construction the Contractor shall submit the following to the Owner:
1. Compressive strength test results for annulus grout (if applicable)
- C. Within 2 weeks of final acceptance of the work the Contractor shall submit the following to the Owner:
1. As-built drawings for the renewed conduit.
 2. Post-installation video survey of the renewed conduit.

PART 2 - PRODUCTS

2.1 MATERIALS.

A. Spiral wound Profile Strip:

1. Profile strip shall be made from compounds conforming to ASTM D1784 with a cell classification of 12344 or higher.

2. Profile strip must have enough structural integrity to be capable of being wound by either a static winding machine or self-traversing machine
3. Profile strip must have a minimum of 3 “T” locks molded in to the profile.
4. The profile strip must be a single strip consisting of all mechanical locks within itself. No additional joiner strips will be allowed to lock the profile into shape.
5. The profile strip and the seal must be coextruded together.
6. The profile strip must be continuously spiral wound to form the new pipe.
7. Profile designation (geometry) shall be compatible with the design requirements for the renewed conduit and shall be suitable for installation in the host pipe.

B. Annulus Grout:

1. Grout to be used to fill the annular void space must be approved by the manufacturer and typically consists of Portland cement, flyash, water, and suitable admixtures.
2. Flow characteristics, maximum drying shrinkage, and minimum compressive strength requirements for the grout shall be compatible with the design requirements for the renewed conduit and shall be compatible with the field conditions under which the grout will be installed.

C. Steel Reinforcing Strip: (Dependent on design if applicable)

1. The steel reinforcing strip shall be fabricated from sheet steel conforming to ASTM A653 or ASTM A1011
2. The thickness, formed shape, and yield strength of the strip shall be compatible with the design requirements for the renewed conduit and the specified profile designation.

2.2 PRODUCT HANDLING.

- A. The spiral profiles shall be shipped on appropriately sized reels for ease of handling and product protection. The product shall be inspected for defects at the time of manufacture and again in the field prior to installation. Defects to the profiles include, but are not limited to, gouges, abrasion, flattening, cuts, punctures, and ultra-violet (UV) degradation. Defective product shall not be installed and shall be removed from the jobsite. Handling and storage of the profile reels shall be in accordance with the manufacturer’s instructions.
- B. All other products required to complete the spiral wound lining renewal process shall be handled and stored in accordance with the manufacturer’s instructions. Each product shall be accompanied by its relevant specification and MSDS information.

2.3 MATERIAL MARKING

- A. The profile strip shall be distinctly marked on its inside surface at appropriate intervals with a code number identifying the manufacturer, plant, date of manufacture, and profile designation.
- B. All other products required to complete the spiral winding lining renewal process shall be distinctly marked with product type and manufacturer.

PART 3 - EXECUTION.

3.1 SAFETY.

- A. Perform all work in accordance with applicable OSHA standards

3.2 PREPARATION.

A. Host Pipe Access:

- 1. Unless otherwise specified by the Owner, the Contractor may utilize any of the existing manholes in the project area as access points.
- 2. Should temporary excavations be needed to access the host pipe, such work shall be coordinated with the Owner. Excavations shall be sloped or shored in accordance with all applicable safety regulations.

B. Cleaning:

- 1. All debris and obstructions shall be removed from the host pipe and disposed of in accordance with the requirements of the contract, and local codes and ordinances.
- 2. Water jetting shall be used to clean and prepare the surface of the host pipe. All loose material, acids, grease and other deleterious substances shall be removed during cleaning, and the prepared surface shall be suitable for mechanical bonding with cementitious grout.

C. Flow Bypassing:

- 1. Where required for safe and effective application of the technology, due to excessive flow, the Contractor shall determine whether full or partial bypass flows around the length of host pipe designated for renewal is required.
- 2. The bypass shall be made by plugging the host pipe at an existing upstream manhole and pumping the full or partial flow into a downstream manhole.
- 3. The pump and bypass lines shall be of adequate capacity to handle peak flows, if full bypass is required.
- 4. Flow interruptions shall be coordinated with the Owner at least 14 days in advance and with property owners and businesses at least 3 days in advance.

D. Pre-Installation Inspection:

- 1. After cleaning, and prior to winding the profile, the Contractor shall inspect the host pipe to ensure there are no excessive variations in the host pipe profile and no obstructions not known or shown in the plans that would hinder the spiral winding process. Contractor shall also

verify that the sizing of the profile (wound geometry) will be suitable for the host pipe geometry.

2. The longitudinal and radial locations of all lateral connections to the host pipe shall be logged for subsequent reinstatement.
3. The Contractor shall perform a pre-installation video survey of the host pipe as required by the Owner.

3.3 INSTALLATION.

A. Profile Winding:

1. Winding of the profile shall conform to approved submittals and bid specifications.
2. The profile shall be wound using equipment that is either self-running or static. During the self-winding method, the winding machine traverses through the host pipe forming the spiral wound lining conduit as it traverses. During the static method, the winding machine operates from a fixed location and feeds the spiral wound lining conduit into the host pipe.
3. Generally, the winding process will be utilized until the spiral wound lining is complete for the length of host pipe to be renewed.

B. Annulus Grouting (where required):

1. Annulus grouting shall conform to the Contractor's approved submittals.
2. After the spiral wound lining conduit has been installed, and before the annulus is grouted, the Contractor shall restore service at all lateral connections. Measures shall be taken to prevent the grout from entering the service connections or the spiral wound liner pipe. Field conditions will dictate whether service restoration can be done from inside the conduit or whether restoration will require the exterior of the conduit and connecting pipes to be exposed.
3. Grouting shall be done between bulkheads installed at pre-determined distances apart along the conduit.
4. Prior to grouting, a bracing framework shall be installed which shall be designed by the Contractor to serve the following functions during grouting:
 - a. Prevents flotation of the spiral wound conduit.
 - b. Align the conduit within the host pipe so that the required annular space is maintained between the spiral wound conduit and host pipe.
 - c. Prevents excessive deflection or buckling of the spiral wound conduit.
5. Grout shall be pumped into the annular space through pre-drilled locations around the circumference of the spiral wound conduit. Vent holes shall be provided at suitable locations to permit air to be expelled from the annular space and to monitor grout fill levels.

6. Grout shall be sampled and tested with the following frequency: as per owner's instruction. Sample preparation and testing shall conform to ASTM C109-05.
7. Grouting shall not exceed four lifts in order to completely fill the annular space

3.4 COMPLETION of WORK and SITE RESTORATION.

A. Ends of Renewed Conduit:

1. The ends of the spiral wound conduit shall be securely grouted in position. The conduit shall be sealed to the host pipe with material capable of achieving a watertight seal.
2. The step in the flow line at the ends of the renewed conduit shall be blended into the existing flow line using appropriate materials.

B. Any holes made in the spiral wound profile during the grouting operation shall be sealed using means and methods approved by the Owner.

C. At points where temporary excavation was required for access to the host pipe or lateral connections, appropriate encasement shall be provided for the exposed spiral wound profile and/or connecting pipes. Encasement materials may consist of concrete, sand slurry, or other suitable materials as approved by the Owner.

D. Final Inspection and Acceptance:

1. The grouted in-place, spiral wound profile lining in the renewed conduit shall be continuous over the entire length of an installation run and be free from defects such as foreign inclusions, holes, cuts, tears, and grout voids. The renewed conduit shall be impervious against leakage out of the conduit to the surrounding ground or into the conduit from the surrounding ground.
2. Any defect that will or potentially could affect the structural integrity or performance of the renewed conduit shall be repaired at the Contractor's expense using means and methods approved by the Owner.
3. The contractor shall perform a post-installation video survey of the renewed conduit as required by the owner.

END OF SECTION

SECTION 02702 – SEWER PIPE AND MANHOLE TESTING

PART 1 - GENERAL

1.01 SCOPE:

- A. This section covers testing of all sewer pipes and manholes. Sewer pipe materials, installation, pipe trenching, bedding, and backfilling are specified in other sections.
- B. Related Work Specified Elsewhere:
 - 1. Private Building Sewers: SECTION 02505
 - 2. Rehabilitation and Replacement of Manholes: SECTION 02602
 - 3. Ductile-Iron Pipe for Wastewater: SECTION 02620
 - 4. Fiberglass Gravity Sewer Pipe: SECTION 02623
 - 5. PVC Gravity Sewer: SECTION 02624
 - 6. PVC Pressure Pipe: SECTION 02631
 - 7. Sewer Manhole Construction: SECTION 03370
 - 8. Manhole Construction Castings: SECTION 05010
 - 9. Laser Profiling of Sewer Pipe: SECTION 02687

1.02 CODES and STANDARDS:

- A. American Society for Testing and Materials (ASTM):
 - 1. C828 – Low-Pressure Air Testing of Vitrified Clay Pipe Lines.
 - 2. C969 – Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
 - 3. C1244 – Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.
 - 4. F1417 – Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air.
- B. American Water Works Association (AWWA):
 - 1. C600 – Installation of Ductile-Iron Water Mains and Their Appurtenances.

1.03 CONTRACTOR TESTING SUBMITTALS:

- A. Prior to commencing with testing, the Contractor shall submit the following to the Owner for approval:
 - 1. Testing plan and procedures.
 - 2. Testing equipment.
 - 3. Testing schedule.

PART 2 – PRODUCTS Specified in respective Sections, DIVISION 2.

PART 3 - EXECUTION

3.01 SAFETY:

- A. Perform all work in accordance with applicable OSHA standards.

3.02 FIELD TESTING:

- A. Sewer pipe alignment and grade testing. Alignment, grade and visible defects shall be checked as follows:

- 1. Visual Internal Inspection: Contractor shall clean and flush the pipe of excess mortar, joint sealant, dirt and debris prior to inspection with clear water. Sewer will be inspected by flashing a light between manholes and/or by physical passage to determine the presence of any misaligned, displaced, or broken pipe and other defects. Correct defects as required prior to conducting leakage tests.

- B. Sewer pipe infiltration/exfiltration testing.

- 1. Hydrostatic or air pressure tests shall be conducted on sewers before acceptance by the Owner. The Contractor shall provide water and all facilities required including necessary piping connections, test equipment, water meter, pressure gauges, bulkheads, and all miscellaneous items required. The infiltration/exfiltration shall not exceed (50) gallons per day per inch of nominal diameter per mile of sewer line for any section of the system.
- 2. Conduct initial test on first section of pipe laid by each crew. Include a minimum of 10 lengths of pipe but not to exceed 300 feet. Perform before backfilling. Satisfactorily complete test before crew is permitted to continue pipe installation.
- 3. Infiltration: Where sewers are laid within the ground water table, infiltration testing shall be conducted. Where evidence of infiltration is discovered by the Owner, the Contractor shall install weirs or other suitable flow rate measuring devices adequate to determine to the satisfaction of the Owner that the specified infiltration limit is not exceeded for that reach of gravity sewer. Where the specified infiltration limit is exceeded, the Contractor shall repair or replace the defective reach of pipeline at no additional cost to the Owner. Following repair of the pipeline, the Contractor shall re-measure infiltration flow rates and make additional repairs until an acceptable infiltration flow rate is achieved.
- 4. Exfiltration: Exfiltration tests shall be performed by the Contractor using one or a combination of methods as set forth below. The required air pressure and/or exfiltration testing shall be successfully performed on carrier conduits prior to filling the void between the casing and the carrier conduits with sand or the sealing of the ends of the casing conduits.
 - a. Hydrostatic Tests for Gravity Systems:
 - (1) Test section shall be filled not less than twelve (12) hours prior to testing. Refill test section prior to performing test.
 - (2) Perform at depths of water as measured above center line of pipe of not less than 4 feet or more than 10 feet (consideration shall be

given for water table above said centerline). Maintain test as necessary to locate all leaks but not less than two hours.

(3) Protect manholes and other structures by means of bulkheads to prevent bursting pressures from being applied inside the structure.

b. Hydrostatic Tests for Pressure Systems:

(1) Conformance Procedure: Perform hydrostatic pressure and leakage tests. Conform to AWWA C600 procedures as modified herein. Tests shall apply to all pressure sewers.

(2) Sectionalizing: Test in segments between sectionalizing valves, between a sectionalizing valve and a test plug, or between test plugs. Contractor shall furnish and install test plugs at no additional cost to the Owner, including all anchors, braces, and other devices to withstand hydrostatic pressure on plugs. Contractor shall be responsible for any damage to public or private property caused by failure of plugs. Limit fill rate of line to available venting capacity. Fill rate shall be regulated to limit velocity in lines when flowing full to not more than 0.05 to 1.0 fps.

(3) Pressure Test: Conduct at 1.5 times maximum operating pressure determined by the following formula, but not less than 100 psi :

$$P_{pt} = (1.5) (.433) (OP-GE), \text{ in which}$$

P_{pt} = test pressure in psi at gauge elevation

OP = operating pressure in feet as indicated for highest elevation of the hydraulic gradient on each section of the line.

GE = elevation in feet at center line of gauge.

Perform pressure tests satisfactorily prior to determining leakage.

(4) Leakage Test: Conduct at maximum operating pressure as determined by the following formula for a minimum of two hours:

$$P_{it} = 0.433 (OP-GE), \text{ in which}$$

P_{it} = test pressure in psi at gauge elevation

OP and GE - as defined above

All joints shall be watertight and free from leaks.

(5) Owner will witness pressure and leakage test.

c. Air Testing of Gravity Systems:

- (1) Each section of gravity pipeline between manholes and/or structures after backfill shall be tested as outlined below.
- (2) Contractor shall furnish all facilities required including necessary piping connection, test pumping equipment, pressure gauges, bulkheads, regulator to avoid over pressurization, and all miscellaneous items required.
- (3) The pipe plug for introducing air to the sewer line shall be equipped with two taps. One tap will be used to introduce air into the line being tested through suitable valves and fittings, so that the input air may be regulated. The second tap will be fitted with valves and fittings to accept a pressure test gauge indicating internal pressure in the sewer pipe. Additional valve and fitting will be incorporated on the tap used to check internal pressure so that a second test gauge may be attached to the internal pressure tap. The pressure test gauge valve may also be used to indicate loss of air pressure due to leaks in the sewer line.
- (4) The pressure test gauge shall meet the following minimum specifications:

Size (diameter)	4-1/2 inches
Pressure Range	0-15 psi
Figure Intervals	1 psi increments
Minor Subdivisions	0.05 psi
Pressure Tube	Bourdon Tube or diaphragm.
Accuracy	+/-0.25% of maximum scale
Dial	White coated aluminum with black lettering, 270degree arc and mirror edge.
Pipe Connection	Low male 1/2 inch N.P.T.

Calibration data will be supplied with all pressure test gauges. Certification of pressure test gauge will be required from the gauge manufacturer. This certification and calibration data will be available to the Owner whenever air tests are performed.

- (5) Plug ends of line and cap or plug all connections to withstand internal pressure. One of the plugs provided must have two taps for connecting equipment. After connecting air control equipment to the air hose, monitor air pressure so that internal pressure does not exceed 5.0 psig. After reaching 4.0 psig, throttle the air supply to maintain between 4.0 and 3.5 psig for at least two (2) minutes in order to allow equilibrium between air temperature and pipe walls. During this time, check all plugs to detect any leakage. If plugs are found to leak, bleed off air, tighten plugs, and again begin supplying air. After temperature has stabilized, the pressure is

allowed to decrease to 3.5 psig. At 3.5 psig, begin timing to determine the time required for pressure to drop to 2.5 psig. If the time, in seconds, for the air pressure to decrease from 3.5 psig to 2.5 psig is greater than that shown in the table below, the pipe shall be presumed free of defects.

Minimum Test Times in Plastic Pipe

Pipe Diameter (in)	Minimum Time (min:secc)	Length for Minimum Time (ft)	Time for Longer Length (sec)
4	3:46	597	.380 L
6	5:40	398	.854 L
8	7:34	298	1.520 L
10	9:26	239	2.374 L
12	11:20	199	3.418 L
15	14:10	159	5.342 L
18	17:00	133	7.692 L
21	19:50	114	10.470 L
24	22:40	99	13.674 L
27	25:30	88	17.306 L
30	28:20	80	21.366 L
33	31:10	72	25.852 L
36	34:00	66	30.768 L
42	39:48	57	41.883 L
48	45:34	50	54.705 L
54	51:02	44	69.236L
60	56:40	40	85.476L

L = Total Length

If air test fails to meet above requirements, repeat test as necessary after all leaks and defects have been repaired and backfilled.

Before the manhole vacuum test is performed and in areas where ground water is known to exist, install a one-half inch diameter capped pipe nipple, approximately 10" long, through manhole wall above one of the sewer lines entering the manhole. This shall be done at the time the sewer is installed. Immediately prior to the performance of the line acceptance test, ground water level shall be determined by removing pipe cap, blowing air through pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to pipe nipple. The hose shall be held vertically and a

measurement of height in feet of water shall be taken after the water stops rising in this plastic tube. The height in feet shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. If the air pressure required for the test is greater than 9 psig, the air test method will not be allowed. Instead, an infiltration test shall perform by Contractor.

(In lieu of the above paragraph, the Contractor may install a monitoring well to measure the height of the ground water prior to air testing. The monitoring well shall be sized to allow measurement of the ground water from the surface and extend into the granular pipe bedding. The monitoring well shall be removed in a manner acceptable to the Owner.)

(6) If Polyvinyl Chloride (PVC) gravity sewer pipe is used it shall be air-tested in accordance with the requirements of ASTM F-1417.

C. Sewer pipe deflection testing.

1. The testing shall be conducted thirty days after final trench backfill. At the Contractor's option, the section(s) of sewer may be tested after backfill is completed, but will be required to retest after thirty (30) days.
2. All Pipe shall be Laser Profiled see SECTION 02687

D. Manhole testing.

1. General: All manholes shall be tested for infiltration/exfiltration by one of the two methods described herein. All vacuum testing shall be performed in the presence of the Owner or Owner's Representative. Notification by the Contractor to the Owner shall be made 5 days in advance of testing. All visible leaks shall be repaired by the Contractor prior to testing and during the warranty period.
2. Infiltration/Exfiltration Testing: Testing shall be performed using the following guidelines.
 - a. Method 1 shall be required on NEW manholes with main line diameter of less than 42 inches, and FULLY REHABILITATED manholes with main line diameter of 15 inches or less.
 - b. Method 2 shall be required on manholes that do not meet the requirements of SECTION 3.02.D.2.a.
3. Prior to payment for manhole rehabilitation, all manholes shall pass the applicable test as identified in this specification.

Method 1: Vacuum Testing AND Three Dimensional Scan

Contractor shall perform and pass a vacuum test witnessed by Owner or Owner Representative and shall inspect the manhole with a Three Dimensional Optical

Manhole Scanner (color) identifying all defects based on MACP criteria and provide an MACP report.

Rehabilitated manholes shall require pre-rehabilitation and post-rehabilitation Three Dimensional Scan inspections, complete with pre-rehabilitation and post-rehabilitation point cloud measurements to show estimated loss of cross section in the rehabilitated manhole.

Method 2: Three Dimensional Scan

The contractor shall inspect the manhole with a Three Dimensional Optical Manhole Scanner (color) identifying all defects based on MACP criteria and provide an MACP report complete with pre and post point cloud measurements to show estimated loss of cross section in the rehabilitated manhole.

Rehabilitated manholes shall require pre-rehabilitation and post-rehabilitation Three Dimensional Scan inspections, complete with pre-rehabilitation and post-rehabilitation point cloud measurements to show estimated loss of cross section in the rehabilitated manhole.

Vacuum Testing of New And Rehabilitated Manholes:

The initial vacuum test on new manholes or structure shall be conducted prior to backfilling. Vacuum testing after backfilling should be performed only after a successful non-backfill test has been completed. The Contractor shall not vacuum test backfilled manholes in the presence of ground water.

All pipes entering the manhole shall be plugged at least eight (8) inches into the sewer pipe. The plug must be inflated at a location beyond the manhole/pipe gasket.

All plugs shall be adequately braced to prevent the plug or pipe from being dislodged and drawn into the manhole.

A vacuum of at least 10-1/2 inches of mercury shall be drawn on the manhole. The valve on the vacuum line to the manhole shall be shut and the vacuum line disconnected. The vacuum line valve shall be opened and the vacuum adjusted to 10 inches of mercury.

The pressure gauge shall be liquid filled having a 3.5 inch diameter face with a reading from zero to 30 inches of mercury. The test equipment shall be capable of having two gauges connected. The gauge supplied with the test equipment shall match the reading of a gauge furnished by the Owner.

The time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury shall not be less than the following values for the manhole to be considered as passing the vacuum test:

Manhole Depth	Time in Minutes
10 feet or less	2
10.1 to 15 feet	2.5
15.1 to 25 feet	3

If a manhole fails the vacuum test, the manhole shall be repaired with an Owner approved rehabilitation product and retested. This procedure shall be continued until the manhole successfully passes the vac test.

Three Dimensional Scan:

The scanner shall be as manufactured IBAK SI, or engineer preapproved equal. Scanner Camera system shall meet the following:

- ❑ Scanner must be specifically designed and developed for use in manholes.
- ❑ Scanner must use high-resolution digital still cameras. Systems using video cameras will be deemed unacceptable.
- ❑ Cameras must be able to capture a minimum of 3000 lines of vertical resolution.
- ❑ Scanner must be 100% digital technology. Analog cameras that transfer data over coax or twisted pair will be deemed unacceptable.
- ❑ The scanner must be able to adequately inspect manholes, vaults, or similar from 16” diameter to 120” in diameter or square, without the need of additional light sources.
- ❑ Scanner must be able to capture images of the manhole wall while moving in the manhole at a speed of greater than 1 foot per second. Each frame can have no more than .007” of horizontal motion blur.
- ❑ Scanner must be able to capture images 100% of the interior manhole wall without gaps.
- ❑ Scanner must have a built in gyro stabilizing system to automatically align upward and downward images regardless of axial spin while lowering or retrieving the scanner in manholes.

Scanning Software:

- ❑ Software shall be able to provide a live view of both the upward or downward camera of the scanner.
- ❑ User shall be able to pan and tilt up to 185°, zoom, and correct lighting in the live image of both the front and rear camera.
- ❑ User shall be able to generate a geometric point cloud of the entire manhole surface so that detailed measurements can be taken of any feature inside of the manhole.
- ❑ Software shall be able to automatically measure the diameter or the width and length of the profile of the manhole automatically at any point in the horizontal plane throughout the manhole depth.

- ❑ Geometric point cloud data shall be able to be exported into a DXF file format for import in to computer aided design software (CAD).
- ❑ Software shall be able to record both the upward and downward camera's images in a single file.
- ❑ Upon completion of the inspection of the manhole, the software will generate a file that will allow the user to utilize a virtual camera to pan and tilt anywhere within the manhole depth. The user shall be able to use a computer mouse to move and stop anywhere in the manhole, turn a full circle on any axis, and zoom as if the user was using a real pan & tilt camera.
- ❑ Virtual camera perspective view shall have a minimum of 500 lines of vertical resolution.
- ❑ Upon completion of the inspection of the manhole, the software will generate an unfolded view of the sidewalls that can either be spit anywhere in the radius of the manhole.
- ❑ Unfolded view resolution shall be no less than 3000 vertical lines.
- ❑ User shall have the ability to measure features in the unfolded view in either inches or millimeters.
- ❑ Unfolded view shall have the ability to zoom to 6X with a resolution in the zoom window of no less than 500 lines of vertical resolution.
- ❑ Software shall have the ability to capture a Windows AVI file of moving defects at a frame rate of 8 frames per second.
- ❑ Software shall include help files to basic software operation.

Viewer Software:

- ❑ Viewer software shall be freely distributed software that does not require a license to operate.
- ❑ Viewer software shall be able to operate without the need of installation on the host computer's hard disk. The viewer software shall be able to run directly from a CD or DVD.
- ❑ Software shall allow user to view 100% of the interior manhole walls in a perspective view by use of a virtual camera that allows the user to act as if they are using a real pan and tilt camera. The computer mouse shall give control for forward and reverse direction and for full 360° pan and 360° tilt. The mouse with interaction with the keyboard shall provide zoom functions as well as gamma control. The "space" key shall bring the camera back to home position.
- ❑ Software shall be able to generate an unfolded view of the entire manhole with a visual scale of clock position and distance. The user shall be able to use the mouse to scroll on the distance of the manhole features, measure defects, and zoom.
- ❑ User shall be able to view a geometric point cloud of the entire manhole surface so that detailed measurements can be taken of any feature inside of the manhole.
- ❑ Software shall be able to automatically measure the diameter or the width and length of the profile of the manhole automatically at any point in the horizontal plane throughout the manhole depth.

- ❑ Geometric point cloud data shall be able to be freely orbited in the X, Y, or Z axis by using a computer mouse, as well be able to choose a side or top view for quick orientation.
- ❑ Geometric point cloud data shall be able to be sliced in either the X or Y axis to remove selected data to view any cross-sectional area.
- ❑ Software shall include help files to basic software operation.

All defects identified by the post rehabilitation three dimensional scan shall be repaired with an Owner approved rehabilitation product and rescanned. This procedure shall be continued until all defects have been repaired and meets Owner's standards of quality.

End of Section

SECTION 02705 – DRAINAGE STRUCTURES

PART 1 - GENERAL

Underlined sections of this specification are for removal and replacement. If this is a new installation, these sections can be deleted.

1. **SCOPE.** This specification section covers removal and replacement of existing curb and drop inlets. Replacement curb and drop inlets shall be precast and constructed complete with covers, grates, and other appurtenances, in accordance with the details indicated on the Figures at the end of this Section.
2. **DESCRIPTION CODES AND STANDARDS.** The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A48 – Standard Specification for Gray Iron Castings.

ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).

ASTM C191 - Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle.

ASTM C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections.

ASTM C827 - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.

ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

ASTM C1107 – Standard Specification for Packaged Hydraulic Cement Grout.

3. CONTACTOR SUBMITTALS.

A. Shop Drawings

1. Drawings
2. Precast concrete inlet

B. Product Data

1. Manufacturer's product data and installation instructions for non-shrink grout.

C. Test Reports

D. Certificates

4. PRODUCT DELIVERY, STORAGE AND HANDLING.

- A. Cement, Aggregate, and Reinforcement as required.
- B. Handle materials and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition.
- C. Non-shrink grout: Deliver Materials to project in Manufacturer's original, unopened packaging, with labels clearly identifying product name, Manufacturer, and expiration date. Store grout in a cool, dry place, out of the sun.
- D. Precast concrete sections shall not be delivered to the job until the concrete control cylinders have attained strength of at least 80 percent of the specified minimum.
- E. Precast concrete sections shall be handled carefully and shall not be bumped or dropped. Hooks shall not be permitted to come in contact with joint sections.
- F. Precast concrete sections shall be inspected when delivered. All cracked or otherwise visibly defective units will be rejected. City reserves the right to inspect the production of the units at the manufacturing plant.

PART 2 - PRODUCTS

1. CONCRETE

- A. Concrete used for inlet base, top, walls and inverts shall be MCIB MIX NO. A618-1-4 and shall have a 28-day strength of 4000 psi, unless otherwise specified.
- B. Concrete used for collars shall have 28-day strength of 3000 psi, unless otherwise specified.

2. REINFORCEMENT STEEL

- A. Reinforcing bars shall conform to ASTM A615 Grade 40.

3. PRECAST CONCRETE INLETS.

- A. Precast concrete inlet risers, base sections and tops shall conform to ASTM C478.
- B. Shall match the inside dimension of the existing structure to be replaced or as indicated on the Contract Drawings.
- C. Shall be designed for the following loads:
 - 1. H-20 live load for all structures in/or under pavement, shoulders, driveways, and other traffic areas.
 - 2. 2,000-lb wheel live load for curb opening inlets in non-traffic areas.
 - 3. 50 pcf equivalent fluid pressure for soil pressure on vertical walls.
- D. Inlet sections may be provided with lifting notches on the inside faces of the walls to facilitate handling. Lifting notches shall not be more than 3 inches deep; holes extending through the wall will not be acceptable.

Sections E, F, G, and H are for specific inlets. Only include those that are needed for the specific project.

E. 5.0' THROUGH 11.0' X 3.0' PRE-CAST OR CAST-IN-PLACE REINFORCED CONCRETE CURB INLET:

- 1. General. Curb inlet catch basin installation shall be in accordance with drawing CI-1 and CI-2 and as directed by the Engineer.
- 2. Construction. The existing curb inlet shall be demolished and removed completely. A new, 5.0' through 11.0' x 3.0' Portland Cement concrete pre-cast or cast-in-place curb inlet, Type CI-1 and CI-2

(inlet/outlet pipe flow line depths to match existing flow lines), shall be installed. Elevations shall conform to existing pipe grades, existing sidewalk grades, and new curb grades.

3. Throat Opening. The throat opening of all new curb inlet catch basins shall be sized to accommodate the six (6) inch throat or ten (10) inch throat (10-inch on set-back curb only) steel inlet frame detailed on drawing CI-1 and CI-2. The throat approach shall be of a sufficient slope to promote the flow of water into the inlet.

F. 6.0' THROUGH 12.0' X 4.0' PRE-CAST OR CAST-IN-PLACE REINFORCED CONCRETE CURB INLET TOP SLAB.

1. General. All new 5.0' through 11.0' x 3.0' curb inlet catch basins shall also include a 6.0' through 12.0' x 4.0' pre-cast or cast-in-place reinforced concrete top slab with a six (6) inch or ten (10) inch throat (10-inch on set-back curb only) steel inlet frame and manhole ring and cover. The steel inlet frame shall be in accordance with drawing CI-1 and CI-2. Top slabs and manholes shall also be in accordance with Standard Drawings and MH-RC.

2. Construction. Existing concrete top slabs or metal tops shall be removed and disposed of by the Contractor. Installation elevation and grade shall conform to existing sidewalk elevations where applicable unless otherwise approved by Engineer. Transition from existing sidewalk to new top slab shall conform to Section 02510.

G. OTHER STANDARD SIZES OF CURB INLETS. Where necessary to accommodate existing pipe configuration and surrounding utilities, curb inlets other than 3.0' x 5.0' will be installed as approved by Engineer. All standard drawings and construction practices stipulated above will apply.

H. 4. 4.0' x 4.0' PRECAST REINFORCED DROP INLETS.

1. General. New drop inlet catch basin structures will conform to Standard Drawing GI-2.

2. Construction. Where specified, existing drop inlets shall be demolished and removed completely. A new 4.0' x 4.0' concrete pre-cast or cast-in-place drop inlet with reinforced pre-cast or cast-in-place top slab and grate shall be installed. Elevations shall conform to existing pipe locations and pavement elevations.

The plastic drop inlets are an option for tight places where traffic load is not a concern. Delete this section if they are not necessary.

4. THERMO-MOLDED PVC CURB INLET STRUCTURES

- A. General. The PVC Curb Inlet Structure shall be custom manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the furnished configuration. PVC Curb Inlet Structures shall include a drainage pipe connection meeting watertight requirements as outlined in ASTM D3212. A customized weir and an external locking ductile iron casting shall be available upon request.
- B. PVC Curb Inlet Structures shall be 18" – 30" size with custom configurations as specified by engineer.
- C. PVC Curb Inlet Structures to be custom manufactured according to plan details. Excess height may be cut to proper elevation in field.
- D. Drainage connection stub joint tightness shall confirm to ASTM D3212 for corrugated HDPE (ADS N-12/Hancor Dual Wall), Polypropylene (ADS N-12 HP Sanitite) & PVC or equal.
- E. Adapters shall be mounted in various angles from 0 to 360 degrees in accordance with drawings, while allowing for minimum angle between adapters.
- F. Castings shall be ductile iron per ASTM A536 Grade 70-50-05 and shall be furnished by the same manufacture as drain basin.
- G. Concrete collars shall be installed in traffic loading situations according to manufacturer's installation recommendations on drawing details.
- H. Weirs shall be custom built from gage 304 stainless steel specified as shown on drawings
- I. Diameters: The nominal diameters shall be in accordance with ASTM F679.
- J. Heights: PVC Curb Inlet body shall be manufactured and supplied in custom heights up to a total of 84 inches (7 ft). In the event that additional height is needed, a riser shall be supplied by the manufacturer.
- K. Construction: The specified PVC surface drainage inlet shall be installed using pipe backfill materials and procedures as specified in Section 03396 or PVC as specified in Section 02624. The backfill material shall be crushed stone or other granular material meeting the requirements of class 2 material as defined in ASTM D2321. Bedding

and backfill for surface drainage inlets shall be placed and compacted uniformly in accordance with ASTM D2321. The Catch basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For H-20 load rated installations, a concrete ring will be poured under and around the grate and frame.

5. CASTINGS

- A. Conform to ASTM A48, of the type and size specified and as indicated on Standard Drawing MH-RC, and be free from manufacturing defects.
- B. Drop inlet covers shall be Neenah R-3531-D or approved equal for single grate inlet and Neenah R-3531-A or approved equal for double grate inlets.
- C. Inlet steps shall comply with Section 2510.3.8.b(2) and the most recent Supplement of Section 2500. Cast iron steps shall not be used.
- D. Standard cam locks shall **not** be provided to attach new manhole lids securely to the catch basin top slab. Refer to Standard Drawing MH-RC.

6. STEEL INLET FRAME – SIX (6) OR TEN (10) INCH THROAT.

- A. General. The steel inlet frame is to be constructed in accordance with drawing CI-1 and CI-2 and must be galvanized. The color of the frame is to be that of hot dipped galvanized steel.
- B. Concrete Throat Section. The concrete throat section in the curb and gutter shall be a minimum of 12-inches in thickness

7. NON-SHRINK GROUT

- E. Shall conform to ASTM C1107, Grades B and C.
- F. Non-shrink grout shall be in the plastic state and show no expansion after set as tested in accordance with ASTM C827 and shall develop compressive strength not less than three thousand psi with a trowelable mix within twenty-four hours per ASTM C109. The placement time shall be not less than forty-five minutes based on initial set per ASTM C191.

8. ASPHALTIC JOINT MATERIAL

- A. Conform to APWA Section 2505.3.B.

PART 3 - EXECUTION

1. REMOVAL

- A. Where specified, the existing inlet associated concrete throat and curb shall be demolished and removed completely.
- B. Existing storm sewer pipe shall be removed to the first joint outside of the inlet.
- C. After the existing structure has been removed, the contractor shall visually inspect the existing sewer pipe to determine if the pipe is open, unobstructed, and clean to the nearest structure. If obstructions are observed, the contractor shall call the Stormwater Maintenance Division of the Watershed Services Department to clean the line prior to installation of the new inlet.

2. INLET EXCAVATION, BACKFILL & COMPACTION

- A. Excavation, backfill and compaction for manholes shall be in accordance with APWA Section 2100 – Grading and Site Preparation and as described herein.
- B. Excavation, backfill and compaction operations shall be achieved in a suitable and orderly manner providing a minimum disturbance to the general public.
- C. Excavation shall be carried a sufficient distance, but not less than 18 inches outside the limits of the structure and shall be sloped, stepped, or braced as required for stability. Unsuitable soils encountered at the bearing elevation of the structures shall be removed and replaced with either fill concrete or compacted granular material at the Contractor's option.

- D. No backfill shall be placed over or around any structure until the concrete or mortar therein has attained a minimum strength of 2000 psi and can sufficiently support the loads imposed by the backfill without damage. Any damage caused by premature backfill or by the use of equipment on or near a structure will be the responsibility of the Contractor.
- E. Backfill shall be placed and compacted to 90% on all sides of the structure simultaneously, and operations shall be so conducted that the backfill is always at approximately the same elevation on all sides of the structure.

3. INLET INSTALLATION

A. Bases

- 1. Inlet elevations shall conform to elevations of the associated existing pipe invert(s), existing sidewalk(s), existing pavement and proposed curbs.
- 2. The subgrade materials shall be excavated to undisturbed earth and a uniform elevation to all for a minimum of four inches of granular fill as specified in Section 02200. The surface of the granular material shall be graded and compacted to 90%. The base section shall be set so that connecting pipes will be on proper line and grade. The elevation of the granular material shall be adjusted as required until proper grade and alignment of the base section has been attained.

B. Riser and Top Slab

- 1. Precast sections shall be provided with an asphaltic material to seal joint between sections.
- 2. Lifting notches in riser section walls and top slabs shall be filled with non-shrink grout.
- 3. Steps shall be aligned vertically below the casting and spaced at sixteen inch centers. The top step shall be not more than sixteen inches below the top of the inlet top and the lowest step shall be not more than two feet above the invert bench. Field drilled step holes are not permitted.
- 4. Transition from existing sidewalk to new top slab shall conform to Section 02510.
- 5. Cam locks shall be provided to attach new manhole lids securely to the catch basin top slab.

4. PIPE CONNECTIONS

- A. Pipe connections shall have a minimum of six inches of concrete around the entire pipe within two feet of the structure, unless sealed with approved flexible waterproof gaskets in precast openings. Minimum clearance between pipe boxouts and riser joints is eight inches, when clearance is less than 8 inches, the joint must be designed by a registered engineer.
- B. Floor of inlet shall be shaped with inverts to provide smooth flow. Inverts shall be steel troweled (or formed if inverts are pre-cast) to produce a dense, smooth finish. The invert channel shall be "U" shaped in cross section and extend upward three-fourths of the inside pipe diameter. Smooth transitions shall be formed for pipes of different sizes, elevation, and bends.

5. STORM SEWER PIPE

- A. Storm sewer pipes shall be connected to the inlet with reinforced concrete pipe unless otherwise specified. General. All existing storm sewer pipe connected to the catch basin shall be replaced up to the first joint. The pipe shall be replaced with RCP or with an acceptable alternate as specified. Fernco couplings or Engineer approved equivalent are to be utilized in making the necessary water-tight joint connections.
- B. Verification of Pipe Operation. After the existing structure has been removed, the Contractor will visually inspect the existing sewer pipe to determine if the pipe is open, unobstructed, and clean to the nearest manhole. If obstructions or defects are noted, the contractor will call the Stormwater Maintenance Division of the Water Services Department to clean the line before installation of a new structure is made.

END OF SECTION

SECTION 02831 – CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

- A. The contractor shall furnish, install and place into satisfactory operating condition chain link fencing, gates, and any specified operators. Fencing shall be provided in the alignment indicated on the drawings.
- B. Fencing shall consist of steel fabric with a top rail and bottom tension wire. The fabric height shall be as indicated on drawings. Posts shall be set in concrete or sleeves.

1.02 SECTION INCLUDES

- A. Fence framework, fabric, and accessories.
- B. Excavation for post bases; concrete foundation for posts and center drop for gates.
- C. Manual gates and related hardware.

1.03 REFERENCES

- A. ANSI/ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip.
- B. ANSI/ASTM F567 - Installation of Chain-Link Fence.
- C. ASTM A116 - Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
- D. ASTM F1083 - Pipe, Steel Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless, for Ordinary Uses.
- E. ASTM F1043 - Specification for Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
- F. ASTM A121 - Zinc-Coated (Galvanized) Steel Barbed Wire.
- G. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- H. ASTM A392 - Zinc-Coated Steel Chain-Link Fence Fabric.
- I. ASTM A569 - Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.
- J. ASTM A570 - Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
- K. ASTM C94 - Ready-mixed Concrete.
- L. Chain Link Fence Manufacturers Institute (CUW - Product Manual.)

1.04 SYSTEM DESCRIPTION

- A. Fence Height: As indicated on drawings.
- B. Line Post Spacing: At intervals not exceeding 10 feet.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.
- C. Manufacturer's Installation Instructions: Indicate installation requirements.

- D. Submit items as specified in accordance with the applicable requirements in DIVISION 1.
- E. Includes, but not limited to, the following:
 - 1. Product data: Manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, gate operator, and accessories.
 - 2. Shop Drawings: Showing layout, location of fence, gates, posts, and including details illustrating fence height, sizes of posts, rails, braces, gates, hardware list, and accessories.
 - 3. Mill certification that materials meet specifications of member size, strength, wall thickness, and coatings.

1.06 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01300.
- B. Accurately record actual locations of property perimeter posts relative to property lines and easements.

1.07 QUALITY ASSURANCE

- A. Perform Work in accordance with manufacturer's instructions.
- B. All fencing and gates, materials and work shall be provided in accordance with best engineering and shop practice. Individual components shall be manufactured to standard sizes and gages that can be readily installed in the field. Manufacturers shall have a satisfactory field service record.
- C. Provide chain-link fences and gates as complete units, including necessary erection accessories, fittings, and fastenings, from a single source or manufacturer.

1.08 QUALIFICATIONS

- A. Manufacturer. Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.

1.09 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle all materials in a manner to ensure installation in sound and undamaged condition and to prevent damage from exposure to the elements.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Framing (Steel): ASTM A569; hot rolled steel strip, cold formed to pipe configuration, longitudinally welded construction, minimum yield strength of 50 ksi (345 MPa). Roll formed shapes per ASTM A570, Grade 45.
- B. Fabric Wire (Steel): ASTM A392 zinc coated wire fabric (Class 2).
- C. Barbed Wire: ASTM A121 galvanized steel; 12 gage thick wire, 3 strands, 4 points at 3 inch o.c.
- D. Concrete: ASTM C94; Normal Portland Cement 2,500 psi strength at 28 days, 3 inch slump; 1/2 inch nominal sized coarse aggregate.

2.02 COMPONENTS

- A. Line Posts: 2.37 inch diameter, or 1.875" x 1.625" - 1.90#/foot roll-formed sections.
- B. Corner and Terminal Posts: 2.88 inch diameter.
- C. Gate Posts: 4.0 inch diameter.
- D. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled, or 1.625" x 1.25" roll-formed section, sleeve coupled.
- E. Gate Frame: 2.87 inch diameter for welded fabrication.
- F. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top selvage twisted tight, bottom selvage knuckle end closed, 2.0 oz. Galvanized per ASTM A392 - Class 2
- G. Tension Wire: 6 gage thick steel, single strand.
- H. Tie Wire: Aluminum alloy steel wire.

2.03 ACCESSORIES

- A. Caps: Cast steel or Malleable iron galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings, steel.
- C. Extension Arms: Cast steel galvanized to accommodate 3 strands of barbed wire, single arm, sloped to 45 degrees.

- D. Gate Hardware: Center gate stop and drop rod; two 180 degree gate hinges per leaf and hardware for padlock.
- E. Swing Gates: Gates shall be hinged to swing 180 degrees from closed to open in either direction, complete with frames, latches, stops, hinges, fabric, braces, and three strands of barbed wire, unless noted otherwise on plans. Gate leaves shall have intermediate members and diagonal truss rods as required for rigid construction and shall be free from sag or twist. When adjacent fence has barbed wire, gates shall be fitted with vertical extension arms or shall have frame end members extended to carry barbed wire. Joints between frame members shall be made by welding or by means of heavy fittings, and shall be rigid and watertight.

Gate fabric shall be same as fence fabric and shall be attached to frame ends by stretcher bars, bolt hooks, or other mechanical means.

2.04 FINISHES

- A. Fabric: Galvanized to ASTM A392 - Class 2 (2.0 oz per sq. ft.).
- B. Hardware: Galvanized to ASTM A153, 2.0 oz/sq. ft. coatings
- C. Framework: Galvanized to ASTM F1043 external type A or B. Internal Type A, B or D.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The installed fence shall conform to the alignment and finish grade indicated. All posts shall be plumb. Unless otherwise indicated on the drawings, posts shall be equally spaced approximately 10 feet apart. Where necessary, the fence grade shall be adjusted to fit the ground contour by slipping the fence fabric links. Ground surface irregularities shall be graded as required to maintain not more than 2 inch clearance below the bottom of the fence fabric.
- B. Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567. Top rails and bottom tension wires shall be installed before the fabric. Top and bottom rails shall be furnished in at least 18 foot lengths and shall be securely connected to gate and terminal posts. Tension wires shall be installed approximately 6 inches above grade and shall be attached to each post and securely anchored at terminal and gate posts.
- C. Where posts are set in earth, concrete foundations 36 inches deep shall be provided for line posts, terminal and gate posts shall be 42 inches deep. If bedrock is encountered, post excavation shall be continued to the 36 inch depth or 18 inches into the rock, whichever is less. Concrete foundations shall

be circular in horizontal section, not less than 10 inches in diameter for line posts, and with a diameter not less than the post OD plus 9 inches for terminal and gate posts, except that foundations in bedrock shall be a minimum of 6 inches larger than the outside dimension of the post. Foundations shall extend above the ground surface and shall be crowned approximately one inch. Concrete for foundations shall conform to the concrete section. Each foundation shall be cured for at least 72 hours before further work is done on the pos

- D. Fabric shall be attached to the top rail, and bottom tension wire at 24 inch centers, and to the line posts at 15 inch centers. Barbed wire shall be fastened to each extension arm located at each post by internal clips or external fabric ties. Stretcher bars shall be provided at each gate and terminal post. Each stretcher bar shall be threaded through the fabric and anchored to the post at 15 inch centers by positive mechanical means.
- E. Each gate and terminal post shall be braced by a horizontal pipe brace and an adjustable truss extending to an adjacent line post. Corner posts shall be braced in both directions.
- F. Fabric shall be stretched taut and anchored so that a pull of 150 pounds at the middle of a panel will not lift the bottom of the fabric more than 6 inches.
- G. All surfaces of aluminum which will be in contact with concrete, mortar, or dissimilar metals shall be given a heavy coat of coal tar paint.
- H. Excavate, place concrete and install 4" O.D. posts in footings as detailed, and in accordance with the Engineer's design. Install hanger brackets and guide roller assemblies, attach truck assemblies to hanger and make final adjustments to align gate with latch.
- I. Set all posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
- J. Line Post Footing Depth Below Finish Grade: ANSI/ASTM F567, 3.0 feet.
- K. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ANSI/ASTM F567, 3.0 feet.
- L. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.
- M. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- N. Install center and bottom brace rail on corner gate leaves.

- O. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- P. Position bottom of fabric 2 inches above finished grade.
- Q. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- R. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- S. Install bottom tension wire stretched taut between terminal posts.
- T. Install support arms sloped outward and attach barbed wire; tension and secure.
- U. Install gate with fabric and barbed wire overhang to match fence. Install three hinges per leaf, latch, catches, drop bolt, foot bolts and sockets.
- V. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings

3.02 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From True Position: 1 inch.
- C. Components shall not infringe adjacent property lines.

3.03 SCHEDULES

- A. Fencing at Site: Zinc coated fabric with height as indicated on drawings, three strand barbed wire top, on 45 degree sloped arms, pointing out.

End of Section.

SECTION 02930 - SEEDING

PART 1 - GENERAL

1.01 SCOPE. This section covers the operations necessary to produce established grass covered areas for erosion control. The contractor shall provide all materials, labor, and equipment to complete the seeding work in accordance with this specification.

1.02 DESCRIPTION. 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 herein to be sodded.

The sequence of work shall be cleaning, application of fertilizer, 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.

1.03 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:

- A. Seed shall have a guaranteed germination rate of 95% or greater.
- B. Seeding shall have taken root and have satisfactory coverage before acceptance. Contractor shall guarantee seeding for one (1) year after acceptance by the Owner.
- C. Contractor shall scarify, reseed, fertilize, and mulch any barren areas greater than 1 foot square.

1.04 CONTRACTOR SUBMITTALS. Drawings, specifications, and data covering the proposed materials shall be submitted to the Owner.

- A. Prior to commencing with construction the Contractor shall submit the following to the Owner for approval:
 1. Invoices and Analysis Labels. A copy of the supplier's invoices for all seed, mulch, and fertilizer which shows the quantity by weight purchased for the project and a representative label bearing the manufacturer's or vendor's guaranteed statement of analysis shall be submitted to the Engineer for review and approval to assure compliance with specified requirements for quality and application rates.
 2. Seed: Certification of seed analysis, germination rate, and inoculation:
 - a. Certify that each lot of seed has been tested by a testing laboratory certified in seed testing, within 6 months of date of delivery. Include with certification:
 - Name and address of laboratory.
 - Date of test.
 - Lot number for each seed specified.

- Test Results: (i) name, (ii) percentages of purity and of germination, and (iii) weed content for each kind of seed furnished.
 - b. Mixtures: Proportions of each kind of seed.
- 3. Seed Inoculant Certification: Bacteria prepared specifically for legume species to be inoculated.
- 4. Certification of sod; include source and harvest date of sod, and sod seed mix.
- 5. Certification of sprig type and name.
- 6. Description of required maintenance activities and activity frequency.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING. Delivery of materials shall be in manufacturer's original unopened and undamaged packages. They shall be clearly marked to identify brand name, contents and order number on each package. Packages showing indication of damage that may affect condition of contents are not acceptable.

Storage of material shall provide protective cover from damage and stored dry, at temperatures in accordance with manufacturer's recommendation. Materials shall be staked or stored in accordance with manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS.

- A. Soil for Repairs. The soil used in any repair work shall be of a quality at least equal to that which exists in areas adjacent to the area to be repaired. Soil shall be used that is 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.
- B. Mulch. Mulch for application to seed bed areas shall be cereal grain straw, or wood cellulose fiber, or as approved by the Engineer.
 - 1. Straw mulch shall be baled, dry, unweathered, and show no signs of discoloration and mold damage.
 - a. A minimum of 50 percent of weight of the herbage making up the material shall be 10 inches in length or longer.
 - b. Mulch material containing an excessive amount of weed and crop seeds will not be acceptable.
 - c. Vegetative Type mulch will be the only acceptable type mulch used in areas where Type "C" seed is required, which is specified in the Application of Seed section.
 - 2. Wood cellulose fiber shall be prepared from virgin wood fibers containing no substance of factor which might inhibit germination or growth of grass seed.
 - a. The fiber shall be dyed an appropriate color to allow visual metering of its application and shall contain a tacking agent either

combined with the product or added in the tank when making the slurry.

- b. Fibers shall have the property of becoming evenly dispersed and suspended when agitated in water.
 - c. When sprayed uniformly on the surface of the soil, the fibers shall form a blotter-like groundcover which readily absorbs water and allows infiltration to the underlying soil.
 - d. 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.
 - e. 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 content.
 - f. Suppliers shall certify that laboratory and field testing of their product has been accomplished and that it meets all of the foregoing requirements pertaining to wood cellulose fiber mulch.
- C. Starter Fertilizer. 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, uniform in composition free flowing and suitable for application with approved equipment, delivered to the site in convenient containers, each fully labeled, conforming to the applicable state fertilizer laws, bearing the name, trade mark, or trade name, and a warranty of the producer.
- D. Seed. Seed shall be labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and Stated 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.
1. 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:
 2. Pounds of Commercial Seed Required = $\frac{10,000 \times \text{Pure Live Seeds (lbs. per acre)}}{\text{Purity (percent)} \times \text{Germination (percent)}}$
- E. Herbicide. Pre-emergent herbicide shall be siduron (Tupersan).
- F. 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.

PART 3 - EXECUTION.

3.1 SAFETY.

- A. Perform all work in accordance with applicable OSHA standards

3.2 PREPARATION.

- A. Personnel and equipment. 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.
- B. Equipment. 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.
- C. Clearing. 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 larger than 3 inches, roots, cable, wire, and other materials that might hinder the work or subsequent maintenance.
- D. Grading. Established grades, as indicated on the drawings, shall be maintained 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.
- E. 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.
- F. Preparation of Seed Bed. 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.
- G. Application of Seed. Seeding equipment calibration tests shall be made in the presence of the Engineer 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 seeded at no additional cost to the Owner. 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 areas and types of seeding to be used shall be specified on the plans. The types of acceptable seeding depending upon the area are as follows:

1. Type "A" Seed: This seeding mixture will normally be used when seeding is required in areas of established yards, 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 "Dwarf". The species shall be one of the following or equal as approved by the Engineer:

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

- a. The seed mixture shall also include 100 percent Annual Rye grass to provide a temporary grass stand. The seed 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.

2. 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 (<i>Festuca Elatior</i> Var. <i>Arundinacea</i>)	75	90
Rye grass (<i>Lolium Perenne</i> or <i>L. Multiflorum</i>)	80	50
TOTAL		140

3. Type "C" Seed: This seeding mixture will normally be used in public parks, wild life refuges, and any other areas where this seeding mixture is deemed necessary. The types of seeding mixtures for different habitats will be as follows:

Wet Woodland	<i>Elymus virginicus</i> L.	Virginia Wild Rye	P	3 lbs/ac pls
	<i>Cinna arundinacea</i> L.	Woodreed	P	100 plants/ac
	<i>Sporobolus heterolepis</i> A. Gray	Prairie Dropseed	I,P	3 lbs/ac pls
	<i>Elymus canadensis</i> L.	Canada Wild Rye	P	3 lbs/ac pls
	<i>Festuca octoflora</i>	Six-weeks Fescue	I	0.5 lbs/ac pls
	<i>Triticum aestivum</i> L.	Winter Wheat	I	60 lbs/ac pls
Planting Habitat	Scientific Name	Common Name	Initial or Permanent Cover	Coverage
Dry Woodland	<i>Elymus canadensis</i> L.	Canada Wild Rye	P	3 lbs./ac pls
	<i>Elymus virginicus</i> L.	Virginia Wild Rye	P	3 lbs/ ac pls
	<i>Sporobolus heterolepis</i> A. Gray	Prairie Dropseed	I,P	3 lbs/ac pls
	<i>Triticum aestivum</i> L.	Winter Wheat	I	60 lbs/ac pls
Planting Habitat	Scientific Name	Common Name	Initial or Permanent Cover	Coverage
Wet Open	<i>Elymus canadensis</i> L.	Canada Wild Rye	P	3 lbs./ac pls
	<i>Echinochloa muricata</i> Fern.	Rough Barnyard grass	I,P	2 lbs/ac pls
	<i>Spartina pectinata</i>	Prairie Cordgrass	P	200 rhiz./ac
	<i>Leersia oryzoides</i>	Rice Cutgrass	P	200 rhiz./ac
	<i>Triticum aestivum</i> L.	Winter Wheat	I	60 lbs/ac pls

- a. 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.
- b. 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.
- c. The mixtures shall be applied in a crossing pattern of two passes, each applying half of the seed required.
- d. Seed should be drilled to a depth of 1/2 inch.

- e. The sprigs (rhizomes) shall be broadcast evenly and uniformly on the soil surface.
- H. **Compaction.** 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 Engineer.
- I. **Application of Herbicide.** Following completion of seeding operations, pre-emergent herbicide as specified shall be applied to all seeded areas at the rate of 6 pounds active ingredient per acre.
- J. **Mulching.** Mulching shall be done within 24 hours following the seeding operation except in the case of wood cellulose type mulch.
 - 1. **Vegetative Type Mulch.**
 - a. 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).
 - b. Mulch shall be spread by hand or by a blower type mulch spreader.
 - c. 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.
 - d. Care shall be exercised to ensure that all wire from baled hay is collected as it is removed from the bale.
 - e. 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.
 - f. The mulch shall not be bunched.
 - g. No mulch shall be spread unless it can be anchored on the same day.
 - 2. **Anchoring Straw Mulch.**
 - a. 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.
 - b. 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 the hay by wind.
 - c. Two or more passes may be required to anchor the mulch to the satisfaction of the Engineer.
 - 3. **Application of Wood Cellulose Fiber.**
 - a. Wood cellulose fiber mulch shall be applied with a hydromulcher at not less than 1000 pounds per acre.
 - b. Precautionary measures shall be taken in preventing overspray on structures, paving, and plantings.
- K. **Watering.** Promptly after seeding and mulching, wet the seed bed thoroughly. Watering shall continue so as to keep all areas moist throughout the germination period.

L. 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.
2. 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.
3. The wheels of vehicles shall be cleaned to avoid leaving soil upon the surface of roads, walks, and other surfaced areas.

M. Water Usage.

1. All watering equipment required for the work shall be furnished by the Contractor.
2. Water from adjacent fire hydrants or public water lines shall be metered.
3. Written approval from the property owner shall be obtained prior to the use of suitable water from ponds or creeks.
4. Water from private owners shall also be metered.

3.3 INSTALLATION.

- A. Time and Conditions. The seeding work shall not be started until all earthwork has been substantially completed. Backfills and fills shall be allowed to settle and the topsoil spread and finish-grading completed before the work is started.
- B. Maintenance of Area. The Contractor shall be responsible for maintaining all seeded areas until acceptance by the Engineer. Maintenance of the seeded areas shall include the following:
 1. Established Yards, Shoulders and Slopes in Street Right-of-Way, and Any Other Areas Where a High-type Seeding is Deemed 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 the Engineer. 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.
 2. Turf grass of one-square foot or more that does not show definite growth and establishment shall be re-seeded by the Contractor at no additional cost to the Owner. 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.

3. Areas Off of Street Right-of-Way: All seeded areas shall be maintained until acceptance by the Engineer. Maintenance shall include repair of erosion damage, re-seeding, maintenance of mulch, and watering.

C. Protection and Repair.

1. The seeded area shall be kept free of traffic until accepted.
2. 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 repaired to re-establish the specified condition prior to the acceptance of the work.

3.4 COMPLETION of WORK and SITE RESTORATION.

- A. Contractor shall seed established yards unless property owner gives written permission to sod instead of seed. No separate payment will be made for this item. All costs pertaining thereto shall be included in the Lump Sum Bid.
- B. All costs pertaining to supply, delivery and storage, site preparation, seeding, fertilization and mulching, watering, protection, and seeding repair shall be included in the Lump Sum Bid.

End of Section.

SECTION 02931 - SODDING

PART 1 - GENERAL

1.01 SCOPE. This section shall cover the work consisting of furnishing and planting viable sod in accordance with these specifications and in reasonable conformity with the areas and locations shown on the plans or established by the Engineer. The Contractor shall provide all materials, labor, and equipment to complete the sodding work in accordance with these specifications.

1.02 DESCRIPTION. All areas disturbed by construction operations including areas of yards, street rights-of-way, utility easements, cut and fill or trenching areas, temporary roads, temporary staging or storage areas shall be seeded unless otherwise specified herein to be seeded. The sequence of work shall be cleaning, application of fertilizer, tilling, sodding, firming, and maintenance.

1.03 CODES and STANDARDS. None applicable.

1.04 QUALITY ASSURANCE. Work shall be performed by a Contractor, with a proven record of performance for similar installations. Contractor shall submit the following:

- A. Sodding shall have taken root and have satisfactory coverage before acceptance. Contractor shall guarantee sodding for one (1) year after acceptance by the Owner.
- B. Contractor shall scarify, resod, and fertilize any barren areas greater than 1 foot square.

1.05 CONTRACTOR SUBMITTALS. Drawings, specifications, and data covering the proposed materials shall be submitted to the Owner.

- A. Prior to commencing with construction the Contractor shall submit the following to the Owner for approval:
 1. Invoices and Analysis Labels. A copy of the supplier's invoices for all sod showing the area of coverage purchased and for fertilizer which shows the quantity by weight purchased for the project and a representative label bearing the manufacturer's or vendor's guaranteed statement of analysis shall be submitted to the Engineer for review and approval to assure compliance with specified requirements for quality and application rates.
 2. Sod: Certification of seed analysis, germination rate, and inoculation:
 - a. Certify that each lot of sod has been tested by a testing laboratory certified in sod testing, within 6 months of date of delivery. Include with certification:
 - Name and address of laboratory.
 - Date of test.
 - Lot number for each seed specified.

- Test Results: (i) name, (ii) percentages of purity and of germination, and (iii) weed content for each kind of sod furnished.
- 3. Certification of sod; include source and harvest date of sod, and sod seed mix.
- 4. Certification of sprig type and name.
- 5. Description of required maintenance activities and activity frequency.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING.

- A. Delivery of materials shall be in manufacturer’s original unopened and undamaged packages for fertilizer. They shall be clearly marked to identify brand name, contents and order number on each package. Packages showing indication of damage that may affect condition of contents are not acceptable. Sod shall be supplied in standard sized rolls, of uniform thickness, and kept covered and moist.
- B. Storage of material shall provide protective cover from damage and stored at temperatures and moisture conditions in accordance with manufacturer’s and supplier recommendations. Materials shall be staked or stored in accordance with manufacturer’s and supplier recommendations.
- C. Sod
 - 1. Do not harvest if sod is excessively dry or wet to the extent survival may be adversely affected.
 - 2. Harvest and deliver sod only after laying bed is prepared for sodding.
 - 3. Roll or stack to prevent yellowing.
 - 4. Deliver and lay within 24 hours of harvesting.
 - 5. Keep moist and covered to protect from drying from time of harvesting until laid.

PART 2 - PRODUCTS

2.1 MATERIALS.

- A. Sod.
 - 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 shown on the plans.
 - 2. 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.
- B. The Turf Type Tall Fescue sod shall be 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	Houndog	Jaguar II
Maverick II	Mustang	Olympic
Phoenix	Rebel II	Rebel 3D
Safari	Shenandoah	Thoroughbred

- | Titan | Tribute | Vegas |
|-------|---------|-------|
| C. | C. | C. |
| D. | D. | D. |
| E. | E. | E. |
| F. | F. | F. |
| G. | G. | G. |
- Kentucky Blue Grass and Turf Type Tall Fescue sod shall be 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.
- Bermuda Grass or Zoysia Grass sods shall be 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.
- 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.
- 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.
- 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.

2.2 FERTILIZER. 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.

3.1 SAFETY. Perform all work in accordance with applicable OSHA standards

3.2 PREPARATION.

- A. 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.
- B. Preparation of areas to be sodded shall include filling, reshaping or eroded areas, cleaning ditches and refinishing slopes to the established grade section. The area shall be cleared of stumps, stones larger than 3 inches, roots, cable, wire, and other materials that might hinder the work or subsequent maintenance.

- C. Application of Fertilizer. 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.
- 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.
 - 2. Grade areas to smooth, even surface with loose, uniformly fine texture.
 - a. Roll and rake, remove ridges, fill depressions to meet finish grades.
 - b. Limit such Work to areas to be planted within immediate future.
 - c. Remove debris, and stones larger than 1-1/2-inch diameter, and other objects that may interfere with planting and maintenance operations.

3.3 INSTALLATION.

- A. Time and Conditions. The sodding work shall not be started until all earthwork has been substantially completed. Backfills and fills shall be allowed to settle and the topsoil spread and finish-grading completed before the work is started.
- B. Application of Sod. Kentucky Blue Grass and Turf Type Fescue sod shall not be placed during a drought not during the period from June 1 to September 1, unless authorized by the Engineer, 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 Engineer 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.
- C. Sod Placement. 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.
- D. Anchoring Sod. 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.
- E. Water Usage. 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 from adjacent fire hydrants or public water lines shall be metered. 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.

- F. Completion of Work and Site Restoration and Cleanup. 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.

3.6 MAINTENANCE.

- A. The Contractor shall be responsible for maintaining the installed grass sod until all areas are complete and accepted by the Engineer. Grass areas in excess of one square foot that are dead or in poor condition regarding color and quality shall be replaced at the Contractor's expense prior to final acceptance.
- B. The Contractor shall maintain the grass area for a period of approximately 30 days or until the grass reaches a mowing height of 2 1/2 inches. The Contractor shall notify the Engineer that the installed grass is ready to be mowed, and upon approval, the Contractor shall cut and "bag" grass clippings to a height of 1 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.

3.7 FINAL INSPECTION AND ACCEPTANCE.

- A. Contractor shall sod established yards unless property owner gives written permission to seed instead of sod. No separate payment will be made for this item.
- B. All costs pertaining thereto shall be included in the Lump Sum Bid.

End of Section.

SECTION 02932 - PLANTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 1. Trees.
 2. Shrubs.
 3. Ground covers.
 4. Plants.
 5. Topsoil and soil amendments.
 6. Fertilizers and mulches.
 7. Stakes and guys.
 8. Landscape edgings.

1.3 DEFINITIONS

- A. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they are grown, with ball size not less than sizes as shown on plans; wrapped, tied, rigidly supported, and drum-laced as recommended by ANSI Z60.1.
- B. Bare-Root Stock: Exterior plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for kind and size of exterior plant required.
- C. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container, but free from circling or girdling roots. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for kind, type, and size of exterior plant required.
- D. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted exterior plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of exterior plant.
- E. Finish Grade: Elevation of finished surface of planting soil.
- F. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

- G. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- H. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements. Manufacturer's certified analysis for standard products.
 - 1. Analysis for other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
 - 2. Label data substantiating that plants, trees, shrubs, and planting materials comply with specified requirements.
- C. Samples for Verification: For each of the following:
 - 1. 5 lb of mineral mulch for each color and texture of stone required, in labeled plastic bags.
 - 2. Edging materials and accessories, of manufacturer's standard size, to verify color selected.
 - 3. 1 Quart of each organic mulch required for Project, in labeled plastic bag.
- D. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- E. Material Test Reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.
 - 1. Analysis of existing surface soil.
 - 2. Analysis of imported topsoil.
 - 3. Analysis of organic amendments.
- F. Planting Schedule: indicating anticipated dates and locations for each type of planting.
- G. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. **Installer Qualifications:** A qualified landscape installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment.
 - 1. **Installer's Field Supervision:** Require Installer to maintain an experienced full-time supervisor on Project site when exterior planting is in progress.
 - 2. **Tree Relocation Specialist** as described in section 2.6.
- B. **Soil Testing Laboratory Qualifications:** An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. **Soil Analysis:** Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity, deleterious material; pH; and mineral and nutrient content of on-site soil.
 - 1. **Report suitability of on-site soil for plant growth.** State recommended quantities of nitrogen, phosphorus, potassium, and other nutrients and soil amendments to be added to produce a satisfactory growing medium.
- D. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
- E. **Tree and Shrub Measurements:** Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.
- F. **Observation:** Landscape Architect may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. Landscape Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.
 - 1. **Notify Landscape Architect of sources of planting materials seven days in advance of delivery to site.**

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver plants freshly dug or well rooted in their containers, as appropriate.
- B. Do not prune trees and shrubs before delivery, except as approved by Landscape Architect. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage.
 - 1. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape.
 - 2. Provide protective covering to prevent wind damage during transportation to project site. Do not drop any plant materials during loading, unloading, transportation, and delivery. Plant materials shall be tightly packed during

transportation; if a full load of plants is not required, packaging substitutes and braces shall be placed in such a way as to prevent any rolling or movement during the transportation period. Acceptable braces include: wood cross members, large stable rocks, shredded landscape mulch, and topsoil

- C. Handle balled and burlapped stock only by root ball; never move stock by gripping stems or foliage.
- D. Deliver trees, shrubs, ground covers, and plants after preparations for planting have been completed and install immediately. If planting is delayed more than 6 hours after delivery, set planting materials in a sheltered location if possible, protect from weather and mechanical damage, and keep roots moist.
 - 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 - 2. Do not remove container-grown stock from containers before time of planting.
 - 3. Water plant materials as often as necessary to maintain root systems in a moist condition.

1.7 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Architect before planting.

1.8 COORDINATION

- A. Coordinate installation of planting materials during normal planting seasons for each type of plant material required. Notify Landscape Architect in the event of planting discrepancies and if seasonal conditions become abnormal.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.
- C. Coordination with Sodded and Seeded Areas: Plant trees and shrubs after finish grades are established and before sodding and seeding, unless otherwise approved by Landscape Architect.
 - 1. When planting trees and shrubs after sodding and seeding, protect lawn areas and promptly repair damage caused by planting operations.

1.9 SAMPLES AND TESTS

- A. The Owner reserves the right to take and analyze samples of materials for conformity to specifications at any time. Rejected materials shall be immediately removed from the site at the Contractor's own expense. The cost of testing of materials not meeting specifications shall be paid by the Contractor.

- B. The Contractor shall have soil samples tested after finish grades have been established.
1. Take separate samples at a minimum of three different locations to best represent the site soil conditions. Surface samples shall be taken with a trowel at 0" to 12" deep into finish grade. Should sub-surface samples be requested, these shall be taken at a depth of 18" to 24" below finish grade. Each sample shall contain approximately one quart, but no less, and be labeled per site location.
 2. All samples shall be tested by an established soils laboratory for soil fertility, agricultural suitability, and lime content. This report shall also contain recommendations for sub-soil drainage and/or any other special conditions specific to the project site and design. The contractor shall also include the plant list from the planting plans along with the soil samples for analysis by the soils laboratory and a clear indication for each soil sample as to the proposed plant type to be installed (native grasses, low-water plants, ornamental shrubs, etc.).
 3. The Contractor shall send copies of the laboratory's soil preparation recommendations to the Owner and the Landscape Architect, along with a written change order to the Owner describing any deductive or additive costs for soil preparation to be incurred as a result of the soil test lab's recommendations.
 4. The Owner may request additional testing of finish grades and plant bed areas to determine actual amendment rates per 1.9.A above. The Contractor shall bear all costs related to such additional testing.

1.10 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Warrant the following living plant materials, for the warranty period indicated, against defects including death and unsatisfactory growth, except for defects resulting from neglect or abuse by Owner, or incidents that are beyond Contractor's control.
1. Warranty Period for trees and shrubs: One year from date of Final Acceptance.
 2. Warranty Period for seed: One year from date of Final Acceptance.
 3. Remove dead plants immediately. Replace immediately unless required to plant in the succeeding planting season.
 4. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
 5. A limit of one replacement of each plant will be required, except for losses or replacements due to failure to comply with requirements.

PART 2 - PRODUCTS

2.1 TREES AND SHRUBS

- A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of sizes and grades complying with ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used (at no additional cost to the Owner) if acceptable to the Landscape Architect, with a proportionate increase in size of roots or balls.
- C. Label each tree and shrub with securely attached, waterproof tag bearing legible designation of botanical and common name.

2.2 TREES

- A. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.
 - 1. Provide balled and burlapped trees.
 - 2. Branching height: One-third to one-half of tree height.
- B. Small upright or spreading trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; see contract document drawings for stem form type.
 - 1. Provide balled and burlapped trees.
- C. Multistem Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as follows:
 - 1. Stem form: Clump
 - 2. Provide balled and burlapped trees.

2.3 CONIFEROUS EVERGREEN TREES

- A. Form and size: Normal-quality, well-balanced, coniferous evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1.
- B. Provide balled and burlapped coniferous evergreen trees.

2.4 DECIDUOUS AND EVERGREEN SHRUBS

- A. Form and size: Deciduous and evergreen shrubs with not less than the minimum number of canes / spread required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.
- B. Provide container-grown shrubs.

2.5 GROUND COVER PLANTS

- A. Provide ground cover plants established and well rooted in removable containers, flats, or integral peat pots, as indicated on plans.

2.6 RELOCATED/TRANSPLANTED TREES

- A. Tree Relocation Specialist shall have a minimum of 10 years experience in relocation of existing plant materials and be recognized by the American Association of Nurserymen.
- B. Trees marked on the plan as Relocated shall be properly handled during moving so trunks will not be scarred or damaged and to avoid broken limbs. Broken limbs shall be cause for rejection. Replacement trees for damaged or rejected trees shall be of same size and species and shall be at the contractor's expense.
- C. Transport trees on vehicles of adequate size to prevent overcrowding, broken limbs, foliage damage or root ball damage.
- D. Protect tree crowns with shade cloth to prevent desiccation and wind burn. Crowns shall be periodically sprayed with water to help ensure against desiccation.
- E. Plant material shall be planted the same day it is dug. Coordinate preparation of planting pits or beds to ensure this schedule
- F. Fill holes left behind from tree removal immediately. Fill material shall be as specified in Section 02200. All areas disturbed by relocation activities shall be sodded in accordance to specification 02931.

2.7 TOPSOIL

- A. Clean topsoil, free of stones larger than ½ inch, foreign matter, plants, roots, and seeds.
- B. Topsoil shall be sandy loam.

2.8 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of less than 4 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.
- B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.9 FERTILIZER

- A. Granular fertilizer consisting of nitrogen, phosphorus, potassium, and other nutrients in proportions and amounts recommended in soil reports from a qualified soil-testing agency.
 - 1. Fertilizer shall be slow release or quick release as per the soil report.

2.10 MULCHES

- A. Organic Mulch: Double ground aged hardwood, free from deleterious materials and suitable as a top dressing of trees and shrubs. Color: Brown to Dark Brown. Contractor shall submit sample for approval.
- B. Rock mulch: To match existing where applicable. Existing rock mulch to be saved where possible and re-used. Store existing materials on-site.

2.11 WEED-CONTROL BARRIERS

- A. Woven Fabric: Mirafi, Chevron Typar or approved equal. Polypropylene or polyester fabric, 3 oz./sq. yd. minimum, grey or earthtone in color.

2.12 STAKES AND GUYS

- A. Upright and Guy Stakes: Pressure-treated softwood, free of knots, holes, cross grain, and other defects, 2 by 2 inches by length indicated on details, pointed at one end.
- B. Guy and Tie Wire: ASTM A 641, Class 1, galvanized-steel wire, 2-strand, twisted, 0.106 inch diameter.
- C. Strap Chafing Guard: Reinforced Nylon or Canvas at least 1 1/2 inch with grommets to protect tree trunks from damage.
- D. Hose Chafing Guard: Reinforced rubber or plastic hose at least 1/2 inch in diameter, black, cut to lengths required to protect tree trunks from damage.

2.13 LANDSCAPE EDGINGS

- A. Steel Edging: Ryerson or approved equal, natural color. Standard commercial-steel edging, rolled edge, fabricated in sections of standard lengths, with loops stamped from or welded to face of sections to receive stakes.
 - 1. Edging Size: 3/16 inch wide by 4 inches deep.
 - 2. Stakes: Tapered steel, a minimum of 12 inches long.
 - 3. Accessories: Standard tapered ends, corners, and splicers.
 - 4. Finish: natural.

2.14 MISCELLANEOUS PRODUCTS

- A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
- B. Trunk-Wrap Tape: Two layers of crinkled paper cemented together with bituminous material, 4-inch- wide minimum, with stretch factor of 33 percent.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree and shrub locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before planting. Make minor adjustments as required.
- D. As directed by the Landscape Architect, apply antidessicant to trees and shrubs using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
 - 1. If deciduous trees or shrubs are moved in full leaf, spray with antidessicant at nursery before moving and again two weeks after planting.

3.3 SOIL PREPARATION

- A. All areas to be planted shall be deep-ripped to a depth of twelve (12) inches. The deep ripping shall be done in a cross pattern, after the site has been rough graded, and prior to spreading soil amendments and conditioners. Do not deep-rip soil on slopes 3:1 or greater.
 - 1. Planting areas - general
 - a. Flatter than 3:1: After deep-ripping, all rocks and foreign matter which are two inches and greater in diameter, measured at their largest diameter, shall be removed from the top six (6) inches of the ripped area.
 - b. 3:1 slopes or steeper: Rip the soil surface to a depth of 6" (or as deep as practicable). After ripping, all rocks and foreign matter which are two inches and greater in diameter, measured at their largest diameter, shall be removed from the top six (6) inches of the ripped area.
- B. At the completion of the ripping operations, all planting areas shall be brought to a smooth, uniform surface free of ruts, furrows and other irregularities. Accidental swales and mounds shall be limited to one-inch vertical deviation from a regular surface.
- C. After approximate finished grades have been established, test soil for agricultural suitability as described in Section 1.9.B. Actual materials and rates of amendments shall be determined by the soil laboratory recommendations; the following materials and rates are included for bidding purposes only. Once the soils report has been reviewed and bid costs adjusted accordingly, the Owner

shall issue a field notification for the actual amendments, rates, and manner of installation.

The following is for bid purposes only:

Uniformly spread and cultivate thoroughly by means of mechanical tiller into the top 6" of soil:

Planting Beds:

Nitrogen stabilized compost: 2 cu. yds. per 1,000 sq. ft.
Builder's sand: 1 cu. yd. per 1,000 sq. ft.
Slow release fertilizer (16-20-0): 5 lbs. per 1,000 sq. ft.
Agricultural gypsum: 200 lbs. per 1,000 sq. ft.

Tree and Shrub Backfill:

8 parts by volume on-site soil
2 parts by volume amended soil

All soil areas shall be lightly compacted and settled by application of heavy irrigation to a minimum depth of twelve (12) inches.

3.4 ESTABLISHMENT OF FINISH GRADES

- A. Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
1. After deep watering, minor modification to grades may be required to establish the final grade. These areas shall not be worked until the moisture content has been reduced to a point where working it will not destroy soil structure.
 - a. All areas shall be graded so that the final grades will be 1" below adjacent paved areas, sidewalks, and valve boxes in areas to be sodded or seeded, and 2" in shrub and groundcover areas.
 - b. Surface drainage shall be away from all building foundations.
 - c. Eliminate all erosion scars.
 - d. Finish grading shall be consistent and free from undulations, irregularities or depressions. Areas filled by floating loose soil into depressions shall be thoroughly watered to ensure compaction.
 2. It shall be the responsibility of the Contractor to maintain the final grades throughout the Construction Phase. All erosion shall be properly repaired at the Contractor's own cost to the Owner's satisfaction. Any slope soil run-off onto adjacent paving areas shall be cleaned regularly by the Contractor.
- B. At time of planting, the top six (6) inches of all areas to be planted, sodded, or seeded shall be free of stones and foreign matter as described in Section 3.3.A.

3.5 TREE AND SHRUB PLANTING PIT EXCAVATION

- A. Pits and trenches: Excavate circular pits of the dimensions as shown on the planting details. Scarify sides of plant pit smoothed during excavation.
1. Trees: excavate pit 3"-4" shallower than root ball depth.
 2. Shrubs: excavate pit 2" shallower than root ball depth.

- B. Obstructions: Notify Landscape Architect if unexpected rock or obstructions detrimental to trees or shrub placement or growth are encountered in excavations.
 - 1. Hardpan layer: Where encountered, drill 6-inch diameter holes into free-draining strata or to a depth of 10 feet, whichever is less, and backfill holes with ¾" crushed gravel.
- C. Drainage: Notify Landscape Architect if subsoil conditions reveal unexpected water seepage or retention in tree or shrub pits.

3.6 TREE AND SHRUB PLANTING

- A. General
 - 1. Actual planting shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice, as approved by the Landscape Architect.
 - 2. Only as many plants as can be planted and watered on that same day shall be distributed in a planting area.
- B. Set root ball plumb and in center of pit or trench with top of root ball flush above adjacent finish grades, as specified in Section 3.5.A.
 - 1. Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operations.
 - 2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
- C. Plants in containers shall be removed from containers in such a manner that the ball of earth surrounding the roots is not broken. The plants shall be planted and watered immediately after removal from the containers. Containers shall not be opened or removed prior to placing the plants in the planting area.
 - 1. Set plants plumb and hold rigidly in position until soil has been tamped firmly around root ball.
 - 2. After the plant has been placed, additional backfill shall be added to the hole to cover approximately one-half of the height of the root ball. At this stage, water shall be added to the top of the partly filled hole to thoroughly saturate the root ball and adjacent soil. Finish filling the hole with soil and tamp firmly.
 - 3. All plants which settle deeper than specified on the planting details shall be raised to the correct level.
- D. If planted in fall, wrap trees of 2-inch caliper and larger with trunk-wrap tape. Start at base of trunk and spiral cover trunk to height of first branches. Overlap wrap, exposing half the width, and securely attach without causing girdling.
- E. Do not prune trees and shrubs except to remove damaged growth.

3.7 GUYING AND STAKING

- A. Upright staking and tying: Stake trees up to and including 3" caliper. Use a minimum of two stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend at least 72 inches above grade.
 - 1. Set stakes vertically and space to avoid penetrating root balls or root masses.
 - 2. Support trees with two strands of tie wire encased in hose sections at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.
 - 3. Set stakes in line with, and on opposite sides of the trunk, and so that the line between stakes is perpendicular to the direction of the prevailing wind.
- B. Guying: Guy trees over 3" caliper as per the details shown on the plans. Use a minimum of three guys, spaced equidistant around the tree.
 - 1. Connect guy wires to the trunk above the lowest main branch.
 - 2. Paint turnbuckles with luminescent white paint.

3.8 GROUND COVER PLANTING (FROM FLATS)

- A. Set out and space ground cover and plants as indicated.
- B. Dig holes large enough to allow spreading of roots.
- C. Remove plants from flats with enough soil around roots to form a plug. Do not damage roots.
- D. Place plug in planting hole, and work soil around roots to eliminate air pockets. Leave a slight saucer indentation around plants to hold water.
- E. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- F. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.9 TREE RELOCATION/TRANSPLANTING

- A. Transplanting shall consist of on-site or off-site transplanting of existing trees
- B. Tagging: Trees marked on the plan for Relocation shall be clearly marked in the field by the contractor for inspection by the Owner prior to relocation preparation
- C. Root Preparation: Trees to be relocated shall be root pruned at least 45 days before digging with clean, sharp equipment
 - 1. Maintain root pruned materials by watering, weeding, mowing, spraying and fertilizing
 - 2. After root pruning, backfill with good rooting medium, fertilize with organic fertilizer to promote root growth

- 3. Mulch to reduce weeds, discourage foot traffic, conserve moisture and minimize temperature fluctuation.
- D. Digging, Wrapping, and Handling: Plans shall be dug and prepared for moving in a manner that will not cause damage to branches, shape, root system and development.
- E. Root Ball Sizes shall be as recommended in ANSI Z60.1
- F. Relocated plants shall be planted according to Section 3.6. Provide mulch per the detail.
 - 1. Brace trunk by staking & guying and leave in place for a maximum 12 months
- G. Following transplanting, water trees daily for the first two weeks, every other day for the next three weeks and every third day for eight weeks. For the remaining maintenance period, water trees at a rate to achieve a minimum of one inch per week. Water shall be provided at a rate to thoroughly saturate the root ball to its full depth.

3.10 PLANTING BED MULCHING

- A. Mulch backfilled surfaces of planting beds and other areas indicated on plans.

3.11 EDGING INSTALLATION

- A. Steel Edging: Install steel edging where indicated according to manufacturer's written instructions. Anchor with steel stakes spaced approximately 48 inches apart, driven below top elevation of edging. Steel edging shall not be visible above sod or organic wood mulch upon completion of plantings and sod installation.
- B. Natural V-cut Edging: Dig natural edging where indicated on the plans per the detail.

3.12 INSTALLATION OF MISCELLANEOUS MATERIALS

- A. If directed by Landscape Architect, apply antidesiccant using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage.
- B. When deciduous trees or shrubs are moved in full-leaf, spray with antidesiccant at nursery before moving and again 2 weeks after planting.

3.13 MAINTENANCE

- A. Begin maintenance immediately after planting.
 - 1. Maintenance period for Trees & Shrubs: 12 months from date of Final Acceptance
 - 2. Contractor shall log all maintenance weekly. At the end of the Maintenance Period the log shall be handed over to the Owner.

- B. Maintain trees and shrubs by pruning, watering, cultivating, mulching, and weeding as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free from disease and insects. Plants shall be inspected at least once per week by the Contractor and needed maintenance performed promptly.

3.16 CLEANUP AND PROTECTION

- A. During exterior planting, keep adjacent pavings and construction clean and work area in an orderly condition.
- B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.
- C. Maintain barricades throughout maintenance period and until substantial and healthy stand of grass is established. Erect barricades and warning signs as required to protect newly planted areas from traffic.

3.17 DISPOSAL

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

SECTION 03000 - MISCELLANEOUS CONCRETE

PART 1 - GENERAL

1.01 SCOPE

- A. The Contractor shall provide all concrete work as required to complete the concrete construction as specified herein and as shown on the drawings.

1.02 RELATED SECTIONS

- A. Section 03370 - Sewer Manhole Construction

1.03 REFERENCES

- A. ASTM A - 615 Deformed And Plain Billet Steel Bars For Concrete Reinforcement
- B. ASTM C - 31 Test Methods of Making and Curing Concrete Test Specimens in the Field
- C. ASTM C - 33 Concrete Aggregates
- D. ASTM C - 39 Test Method for Compressive Strength of Cylindrical Concrete Specimens
- E. ASTM C - 94 Ready-Mixed Concrete
- F. ASTM C - 143 Slump of Portland cement Concrete
- G. ASTM C - 150 Portland Cement
- H. ACI 304 Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
- I. ACI 305 Committee Report on Hot-Weather Concreting
- J. ACI 306 Committee Report on Cold-Weather Concreting
- K. ACI 309 Recommended Practice for Consolidation of Concrete
- L. ACI 318 Building Code Requirements for Reinforced Concrete
- M. ACI 347 Recommended Practice for Concrete Formwork

1.04 SUBMITTALS.

- A. Contractor shall submit product data for review on the following items required by this Division:
 - Laboratory name
 - Aggregate testing and gradation
 - Design mix
- B. Product data shall be submitted in accordance with Section 1300 Submittals.

PART 2 - PRODUCTS

2.01 CEMENT.

- A. Cement shall conform to ASTM C150, Type I, unless high early strength is required in which instance Type III shall be used. Cement may be bagged or bulk. Cements shall be used from only one mill throughout the entire project.

2.02 FINE AGGREGATE.

- A. Fine aggregate, clean natural sand, shall conform to ASTM C33 and have the following gradation:

<u>Sieve</u>	<u>% Passing</u>	<u>% Retained</u>
3/8"	100	0
#4	95-100	0-5
#8	80-100	0-20
#16	50-85	15-50
#30	25-60	40-75
#50	10-30	70-90
#100	2-10	90-98

2.03 COARSE AGGREGATE.

- A. Clean crushed rock, washed gravel, or other inert granular material, except that clay and shale particles shall not exceed one percent. Coarse aggregate shall conform to ASTM C33 and have the following gradation:

<u>Sq. Sieve</u>	<u>% Passing</u>	<u>% Retained</u>
3/4"	90-100	0-10
3/8"	20-55	45-80
#4	0-10	90-100
#8	0-5	95-100

2.04 WATER.

- A. Treated and filtered water from a municipal or other public water supply district shall be used.

2.05 REINFORCING STEEL.

- A. All bars shall conform to ASTM A615, Grade 60. Bending details shall conform to ACI 318.

2.06 FORMS.

- A. The forms shall be true and rigid and conform to shape, line and dimensions as shown on the drawings. All forms shall be rigidly constructed, braced and tied to prevent any deflection or displacement during placing of concrete. All exposed corners and edges shall have 1" fillets. All joints shall be mortar tight; open joints shall be sealed as required.

2.07 CONCRETE MIX.

- A. Proportioning: Concrete shall conform to the following:
1. Cement: 6 sacks per cubic yard, minimum.
 2. Water shall be kept to an absolute minimum to maintain slump as specified.

3. Aggregate: The sand factor shall be as required to give the best workable mix within the range of 46 to 52 percent of total aggregate by weight.
4. Strength: Minimum 4000 psi at 28 days.
- B. Slump: The maximum slump shall not exceed 4 inches. Determination of slump shall conform to ASTM C143.
- C. Mixing: Contractor shall use ready-mixed concrete, mixed and delivered in conformance with ASTM C94.
- D. Admixtures: Air entraining agents shall be added to the concrete to provide 4 to 6 percent entrained air when placed, in conformance with ASTM C185.

PART 3 - EXECUTION

3.01 PLACING REINFORCING STEEL.

- A. All bars are to be accurately placed and securely tied at all intersections.
- B. Reinforcing steel shall be free from flaky or scaly rust which will destroy or reduce the bond strength at the time concrete is placed.
- C. Unless shown otherwise on the drawings, the following minimum concrete coverage shall be maintained:
 1. Against earth: 3 inches
 2. Against forms or when exposed to water or weather: 2 inches

3.02 PLACING CONCRETE.

- A. No concrete shall be deposited below water. The excavation may be damp but shall contain no free water.
- B. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of materials. Retempering of concrete is not permissible.
- C. All concrete shall be thoroughly compacted during placement by means of vibrators in conformance with ACI 309.
- D. For formed surfaces, the Contractor shall break off ties, grout voids which are deeper than ½" and chip out honeycombed areas to solid concrete and grout flush with formed surface.
- E. Curing shall be maintained continuously for seven days after placing concrete or until forms are removed and the surface finished. Concrete surface temperature is to be maintained between 50°F and 100°F for at least seven days.
- F. Concrete shall not be placed on iced or frozen subgrade or when the air temperature is below 20°F. Concreting shall not be continued when the air temperature is below 45°F unless the following conditions are attained:
 1. Mixing water shall be heated (to a maximum of 150°F).
 2. Aggregates shall be heated until free of all ice and frost.
 3. The concrete temperature after mixing shall be between 50°F and 70°F if the air temperature is 20°F to 45°F.
 4. After the concrete is placed, it shall be covered, protected, and heated so as to maintain a minimum of 70°F air temperature for the 24 hours and 50°F air

temperature for the next six days. Open-flame type heaters are not permitted.
Heating equipment not vented outside of the covering will not be permitted.

5. Moist conditions shall be maintained during the heating period.
 6. All covering, heating equipment, etc., shall be on hand and approved by the Engineer before any concrete is placed.
- G. Admixtures, such as calcium chloride, shall not be used.
- H. Exposed concrete is not to be placed in air temperatures above 100°F. Cover, protect and cool work as to maintain the temperature of the concrete below 100°F. The concrete temperature, after mixing, shall not be greater than 85°F. Spray and/or shade aggregate piles and cool mixing water as required.

3.03 CONCRETE TEST CYLINDERS.

- A. All concrete test cylinders shall be provided by the Contractor. The testing of test cylinders, including transportation, shall be paid for by the Contractor.
- B. The Contractor shall make at least two test cylinders for each day's pour in excess of 10 cubic yards of each class of concrete, and two test cylinders for each additional 50 cubic yards or major fraction thereof, as directed by the Engineer.
- C. The Contractor shall ship the test cylinders to the laboratory on the fourth day, where the laboratory shall proceed to cure until tested. One cylinder shall be tested on the seventh day, and the remaining cylinder shall be tested on the 28th day. The test cylinders shall be identified at the time cast, and as to which pour is represented. Unsatisfactory tests of cylinders shall make the concrete represented subject to rejection, with consequent removal and replacement required.
- D. Concrete test cylinders shall be cast and tested in accordance with ASTM C31 and C39. The testing laboratory shall furnish four copies of test reports for test cylinders and distributed as follows:
 1. 2 copies - Engineer
 2. 2 copies - Contractor

3.04 COMPLETION OF WORK.

- A. Site cleanup and restoration shall be included in other items of work and will not be paid for directly.
- B. Payment for Miscellaneous Concrete shall be paid for under the specific items of work for which the concrete is placed.

End of Section.

SECTION 03100 – CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SUMMARY:

- A. This Section includes formwork for cast-in-place concrete.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 03200 - Concrete Reinforcement.
- B. Section 03300 - Concrete.

1.03 REFERENCE STANDARDS:

- A. Applicable Standards:
 - 1. American Concrete Institute (ACI):
 - a. 117 - Specifications for Tolerances for Concrete Construction and Materials.
 - b. 301 - Specifications for Structural Concrete.
 - c. 318 - Building Code Requirements for Reinforced Concrete.
 - d. 347 - Guide to Formwork for Concrete.
 - 2. American Society for Testing and Materials (ASTM):
 - a. C31 - Making and Curing Concrete Test Specimens in the Field.
 - b. C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - c. C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.

PART 2 - PRODUCTS

2.01 MATERIALS FOR FACING:

- A. Where concrete will be exposed to view after construction:
 - 1. Use exterior grade plywood at least 5/8 inch thick or steel forms capable of producing a smooth, uniform appearance.
 - 2. Do not use form-facing materials with raised grain, torn surfaces, worn edges, dents, or other defects that will impair the texture of concrete surfaces.
- B. Where concrete will not be exposed to view after construction:
 - 1. Exterior grade plywood at least 5/8 inch thick.
 - 2. Steel.
 - 3. Wood fiberboard.
 - 4. Dressed lumber free of loose knots.
- C. Treat forms with commercially available form releasing agents that will not bond with, stain, or adversely affect concrete surfaces. Agents shall not impair subsequent treatment of concrete surfaces depending upon bond or adhesion, nor shall it impede the wetting of surfaces to be cured with water or curing compounds. Form releasing agents shall be VOC compliant with a maximum VOC content of 3.8 lbs./gal. (450 g/L), or less where area restrictions are more stringent.
- D. Clean forms of sawdust, dust, dirt, and other foreign materials.

2.02 FORM TIES:

- A. Break back, coil, or screw type, except where otherwise specified.
- B. Use water-seal coil type in walls below grade and in walls of water bearing structures. Removable through-wall tapered ties shall not be used.
- C. Coil type shall leave conical depression in concrete.

SECTION 03100 – CONCRETE FORMWORK: continued

- D. Space as required against pressure of fresh concrete.
- E. The portion of the form tie remaining in place shall provide for a clearance of two times the minimum dimension of the tie, but not less than 3/4 inch, from the formed surface.

2.03 CHAMFER STRIPS:

- A. Chamfer: 3/4 inch except where otherwise indicated.
- B. Place in all forms to provide chamfer where concrete will have exposed projecting corners.

PART 3 - EXECUTION

3.01 FORM CONSTRUCTION:

- A. Conform to ACI 301, 318, and 347, except Shop Drawings for formwork, shoring, and reshoring shall not be submitted for approval.
- B. Adequately brace, stiffen, and support forms to prevent perceptible deflection or settlement, and to hold plumb, level, and true to line.
- C. Construct and maintain forms to the tolerances given in ACI 117.
- D. Construct sufficiently tight to prevent mortar leakage.
- E. Avoid offsets between adjacent forms and construct so that shores, braces, and stiffening members are in line with those below.
- F. Space studs and stringers as required to support facing against concrete pressure, but not more than 12 inches for 5/8-inch plywood or 16 inches for 3/4-inch plywood. Maximum deflection of facing materials reflected on concrete surfaces exposed to view shall be 1/240 of the span between structural members of the formwork.
- G. Use wales, strongbacks, shores, and bracing as required.
- H. Form all necessary openings or chases for piping, ductwork, and similar items where indicated or as required for the Work.
- I. Construct forms to be removable in sections without marring concrete surface.
- J. Surface of forms shall provide a smooth, dense, plane surface to finished concrete where exposed to view.
- K. Contractor shall be responsible for structural adequacy, design, engineering, and construction of the formwork.
- L. Stay-in-place metal forms shall not be used.

3.02 TIME-IN-PLACE FOR FORMS:

- A. It is the responsibility of Contractor to consider all applicable factors and leave the formwork in place until it is safe to remove them.
- B. All removal shall be performed in a manner which will prevent damage to the concrete and ensure the complete safety of the structure.
- C. Where forms support more than one element, the forms shall not be removed until the form removal criteria are met by all supported elements.
- D. Evidence that concrete has gained sufficient strength to permit removal of forms shall be determined by tests on control cylinders. All control cylinders shall be stored in the structure or as near the structure as possible so they receive the same curing conditions and protection methods as given those portions of the structure they represent. Control cylinders shall be removed from the molds at an age of no more than 24 hours. All control cylinders shall be prepared and tested in accordance with ASTM C31 and ASTM C39 at the expense of Contractor by an independent laboratory that complies with ASTM C107. Control cylinders shall be tested within 4 hours after removal from the Site.

SECTION 03100 – CONCRETE FORMWORK: continued

- E. Forms shall not be removed unless the minimum time or minimum compressive strength requirements below are met.
 - 1. Formwork Not Supporting Weight of Concrete:
 - a. Formwork for walls, columns, sides of beams, gravity structures, slabs-on-ground and other vertical type formwork not supporting the weight of concrete shall remain in place 24-hours minimum after concrete placement is completed.
 - 2. Formwork Supporting Weight of Concrete:
 - a. Formwork supporting weight of concrete and shoring shall not be removed until structural members have acquired sufficient strength to safely support their own weight and any construction or other superimposed loads to which the supported concrete may be subjected. As a minimum, no forms or shoring shall be loosened or removed until control concrete test cylinders indicate the concrete has attained the following compressive strengths for the respective structural members:

<u>Structural Member</u>	<u>Percent of Design Compressive Strength</u>
Unshored slab and beam forms or forms which can be removed without disturbing shores	70
Slab or beam shoring	85

END OF SECTION 03100

SECTION 03200 – CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SUMMARY:

- A. This Section includes steel reinforcement bars, ties, welded wire fabric, bolsters, chair supports, and accessories.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 03100 - Concrete Formwork.
- B. Section 03300 - Concrete.

1.03 REFERENCE STANDARDS:

- A. Applicable Standards:
 - 1. American Society for Testing and Materials (ASTM):
 - a. A82 - Steel Wire, Plain, for Concrete Reinforcement.
 - b. A185 - Steel Welded Wire Reinforcement, Plain, for Concrete.
 - c. A615/A615M - Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.
 - d. A706/A706M - Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 2. American Concrete Institute (ACI):
 - a. 301 - Specifications for Structural Concrete.
 - b. SP 66 - Detailing Manual.
 - c. 318 - Building Code Requirements for Structural Concrete.
 - d. 117 - Specifications for Tolerances for Concrete Construction and Materials.
 - 3. American Welding Society (AWS):
 - a. A5.5 - Low Alloy Steel Electrodes for Shielded Metal Arc Welding.
 - b. B2.1 - Welding Procedure and Performance Qualification.
 - c. D1.4 - Structural Welding Code Reinforcing Steel.
 - 4. Concrete Reinforcing Steel Institute (CRSI):
 - a. Manual of Standard Practice.

1.04 SUBMITTALS:

- A. Submit as specified in DIVISION 01.
- B. Include, but not limited to, the following:
 - 1. Complete bar schedule, bar details, and erection drawings to conform to ACI SP 66.
 - 2. Drawing with each type of bent bar marked with identification mark. Straight bars shall have mark number or be identified by size and length.
 - 3. Erection drawings shall be clear, easily legible, and to a minimum scale of:
 - a. 1/4 inch = 1 foot (1:50).
 - b. 1/8 inch = 1 foot (1:100) if bars in each face are shown in separate views.
 - 4. Size and location of all openings.
 - 5. Concrete protective cover.
 - 6. Grade of steel.
 - 7. Lap splice lengths.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Store steel reinforcement blocked up off the ground and in orderly stacks.
- B. Store only bars with the same identifying label in the same stack.

SECTION 03200 – CONCRETE REINFORCEMENT: continued

1.06 TESTING:

- A. Perform at the mill for each heat.
- B. Submit certified test results upon request.

PART 2 - PRODUCTS

2.01 REINFORCEMENT BARS, TIES, AND STIRRUPS:

- A. Materials:
 - 1. Conform to ASTM A615, Grade 60, except as otherwise specified.
 - 2. Cold-drawn wire for spiral column ties shall conform to ASTM A82.
 - 3. Reinforcement indicated or specified to be welded shall conform to ASTM A706.
- B. Fabrication of Bars:
 - 1. Fabricate with cold bends conforming to the recommended dimensions shown in ACI 318.
 - 2. Fabricate bars according to the tolerances given in ACI 117.
 - 3. Field fabrication will be allowed only if Contractor has equipment to properly fabricate steel.
 - 4. Attach metal or plastic tags with identifying mark or length corresponding to mark number or length on Drawing. Straight bars shall have mark number or size and length. Bent bars shall have mark number.
 - 5. Contractor may, at his option, continue steel reinforcement through openings in walls and slabs, then field-cut the opening so that there will be the required concrete cover between ends of bars and edge of opening.

2.02 BOLSTERS, CHAIRS, AND ACCESSORIES:

- A. Conform to ACI SP 66 and the CRSI Manual of Standard Practice.
- B. Provide all spacers, bolsters, chairs, ties, and other devices necessary to properly space, place, support, and fasten steel reinforcement in place during the concrete placement.
- C. Metal accessories shall be galvanized or plastic-coated where legs will be exposed in finished concrete surfaces.
- D. Do not use rocks, broken bricks, wood blocks, or concrete fragments for support of steel reinforcement.

2.03 PRECAST CONCRETE BLOCK BAR SUPPORTS:

- A. May be used only for bar supports in slabs on ground.
- B. Conform to ACI SP-66 and the CRSI Manual of Standard Practice.
- C. Each block shall have a minimum of 9 square inches (5800 square millimeters) of bearing area. Space as required by the particular condition of weight, bearing surface, and rigidity of the steel reinforcement.

PART 3 - EXECUTION

3.01 PLACEMENT OF STEEL REINFORCEMENT:

- A. Place all steel reinforcement before concrete is cast in accordance with approved erection drawings, ACI 117, Chapters 7 and 12 of ACI 318, and the CRSI Manual of Standard Practice.
- B. Remove oil, mill scale, pitting, mud, loose rust, ice, and other materials that would reduce bond from bars before placing.
- C. Tie securely with 16 gage (1.6 mm) or larger annealed iron wire.

SECTION 03200 – CONCRETE REINFORCEMENT: continued

- D. Place to maintain concrete cover to conform to ACI 117 and Chapter 7 of ACI 318, unless otherwise indicated.
- E. Splice steel where indicated. Splices shall be in full contact and shall conform to Chapter 12 of ACI 318. Unless otherwise indicated, lap splices shall be Class B.
 - 1. Lenton Mechanical Splices:
 - a. Lenton mechanical splices shall be used where indicated.
 - b. The Lenton mechanical splices shall develop in tension and compression at least 125% of the yield strength (F_y) of the bar spliced.
 - c. Lenton mechanical splices shall be positive locking, taper threaded type coupler.
- F. Do not bend bars embedded in hardened or partially hardened concrete without approval from Engineer. If bending is permitted, conform to procedures of ACI 301 unless otherwise prescribed by the governing building code.
- G. Do not weld reinforcing bars unless specifically indicated. Where welding is indicated, provide bars conforming to ASTM A706/A706M and comply with AWS D1.4.

END OF SECTION 03200

SECTION 03300 – CONCRETE

PART 1 - GENERAL

1.01 SUMMARY:

- A. This Section includes concrete and related items for the Diversion Structure and Junction Structure as indicated on the Contract Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 03100 - Concrete Formwork.
- B. Section 03200 - Concrete Reinforcement.

1.03 REFERENCE STANDARDS:

- A. Comply with the provisions of the following codes, specifications, and standards, except as otherwise indicated.
 - 1. American Concrete Institute (ACI):
 - a. 301 - Specifications for Structural Concrete.
 - b. 318 - Building Code Requirements for Structural Concrete.
- B. Applicable Standards Where Referenced Herein:
 - 1. American Society for Testing and Materials (ASTM):
 - a. A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - b. C31/C31M - Practice for Making and Curing Concrete Test Specimens in the Field.
 - c. C33 - Concrete Aggregates.
 - d. C39 - Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - e. C40 - Test Method for Organic Impurities in Fine Aggregates for Concrete.
 - f. C42 - Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 - g. C88 - Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
 - h. C94 - Ready-Mixed Concrete.
 - i. C114 - Test Methods for Chemical Analysis of Hydraulic Cement.
 - j. C117 - Test Method for Material Finer than 75 μ (No. 200) Sieve in Mineral Aggregates by Washing.
 - k. C136 - Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - l. C142 - Test Method for Clay Lumps and Friable Particles in Aggregates.
 - m. C143 - Test Method for Slump of Hydraulic Cement Concrete.
 - n. C150 - Portland Cement.
 - o. C172 - Practice for Sampling Freshly Mixed Concrete.
 - p. C192/C192M - Practice for Making and Curing Concrete Test Specimens in the Laboratory.
 - q. C231 - Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - r. C233 - Test Methods for Air-Entraining Admixtures for Concrete.
 - s. C260 - Air-Entraining Admixtures for Concrete.
 - t. C289 - Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method).
 - u. C295 - Guide for Petrographic Examination of Aggregates for Concrete.
 - v. C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
 - w. C430 - Test Method for Fineness of Hydraulic Cement by the 45 μ (No. 325) Sieve.
 - x. C494 - Chemical Admixtures for Concrete.

SECTION 03300 – CONCRETE: continued

- y. C566 - Test Method for Total Evaporable Moisture Content of Aggregate by Drying.
- z. C595/C595M - Blended Hydraulic Cements.
- aa. C618 - Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- bb. C881 - Epoxy-Resin-Base Bonding Systems for Concrete.
- cc. C1315 - Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
- 2. American Concrete Institute (ACI):
 - a. 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
 - b. 302.1R - Guide for Concrete Floor and Slab Construction.
 - c. 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
 - d. 305R - Committee Report on Hot Weather Concreting.
 - e. 306R - Committee Report on Cold Weather Concreting.
 - f. 308.1 - Standard Specification for Curing Concrete.
 - g. 309R - Guide for Consolidation of Concrete.
- 3. Concrete Plant Manufacturers Bureau (CPMB):
 - a. 100 - Concrete Plant Standards.
 - b. 102 - Recommended Guide Specifications for Batching Equipment and Control Systems in Concrete Batch Plants.
 - c. Plant Mixer Manufacturers Division (PMMD) 100 - Concrete Plant Mixer Standards.
- 4. National Bureau of Standards (NBS) Specifications for Scales.
- 5. Truck Mixer Manufacturers Bureau (TMMB):
 - a. Truck Mixer, Agitator and Front Discharge Concrete Carrier Standards.

1.04 SUBMITTALS:

- A. Submit as specified in DIVISION 01.
- B. Include, but not limited to, product data and Shop Drawings of the following:
 - 1. Admixtures.
 - 2. Bonding agents.
 - 3. Curing agents.
 - 4. Waterstops.
- C. Mill Certificates:
 - 1. Submit to Engineer a minimum of one copy for each cement shipment.
- D. Concrete Mix Design Proportions:
 - 1. Submit as specified in PART 2, Paragraph 2.01.D. - Mix Proportions, this Section.
 - 2. Submit for each mix design, including aggregate gradation data.
 - 3. Resubmit for any change in each mix design.
- E. Production Test Reports: Submit as specified in DIVISION 01 and PART 2, Paragraph 2.01.E. - Measurement of Materials, this Section.

1.05 QUALITY ASSURANCE:

- A. Field Testing: Shall be performed by an ACI Concrete Field Testing Technician Grade 1.

PART 2 - PRODUCTS

2.01 CONCRETE:

- A. Materials:

SECTION 03300 – CONCRETE: continued

1. Portland cement Type I, II or I/II shall conform to ASTM C150. When cement contains fly ash, the maximum amount of fly ash shall not exceed 25 percent of the total cementitious materials by weight.
 - a. Fly ash shall be used as the pozzolan and be interground with the clinker in the manufacture of the cement. Fly ash shall conform to ASTM C618, Class F.
 - (1) When used, fly ash may be added by Supplier as a separate ingredient provided the Supplier has scales for dispensing fly ash that meet the requirements of Paragraph 2.01.E., this Part.
 - b. The maximum amount retained on the No. 325 sieve shall be 10% as determined in accordance with ASTM C430.
 - c. The maximum amount of alkalis ($\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$) shall be 0.60% determined in accordance with ASTM C114. A running average of three Samples shall not exceed a maximum of 0.50%.
 - d. Use one brand of cement throughout the Project unless otherwise approved by Engineer.
2. Fine Aggregate:
 - a. Conform to ASTM C33, except deleterious substances shall not exceed (by weight):
 - (1) Clay Lumps: 0.25%.
 - (2) Material Finer than No. 200 (75 μ) Sieve: 2.0%.
 - (3) Coal and Lignite: 0.25% except use sand containing not more than 0.05% coal and lignite when used in concrete for finished floor surfaces.
 - (4) Other Deleterious Substances: 0.25%.
 - b. Approved service record of 3 years with a history indicating that the fine aggregate is not chemically reactive.
 - c. For a new fine aggregate source, or when 3 years' approved service records are not available, or when the service records are unacceptable; the aggregate shall be evaluated for potential reactivity. Aggregate must be considered innocuous in accordance with petrographic examination by ASTM C295 and tests conforming to ASTM C289.
 - d. Fine aggregate considered deleterious or potentially deleterious shall not be used without approval.
 - e. Maintain fine aggregate free of ice and frozen lumps.
 - f. Fineness modulus shall be between 2.3 and 3.1.
3. Coarse Aggregate:
 - a. Conform to ASTM C33 except deleterious substances shall not exceed the following percentages (by weight):
 - (1) Clay lumps and friable particles..... 1.0.
 - (2) Shale or shale-like material..... 1.0.
 - (3) Coal and lignite..... 0.05.
 - (4) Material finer than No. 200 sieve..... 1.5.
 - (5) Sum of all deleterious material..... 3.0.
 - b. Approved service record of 3 years with a history indicating that the coarse aggregate is not chemically reactive.
 - c. For a new coarse-aggregate source, when 3 years' approved service records are not available, or when the service records are unacceptable; the aggregate shall be evaluated for potential reactivity. Aggregate must be considered innocuous in accordance with petrographic examination by ASTM C295 and tests conforming to ASTM C289.

SECTION 03300 – CONCRETE: continued

- d. Coarse aggregate considered deleterious or potentially deleterious shall not be used without approval.
- e. Blast furnace slag will not be permitted.
- f. Maintain coarse aggregate free of ice and frozen lumps.
- g. Grading Requirements:
 - (1) Size No. 57, from 1-inch (25-mm) to No. 4 (4.75-mm) sieve for all concrete unless otherwise specified.
- 4. Mixing Water:
 - a. Only potable water will be acceptable.
- 5. Admixtures:
 - a. Water-Reducing Type:
 - (1) Conform to ASTM C494, Type A.
 - (2) Conform to manufacturer's recommendations for use.
 - (3) Technical assistance of the manufacturer's field representative shall be furnished upon request.
 - b. Air-Entraining Type:
 - (1) Conform to ASTM C260.
 - (2) Conform to manufacturer's recommendations for use.
 - (3) Technical assistance of the manufacturer's field representative shall be furnished upon request.
 - (4) Testing of air-entraining admixtures shall conform to ASTM C233.
 - c. Other Admixtures: Use only with Engineer's written concurrence.
 - (1) Water-Reducing, Retarding Type: Conform to ASTM C494, Type D.
 - d. Admixtures shall not contain any chloride ions.
 - e. Storage: Admixtures shall be stored in such a manner as to avoid contamination, evaporation, freezing, temperature changes, settling, or any damage which would adversely affect their characteristics.
- B. Laboratory Testing of Materials for Use in Concrete:
 - 1. An approved independent testing laboratory shall be selected and paid by Contractor to perform all required laboratory tests of materials proposed for use in the production of concrete and to determine mix proportions when laboratory trial batches are required.
 - 2. Contractor shall deliver representative Samples of all proposed concrete materials to the laboratory for the following testing:
 - a. Fine Aggregate:
 - (1) ASTM C33 (as amended by PART 2, Paragraph 2.01.A. - Materials, this Section).
 - (2) ASTM C40.
 - (3) ASTM C88.
 - (4) ASTM C117.
 - (5) ASTM C136.
 - (6) ASTM C142.
 - (7) Fineness modulus.
 - b. Coarse Aggregate:
 - (1) ASTM C33 (as amended by PART 2, Paragraph 2.01.A. - Materials, this Section).
 - (2) ASTM C88.
 - (3) ASTM C136.
 - (4) ASTM C142.
 - c. Air-entraining admixture shall be tested conforming to ASTM C233.

SECTION 03300 – CONCRETE: continued

3. The laboratory test results shall be part of the design mix submittal specified in this PART 2, Paragraph 2.01.D. - Mix Proportions.
- C. Concrete Qualities Required:
1. Compressive Strength:
 - a. Minimum 28-day compressive strength = 4,500 psi (31,030 kPa) for all construction unless otherwise indicated.
 - b. Minimum 28-day compressive strength = 2,000 psi (13,789 kPa) for fill concrete and seal coats.
 - c. Compressive-strength determinations shall be made from 6-inch (150-mm) diameter by 12-inch (300-mm) long concrete cylinders tested in accordance with ASTM C39.
 2. Slump of concrete shall be between 2 inches (50 mm) and 4 inches (100 mm) as tested in accordance with ASTM C143.
 3. Air Content:
 - a. 6% \pm 1.5% unless otherwise indicated or specified.
 - b. Testing shall be in accordance with ASTM C231.
 4. Water-Cement Ratio:
 - a. In addition to the aforementioned requirements, water-cement ratios shall be limited as follows:
 - (1) 0.45 for all concrete unless otherwise specified.
- D. Mix Proportions:
1. Concrete shall be homogeneous, readily placeable, uniformly workable, and finishable; proportioned to conform to ACI 211.1.
 2. Mix proportions for all concrete, unless otherwise specified, shall be selected preferably on the basis of field experience; but in the case where sufficient or suitable strength test data is not available, concrete shall be proportioned on the basis of laboratory trial mix design.
 - a. Field experience using test results within the preceding year, with the materials and plant to be employed may be the basis of mix proportioning, provided that not less than 30 consecutive satisfactory compressive-strength tests on concrete using the proposed materials with a similar mix are available. A compressive-strength test is defined as the average 28-day compressive strength of two companion cylinders made conforming to ASTM C172 and ASTM C31 and tested conforming to ASTM C39.
 - (1) The standard deviation of compressive-strength tests shall be computed as a basis for design of the mix. The design average compressive strength shall exceed the specified strength by at least:
 - (a) 400 psi (2,760 kPa) if standard deviation is less than 300 psi (2,070 kPa).
 - (b) 550 psi (3,800 kPa) if standard deviation is 300 to 400 psi (2,070 to 2,760 kPa).
 - (c) 700 psi (4,830 kPa) if standard deviation is 400 to 500 psi (2,760 to 3,450 kPa).
 - (d) 900 psi (6,200 kPa) if standard deviation is 500 to 600 psi (3,450 to 4,140 kPa).
 - (e) 1,200 psi (8,275 kPa) if standard deviation is greater than 600 psi (4,140 kPa).
 - (2) Submit the following test data to Engineer for approval prior to placing concrete:

SECTION 03300 – CONCRETE: continued

- (a) Fine Aggregate:
 - 1). ASTM C33.
 - 2). ASTM C40.
 - 3). ASTM C88.
 - 4). ASTM C117.
 - 5). ASTM C136.
 - 6). ASTM C142.
 - 7). Fineness modulus.
 - (b) Coarse Aggregate:
 - 1). ASTM C33.
 - 2). ASTM C88.
 - 3). ASTM C136.
 - 4). ASTM C142.
 - (c) Cement:
 - 1). Mill certificate.
 - 2). ASTM C430.
 - (d) Concrete:
 - 1). Fine and coarse aggregate, water and cement sources.
 - 2). Mix proportions, slump and air content.
 - 3). Data on 30 consecutive satisfactory compressive strength tests and standard deviation calculations.
- b. Laboratory Trial Batch: When laboratory trial batches are used as a basis for determining mix proportions, all such Work shall be performed by the laboratory as specified in PART 2, Paragraph 2.01.B. - Laboratory Testing of Materials for Use in Concrete, this Section.
- (1) Laboratory trial batches shall be used to establish a water-cement ratio, compression-strength curve with at least three points, each representing the strength of a separate trial batch. At least one point shall be above and one below the strength required. Each point on the curve shall represent the average of at least three cylinders tested at 28 days or an earlier age when approved by Engineer. The slump and air content shall be at the maximum limits specified in PART 2, Paragraph 2.01.C. - Concrete Qualities Required, this Section.
 - (2) A point on the water-cement ratio, compressive-strength curve shall be selected that will provide an average compressive strength at least 1,200 psi (8,275 kPa) greater than the specified minimum strength.
 - (3) Submit the following test data to Engineer for approval prior to placing concrete.
 - (a) Fine Aggregate:
 - 1). ASTM C33.
 - 2). ASTM C40.
 - 3). ASTM C88.
 - 4). ASTM C117.
 - 5). ASTM C136.
 - 6). ASTM C142.
 - 7). Fineness modulus.
 - (b) Coarse Aggregate:
 - 1). ASTM C33.
 - 2). ASTM C88.

SECTION 03300 – CONCRETE: continued

- 3). ASTM C136.
- 4). ASTM C142.
- (c) Cement:
 - 1). Mill certificate.
 - 2). ASTM C430.
- (d) Concrete:
 - 1). Fine and coarse aggregate, water and cement sources.
 - 2). Laboratory mix proportions, slump and air content.
 - 3). Water-cement ratio, compressive-strength curve.
3. Prior to placing any concrete, the laboratory selected by Contractor shall report the results of the testing and mix designs to the following:
 - a. Engineer, Kansas City Office (one copy).
 - b. Resident Project Representative, Field Office (one copy).
 - c. Contractor (copies as required).
 - d. Concrete Supplier (copies as required).
- E. Measurement of Materials:
 1. General Requirements:
 - a. Conform to ACI 304R.
 - b. Beam or springless dial-type scale conforming with NBS - "Specifications for Scales."
 - c. Volumetric measurement of water shall be performed with an approved automatic valve.
 2. Concrete Plant Scale Accuracy and Calibration Frequency:
 - a. The concrete plant scales shall be accurate to $\pm 0.4\%$ of the capacity of the scale.
 - b. The scales shall be calibrated at intervals as specified in PART 3, Article 3.08 - Testing, this Section.
 3. Individual Batch Accuracy:
 - a. Cement: $\pm 1.0\%$.
 - b. Water: $\pm 1.0\%$ by volume or weight.
 - c. Aggregates: $\pm 2.0\%$.
 - d. Admixtures: $\pm 3.0\%$ by volume or weight.
 - e. Fly Ash: $\pm 1.0\%$.
- F. Mixing and Delivery:
 1. Conform to ACI 304R.
 2. Cement temperature, when added to mix, shall not exceed 170°F (77°C).
 3. Adjust the amount of mix water to compensate for the moisture content of the aggregates.
 4. Concrete Plant:
 - a. Conform to "Concrete Plant Mixer Standards" of the Plant Mixer Manufacturers Division, Concrete Plant Manufacturers Bureau, and "Concrete Plant Standards" of the Concrete Plant Manufacturers Bureau.
 - b. Charge with 5% to 10% of the mixing water both in advance and after the addition of aggregates and cement.
 - c. Charge with remaining water uniformly with the other materials.
 - d. Avoid charging in excess of manufacturer's rating.
 - e. Discharge mixed concrete completely prior to recharging.
 - f. Mixing Time:
 - (1) Start immediately when all ingredients, except the last of the water, are in the mixer.

SECTION 03300 – CONCRETE: continued

- (2) Minimum mixing time shall conform with mixer manufacturer's instructions, but not be less than the following:

<u>Capacity of Mixer Cubic Yards</u>	<u>Minimum Time of Mixing</u>
1 or less.....	1 minute
2.....	1 minute, 15 seconds
3.....	1 minute, 30 seconds
4.....	1 minute, 45 seconds
5.....	2 minutes
6.....	2 minutes, 15 seconds

Add 15 seconds' mixing time for each additional cubic yard of concrete.

5. **Mixing of Concrete at Plant Off Jobsite:**
- a. Mix concrete in central mixer or truck mixer. Transport in truck mixer turning at agitation speeds only.
 - b. Water added to concrete having a slump below the specified minimum shall be at Contractor's risk. If the water added produces a slump greater than the specified maximum, the concrete will be rejected. If water is added, the concrete shall be remixed for a minimum of 25 revolutions. Water shall not be added after the truck mixer has begun to discharge concrete.
 - c. Truck mixer shall conform to "Truck Mixer, Agitator, and Front Discharge Concrete Carrier Standards" of the Truck Mixer Manufacturers Bureau.
 - d. Ready-mixed concrete shall be produced and delivered conforming to ASTM C94 as applicable.
 - e. Contractor shall furnish Owner with a concrete delivery ticket for each load of concrete. The ticket shall have the following information recorded:
 - (1) Serial number of ticket.
 - (2) Time batched.
 - (3) Time arrived on jobsite.
 - (4) Amount of concrete (by volume).
 - (5) Mix number.
 - (6) Amount of all water added at jobsite by Contractor.
 - (7) Name of ready-mix batch plant.
 - (8) Date.
 - (9) Truck number.
 - (10) Name of purchaser.
6. Plant and truck mixer uniformity shall be tested according to ASTM C94. Frequency of tests shall be as specified in PART 3, this Section.

2.02 BONDING AGENT:

- A. Provide moisture-insensitive, epoxy-resin bonding agent conforming to ASTM C881, Type V.

2.03 CURING AGENT:

- A. Apply to all concrete surfaces unless otherwise indicated or specified.
- B. Curing agent shall conform as follows:
- 1. ASTM C309, Type 1: Use where concrete surface is not exposed to direct sunlight after placement.

SECTION 03300 – CONCRETE: continued

2. ASTM C309, Type 1-D: Use where slabs are exposed to direct sunlight for a period of seven days minimum after placement. Curing and sealing agent with fugitive dye shall be readily distinguishable upon the concrete surface for at least four hours after application but shall be inconspicuous within seven days after application.
3. ASTM C309, Type 2: Use as specified in PART 3, Article 3.05 - Hot Weather Concreting, this Section.
- C. Curing compound used on floors to be sealed, painted, tiled, topped, dampproofed, waterproofed, or covered with resilient floor covering shall be guaranteed not to interfere with application of sealer, paint, tile mortar, or tile adhesive after a 28-day curing period.
- D. Curing compound shall be VOC compliant with a maximum VOC content of 2.9 lbs./gal (350 g/L), or less where Project location regulations are more stringent.

2.04 CONCRETE ACCESSORIES:

- A. PVC Waterstops:
 1. 6-inch ribbed serrated virgin polyvinyl chloride equal to one of the following:
 - a. Greenstreak, Inc. - Greenstreak Style 679.
 - b. Vinylex Corporation - R6-38.
 - c. Southern Metals - 17FR.
 2. Provide factory fabricated waterstop corner transitions and intersections leaving only straight butt joint splices for the field.
 3. Waterstops shall be provided with factory-installed hog rings at 12-inch centers along each flange.
 4. Use for all locations as indicated on the drawings.

PART 3 - EXECUTION

3.01 PREPARATION FOR CONCRETE PLACEMENT:

- A. Openings Through Concrete: Provide openings through concrete as indicated and for the proper installation of all equipment, piping, wiring, ductwork and similar items, installed under this Contract.
- B. Installation of Embedded Items:
 1. Provide for accurate installation of embedded items installed under this Contract.
 2. Embedded items shall be as indicated or specified, or as selected by Contractor and approved by Engineer.
 3. During cold weather, protect pipe sleeves from moisture which may freeze, expand, and crack the sleeve and concrete structure.
 4. Grease or tape anchor bolt threads to protect from concrete splatter.
- C. Installation of Joints:
 1. Construction Joints:
 - a. Location:
 - (1) Locate joints, which are not indicated or specified, in conformance with ACI 318.
 - (2) Obtain Engineer's approval of joints located by Contractor prior to preparation of reinforcing steel drawings.
 - b. Preparation and Installation:
 - (1) Clean and break laitance or other foreign material from bonding surface.
 - (2) Tighten forms remaining in place (where applicable) to prevent seepage between forms and hardened concrete.

SECTION 03300 – CONCRETE: continued

- (3) Provide waterstops and shear keys as indicated or specified and as required in any new construction joint requested by Contractor.

D. Cutting and Bonding to Existing Concrete:

1. Cutting Existing Concrete:
 - a. Use methods and equipment that will avoid damage to adjacent parts of the structure from heavy blows or vibration.
 - b. Cut existing concrete with power concrete saw where possible to prevent spalling and chipping and to form neat, straight edge.
 - c. Remove all loose or cracked concrete resulting from cutting existing concrete, leaving only sound, undamaged concrete adjacent to new Work.
 - d. Leave access opening edges with a neat, true grout surface to the opening size indicated.
2. Bonding to Existing Concrete:
 - a. Roughen concrete to 1/4-inch (6-mm) amplitude by use of a pneumatic chipping hammer or other approved means.
 - b. Thoroughly clean the concrete surface and apply the bonding agent in accordance with manufacturer's written instructions.

3.02 PLACING OF CONCRETE:

A. Conventional Placing:

1. General Requirements:
 - a. Conform to ACI 304R.
 - b. Bonding surfaces, including reinforcement, shall be clean, free of laitance and foreign materials.
 - c. Face horizontal bonding surfaces with 1-inch (25-mm) thick coat of fresh "grout for bonding." Wet all other surfaces.
 - d. Place concrete on properly prepared and unfrozen subgrade and only in dewatered excavation and forms.
 - e. Use forms for all concrete except where otherwise indicated or specified. (Footings entirely below grade may be earth formed.)
 - f. Do not place concrete that has partially hardened or has been contaminated by foreign materials.
 - g. Prevent mud or foreign materials from entering the concrete or forms during placement operations.
2. Conveying:
 - a. Convey concrete from the mixer and deposit in place by methods which will prevent the segregation or loss of materials.
 - b. Equipment for chuting, pumping, and pneumatically conveying concrete shall be of such size and design as to provide a practically continuous flow of concrete at the delivery end.
 - c. Aluminum conveying equipment shall not be used.
3. Depositing:
 - a. Place concrete in continuous horizontal lifts not to exceed 2 feet (600 mm), and place concrete against bulkheads and keyways at vertical joints.
 - b. Maximum free drop of concrete and grout for bonding shall be 5 feet (1.5 meters), in walls 10 inches (250 mm) or less in thickness, with 1-foot (300-mm) additional drop allowed for each inch (25 mm) of wall thickness over 10 inches (250 mm), with a maximum drop of 10 feet (3 meters).
4. Consolidation of Concrete:

SECTION 03300 – CONCRETE: continued

- a. Consolidate concrete in conformance with ACI 309R. Characteristics and application of concrete vibrators shall be as set forth in Table 5.1.5.
 - b. Provide an adequate number of vibrators of sufficient capacity to keep up with the maximum rate of concrete placement. Keep on hand adequate standby equipment in good operating condition.
 - c. Vibrate concrete only until the concrete is thoroughly consolidated and the voids filled, as evidenced by the leveled appearance of the concrete at the exposed surface and the embedment of the surface aggregate.
 - d. Insert internal vibrators vertically to the full depth of the layer being placed and into the previous layer. Do not drag vibrators through the concrete. Insert and withdraw vibrator slowly with the vibrator running continuously so that no hole will be left in the concrete. Do not flow concrete from one location to another by use of a vibrator.
 - e. Consolidate concrete layer to full depth when using a surface vibrator. Use thinner layers or a more powerful vibrator if necessary to achieve complete consolidation.
 - f. Use form vibrators only where sections are too thin or where sections are inaccessible for internal vibrators.
5. Time Requirements:
- a. Place concrete at a sufficient rate to assure that lifts below have not taken initial set before fresh concrete is deposited.
 - b. Place concrete within 45 minutes after mixing. This period may be extended to 1 hour and 30 minutes provided that the combined air temperature, relative humidity, and wind velocity are such that the plasticity of the fresh concrete is satisfactory for placement and consolidation, and that the specified mixing water is not exceeded. Concrete which has partially set shall not be retempered but shall be discarded.
- B. Placing Concrete at Joints:
1. Bed horizontal joints with 1 inch (25 mm) of grout for bonding.
 2. Take precautions to ensure tight, well-bonded construction joints with no air pockets or voids.
 3. Delay construction at a joint a minimum of 16 hours where placement is continued past joint, except where otherwise indicated.
- 3.03 FINISHING:
- A. Unformed Surfaces:
1. Screed Finish:
 - a. Use as first stage for all concrete finishes.
 - b. Immediately after screeding, use a wood float, darby, or bullfloat to eliminate high and low spots and to embed large aggregate. This shall be done in a manner to produce even, uniform surfaces so that surface irregularities do not exceed 3/8 inch in 10 feet (9 mm in 3 meters) when used as final finish.
 2. Floated Finish:
 - a. Use as second stage of troweled finish.
 - b. Float with mechanical float. Hand floating will be permitted only in areas inaccessible to mechanical float.
 3. Troweled Finish:
 - a. Use as final finish on all unformed surfaces not otherwise indicated or specified.
 - b. Trowel with mechanical steel trowel to obtain a smooth, dense finish. Hand steel trowel shall be used in areas not accessible by mechanical trowel. The final

SECTION 03300 – CONCRETE: continued

troweling shall be done after the concrete has become hard enough so that no mortar adheres to the edge of trowel and a ringing sound is produced as the trowel passes over the surface.

- c. Do not trowel before surface water has evaporated or has been removed with a squeegee.
 - d. Do not add sand or cement to the floor surface.
- B. Formed Surfaces:
1. Repair surface defects as specified in PART 3, Paragraph 3.03.C. - Repair of Defective Surfaces, this Section.
- C. Repair of Defective Surfaces:
1. Defined as any concrete surface showing misalignment, rock pockets, poor joints, holes from ties, voids, honeycomb, or any other defective area.
 2. Repairing:
 - a. Repair as soon as forms have been removed.
 - b. Chip surface back to minimum depth of 1/2 inch (13 mm), chip edges perpendicular to surface, prewet depression and brush with neat cement immediately before patching.
 - c. Patch surfaces using stiff mortar with same sand-cement ratio as original concrete and with minimum water for placing. Blend with white cement to match concrete color.
 - d. Compact mortar into depressions so that after curing, hole is filled and mortar is flush with surface. Use hammer and ramming rod for compacting the holes.
 - e. Moist-cure for 3 days or use curing compound.
 - f. Engineer shall be notified of areas containing defects or where reinforcing steel is exposed, prior to determination of repair method.

3.04 CURING:

- A. Cure concrete by one of the following methods in accordance with ACI 308.1:
1. Leaving in forms for a minimum of 7 days. Keep formwork wet to prevent drying of concrete surfaces.
 2. Use of saturated bats, soaker hoses, or sprinkler for a minimum of 7 days. Keep concrete continuously wet.
 3. Using polyethylene sheets applied in full contact with surfaces.
 4. Using one coat of a liquid membrane forming compound as specified. Apply immediately after removal of forms (which have been continuously wet); or in case of a slab, after the concrete has been finished and is hardened sufficiently to walk on.
 5. Curing of concrete during hot or cold weather shall conform to PART 3 - Hot Weather Concreting and Cold Weather Concreting, this Section.

3.05 HOT WEATHER CONCRETING:

- A. Follow the recommendations of ACI 305R if any of the following conditions occur:
1. When the temperature is 90°F (32°C) or above.
 2. When the temperature is likely to rise above 90°F (32°C) within the 24-hour period after concrete placement.
 3. When there is any combination of high air temperature, low relative humidity, and wind velocity which would impair either concrete strength or quality.
- B. Concrete shall have a maximum temperature of 85°F (29°C) during placement.
- C. Dampen subgrade and forms with cool water immediately prior to placement of concrete.

SECTION 03300 -- CONCRETE: continued

- D. Protect freshly placed concrete immediately after placement so that the rate of evaporation as determined by ACI 305R (Figure 2.1.5) does not exceed 0.2 pound per square foot (1.0 kg per square meter) per hour.
- E. Protect concrete with suitable insulation if rapidly decreasing nighttime temperatures occur, which would cause thermal shock to concrete placed during warm daytime temperatures.
- F. Protect the concrete with temporary wet covering during any appreciable delay between placement and finishing.
- G. Begin curing unformed surfaces immediately after finishing and continue for 24 hours. Curing shall consist of application and maintenance of water-saturated material to all exposed surfaces; horizontal, vertical, and otherwise. After the 24-hour interval, continue curing using one of the following methods:
 - 1. Moist curing for 6 days.
 - 2. Application of one coat of curing compound as specified.
 - 3. Application and maintenance of curing paper or heat-reflecting plastic sheets for 6 more days.
- H. Begin curing formed concrete immediately after placing. Curing shall consist of keeping forms continuously wet for 24 hours. Thereafter, continue curing using one of the following methods:
 - 1. Loosen forms and position soaker hose so that water runs down along concrete surfaces. Continue for 6 days.
 - 2. Strip forms and apply curing compound as specified. Do not allow concrete surfaces to dry prior to application of curing compound.

3.06 COLD WEATHER CONCRETING:

- A. When the temperature is 40°F (4.4°C) or is likely to fall below 40°F (4.4°C) during the 24-hour period after concrete placement, follow the recommendations of ACI 306R to prevent loss of concrete strength or quality.
- B. Minimum temperature for concrete as mixed shall be as indicated on lines 2, 3, and 4 of Table 5.1 of ACI 306R. Maximum temperature for concrete as mixed shall be 10°F (5.6°C) greater than the corresponding minimum temperature.
- C. Place and maintain concrete so that its temperature is never less than the temperature indicated on line 1 of Table 5.1 of ACI 306R. Maintain the required temperature for the time duration indicated on Table 5.1 of ACI 306R.
- D. Monitor temperature of concrete in place at corners or edges of formwork as applicable.
- E. Air Heaters:
 - 1. Do not expose concrete to carbon monoxide or carbon dioxide fumes from heaters or engines.
 - 2. Oil- or coke-burning salamanders will not be permitted.
 - 3. Heaters shall be ultramatic portable heaters made by the Union Chill Mat Company or Engineer approved equal.
 - 4. Personnel shall be present at all times to maintain safe, continuous operation of heating system.
- F. Control temperature and humidity of protected concrete so that excessive drying of concrete surfaces does not occur.
- G. Calcium chloride will not be permitted as a concrete accelerator or to thaw frozen subgrade prior to concrete placement.
- H. The maximum allowable temperature drop during the first 24-hour period after protection is discontinued shall be as indicated on Table 5.1 of ACI 306R.
- I. Cure the concrete in accordance with Chapter 10 of ACI 306R.

SECTION 03300 – CONCRETE: continued

3.07 LOW-STRENGTH CONCRETE:

- A. Low-Strength Concrete:
 - 1. Defined as either:
 - a. Concrete whose average, of any sets of three consecutive 28-day compressive strength tests, is below the required 28-day strength.
 - b. Concrete whose individual 28-day strength test (average of two cylinders) is more than 500 psi (3450 kPa) below the required 28-day strength.
 - 2. Should concrete meet either definition of low-strength concrete as a minimum, the Contractor shall take the following steps:
 - a. Increase the cement content. The increase shall be based on a statistical evaluation of the strength data, the design water-cement ratio, compressive-strength curve, and acceptable mix-design literature as follows:
 - (1) If sufficient concrete has been furnished to accumulate 30 tests, these should be used to establish a new target average strength in accordance with ACI 318, Section 5.3.
 - (2) If less than 30 tests have been made, the new target average strength should be at least as great as the average strength used in the initial selection of the mix proportions. Increase the target average strength based on a statistical evaluation of the available strength data, the design water-cement ratio, compressive-strength curve, and acceptable mix-design literature. If the statistical average equals or exceeds the initial mix-design level, a further increase in the average level is required.
 - b. Remove and replace with acceptable concrete when the quality and location of the low-strength concrete is such that Engineer considers the strength or durability of the structure is impaired and so orders.
 - 3. Low-strength concrete shall be considered defective Work as defined in General Conditions.
- B. Potentially Low-Strength Concrete: Defined as concrete whose 7-day test (average of two cylinders) is less than 70% of the specified minimum 28-day compressive strength.

3.08 TESTING:

- A. Field Testing of Concrete Plant and Mixing Trucks:
 - 1. The concrete plant shall be inspected and tested to ensure conformance with ACI 304R and the "Concrete Plant Standards of the Concrete Plant Manufacturers Bureau." The scales shall be calibrated at the initial setup and at 3-month intervals thereafter.
 - 2. Mixing trucks shall be inspected and tested to ensure conformance with ACI 304R and "Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers Bureau" of the National Ready-Mix Concrete Association. Tests shall be done at initial setup and every 3 months thereafter.
 - 3. Submit test reports when requested.
- B. Field Testing of Concrete and Making of Concrete Test Cylinders:
 - 1. Contractor shall furnish test equipment, test cylinder molds, and certified personnel to perform all required field tests, make the required concrete test cylinders, and deliver test cylinders to the testing laboratory. The prescribed tests shall be made in the presence of or with the concurrence of the Owner.
 - 2. Field testing personnel shall be on Site throughout placement of concrete.
 - 3. Concrete sampling for tests and cylinder making shall be done conforming to ASTM C172. Samples shall be taken at random and at the point of truck discharge.
 - 4. Perform the following tests:

SECTION 03300 – CONCRETE: continued

- a. Moisture content, ASTM C566. Perform this test a minimum of twice a day and adjust the amount of mix water to compensate for the moisture content of the aggregates.
 - b. Prepare test cylinders conforming to ASTM C31, with not less than one set of cylinders (four cylinders) from each day's placement for each 100 cubic yards (75 cubic meters) or fraction thereof.
 - c. Slump test conforming to ASTM C143. Perform tests on the first batch produced each day, for every 50 cubic yards (38 cubic meters) or fraction thereafter, and with every set of test cylinders. Additional tests shall be run when directed by Engineer.
 - d. Air content test conforming to ASTM C231. Perform for first batch of day and with each set of test cylinders.
 - e. The batch of concrete being tested for slump or air content shall not be placed until acceptable results are obtained.
 - f. Discard concrete used for slump and air tests.
 - g. Perform concrete and air temperature tests for first batch of day and with each set of test cylinders. Additional readings shall be taken when directed by Engineer.
 - h. Any batch of concrete with slump or air content not in conformance with Specifications shall be rejected.
 - i. Furnish slump, air content, and temperature test results to the testing laboratory for inclusion in the cylinder test reports.
- C. Laboratory Testing of Aggregates and Concrete During Construction:
1. An independent testing laboratory will be selected and paid by the Owner to perform the required laboratory tests and statistical evaluations of aggregates and concrete being used in the Work.
 2. Laboratory will cure and test concrete cylinders conforming to ASTM C192 and C39, testing two cylinders at 7 days of age and two at 28 days of age.
 3. Contractor shall have the right to observe all phases of concrete cylinder curing and testing. Should Contractor observe any deviations from the prescribed testing procedures that he considers detrimental to concrete strength test results, he shall immediately notify Owner in writing.
 4. Contractor shall assist laboratory in obtaining Samples of fine and coarse aggregate for testing.
 5. Contractor shall make arrangements with the testing laboratory to receive copies of test reports. The cost of providing a maximum of two copies of each report to the Contractor will be paid by Owner.
 6. Should the test results indicate low strength concrete as defined in PART 3, Article 3.07 - Low-Strength Concrete, this Section, Contractor shall take immediate corrective action.
 7. Should the statistical data indicate an excessive margin of safety, the concrete mix may be modified subject to Engineer's approval.
 8. Should the material tests taken during construction indicate nonconformance with the Specifications, Contractor shall take immediate corrective action.

3.09 REPAIR, REPLACEMENT, AND FIELD MODIFICATIONS:

- A. Embedded items and concrete that are misplaced or damaged during construction shall not be repaired, replaced, or field-modified without approval of Engineer.

END OF SECTION 03300

SECTION 03370 – SEWER MANHOLE CONSTRUCTION

PART 1 - GENERAL

1.01 **SCOPE.** This section covers standard sanitary sewer manholes. Standard manholes shall be constructed complete with covers, fittings, and other appurtenances, in accordance with the details indicated on the Figures at the end of this section.

1.02 **SPECIFICATION MODIFICATIONS.** It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 - Specific Project Requirements, or as otherwise indicated on the Contract Drawings.

1.03 RELATED SECTIONS

Section 01015 – Specific Project Requirements
Section 01300 - Submittals
Section 02200 – Earthwork
Section 02702 – Sewer Pipe and Manhole Testing
Section 03000 - Miscellaneous Concrete
Section 05010 - Manhole Construction Castings

1.04 **CODES AND STANDARDS.** The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. The version of the codes and standards in effect at the time of the Notice to Bidders shall be used, except as noted on the Drawings or in the Specific Project Requirements section of these specifications.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICES (AASHTO)

Standard Specifications for Highway Bridges

ASTM INTERNATIONAL (ASTM)

ASTM A185	Standard Specification for Steel Welded Wire Reinforcement, Plain Concrete
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM C109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
ASTM C191	Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C827	Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures
ASTM C923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
ASTM C990	Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

ASTM C1107
ASTM D4796

Standard Specification for Packaged Hydraulic Cement Grout
Standard Specification for Polyethylene Plastics Molding and
Extrusion Materials

1.05 QUALITY ASSURANCE. Install specified materials by a licensed underground utility contractor licensed for such work in the state of Missouri. Installing Contractor's License shall be current and be state certified or state registered.

1.06 CONTACTOR SUBMITTALS. Submit the following in accordance with Section 01300:

A. Shop Drawings

1. Drawings
2. Precast concrete manhole

B. Product Data

1. Manufacturer's catalogue data for HDPE adjusting ring
2. Manufacturer's product data and installation instructions for non-shrink grout.
3. Manufacturer's product data and installation instructions for external or internal sealing systems.
4. Manufacturer's product data and installation instructions for frame sealing system.

C. Test Reports

D. Certificates

1. Certification from precast manufacturer that Con^{mic}Shield® with CONTINT was used in the fabrication process

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING.

- A. Cement, Aggregate, and Reinforcement: As specified in Section 03000.
- B. Handle materials and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Take special care not to damage linings. If lining is damaged, make satisfactory repairs. Carry, do not drag, pipe to trench.
- C. Non-shrink grout: Deliver Materials to project in Manufacturer's original, unopened packaging, with labels clearly identifying product name, Manufacturer, and expiration date. Store grout in a cool, dry place, out of the sun.

- D. Precast concrete sections shall not be delivered to the job until the concrete control cylinders have attained a strength of at least 80 percent of the specified minimum.
- E. Precast concrete sections shall be handled carefully and shall not be bumped or dropped. Hooks shall not be permitted to come in contact with joint sections.
- F. Precast concrete sections shall be inspected when delivered. All cracked or otherwise visibly defective units will be rejected. City reserves the right to inspect the production of the units at the manufacturing plant.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE MANHOLES.

- A. Precast concrete manholes risers, base sections and tops shall conform to ASTM C478.
- B. The inside diameter of the manhole shall be as follows:

Maximum Pipe Size (inches)	Manhole Diameter (feet)	Min. Manhole Frame Clear Opening (inches)
12 to 24	4.0	24.0
27 to 36	5.0	30.0
42 to 48	6.0	30.0

- C. When connecting pipe sizes exceed 48 inches in diameter, manholes shall be specially designed.
- D. Reducing sections may be used at six (6) feet or more above the invert.
- E. Minimum wall thickness for risers not less than one-twelfth (1/12) of inside diameter plus one inch, or five (5) inches, whichever is greater.
- F. The diameter of the base pad shall be a minimum of eight (8) inches greater than outside diameter of the manhole.
- G. Precast concrete manholes shall be constructed with developed bases in accordance with Standard Detail MH-DB unless prior approval is obtained from CITY.
- H. Con^{mic}Shield® with CONTINT shall be added to all precast manholes in accordance with the manufacturer's recommendations.

- I. Cone Sections shall be eccentric unless otherwise specified. The minimum wall thickness shall be as specified for riser sections.
- J. All required pipe openings shall be plant cast unless otherwise noted.
- K. Resilient Connectors: Pre-cast base sections shall be provided with circular openings, with continuous, circular, resilient connectors cast into the wall. Resilient connectors shall be installed in accordance with the manufacturer's recommendations, except that connectors shall be positioned so that sealing or resealing operations may be accomplished from inside the manhole.
- L. Pre-cast sections may be provided with lifting notches on the inside faces of the walls to facilitate handling. Lifting notches shall be not more than 3 inches deep; holes extending through the wall will not be acceptable.
- M. If precast base sections are provided with integral concrete invert fill, a roughened surface shall be provided to improve the bond with the final invert fill. A minimum of 2 inches of the concrete invert fill shall be installed in the field.

2.02 MANHOLE ADJUSTMENT RINGS.

- A. Adjusting rings shall be designed to withstand the wheel loading requirements of AASHTO HS20.
- B. Adjusting rings shall be designed and fabricated to withstand deterioration and degradation when exposed to hydrogen sulfide.
- C. Acceptable Manufacture's include the following:
 - 1. Cretex Pro Ring
 - 2. EJ Infrariser

2.03 RESILIENT MANHOLE/PIPE CONNECTORS.

- A. Pipe openings shall contain flexible gaskets conforming to the requirements of ASTM C923.
- B. Mortar connections will be allowed only if prior approval has been given by the CITY.
- C. Acceptable Manufacturer's include the following:
 - 1. Press-Seal Gasket Corporation
 - 2. A-Lok Products Inc.
 - 3. CITY approved equal.

D. When RCP is used with A-Lok gasket, the barrel of the RCP shall be lubricated to prevent damage to the gasket during insertion. When PSX gaskets are used, the take-up screws for the gasket clamps shall be positioned a minimum of 90° apart. The specific type of gasket approved for each diameter is referenced in the table below.

Pipe Diameter (in.)	PSX	A-LOK	A-LOK: X-CEL
8	Yes	Yes	Yes
10	Yes	Yes	Yes
12	Yes	Yes	Yes
15	Yes	Yes	No
18	Yes	Yes	No
21	Yes	Yes	No
24	Yes	Yes	No
27	Yes	Yes	No
30	Yes	Yes	No
36	Yes	Yes	No
42	Yes	Yes	No
48	Yes	Yes	No

2.04 JOINT SEALANTS.

A. Joints shall be sealed using preformed flexible joint sealants conforming to ASTM C990. The minimum bead dimension shall be an inch.

2.05 EXTERNAL MANHOLE JOINT SEAL

A. External manhole seals shall be used on new manhole installations, replacements, or when project conditions allow for excavation of the manhole sections and shall be minimum of 9”wide .

B. Heat Shrinkable Wrap-around Sleeves: Acceptable products include the following:

1. CCI Pipeline Systems: WrapidSeal™
2. City approved equal.

C. External Joint Banding Systems

1. Infi-Shield®: External Gator Wrap
2. Mar Mac Construction Products, Inc.: MacWrap External Sealing Band

3. Cretex Specialty Products: Cretex Wrap

4. CITY approved equal.

D. Materials for external manhole seals shall be able to withstand hydrogen sulfide and other corrosive gases found in sewers.

2.06 INTERNAL MANHOLE SEAL

A. Internal manhole seals shall be used when project conditions prevent the use of external manhole seals, or at the direction of the City.

B. Acceptable products for internal manhole seal shall include the following:

1. Cretex: Internal Joint Seal

2. CITY approved equal.

C. Materials for internal manhole seals shall be able to withstand hydrogen sulfide and other corrosive gases found in sewers.

2.07 FRAME AND CHIMNEY SEALING SYSTEM

A. External Frame Chimney Seal

1. CCI Pipeline Systems: Wrapid Seal

2. Infi-Shield: Uniband

3. City pre approved equal

B. Internal Seal: Internal sealing system for manhole frames and chimneys shall be as specified in Paragraph 2.06.

C. Grade Ring Liner:

1. WaterLOK Grade Ring Liners as manufactured by ALOK Products, Inc.,

2. I&I Barriers as manufactured by Strike Tool Inc.

3. City pre approved equal.

Refer to details below for Paved and Un-Paved Areas.

(NOTE) Manholes in paved areas shall be sealed with an Approved External Chimney seal and an Approved Grade Ring Liner.

2.08 FRAMES, COVERS AND GRATINGS FOR MANHOLES. Shall conform to Section 05010 – Manhole Castings.

2.09 NON-SHRINK GROUT

- A. Non-shrink grout shall conform to ASTM C1107, Grades B and C.
- B. Non-shrink grout shall be in the plastic state and show no expansion after set as tested in accordance with ASTM C827 and shall develop compressive strength not less than three thousand (3,000) psi with a trowelable mix within twenty-four (24) hours per ASTM C109. The placement time shall be not less than forth-five (45) minutes based on initial set per ASTM C 191.
- C. Acceptable Manufacture's
 - 1. Conshield Joint Set

2.10 WATERPROOFING ADDITIVE. Waterproofing additive shall be added at concrete plant and shall be:

- 1. Crystal-X as manufactured by Conshield.
- 2. Xypex as manufactured by Xypex Chemical

2.10 CASTINGS. See Standard Specification 05010.

PART 3 - EXECUTION

3.01 MANHOLE EXCAVATION, BACKFILL & COMPACTION

- A. Excavation, backfill and compaction for manholes shall be in accordance with Section 02200 – Earthwork and as described herein.
- B. Excavation, backfill and compaction operation shall be achieved in a suitable and orderly manner providing a minimum disturbance to the general public.
- C. Depth of excavation shall be to that required for proper installation of the manhole or structure. Over-depth excavation may be required if the subgrade is unsuitable or unstable. Over-depth excavation due to unsuitable or unstable subgrades shall be backfilled as required by the City's Representative. Over-depth excavation occurring through an oversight by the Contractor shall be backfilled as required by the City's Representative at no additional cost to the Owner.
- D. Side clearance outside the manhole and/or structures shall be no greater than to allow for forming, connection of piping, proper application of special coatings, and access for inspection. When concrete is to be placed directly against excavated faces, excavation shall be sufficiently outside of the manhole or structure to provide not less than three (3) inches of concrete cover over the steel reinforcement.

3.02 MANHOLE INSTALLATION

A. Bases

1. If developed bases cannot be used, poured concrete bases shall be used. Cast-in-place concrete bases shall have a minimum thickness of eight (8) inches. Concrete shall be placed on undisturbed earth in accordance with requirements of Section 03000. The bottom wall section shall be embedded in the base section a minimum of four (4) inches.
2. The bottom precast wall section shall not be used for supporting or leveling the other wall sections prior to pouring the base.
3. Concrete blocks shall be used for supporting or leveling the bottom wall section prior to pouring the base. Use of Wood blocks will not be accepted.
4. If precast concrete (developed) bases are used, the subgrade materials shall be excavated to undisturbed earth and a uniform elevation to allow for a minimum of 4 inches of granular fill as specified in the Section 02200. The surface of the granular material shall be carefully graded and the base section accurately set so that connecting pipes will be on proper line and grade. The elevation of the granular material shall be adjusted as required until proper grade and alignment of the base section has been attained.
5. No wedging or blocking under precast concrete bases will be permitted.
6. When resilient connectors are used with cast-in-place bases, granular fill material shall be used instead of concrete fill under the connecting pipes. Granular fill shall be placed on undisturbed earth.
7. In no case shall the invert section through a manhole be greater than that of the outgoing pipe. The shape of the invert shall conform exactly to the lower half of the pipe it connects. Side branches shall be connected with as large radius of curve as practicable. All inverts shall be troweled to a smooth, clean surface.

B. Riser and Cone Sections

1. Circular precast sections shall be provided with a double bead of preformed flexible joint sealant as specified in 2.04 between sections.
2. All protruding flexible joint sealant shall be removed from inside of manhole and the joint shall be wiped with Conshield Joint Set mortar.
3. Internal or External seal as specified in 2.05 and 2.06 to be installed per manufacturer's recommendation.
4. Lifting notches in manhole walls shall be filled with Conshield Joint Set non-shrinking grout.

5. The minimum horizontal clear distance in the barrel of the manholes shall not be less than four (4) feet unless otherwise specified on the Drawings.

3.03 PIPE CONNECTIONS

A. Resilient Connectors

1. When resilient connectors are used, the connecting pipe shall be carefully adjusted to proper line and grade. Bedding material shall be compacted under the haunches and to the spring line of the pipe for a distance of at least 6 feet from the manhole wall and to at least the minimum trench width. The pipe shall be installed in the resilient connector prior to backfilling outside the manhole and shall be resealed as required after completion of the manhole and backfill. All visible leakage shall be eliminated.
2. The connecting pipe for installation with resilient connectors shall be plain end, square cut spigots and shall not protrude more than one inch inside the manhole wall.
3. A clear distance of at least 1 inch from the end of each connecting pipe and around the pipe shall be provided when the concrete invert fill is installed or as recommended by the manufacturer of the resilient connector.
4. After completion of the manhole installation, the box out shall be filled with mastic filler material, completely filling the space beneath the pipe and extending to at least the spring line. The filler material shall provide a smooth, uniform surface between the inside diameter of the pipe and manhole invert.

B. Grouted Connections:

1. The space between connecting piping and the wall of the precast sections shall be completely filled with Conshield Joint Set non-shrinking grout.
2. The maximum allowable pipe opening on a horizontal axis shall be the outside diameter of the pipe plus 12 inches.
3. The maximum allowable pipe opening on a vertical axis shall be the outside diameter plus 8 inches.
4. The minimum clearance between the outside surface of the installed pipe and the concrete of the manhole shall be 2 inches.
5. The minimum distance between any two adjacent pipe shall be 4 inches.
6. Field Alterations: For field alternations approved by the City's Representative, walls shall be scored with a masonry saw to a depth sufficient to sever the reinforcing steel. A chipping hammer may then be used to remove the concrete.

- C. Inverts shall be concrete as specified in Section 03000 and steel-troweled (or formed if inverts are pre-cast) to produce a dense, smooth finish. The invert channel shall be "U" shaped in cross section and extend upward three-fourths of the inside pipe diameter. Smooth transitions shall be formed for pipes of different sizes, elevation, and bends. The invert bench shall be constructed with a 4:1 slope to drain.
- D. Steps shall be aligned vertically below the casting and spaced at sixteen (16) inch centers. The top step shall be not more than 16 inches below the top of the cone. The lowest step shall be not more than two (2) feet above the invert bench. Field drilled step holes are not permitted in pre-cast concrete manholes.
- E. The finished top elevation of manhole castings shall conform to the following unless otherwise shown on the Drawings or directed by the City's Representative.
 - 1. In paved areas, the top of the casting shall conform to the slope of the pavement and be 1/8 inch below the finished pavement elevation.
 - 2. In non-pavement areas, the top of the casting shall be not more than six (6) inches above the surrounding ground or less than the sod's upper root limit. The final elevation shall be at a point where water will not pond over the manhole cover.

3.04 MANHOLE ADJUSTMENT

- A. All new manholes will be provided with adjustment ring(s). Maximum allowable adjustment of 12 inches.
- B. The joints shall be sealed with a double bead preformed flexible joint sealant as specified in 2.04.
- C. If the top of an existing manhole is required to be raised to an elevation which will exceed twelve (12) inches, or lowered more than the adjustment rings will allow, all vertical adjustments shall be made to the barrel of the manhole.

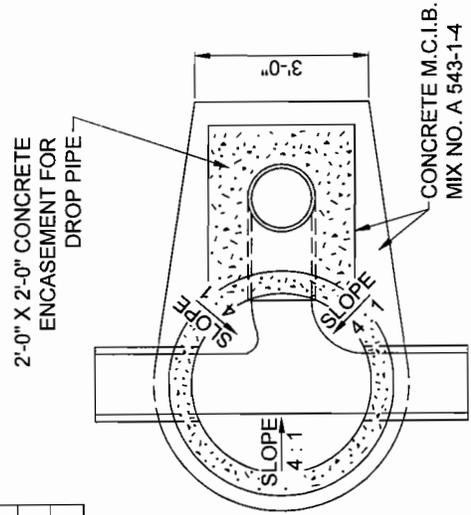
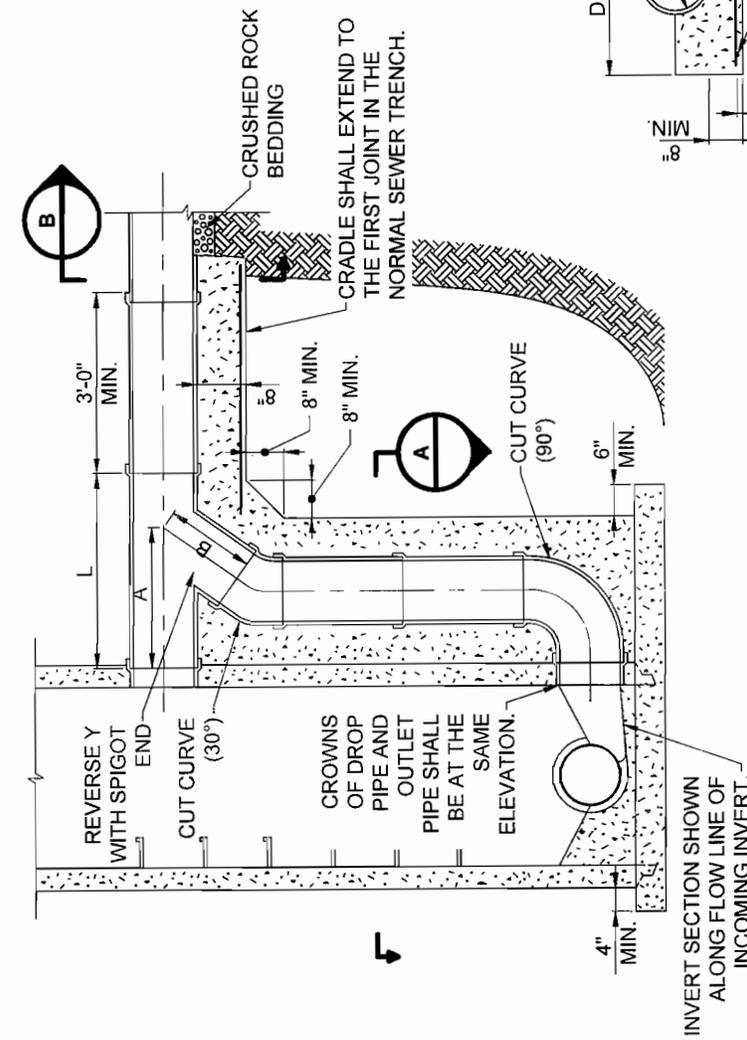
3.05 MANHOLE TESTING. The Contractor shall visually verify the absence of leaks and perform a vacuum test, on manholes that have inlet and outlet pipes of less than 42 inches in diameter, in accordance with Section 02702 - Sewer Pipe and Manhole Testing.

End of Section

NOTE:

- DROP CONNECTIONS ARE REQUIRED FOR SANITARY SEWERS WHEN IT IS NECESSARY THAT FLOW ENTER THE MANHOLE AT A HEIGHT OF MORE THAN TWO FEET ABOVE THE MANHOLES FLOWLINE. DROPS SHALL BE EXTERNAL DROP CONNECTIONS.

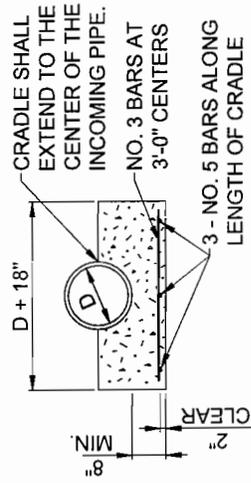
REVERSE Y WITH SPIGOT END				
SIZE	L	A	B	
8" ON 8"	3' - 0"	2' - 4"	1' - 3"	
10" ON 10"	3' - 0"	2' - 3"	1' - 5"	
12" ON 12"	3' - 0"	2' - 1"	1' - 5"	



SECTION
SCALE : NONE



SECTION
SCALE : NONE



ADOPTED

Director of Water Services Department

Entry No. _____

Kansas City, Missouri
Water Services Department
Engineering Division

STANDARD PRECAST MANHOLE
WITH OUTSIDE DROP

STANDARD DRAWING NUMBER

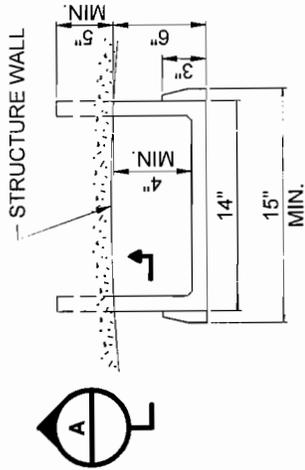
REV 0 10/14/14
DATE

03370-2

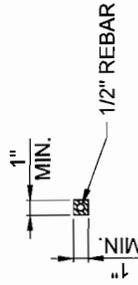
STANDARD PRECAST MANHOLE WITH OUTSIDE DROP

SCALE : NONE

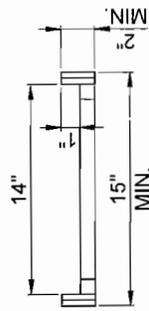
(SEE ECCENTRIC CONE FOR OTHER DETAILS)



PLAN



SECTION



ELEVATION

MANHOLE STEP
SCALE : NONE

ADOPTED

Director of Water Services Department

Entry No. _____



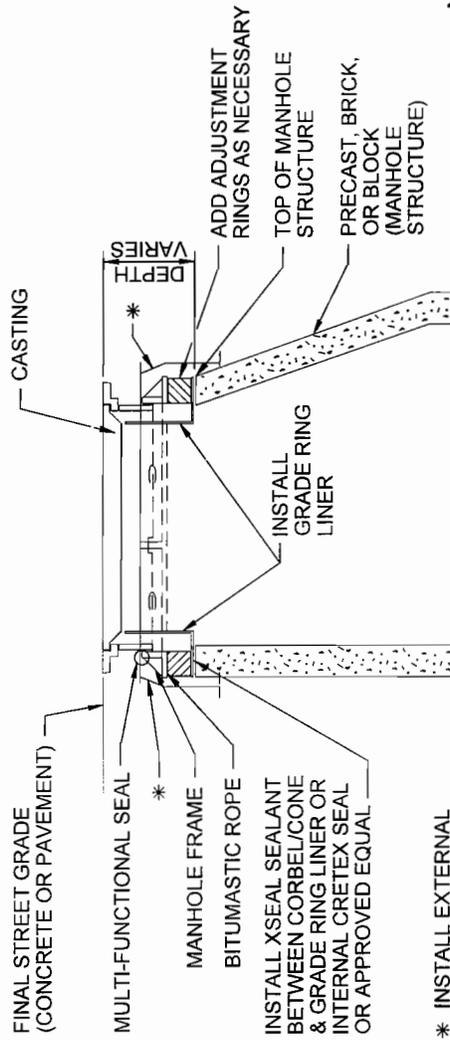
Kansas City, Missouri
Water Services Department
Engineering Division

MANHOLE STEPS

REV 0 10/14/14
DATE

STANDARD DRAWING NUMBER

03370-3



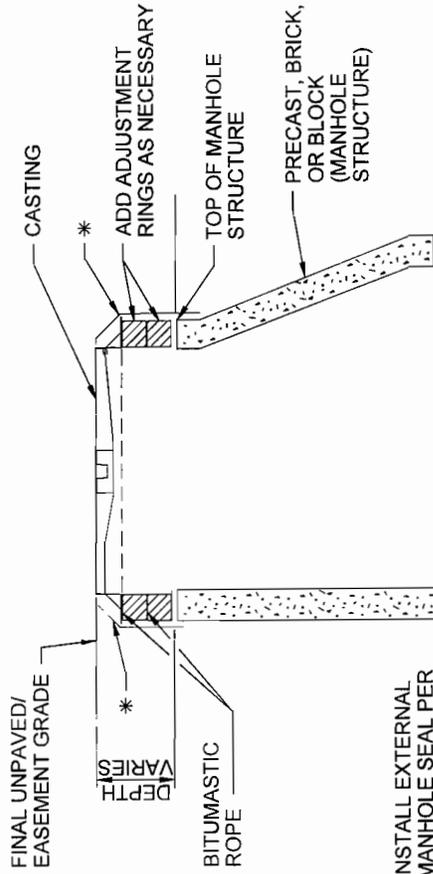
* INSTALL EXTERNAL MANHOLE SEAL PER SPECIFICATION SECTION 03370.

NOTE:
 REFER TO STANDARD SPECIFICATION SECTIONS
 03370 - SEWER MANHOLE CONSTRUCTION AND
 05010 - MANHOLE CASTINGS FOR PRODUCTS
 AND EXECUTION.

**TYPICAL INSTALLATION FOR MANHOLE FRAME & COVER
 IN PAVED STREETS (ADJUSTABLE) / SELF LEVELING**

NOT TO SCALE

ADOPTED	
Director of Water Services Department	Entry No. _____
 Kansas City, Missouri Water Services Department Engineering Division	
TYPICAL INSTALLATION FOR MANHOLE FRAME AND COVER IN PAVED STREETS (ADJUSTABLE) / SELF LEVELING	
REV 0	10/14/14 DATE
STANDARD DRAWING NUMBER 03370-4	



* INSTALL EXTERNAL MANHOLE SEAL PER SPECIFICATION SECTION 03370.

NOTE:
 REFER TO STANDARD SPECIFICATION SECTIONS 03370 - SEWER MANHOLE CONSTRUCTION AND 05010 - MANHOLE CASTINGS FOR PRODUCTS AND EXECUTION

**TYPICAL INSTALLATION FOR MANHOLE FRAME & COVER
 IN UNPAVED / EASEMENT LOCATIONS / GREENWAY**

NOT TO SCALE

ADOPTED

Director of Water Services Department

Entry No. _____



Kansas City, Missouri
 Water Services Department
 Engineering Division

TYPICAL INSTALLATION FOR MANHOLE FRAME AND COVER
 IN UNPAVED / EASEMENT LOCATIONS / GREENWAY

STANDARD DRAWING NUMBER

REV 0 10/14/14
 DATE

03370-5

MANHOLE GRADE ADJUSTMENTS:

1. CONTRACTOR TO FIELD VERIFY ACTUAL "H" TO RAISE MANHOLE TO GRADE.
2. MANHOLE SHALL BE THOROUGHLY CLEANED AND LOOSE DEBRIS REMOVED PRIOR TO BEGINNING REHABILITATION. CONTRACTOR SHALL PLACE COVERS OVER INVERTS AS NEEDED TO PROTECT FLOW LINE.

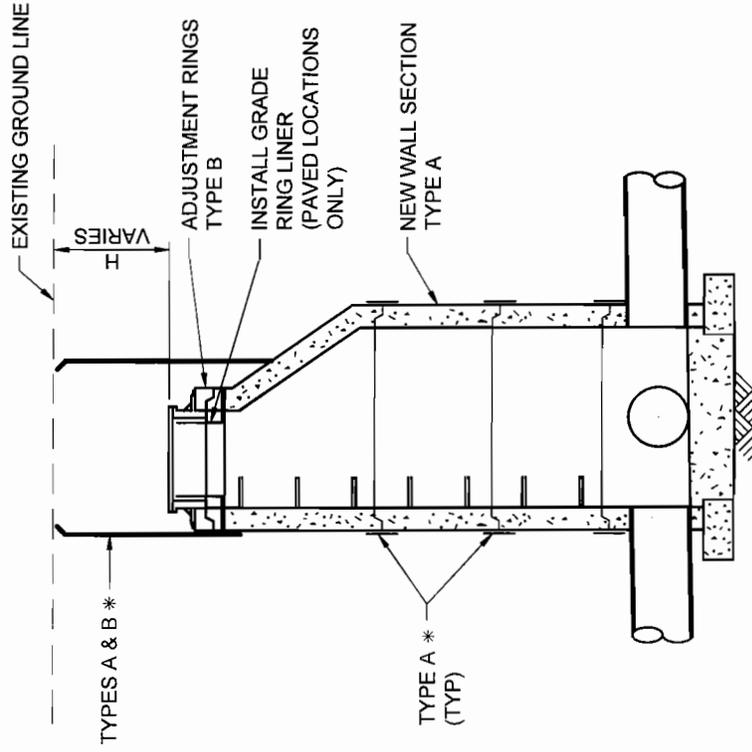
TYPE A: "H" PLUS EXISTING CHIMNEY GREATER THAN 12"

1. EXCAVATE MANHOLE TO 1 FT BELOW CORBEL/WALL JOINT. REMOVE FRAME AND COVER. CLEAN AND STOCKPILE FOR REUSE.
2. LIFT CORBEL TO REMOVE FROM WALL SECTION.
3. ADD PRECAST WALL SECTIONS AND CORBEL ECCENTRIC CONE/FLAT TOP ONLY TO BRING MANHOLE TO GRADE. FOR BRICK MANHOLES SEE 'TYPICAL REBUILDING EXISTING MANHOLE FOR RAISING MANHOLES TO GRADE' DETAIL.
4. CASTINGS SHALL BE CLEANED PRIOR TO REINSTALLATION, IF APPROVED BY ENGINEER.
5. REINSTALL CASTINGS AND COMPLETE FRAME SEAL. INSTALL NEW CASTINGS AND FRAME SEAL IF REQUIRED.

TYPE B: "H" PLUS EXISTING CHIMNEY LESS THAN OR EQUAL TO 12"

1. EXCAVATE MANHOLE TO 1 FT BELOW TOP OF CORBEL. REMOVE FRAME AND COVER. CLEAN AND STOCKPILE FOR REUSE.
2. ADD HDPE OR PRO-RING ADJUSTMENT RINGS TO BRING MANHOLE TO GRADE.
3. CASTINGS SHALL BE CLEANED PRIOR TO REINSTALLATION, IF APPROVED BY ENGINEER.
4. REINSTALL CASTINGS AND COMPLETE FRAME SEAL. INSTALL NEW CASTINGS AND FRAME SEAL IF REQUIRED. INSTALL GRADE RING LINER IN PAVED LOCATIONS.

* CONTRACTOR SHALL INSTALL EXTERNAL MANHOLE SEAL PER SPECIFICATION SECTION 03370 ON ALL JOINTS ON GRADE ADJUSTMENTS.



MANHOLE GRADE ADJUSTMENT

ADOPTED

Director of Water Services Department

Entry No. _____



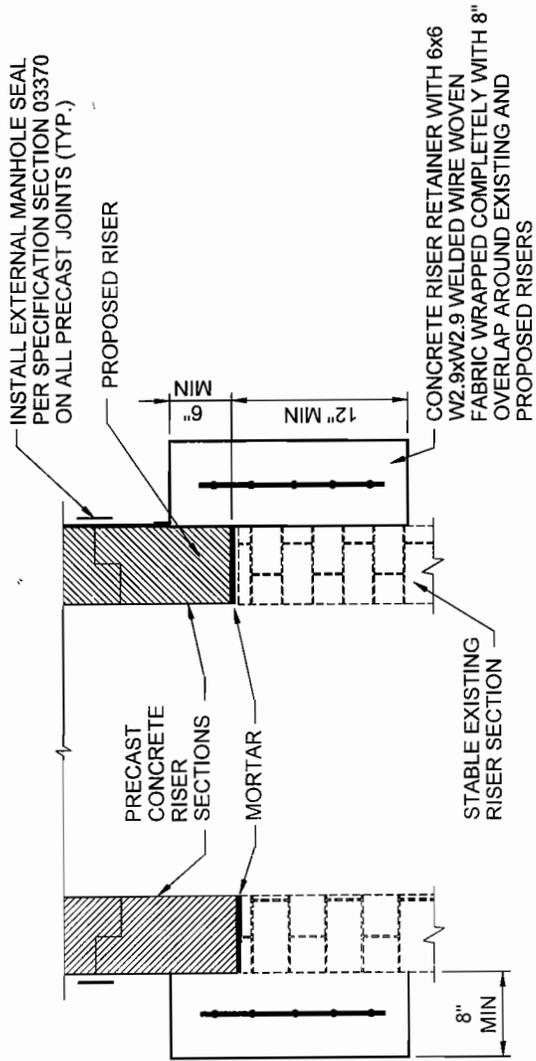
Kansas City, Missouri
Water Services Department
Engineering Division

MANHOLE GRADE ADJUSTMENT

STANDARD DRAWING NUMBER

REV 0 _____ DATE 01/13/15

03370-6



NOTE:
 REFER TO STANDARD SPECIFICATION SECTIONS 03370 -
 SEWER MANHOLE CONSTRUCTION FOR PRODUCTS AND
 EXECUTION.

**TYPICAL REBUILDING EXISTING MANHOLE
 FOR RAISING MANHOLES TO GRADE.**

NOT TO SCALE

ADOPTED

Director of Water Services Department

Entry No. _____



Kansas City, Missouri
 Water Services Department
 Engineering Division

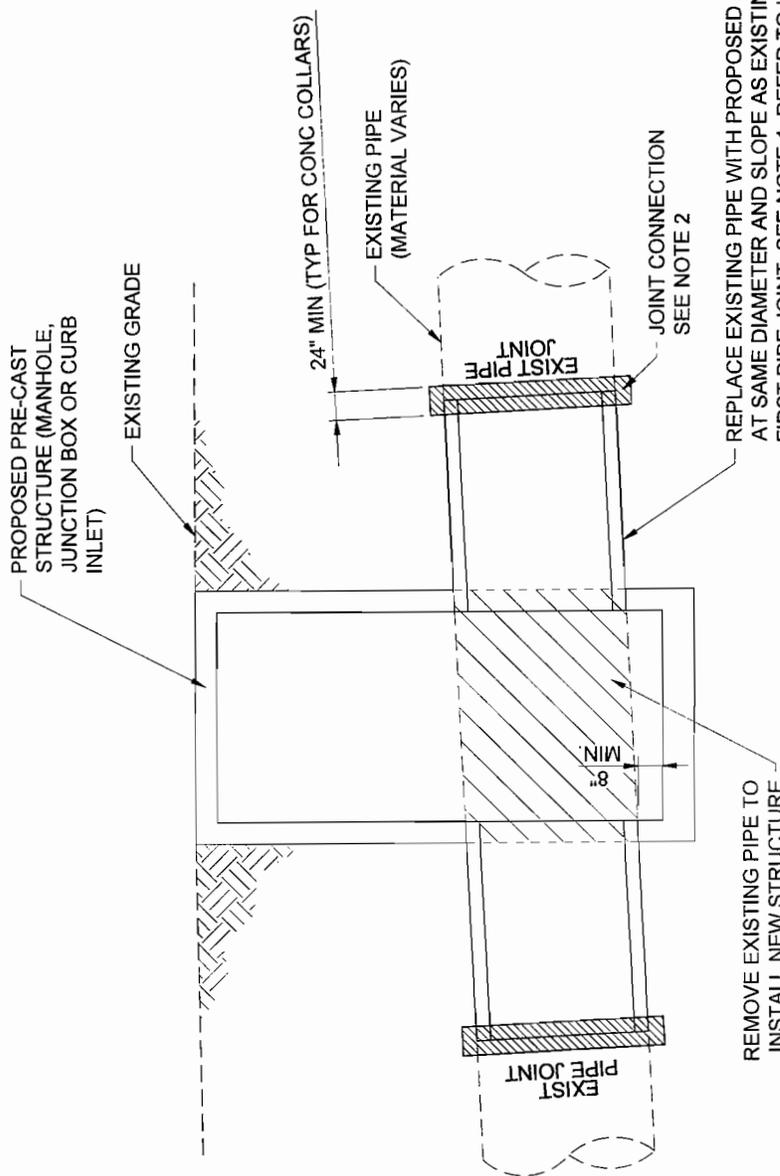
TYPICAL REBUILDING EXISTING MANHOLE
 FOR RAISING MANHOLES TO GRADE

STANDARD DRAWING NUMBER

REV 0 _____
 DATE

10/14/14
 DATE

03370-7



REPLACE EXISTING PIPE WITH PROPOSED PIPING AT SAME DIAMETER AND SLOPE AS EXISTING TO FIRST PIPE JOINT. SEE NOTE 1. REFER TO KCMO SPEC. SECTION 03370 FOR CONNECTION REQUIREMENTS TO PROPOSED STRUCTURES.

- NOTES:**
1. IF EXISTING PIPE IS RCP, REPLACE WITH PROPOSED RCP. IF EXISTING PIPE IS VCP, REPLACE WITH PROPOSED PVC PIPE.
 2. IF JOINT IS RCP TO RCP, INSTALL CONCRETE CONNECTION COLLAR AT JOINT. IF JOINT IS PVC TO VCP, INSTALL NEOPRENE FERNCO COUPLING (OR SIMILAR) TO MAKE THE CONNECTION.

PROPOSED STRUCTURE INSTALLATION WITH EXISTING PIPE CONNECTION

SCALE : NONE

ADOPTED	
Director of Water Services Department	Entry No. _____
 Kansas City, Missouri Water Services Department Engineering Division	
PROPOSED STRUCTURE INSTALLATION WITH EXISTING PIPE CONNECTION	
REV 0	10/14/14 DATE
STANDARD DRAWING NUMBER 03370-8	

I. GENERAL

- A. Storm sewer pipe structures and appurtenances shall be installed and constructed at the locations shown on the Drawings. Materials and construction shall be in compliance with Section 2600 of the “Standard Specifications and Design Criteria”.

II. MATERIALS

- A. Conform to ASTM C76, Class III, IV or V, wall B and AWWA C302, except as otherwise specified.
- B. Portland cement shall be ASTM C150 TYPE II and shall not contain tricalcium aluminate in excess of 5%.
- C. Fine aggregate shall be as follows:
 - 1. Natural sand
 - 2. Conform to requirements for concrete subject to surface abrasion.
- D. Rubber gaskets for joints in circular pipe shall be the following:
 - 1. Reinforced concrete storm sewer pipe shall use synthetic rubber “O-ring” gasketed joints (APWA-KCMO 2602 O-ring type, circular cross section conforming to ASTM C361, ASTM C443 and AWWA 302.

III. DESIGN

- A. Have laying length of not less than 7 feet except for fittings, closures and specials.
- B. Provide longitudinal reinforcing:
 - 1. Not less than 0.2% of gross cross sectional area of concrete.
 - 2. Space equally with not more than 2/3 in outer cage.
 - 3. Extended into both joint elements.
- C. Circular pipe shall have:
 - 1. Wall thickness as shown for wall B or greater.
 - 2. Wall B design in wall C forms for pipe with sacrificial concrete lining. The layer of sacrificial concrete shall be considered as furnishing no structural strength. Reinforcing shall be placed in the pipe wall outside of the sacrificial concrete lining so that the

protective cover for the interior layer of reinforcing steel is equal to the standard cover plus the thickness of the sacrificial concrete.

3. Circular reinforcement in full circle cages.

D. Concrete:

1. Minimum compressive strength of 6000 psi at 28 days.
2. Not more than 7% absorption (boiling test).

IV. JOINTS

A. Rubber to concrete compression type for circular pipe.

1. Conform to ASTM C76 with O-ring gasket.

V. FITTINGS AND SPECIALS:

A. Fabricate as one of the following types:

1. Steel cylinder segments not less than 0.0598 inch thickness, U.S. 16-gauge, 3/4-inch concrete or mortar, and reinforced concrete exterior coating.
2. Concrete pipe sections cut while still green, reinforcing exposed and welded together at junctions and miters. Splice built up to nominal wall thickness with mortar or concrete. After installation, encase with concrete as indicated.
3. Miters shall not exceed 30° at deflection angles between segments.
4. Minimum centerline curve radius shall not be less than twice the pipe diameter unless otherwise indicated.
5. Provide strength equal to design D-loads of adjacent pipe.

VI. LINING

- A. Provide all pipe, fittings and specials with additional 3/4-inch interior wall sacrificial thickness.**

VII. MANUFACTURE

- A. With precision adequate to meet tolerances required for joints specified.**
- B. Include steam curing, water curing, or combination thereof as included in applicable standard.**

VIII. BASIS OF ACCEPTANCE

- A. Per physical test requirements of applicable manufacturing standard and ASTM C497.
- B. As above, contingent upon satisfactory performance of three specimens under 3-edge bearing tests for each alternate, modified, or special design.

IX. INSPECTION AND TESTING

- A. Primarily by manufacturer's testing lab and quality control personnel.
- B. Perform to avoid insofar as possible, delivery of defective pipe.
- C. May be witnessed by Owner, Engineer, or approved independent testing laboratory.
 - 1. Independent testing laboratory, when utilized, shall be retained by Owner at no expense to Contractor.
 - 2. Contractor and manufacturer shall cooperate with Owner's inspection and test personnel. Permit unrestricted access, furnish reasonable space and facilities, and provide adequate advance notice of test schedule.
- D. Contractor shall provide three copies each of certified test reports to Engineer, including:
 - 1. Mills tests on steel, cement, and gasket materials throughout manufacture and delivery period.
 - 2. Aggregate tests prior to start of manufacture and when requested by Owner (normally, not to exceed one sieve analysis per week during manufacturing period).
 - 3. Concrete Compression Tests:
 - a) Perform on cores taken from one pipe section of each size each day until first 10% of each size has been cast.
 - b) Perform on cores taken from one pipe section for each 500 feet of each size produced thereafter.
 - c) Perform on molded cylinders on days of production during which pipe cores not required.
 - 4. Concrete absorption tests shall be conducted on samples from each pipe cored for compressive-strength tests.

5. Hydrostatic Tests:
 - a) Test to conform to ASTM C443, or AWWA C302, as applicable.
 - b) Mark positively to identify specimen with test.
 - c) On a least one assembled joint of each pipe size prior to delivery.
6. Test Specimen:
 - a) Owner may authorize manufacturer to select test specimens.
 - b) Mark positively to identify specimen with test
 - c) Repair core holes when cores successfully meet strength and absorption requirements. Repair with concrete of same cement and aggregate proportions as original mix and minimum water for placing.
7. Owner reserves right to inspect and sample pipe after delivery and to reject pipe failing to meet minimum requirements.

X. HANDLING AND DELIVERY

- A. Do not deliver until representative concrete compressive specimens have attained 80% of specified minimum 28-day strength.
- B. Do not deliver until a minimum of 7 days after manufacture.
- C. Use equipment and methods adequate to preserve quality.
 1. Protect joint elements.
 2. Prevent shock contact of adjacent units during moving or storage.
- D. Lift holes will not be allowed.

END OF SECTION

SECTION 05010 – MANHOLE CASTINGS

PART 1 - GENERAL

1.01 SCOPE

- A. This specification covers construction castings made of cast iron and ductile iron.
- B. Where there is a conflict between this specification and a written exception, such as a detailed purchase order, a purchase specification, or a product specification, the exception shall take precedence over this specification.
- C. Casting to be installed on pipelines 24-inch and larger shall be 32-inch diameter castings with 30" Clear opening.

1.02 **DESCRIPTION:** This specification is applicable for ductile iron castings. All manufacturers shall be approved suppliers and be able to demonstrate that there is an acceptable quality control program at the producing foundry, prior to supplying castings.

1.03 **SPECIFICATION MODIFICATIONS.** It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 -Specific Project Requirements, or as otherwise indicated on the Contract Drawings.

1.04 RELATED SECTIONS

Section 01300 – Submittals
Section 01015 – Specific Project Requirements
Section 03370 – Sewer Manhole Construction

1.05 **CODES AND STANDARDS.** The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. The version of the codes and standards in effect at the time of the Notice to Bidders shall be used, except as noted on the Drawings or in the Specific Project Requirements section of these specifications.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICES (AASHTO)

Standard Specifications for Highway Bridges

ASTM INTERNATIONAL (ASTM)

ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
ASTM C478	Standard Specification for Precast Reinforced Concrete Manholes Sections
ASTM D2240	Standard Test Method for Rubber Property – Durometer Hardness
ASTM D4101	Standard Specification for Polypropylene Injection and Extrusion Materials

U.S. ENVIRONMENTAL PROTECTION AGENCY
Material Safety Data Sheet

FEDERAL REGISTER

29 CFR 1910.1200 Hazard Communications

FEDERAL STANDARDS

FED-STD-123 Marking for Domestic Shipment (Civilian Agencies)

UNITED STATES CUSTOMS SERVICE

Custom Regulation Chapter 1, Part 134, Article 19, U.S.C. 1304

1.06 CONTACTOR SUBMITTALS. Submit the following in accordance with Section 01300:

- A. Product data, including manufacturer's catalog cuts, specifications, and installation details.
- B. Casting identification and location.
- C. A foundry certification shall be furnished stating that samples representing each lot have been tested, inspected, and are in accordance with this specification.
- D. A manufacturer's affidavit certifying that the castings furnished comply with the provisions of these specifications, regardless of whether or not the purchaser has an inspector at the plant.
- E. Certified shop drawings for all castings.
- F. All submittals shall be approved by CITY before castings are manufactured.

1.07 QUALITY ASSURANCE

- A. Inspections: Inspections shall be in accordance with AASHTO M306. Results of these tests shall be furnished to CITY upon request. The heat or production date and product numbers, as cast on the casting shall be the basis of trace-ability and recording of the tests.
- B. Unless otherwise specified, the dimensions of all castings shall have a tolerance of $\pm 1/16$ inch.
- C. The manufacturer shall keep records of all tests, MSDS sheets, foundry, lot records, product liability insurance, and customs documentation control data, as applicable, for a period of 3 years. The supplier agrees to furnish copies of records within two weeks after a receipt of request for such records.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Check materials upon arrival. Identify and segregate as to types, functions, and sizes. Store materials off of the ground in a manner affording easy accessibility and not causing excessive rusting or coating with grease or other objectionable materials.
- B. Unless otherwise specified on the purchase order, cleaning, preservation, and packaging of castings shall be in accordance with the manufacturer's commercial practice. Packing and marking shall also be adequate to ensure acceptance and safe delivery by the carrier for the mode of transportation employed.
- C. If the number of the defective items exceeds two and one half percent of the lot, the purchaser will reject the remaining quantity in the lot and the supplier will redeliver the remaining quantity of the lot.
- D. All castings shall be marked in accordance with the requirements of Federal Standard No. 123 and with Chapter 1, Part 134 of the United States Customs Service

Regulations, including 19 U.S.C. 1304 paragraph, as applicable. Failure to conform to the above requirements will be just cause for rejection of castings.

- 1.09 FINAL PAYMENT. Payment shall be made for all castings received which meet all requirements of these specifications.

PART 2 - PRODUCTS

- 2.01 DUCTILE IRON CASTINGS. Shall conform to ASTM A536.

- 2.02 WORKMANSHIP AND FINISH.

- A. Castings shall be of uniform quality, free from sand holes, gas holes, shrinkage, cracks and other surface defects. Castings shall be ground smooth and well cleaned by shot blasting. Runners, risers, fins, and other cast-on pieces shall be removed.
- B. A draft angle of 2° to 5° will be accepted provided it does not interfere with the fit of the assembly.
- C. For traffic service castings, bearing surfaces between manhole rings and covers or grates and frames shall be cast or machined with such precision to prevent rocking.
- D. Entire ring and cover bearing surface shall be machined.
- E. In other matters of workmanship and finish, the castings shall conform to any points agreed upon by the manufacturer and the purchaser.

- 2.03 MANHOLE FRAMES AND COVERS: Frames and covers shall be as indicated or shall be of type suitable for the application, circular, without vent holes.

- A. Markings: The type of utility shall be stamped or cast into the cover and wording shall be per City Approved Drawings.
- B. Frames shall be circular.
- C. The minimum clear opening for frames shall be 24 inches for manholes having a diameter of 4.0 feet.
- D. The minimum clear opening for frames shall be 30 inches clear opening for manholes having a diameter greater than 4.0 feet and shall be Composite as manufactured by GMI Composites.
- E. All covers shall have provisions for opening, such as concealed pick holes.
- F. Special Requirements for Paved Areas
 - 1. Definition: Areas subject to vehicular traffic. Includes, but is not limited to, all paved areas.
 - 2. At a minimum, frames and covers shall be "Traffic Rated" in accordance with AASHTO M306.
 - 3. All manhole frames and covers shall be adjustable and self-leveling. Frames and covers shall be adjustable to meet any slope and grade of the roadway (from 0 to 17%) and shall be able to be raised or lowered in ¼ inch increments, up to 2¼ inches. Ring height shall be adjustable after installation without disturbing the surrounding pavement.
 - 4. Cam Locks will not be allowed in Traffic Areas unless shown on the plans or directed by the City. In Traffic Areas the Contractor shall install NON-Cam Lock Castings.
 - 5. Acceptable manufactures include the following (or approved equal):
 - (a) Self-Level Manhole Frame and Cover with 1040AGS "T" Gasket Cover as manufactured by East Jordan Iron Works.

(b) PAMREX VIATOP (reference #CDVT6OQG) as manufactured by CertainTeed.

G. Special Requirement for Un-Paved Areas:

1. Definition: Areas that are not subject to vehicular traffic. Includes, but is not limited to, greenways and easements.
2. At a minimum, frames and covers shall be rated "Medium Duty" ductile iron frame and cover and able to withstand AASHTO H-20/HS-20 loading.
3. Covers shall be hinged with drain and incorporate 90 degree blocking system to prevent accidental closure. Hinged covers shall incorporate a spring bar locking system that automatically activates when closed. Casting shall have lifetime warranty for all components.
4. Flange shall incorporate bedding slots and bolt holes.
5. Acceptable manufacturers include the following (or pre approved equal):
 - (a) REXUS models as manufactured by CertainTeed
 - (b) Hingeco as manufactured by EJIW

H. Bolt-down manhole rings and their covers shall be Hinged Ductile Iron, O-ring or T-ring gaskets and cam lock. Cam lock bolt head shall fit flush or below the top of the cover. The O-ring or T-ring rubber gasket shall be neoprene or other synthetic material.

1. Acceptable Manufactures include the following (or approved equal):
 - (a) Pamrex model as manufactured by CertainTeed
 - (b) Ergo as manufactured by EJIW

2.04 FRAME AND CHIMNEY SEALING SYSTEM

A. Per SECTION 3370.

PART 3 - EXECUTION

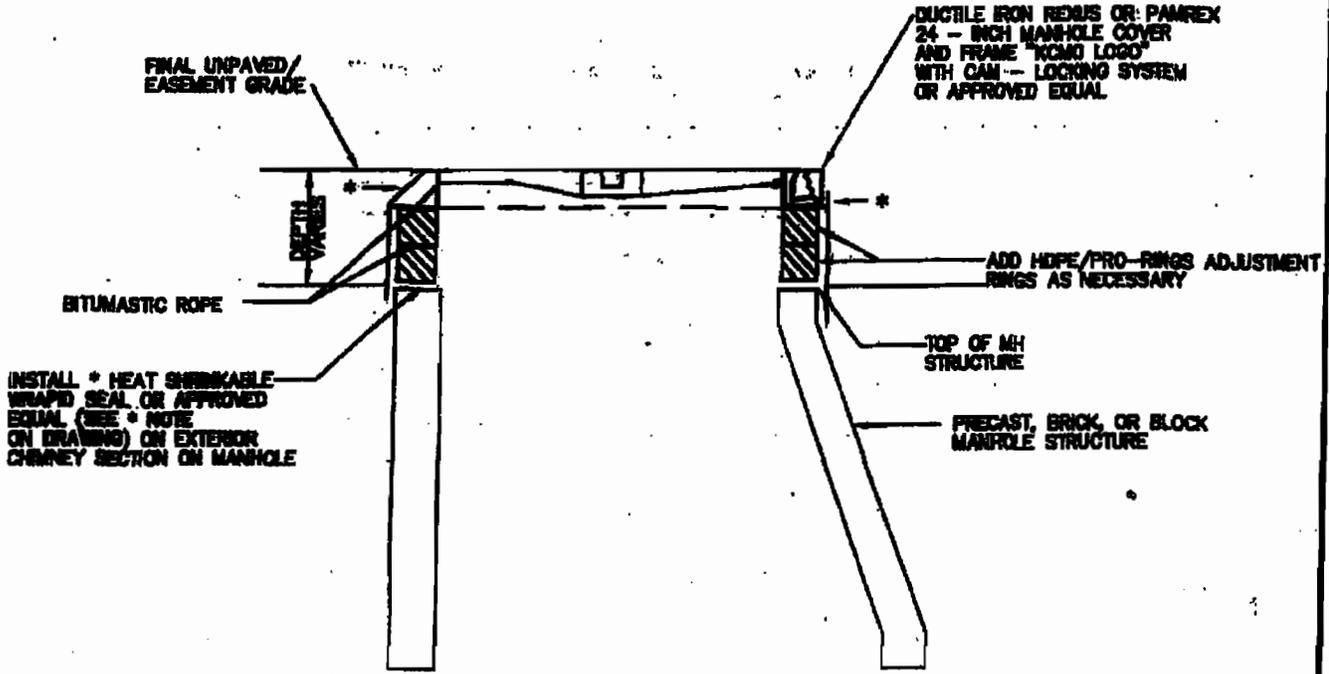
3.01 MANHOLE FRAMES AND COVERS

- A. Coordinate installation of castings with Work of other trades to avoid delays. Install inserts or anchors as required by individual items.
- B. Install items as indicated and in accordance with manufacturer's instructions. Anchor securely.
- C. Install items plumb, level, and in alignment.
- D. Bolt-down type manhole rings shall be anchored to the manhole walls with not less than four (4) three-fourths (3/4) inch (M18x2.5) diameter steel bolts embedded a minimum of four (4) inches, (100 mm), plus or minus one half (1/2) inch, (10 mm), into the cone section of the manhole, except where the entire ring is embedded in a concrete top slab.

3.02 CLEANING

- A. Clean all items after installation to remove rust, dirt, oil, grease, and other deleterious substances.
- B. Clean all welds, bolted connections, and abraded areas of shop coating, if applicable. Touch up damaged areas with same type of coating as used for shop coating.

End of Section



**TYPICAL INSTALLATION FOR MANHOLE FRAME & COVER
IN UNPAVED / EASEMENT LOCATIONS / GREENWAY
(NO SCALE)**

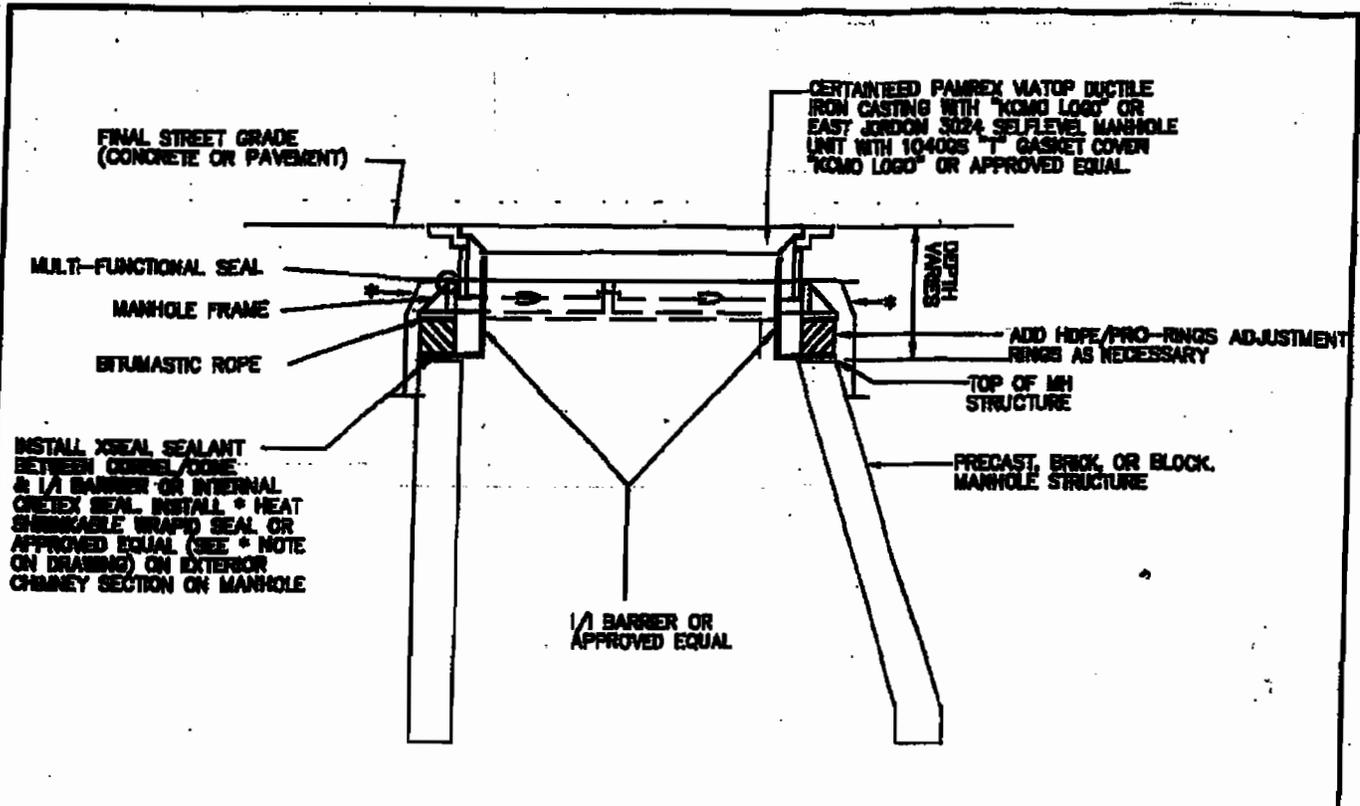
PROFESSIONAL ENGINEER SEAL

KANSAS CITY, MISSOURI, WATER SERVICES DEPARTMENT

**DUCTILE IRON CONSTRUCTION
CASTINGS - UNPAVED /
EASEMENT LOCATIONS)**

FOR WSD USE:

DRAIN BY B. RICHEST	CHECKED BY M. THOMAS	DATE SUBMITTED 7/18/13	RANGE	TWP	SEC
CONTRACTOR			DATE COMPLETED		
CONTRACT NO.	CONTRACT DATE	MAP NO.	WORK ORDER NO.	DRAWING NO. 00010MFP40-WSD	
PROJECT NO.			SHEET 6 OF 7		



TYPICAL INSTALLATION FOR MANHOLE FRAME & COVER
 IN PAVED STREETS (ADJUSTABLE) /SELF LEVELING
 (NO SCALE)

PROFESSIONAL ENGINEER SEAL

KANSAS CITY, MISSOURI, WATER SERVICES DEPARTMENT

CONSTRUCTION CASTINGS
 (PAVED CITY/PUBLIC STREET
 RIGHT-OF-WAY LOCATIONS)

FOR WSD USE:

DRAWN BY B. RICHEST	CHECKED BY M. THOMAS	DATE SUBMITTED 7/18/13	RANGE	TWP	SEC
CONTRACTOR			DATE COMPLETED		
CONTRACT NO.	CONTRACT DATE	MAP NO.	WORK ORDER NO.	DRAWING NO. 03010MHPV0-WSD	
PROJECT NO.			SHEET 7 OF 7		



STORMWATER POLLUTION PREVENTION PLAN

(SWPPP)

For Building & Grading Projects Disturbing 1 or More Acres

Missouri State General Operating Permit (Land Disturbance Permit) MO-R100006

**TARGET GREEN EAST MARLBOROUGH MIDDLE BLUE RIVER GREEN INFRASTRUCTURE/DISTRIBUTED
STORAGE FOR AREAS TRIBUTARY TO OUTFALL 069 – PHASE 1-77TH TERRACE STORM SEWER
SEPARATION**

77th Terrace, 79th Street, and Brooklyn Avenue between The Paseo and Prospect Avenue
Kansas City, MO
816-513-0579

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PART I: GENERAL PROJECT INFORMATION

(To be completed by OWNER or Design Professional)

Project Site Name: Target Green East-Phase 1

Project Site Street/Location: 77th Terrace, 79th Street, and Brooklyn Avenue between The Paseo and Prospect Avenue

City: Kansas City State: MO Zip Code: 64132

County: Jackson

Section, Township, Range: 16, 48, 33

Project Number: 81000679

Owner's Name: Water Services Department

Address: 4800 East 64rd street

City: Kansas City State: MO Zip Code: 64130

Phone: 816-513-0579 Fax: 816-513-0288

E-mail: Padmavathi.iyengar@kcmo.org Cell Phone: Click here to enter text.

Nature of Construction Activity:

Activities include linear trenching and backfilling to installation Water mains and storm sewers within the public right of way-in the pavement area and greenway. It also includes demolition of existing storm draining structures

Estimated Project Start Date:	September, 2015
Estimated Project Completion Date:	March, 2017

PART II: PROJECT PLANNING & DESIGN

(To be completed by DESIGN PROFESSIONAL)

Designer's Name: Rachelle Lowe, P.E.
Company Name: Burns and McDonnell
Address: 9400 Ward Parkway
City: Kansas City State: MO Zip Code: 64114
Phone: 816-822-4276 Fax: Click here to enter text.
E-mail: Click here to enter text. Cell Phone: Click here to enter text.

Soil Disturbing Activities for this project will include the following (Check all that apply):

- Clearing and grubbing of existing vegetation
- Stockpiling and re-spreading topsoil
- Preparing sub grade for streets and sidewalks
- Disposal areas for excess excavated material
- Construction of sediment basins or storm water detentions
- Construction of compacted fill areas for residential building construction
- Provide and maintain natural buffers around surface waters
- Other (specify): Click here to enter text.
- Stripping of topsoil within the limits of construction
- Utility trench excavation and backfill
- Backfilling curbs and sidewalks
- Borrow areas for fill material
- Minimize soil compaction and preserve top soil.

Note: Limits of land disturbance must be clearly shown on the erosion and sediment control plan.

Total Site Area: 79.36 ac. drainage area
Total Estimated Area to be disturbed by all activities: 2.61 ac.
Runoff Coefficient prior to development: 0.51 enter text. _____
Runoff Coefficient after development: 0.51 enter text. _____

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:
Distance from Project outfall to receiving water body: (feet)
Does this Project require 401 and 404 permits as defined under the Clean Water Act? (yes/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): Click here to enter text.

If yes, describe the species and/or critical habitat: Click here to enter text.

If yes, describe steps taken to address the impact of construction: Click here to enter text.

Historic Sites on or near the construction site? (yes/no): Click here to enter text.

If yes, describe steps taken to address the impact of construction: Click here to enter text.

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).

Soil types include sand, gravel, and cobbles at the surface. Underlying the fill material is native clay to bedrock below. The slopes vary between 2% to 5% and drain to the northeast.

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 excavation and backfill to construct the new water mains and storm sewers

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.

N/A

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:

- Scheduling
- Hydroseeding
- Earth Dikes/Swales & Lined Ditches
- Straw Mulch
- Hydraulic/Wood Mulch
- Outlet Protection/Velocity Dissipater
- Slope Drains
- Streambank Stabilization
- Preservation of Existing Vegetation
- Soil Binders
- Geotextiles,ECBs or TRMs
- Other (specify): [Click here to enter text.](#) _____

Perimeter Controls & Sediment Barriers:

- Silt Fence
- Sandbag Barrier
- Storm Drain Inlet Protection
- Fiber Rolls
- Sediment Traps
- Sediment/Desilting Basin
- Check Dam
- Gravel Bag Berm
- Street Sweeping and Vacuuming
- Direct stormwater to vegetated areas
- 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): [Click here to enter text.](#) _____

Non-Storm Water Management BMPs:

- Pile Driving Operations
- Concrete Finishing
- Demolition/Removal Over Water
- Dewatering Operations
- Concrete Curing
- Illicit/Illegal Discharge Detection
- Clean Water Diversion
- Paving & Grinding Operations
- Vehicle & Equipment Cleaning
- Potable Water/Irrigation
- Water Conservation Practices
- Temporary Stream Crossing
- Material/Equipment Use Over Water
- Vehicle & Equipment Fueling & Maintenance
- Other (specify): _____

Waste Management & Materials Pollution Control BMPs:

- Spill Prevention/Control
- Liquid Waste Management
- Sanitary/Septic Waste Management
- Stockpile Management
- Concrete Waste Management (Washout Area)
- Hazardous Waste Management
- Solid Waste Management
- Material Delivery/Storage/Use
- 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:

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:

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. _____
Click here to enter text. _____

Contact Phone Number

Click here to enter text. _____
Click here to enter text. _____

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. _____

Contact Phone Number

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: _____

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 the 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.

<p style="text-align: center;">PART VI: ADDITIONAL REQUIREMENTS AND CONTROLS (To be understood and implemented by the GENERAL CONTRACTOR)</p>

- 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): _____

(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 bank, 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, 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: Click here to enter text. _____

By: Click here to enter text. _____ Title: Click here to enter text. _____

Date: Click here to enter text. _____

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: Click here to enter text. _____

By: Click here to enter text. _____ Title: Click here to enter text. _____

Date: Click here to enter text. _____

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: Click here to enter text. _____

Phone: Click here to enter text. _____ Fax: Click here to enter text. _____

Email: 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:

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. _____
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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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

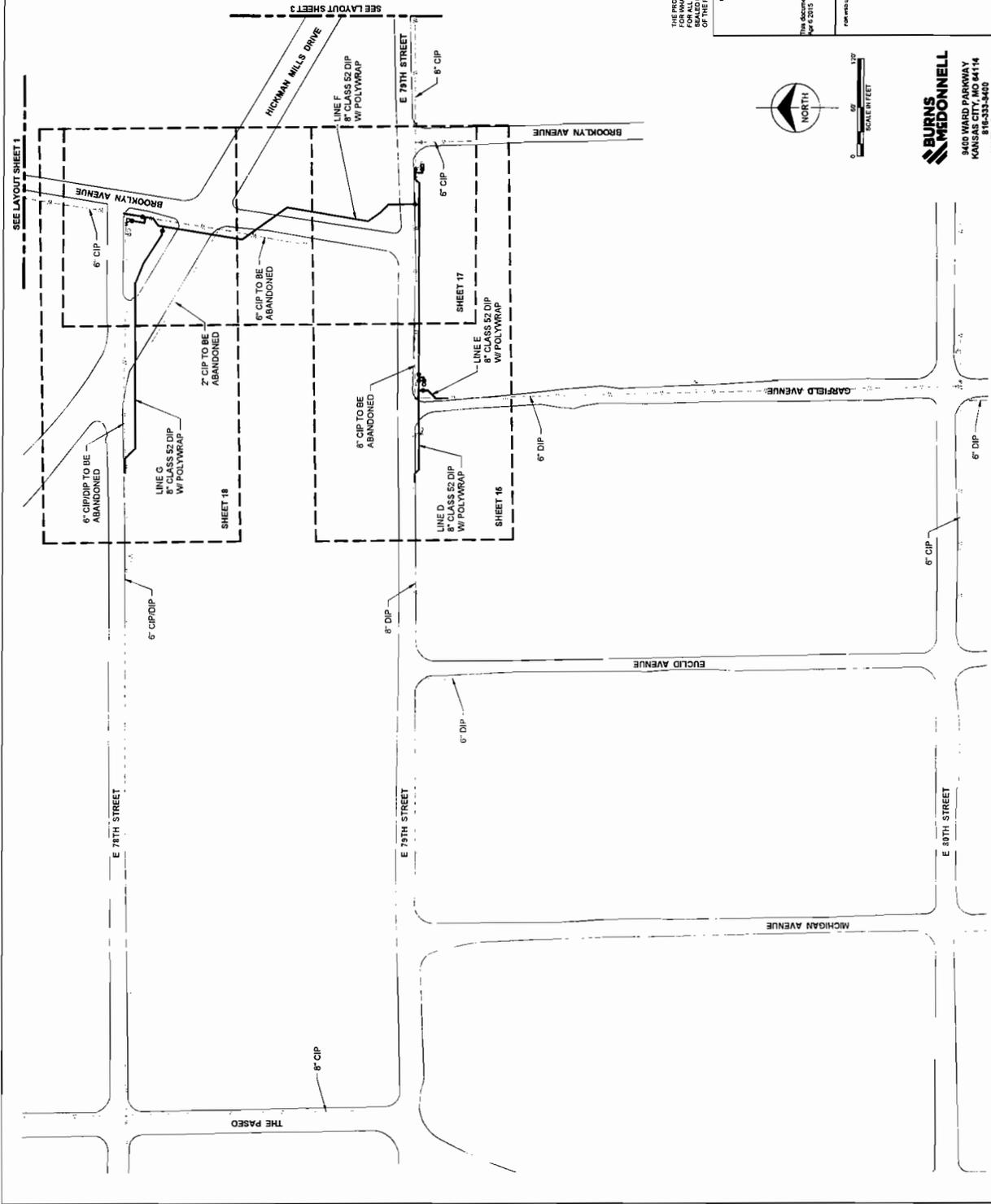
APPENDIX D – INSPECTION REPORTS

APPENDIX E – SWPPP UPDATE AND MODIFICATION LOG

APPENDIX F – ADDITIONAL INFORMATION

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APPENDIX A – GENERAL LOCATION MAP



THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEARS BELOW ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE AND DECLINES JURISDICTION TO SECTION 3201.41 (IRMO) ANY RESPONSIBILITY SHALL BE ASSIGNED TO THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEARS BELOW FOR ANY PART OF THE PROJECT TO WHICH THIS PAGE REFERS.

PROFESSIONAL ENGINEER SEAL

 This document has been digitally signed & sealed
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 LICENSING BOARD
 MISSOURI
 PROFESSIONAL ENGINEER

WATER MAIN REPLACEMENT
 77TH TERRACE TO 79TH STREET
 EUCLID AVENUE TO
 PROSPECT AVENUE
 KANSAS CITY, JACKSON COUNTY, MISSOURI

LAYOUT SHEET 2

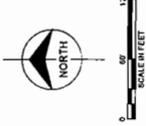
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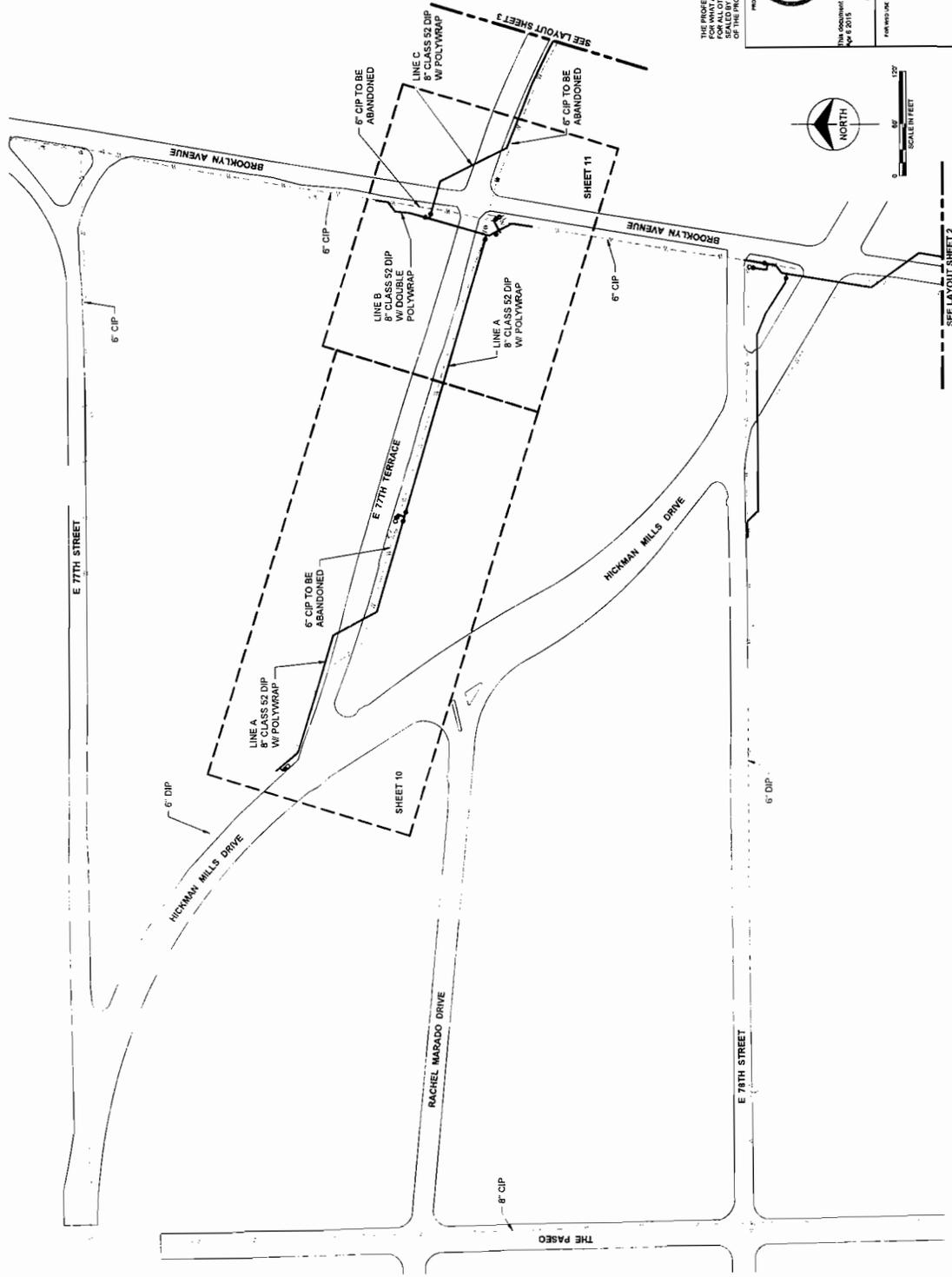
CONTRACT NO.	CONTRACT DATE	DATE COMPLETED	CONTRACTOR
015-187			

CONTRACT NO.	CONTRACT DATE	DATE COMPLETED	CONTRACTOR
015-187			

PROJECT NO. PH-15000019 SHEET 06 OF 13

BURNS & MCDONNELL
 940 WARD PARKWAY
 KANSAS CITY, MO 64114
 PHONE: 816-333-3400
 LICENSEE NO. 000166

SCALE: 1" = 100'




THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEARS BELOW ASSUMES RESPONSIBILITY ONLY FOR HIS OR HER DESIGN AND CONSTRUCTION OF THE PROJECT. THIS DOCUMENT IS NOT TO BE USED FOR ANY OTHER PROJECTS WITHOUT THE WRITTEN CONSENT OF THE ENGINEER. THE ENGINEER'S LIABILITY IS LIMITED TO THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ENGINEER DOES NOT WARRANT THE ACCURACY OF ANY INFORMATION PROVIDED BY OTHERS. THE ENGINEER'S LIABILITY IS LIMITED TO THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ENGINEER DOES NOT WARRANT THE ACCURACY OF ANY INFORMATION PROVIDED BY OTHERS.

WATER MAIN REPLACEMENT
 77TH TERRACE TO 78TH STREET
 EUCLID AVENUE TO
 PROSPECT AVENUE
 JACKSON COUNTY, MISSOURI

LAYOUT SHEET 1



DATE	DESCRIPTION	BY	CHKD	DATE
01/11/17	ISSUED FOR PERMIT	JM	JM	01/11/17
01/11/17	REVISED	JM	JM	01/11/17
01/11/17	REVISED	JM	JM	01/11/17

CONTRACT NO.	DATE	PROJECT NO.	SHEET NO.	OF
DPS - 8427	01/11/17	177TH TERRACE	1	19

BURNS & MCDONNELL
 8405 HARDS PARKWAY
 KANSAS CITY, MO 64114
 LICENSE NO. 000186



SCALE IN FEET
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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.**

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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.l. 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 of 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.

1. 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 considered "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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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.

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	

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)