

CITY OF INDEPENDENCE, MISSOURI



17221 E. 23rd STREET
INDEPENDENCE, MO 64057

Contract Documents For

**6" D.I. WATER MAIN ALONG TRAIL RIDGE DRIVE
(23RD STREET TO PACIFIC AVENUE)**

**6" D.I. WATER MAIN ALONG PACIFIC AVENUE
(TRAIL RIDGE DRIVE TO ELLISON WAY)**

**C23-166-9749
C23-167-9749**

2023

Specification Set No. 1

Name of Bidder Genesis Environmental Solutions, Inc.

Address 8422 MO-7 Highway Blue Springs, MO 64014

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT

Ashton England, Engineer II - (816) 325-7654

**The Public Works Manual of the Independence City Code
can be purchased from the
City Clerk's Office at City Hall
111 East Maple Street
(816) 325-7011**

GENERAL INDEX

Page No.

Invitation to Bid, General Terms and Conditions and Response Instructions	1
Proposal, Affidavit, Reference Sheet and List of Subcontractors	P-1
Affidavit of Compliance with Immigration Law	IML-1
Contractor Preferences Qualifications	Q-1
Contractors Certification Regarding Settlement of Claims	SMC-1
Affidavit of Completion of OSHA Construction Safety Program	OSHA-1
Contract Agreement	C-1
Payment, Performance and Maintenance Bond	PPMB-1

DIVISION OF SPECIFICATION:

Division 1 - General Provisions	1-1
Division 2 - Special Conditions	2-1
Division 3 - Clearing, Grubbing and Demolition	3-1
Division 4 – Pipeline Materials	4-1
Division 4a – Service Line Material	4a-1
Division 5 - Existing Utilities and Improvements	5-1
Division 6 – Excavation and Trenching	6-1
Division 7 – Laying and Backfilling	7-1
Division 8 – Water Main near Sewers	8-1
Division 9 – Water Main Disinfection and Pressure Testing	9-1
Division 10 – Concrete Specifications	10-1
Division 11 – Service Lines	11-1
Division 12 – Erosion Control	12-1



Procurement Division
111 E Maple, PO Box 1019
Independence, MO 64051-0519

Invitation to Bid #23003
Trail Ridge Drive and Pacific Avenue Water Main Replacement
Response Deadline Date and Time: February 10th, 2023, 2:00 p.m., Local Time

Deadline for questions is 5:00 p.m. local time on February 3rd, 2023
Please submit all questions regarding this Invitation to Bid online via www.publicpurchase.com

ATTENTION BIDDER – COMPLETE AND RETURN WITH BID

Bidding Firm Genesis Environmental Solutions, Inc. Phone Number 8168206691
(Please print or type)

Address 8422 S 7 Hwy City Blue Springs State MO Zip 64014

Name of Authorized Agent Jamie Howard Email jhoward@genesisenviron.com

The only authorized source for bid forms, addenda, and information regarding this bid is www.publicpurchase.com. Using bid forms, addenda, and bid information not obtained from www.publicpurchase.com creates the risk of not receiving necessary bid information that may eliminate your bid from consideration. Bids must be submitted online via www.publicpurchase.com. Paper, fax, or email bids will NOT be accepted and will not be returned to sender.

Submitting a bid response is bidder's response to adhere to all specifications, scopes, terms, and conditions of this ITB.

**PROPOSAL
TO THE CITY OF INDEPENDENCE, MISSOURI
TRAIL RIDGE DRIVE AND PACIFIC AVENUE WATER MAIN REPLACEMENT**

**Project No. C23-166-9749
C23-167-9749**

THE UNDERSIGNED BIDDER, having examined the plans, specifications, and other Proposed contract documents hereto attached, and all addenda thereto; the location of the proposed work; the nature of the excavations to be done; the location, arrangement, construction and condition of existing structures affecting the work; and being cognizant of the conditions of streets giving access to the sites of the work; the existing and local conditions relative to construction hazards, labor, transportation, hauling, trucking and all other factors and conditions affecting, or which may be affected by, the work;

HEREBY PROPOSES to furnish all required tools, equipment, plant and materials; to perform all necessary labor and to construct, install and complete all work stipulated in, required by, and in accordance with the proposed contract documents hereto attached and the plans referred to therein for the unit, lump sum and extended prices listed below.

THE UNDERSIGNED BIDDER UNDERSTANDS that the quantities shown in this Proposal are approximate and offers to do the work at the prices stated in the following schedule; the total bid shall be a summation of the price extensions shown and in no event shall the total compensation paid for the work specified herein exceed said total bid unless the Contractor shall obtain a change order duly approved by the City Council prior to the performance of additional or altered work, as set forth in these specifications.

Item No.	Description	Lump Sum
1	Trail Ridge Drive – 23rd St. to Pacific Ave. - Line "A" 2558 feet of 6-inch DIP and associated fittings, valves, and hydrants	\$ 439,000.00
2	Trail Ridge Drive – 23rd St. to Pacific Ave. - Line "A" Forty-Four (44) service lines and associated valves and meter pits	\$ 74,000.00
3	Pacific Avenue – Trail Ridge Dr. to Ellison Way – Line "A" 1647 feet of 6-inch DIP and associated fittings, valves, and hydrants	\$ 280,000.00
4	Pacific Avenue – Trail Ridge Dr. to Ellison Way – Line "A" Twenty-Five (25) service lines and associated valves and meter pits	\$ 42,000.00
5	Queen Ridge Drive – south side of Pacific Avenue to the south – Line "B" 253 feet of 6-inch DIP and associated fittings and valves	\$ 62,000.00

6	Queen Ridge Drive– south side of Pacific Ave. to the south – Line “B” Four (4) service lines and associated valves and meter pits	\$ 6,600.00
7	Sea Avenue – east side of Trail Ridge Dr. to the east – Line “C” 279 feet of 6-inch DIP and associated fittings and valves	55,000.00
8	Trail Ridge Drive – north side of Pacific Ave. to the north – Line “D” 50 feet of 8-inch DIP and associated fittings and valves	23,000.00

Total Construction Costs Not to Exceed (in words and figures)

\$ 981,600.00

Contractor shall only be paid for items completed.

THE UNDERSIGNED HEREBY AGREES to furnish the required bond and to enter into contract agreement within ten (10) days from and after acceptance of this Proposal; and, FURTHER AGREES TO COMPLETE all work covered by this Proposal in accordance with the stipulated conditions and requirements within **One Hundred and Eighty (180) consecutive calendar days** for the amount of the total construction cost shown and accepted.

ENCLOSED is bidder's bond or certified check in the amount of five percent (5%) of the total cost of the construction shown in the Proposal.

Amount of Bond: Forty Nine Thousand Eighty Dollars (\$ 49,080.00)

The following schedule of pricing shall be utilized in the determination of any future change order requests to this contract on an as needed basis and approved by the owner.

The price provided shall include labor, delivery, installation cost and freight.

The contractor shall provide a price for each of the following items in the proper space provided on the bid sheet:

No.	ITEMS	QTY	UNIT	COST	
1	6" d.i. PO CI 52 Pipe	1	LF.	<u>\$ 53.00</u>	LF.
2	6" 11-1/4 degree PO Fitting w/ Field Loc Gaskets	1	ea.	<u>\$ 750.00</u>	ea.
3	6" 22-1/2 degree PO Fitting w/ Field Loc Gaskets	1	ea.	<u>\$ 750.00</u>	ea.
4	6" 45 degree PO Fitting w/ Field Loc Gaskets	1	ea.	<u>\$ 850.00</u>	ea.
5	6" 90 degree PO Fitting w/ Field Loc Gaskets	1	ea.	<u>\$ 850.00</u>	ea.
6	6" MJ Sleeve LP	1	ea.	<u>\$ 600.00</u>	ea.
7	6" PO Plug w/ set screws	1	ea.	<u>\$ 450.00</u>	ea.
8	6" Tee PO 6" x 6" w/ Field Loc Gaskets	1	ea.	<u>\$ 1150.00</u>	ea.

9	6" PO RS Gate Valve w/ Valve box & Field Loc Gaskets	1	ea.	<u>\$ 1650.00</u>	ea.
18	6" Blow-off Assembly	1	ea.	<u>\$ 2500.00</u>	ea.
19	8" d.i. PO CI 52 Pipe	1	LF.	<u>\$ 75.00</u>	ea.
20	8" MJ Sleeve LP	1	ea.	<u>\$ 1150.00</u>	ea.
21	8" PO RS Gate Valve w/ Valve box & Field Loc Gaskets	1	ea.	<u>\$ 2500.00</u>	ea.
22	8" Tee PO 8" x 6" w/ Field Loc Gaskets	1	ea.	<u>\$ 1650.00</u>	ea.
23	8" Tee PO 8" x 8" w/ Field Loc Gaskets	1	ea.	<u>\$ 1850.00</u>	ea.
24	1" Air Release pit Complete	1	ea.	<u>\$ 3500.00</u>	ea.
25	Fire Hydrant Assembly Complete	1	ea.	<u>\$ 6500.00</u>	ea.
26	3/4" Type "K" Service Line - East Side Trail Ridge Dr.	1	LF.	<u>\$ 15.50</u>	LF.
27	3/4" Type "K" Service Line - West Side Trail Ridge Dr.	1	LF.	<u>\$ 15.50</u>	LF.
28	3/4" Type "K" Service Line - North Side Pacific Ave.	1	LF.	<u>\$ 15.50</u>	LF.
29	3/4" Type "K" Service Line - South Side Pacific Ave.	1	LF.	<u>\$ 15.50</u>	LF.
30	3/4" Type "K" Service Line - East Side Queen Ridge Dr.	1	LF.	<u>\$ 15.50</u>	LF.
31	3/4" Type "K" Service Line - West Side Queen Ridge Dr.	1	LF.	<u>\$ 15.50</u>	LF.
32	Abandon Existing Meter Pits	1	ea.	<u>\$ 500.00</u>	ea.
33	Move Existing Meter from inside house to outside	1	ea.	<u>\$ 2900.00</u>	ea.
34	3/4" Install Curb Valve, Curb Box, Meter Well Complete	1	ea.	<u>\$ 1150.00</u>	ea.
35	Abandon Existing Service Lines	1	SY.	<u>\$ 100.00</u>	SY.
36	Asphaltic Concrete Surface (2" Type 3-01)	1	SY.	<u>\$ 100.00</u>	SY.
37	Street Patch PCC Base (8")	1	SY.	<u>\$ 100.00</u>	SY.
38	Driveway Replacement PCC (6") Complete	1	SY.	<u>\$ 90.00</u>	SY.
39	Driveway Replacement PCC (4") Complete	1	SY.	<u>\$ 80.00</u>	SY.
40	Untreated Compacted Aggregate (6")	1	SY.	<u>\$ 9.50</u>	SY.
41	Sod	1	SY.	<u>\$ 8.00</u>	SY.
42	Seed and Straw	1	SY.	<u>\$ 1.62</u>	SY.
43	Curb and Gutter (Type 1)	1	LF.	<u>\$ 26.00</u>	LF.

THE UNDERSIGNED AGREES that this amount is to be forfeited and to become the property of the Owner as liquidated damages should this Proposal be accepted and the contract awarded to him, but he fail to enter into contract agreement in the form prescribed and to furnish the required bond within ten (10) days.

THE BIDDER HEREBY CERTIFIES THAT NO CHANGES HAVE BEEN MADE to the specifications or other documents contained herein.

THE PROPOSAL SIGNED AT 8422 S. 7 Hwy Blue Springs, MO
this 10 day of Feb, 2023.

(Please sign as applicable)

Individual doing business as:

Firm Name

/s/

Individual

A Partnership:

Firm Name

/s/

Partner

/s/

Partner

A corporation in the State of:
Missouri

/s/ N/A

Secretary of Corporation

Genesis Environmental Solutions, Inc.

Firm Name

/s/ Brooke Brien - POA

President

seal



Bidder's business address:

8422 S 7 Hwy

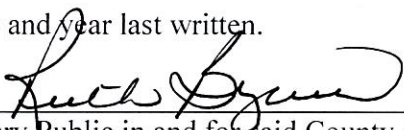
Blue Springs, MO 64014

Corporation President's business address, if different from above:

Acknowledgment

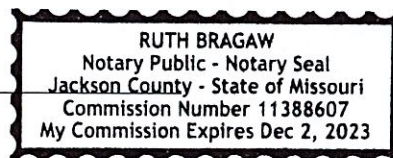
State of Missouri)
County of Jackson)ss

On this 10 day of Feb, 2023, before me, a Notary Public, personally appeared signatories Brooke Bias and _____ to me known to be the persons described in and who executed the foregoing instrument, and acknowledges that he/she/they did execute the same as his/her/their free act and deed. In testimony whereof, I have hereunto set my hand and affixed my official seal as witness at Blue Springs, MO on the day and year last written.



Notary Public in and for said County and State

My commission expires:



A F F I D A V I T
T O
C I T Y O F I N D E P E N D E N C E , M I S S O U R I
O N

T R A I L R I D G E D R I V E A N D P A C I F I C A V E N U E W A T E R M A I N R E P L A C E M E N T

Project No. C23-166-9749
C23-167-9749

Acknowledgment

STATE OF MISSOURI)
)ss
COUNTY OF JACKSON)

THE UNDERSIGNED, Brooke Bias, of lawful age and being first duly sworn, states upon oath that he/she is the POA of Genesis, the Contractor submitting the attached Proposal; that he/she knows of his/her own knowledge and states it to be a fact that neither said Proposal nor the computation upon which it is based include any amount of money, estimates or allowance representing wages, monies or expenses, however designated, proposed to be paid to persons who are not to be required to furnish materials or actually perform services upon or as part of the proposed project.

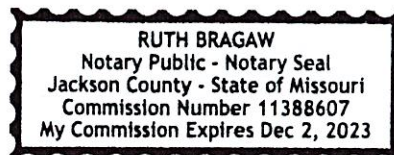
/s/ Brooke Bias
Affiant

Subscribed and sworn to before me, a Notary Public in and for the County and State aforesaid, this 9 day of FEB, 2023.

/s/ Ruth Bragaw
Notary Public

My commission expires:

Dec 2, 2023



REFERENCE SHEET

In the interests of the Owner's convenience and possible saving of time, the Bidder invites attention to the following projects containing work similar or comparable to that which is covered in the foregoing bid and which have been completed successfully under his direction. Please supply a minimum of three (3) references within the past three (3) years.

PROJECT	OWNER AND PHONE NUMBER
Buck O'Neil Waterline	Clarkson-Massmen 816-898-1312
Storm Sewer new construction	Crossland 816-960-4553
5 miles of 12" ductile iron install	US Engineering 816-751-9293

In the same spirit as above, the Bidder submits the following financial references who regularly serve him as suppliers of materials or services, with the understanding that this information is not, at this time, a requirement for consideration of the attached proposal.

SUPPLIER OR BANK	ADDRESS AND PHONE NUMBER
Core & Main	Blue Springs, MO 816-229-9604
Talon Concrete	Kansas City, MO 816-257-4000
Reliable Concrete	Kansas City, KS 913-321-8108

**LIST OF SUBCONTRACTORS AND
IDENTIFICATIONS OF PARTICIPATING M.B.E.'S**

The undersigned submits the following list of subcontractors, suppliers and minority business enterprises proposed in accomplishing the work of this contract. The use of these subcontractors, suppliers, and minority business enterprises, as submitted and approved by the Owner shall be considered a condition of the contract and changes thereto will be permitted only by written consent of the Owner. The work each subcontractor and supplier is to perform and the dollar value of each proposed subcontract is as follows:

Contractor or Supplier	Minority or Non-Minority Owned	Description of Work	\$ Value of Work	% of Total Contract
Core & Main	Non	Pipe	300,000.00	30
Rising Construction	Minority	Traffic Control, Sod/Seeding, Concrete & Services	100,000.00	10
Lovelace	Minority	Survey	10,000.00	1
Hamm	Non	Rock	15,000.00	1.5
Talon	Non	Concrete	20,000.00	2

By: Buole Ben
Owner POA

Dated: 2/10/23

**AFFIDAVIT OF COMPLIANCE
WITH IMMIGRATION LAW**

STATE OF Missouri
COUNTY OF Jackson

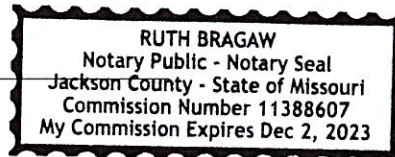
THE UNDERSIGNED Brooke Bias, of lawful age and being first duly sworn, states upon oath that (s)he is the POA of Genesis, the Contractor submitting the attached proposal and that the Contractor is enrolled and participates in a federal work authorization program with respect to the employees that will perform work under the contract and that the Contractor does not knowingly employ to perform work under this contract any person who is an unauthorized alien.

Brooke Bias

Subscribed and sworn to before me, a Notary Public, in and for the County and State aforesaid, this 9 day of FEB, 2023.

Ruth Bragaw

My Commission Expires: _____



CONTRACTOR PREFERENCES AND QUALIFICATIONS (CONTINUED)

All contractors bidding on construction contracts which exceed \$500,000 with the City of Independence shall meet qualification standards prior to acceptance of any bid.

To be determined qualified the contractor must provide or participate in each of the following for the benefit of its employees and in addition, the contractor will certify that all subcontractors under their control will comply with the following:

1. An ERISA-qualified medical welfare benefit plan or health insurance in some form.
2. A training program approved by and registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training or equivalent.
3. An ERISA-qualified pension plan or a retirement benefit program.

I certify that the above qualifications are met and that all subcontractors to be used to perform the work will comply with the qualification standards.

By: Brooke Bean

Date: 2/10/23

CONTRACTOR PREFERENCES AND QUALIFICATIONS

When entering into any contract which exceeds \$300,000.00 involving labor or hiring any labor for public contract work, preference may be given to contractors, mechanics, artisans or other laborers of any class, who shall have actually resided in Jackson County, Missouri, for a period of six months preceding the start of their engagement.

- a. A contract or purchase may be awarded to a bidder utilizing local labor where the bid by such bidder is, in all material respects, comparable to the lowest responsible bid not utilizing local labor if the amount bid (labor, materials, and other services) by such bidder does not exceed the lowest bid not utilizing local labor by more than the following percentages, unless such an award is contrary to State or Federal law or regulation or unless the Council, at its discretion, determines prior to giving notice soliciting bids that the provisions of this section shall not apply to the contract or purchases:

\$0 to \$300,000.00 – No preference

\$300,000.00 to \$1,000,000 – Five percent (5%) on the first \$300,000 and no adjustment for the amount between \$300,000 and \$1,000,000

\$1,000,000.00 and Greater - Five percent (5%) higher on the first \$300,000.00 and two and one-half percent (2.5%) on the amount between \$300,000.00 and \$1,000,000.00

No additional adjustment for amounts in excess of \$1,000,000.00

The amount of any preference awarded will be based on the maximum preference awarded for size of the contract multiplied by the percentage of local labor, compared to the total labor for the work.

BB I choose to claim the above local labor preference by providing 50 percent of local labor for the work.

Licensed businesses operating from a physical address in the City of Independence for a minimum of (6) months when quality, service and other terms of the purchase are equal to or better than the low bid. The local business shall be given a preference of ten percent (10%) over the low bid, provided that the difference between the low bid and the local bid does not exceed thirty thousand dollars (\$30,000.00) maximum.

_____ I choose to claim the above local labor preference.

By: Bruce Bear

Dated: 2/10/23

**CONTRACTOR'S CERTIFICATION
REGARDING
SETTLEMENT OF CLAIMS**

DATE: _____, 2023.

TRAIL RIDGE DRIVE AND PACIFIC AVENUE WATER MAIN REPLACEMENT

Project No.	C23-166-9749
	C23-167-9749

To the City of Independence, Missouri:

This is to certify that all lawful claims for material, lubricants, fuel, coal, coke, repairs on machinery, groceries and foodstuffs, equipment and tools consumed or otherwise used in connection with the construction of the above mentioned project, and all insurance premiums, both compensation and all other kinds of insurance on said work and for all labor performed in said work, whether by subcontractor or claimant in person or by his employ, agent, servant, bailee or bailor, have been paid and discharged in full.

Contractor: _____

Signature

Title

(Name typed or printed)

State of _____)
_____)ss.
County of _____)

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

My commission expires:

Notary Public

AFFIDAVIT OF COMPLETION OF OSHA CONSTRUCTION SAFETY PROGRAM

STATE OF Missouri)
COUNTY OF Jackson) ss.

I, Brooke Bias, do hereby authenticate that I am a duly authorized agent of Genesis and I have all requisite power and authority to execute and deliver this Affidavit and am competent to testify to the matters stated herein on behalf of Genesis.

1. Genesis has provided a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved which is at least as stringent as an approved OSHA program within sixty days (60) of beginning work on any construction project for the City of Independence, MO.

Any employee found on a work site subject to this section without documentation of the successful completion of the course required under Missouri Revised Statute 292.675 shall be afforded twenty days to produce such documentation before being subject to removal from the project.

2. Genesis does not knowingly employ or contract any person who has not completed an approved safety and health training program.

By: Brooke Bias

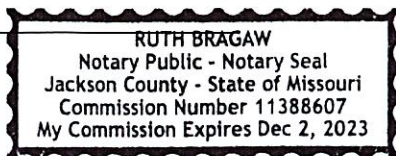
Brooke Bias Printed Name

Genesis Environmental Solutions company
Inc.

Subscribed and sworn to before me this 9 day of FEB, 2023.

Ruth Bragaw
Notary Public

My Commission Expires:



Sarah H. Steelman
Commissioner

Corey D. Bolton
Acting Director



STATE OF MISSOURI
OFFICE OF ADMINISTRATION
OFFICE OF EQUAL OPPORTUNITY

THIS CERTIFIES THAT

GENESIS ENVIRONMENTAL SOLUTIONS, INC.

Qualifies as a Minority-Owned Business Enterprise which has met the eligibility criteria established by the State of Missouri, Office of Administration.

Corey D. Bolton, Acting Director, Office of Equal Opportunity

Certification Number:	Date of Issue:	Date of Expiration:
3080	06/15/2015	12/16/2023

- ❖ Date of Expiration is only valid with completion of Annual Update / Recertification prior to the anniversary date.
- ❖ Current certification status of the above mentioned firm can be verified on the Office of Equal Opportunity Directory's website at: <https://apps1.mo.gov/MWBCertifiedFirms/>



COMPANY CAPABILITIES

PETROLEUM/CHEMICAL TANK SERVICES-ENVIRONMENTAL FIELD SERVICES-INDUSTRIAL
COATINGS
"A NATIVE AMERICAN OWNED BUSINESS ENTERPRISE"
MBE/DBE/SBA

AREA	DESCRIPTION
Name	Genesis Environmental Solutions, Inc. (Genesis)
Specialty/Niche	Providing turn-key solutions to the petroleum and chemical storage tank industry. Professional Certifications, Guaranteed Quality and Proven Reliability.
Company Information	<p>M. Shaun Thomas 8422 South Hwy 7 President/Owner Blue Springs, Missouri 64014 stthomas@genesisenviron.com Phone: 816.229.5900 Website: www.genesisenviron.com Established: 2004 • DUNS No. 194844853 • Cage Code: 39YS9</p> <p>Environmental and Construction Field Services:</p> <p>Site Remediation • Emergency Response • HAZWOPER Services • Confined Space Operations • Excavation • Trucking • Tanker Services • Vacuum Truck Services • Vacuum Trailer Services • Frac Storage Tanks • Site Demolition • Site Utilities</p> <p>Industrial Painting & Coatings, Abrasive Blasting:</p> <p>Blast and Paint Shop Facility • 100% Solids Epoxies • Fiberglass Epoxy Systems • Polyurea Lining Applications • Elastomeric Coatings • Zinc Epoxy Systems • Cementitious Resurfacing • Polyurethanes • Fluoropolymers • Vinyl Ester Resins • Field Application Services • 3rd Party Coating Inspection Services • Lead Abatement</p> <p>Industrial Cleaning and Water Blasting Services:</p> <p>Concrete • Steel • Fiberglass • Acids/Caustics/Petroleum • Water and Wastewater Treatment • Clarifiers/Basins/Potable • Water Reservoirs/Tanks • Secondary Containments</p> <p>Non-Destructive Integrity Testing and Inspection Services for Petroleum and Chemical Storage Tanks and Secondary Containments:</p> <p>API 653 AST Storage Tank Inspections • API 510 Pressure Vessel Inspections • API 1631 UST Storage Tank Inspections • STI SP-001 AST Storage Tank Inspections • Low/High Voltage Spark Testing • Tank Shell Integrity • Ultra Sonic Thickness Testing • Magnetic Flux Leakage • Vacuum Box Testing • Cathodic Protection Testing and Repair • API 570 Piping Inspections • API 580 Risk Based Inspections</p> <p>OSHA Training:</p> <p>40 Hour HAZWOPER • 30 Hour • 10 Hour • Confined Space</p>
Company Services	

NAICS Codes	562910 Environmental Remediation Services and Cleanup of Contaminated Buildings, Mine Sites, Soil, or Groundwater ▪ 54162 Environmental Consulting Services ▪ 541380 Environmental Testing Laboratories or Services ▪ 238910 Demolition, Excavation, Site Preparation Contractors ▪ 236220 Commercial and Institutional Building Construction ▪ 235590 Specialty Trade Contractors ▪ 238110 Concrete Contractors Including Repair ▪ 238320 Engineering Construction (E.G., Oil Storage, Chemical, Water, Storage Tank ▪ 238390 Concrete Coating, Glazing or Sealing (E.G., Epoxies, Polyurea of Secondary Containments or Floor Coatings) ▪ 238990 Painting Metals and Metal Product ▪ 332812 Metal Coating, and Allied Services, 237110 Waterline & Sewer Line and Related Structures
Professional Certifications	American Petroleum Institute-API-National ▪ Steel Tank Institute-STI-National ▪ US Army Corp of Engineers Quality Control Manager-QCM Training ▪ Missouri Licensed Petroleum Storage Tank Contractor Kansas Licensed Petroleum Storage Tank Contractor ▪ Tennessee Licensed Petroleum Storage Tank Contractor ▪ OSHA 40 Hazardous Waste Operations Training ▪ OSHA Hazard Communications Training ▪ Brownfields Training ▪ National Association of Corrosion Engineers NACE Level III & Level II Inspector ▪ National Association of Corrosion Engineers-NACE Cathodic Inspection Tester ▪ Certified Mold Inspection ▪ Lead Abatement Certified
Primary Clients	United States Army Corp of Engineers ▪ Burns & McDonnell Consulting Engineers ▪ Tetra-Tech Environmental Consultants ▪ SCS Engineers ▪ Kellogg Brown & Root ▪ AECOM ▪ Kleinfelder ▪ Kansas City Power & Light ▪ John Deere ▪ Water District One of Johnson ▪ Kellogg ▪ Cargill ▪ Bayer CropScience ▪ City of Kansas City, Missouri JE Dunn ▪ Terracon ▪ KCATA ▪ Brandenburg ▪ VA of Leavenworth ▪ Quiktrip Panhandle Eastern
Supplier Diversity	MBE/DBE Certified - City of Kansas City Missouri MBE/DBE Certified - Midwest Regional Certification Committee MBE/DBE Certified - Missouri Office of Administration MBE/DBE Certified - Ottawa Tribe of Oklahoma MBE/DBE Certified - Cherokee Nation
Past Performance	<p><i>Environmental/Construction Services</i></p> <p><i>Lead and Arsenic Site Remediation</i></p> <p>The project consisted of asbestos and demolition of 12 manufacturing buildings as well as remediation lead and arsenic waste that had been used to construct the tee boxes and greens on a 9 hole golf course as well as remediation of sediment from one of the on-site ponds impacted by decades of the manufacturing of golf clubs by the world renown Kenneth Smith Golf Club Manufacturing Company.</p> <p>A total of 7930 tons of that Lead and Arsenic soils and sediment were remediated to make way for luxury estate building lots in Lenexa Kansas.</p> <p><i>Industrial Coatings/Painting Services</i></p> <p><i>KCPL LaCygne Generation Station Environmental Retrofit-BOP Demo</i></p> <p>Genesis completed surface preparation and repainting of the remaining existing steel beams of the AQC Scrubber Building after demolition of all interior surfaces. Complete Class 1A containment as required for the removal of existing failed lead-based coatings. Power washing to remove buildup of debris. Removal of failed or unsound existing coatings by abrasive blasting with coal slag and Blastox additive. Application of new coatings to include spot priming of bare surfaces and one complete topcoat to all remaining exposed structural steel surfaces. Removal, hauling, and disposal of lead contaminated paint, blast media and dismantled the containment structure at the conclusion of the project.</p> <p><i>Panhandle Eastern Compressor Station Exhaust Stacks</i></p> <p>Genesis was contracted by Energy Transfer to abrasive blast and apply a 2-coat high heat coating onto 10 exhaust stacks. We were required to schedule each exhaust stack around the owner's operation of each compressor including controlling the dust.</p> <p>Genesis started the project in September of 2017 and completed in November of 2017.</p>

Integrity Inspection Services

Southern Star Energy API 510 and STI SP001 Integrity Inspections

Genesis was contracted to perform API 510 Integrity Inspections on Pressure vessels and STI SP001 Integrity Inspections on bulk storage tanks at (10) Pipeline Stations throughout Wyoming, Colorado, and Kansas.

Mears Fertilizer (1) API 653 Out of Service and (2) API 653 In Service Inspections

Genesis was contracted to perform API 653 inspections on 3 large aboveground storage tanks ranging from 300,000 to 400,000 gallons. We performed an Internal Out-of-Service inspection on (1) 400,000-gallon tank to include scaffold erection for Holiday testing of an internal lining. Magnetic Flux Leakage (MFL) testing was also performed on the tank floor.

Oklahoma University Medical Center

Genesis was contracted to provide excavation and shoring for installation of steam and condensate lines from Children's hospital to Adult bed tower over a block away. This required Genesis personnel to provide open cut excavation through the lower level of an existing parking garage and across 6 lanes of Children's Ave. in downtown Oklahoma City and required meticulous excavation to cross approximately 37 different utilities. Genesis also constructed a cantilever beam and wood lagging shoring system for the installation of a poured in place utility vault.

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310 Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT WE Genesis Environmental Solutions, Inc.
8422 South 7 Highway, Blue Springs, MO 64014

as Principal, hereinafter called the Principal, and Swiss Re Corporate Solutions America Insurance Corporation
1200 Main Street, Suite 800, Kansas City, MO 64105

a corporation duly organized under the laws of the State of MO

as Surety, hereinafter called the Surety, are held and firmly bound unto City of Independence, Missouri
111 E. Maple, PO Box 1019, Independence, MO 64051

as Obligee, hereinafter called the Obligee, in the sum of Five Percent of Amount Bid

Dollars (\$ 5%),
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs,
executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Invitation to Bid #23003, Trail Ridge Drive and Pacific Avenue Water
Main Replacement, Project No. C23-166-9749, C23-167-9749

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and materials furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 10th day of February


(Witness)

Genesis Environmental Solutions, Inc.
(Principal)

By: 



Swiss Re Corporate Solutions America Insurance Corporation
(Surety)

By: 
Attorney-in-Fact Camille O. Parman


Sami M. Farrell
(Witness)



SWISS RE CORPORATE SOLUTIONS

SWISS RE CORPORATE SOLUTIONS AMERICA INSURANCE CORPORATION ("SRCSAIC")
SWISS RE CORPORATE SOLUTIONS PREMIER INSURANCE CORPORATION ("SRCSPIC")
WESTPORT INSURANCE CORPORATION ("WIC")

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT SRCSAIC, a corporation duly organized and existing under laws of the State of Missouri, and having its principal office in the City of Kansas City, Missouri, and SRCSPIC, a corporation organized and existing under the laws of the State of Missouri and having its principal office in the City of Kansas City, Missouri, and WIC, organized under the laws of the State of Missouri, and having its principal office in the City of Kansas City, Missouri, each does hereby make, constitute and appoint:

MONICA F. DONATELLI, S. MARK WILKERSON, CAROLYN J. JOHNSON, DEBRA L. WALZ, KATHERINE J. BREIT,
CAMILLE O. PARMAN, and MORGAN L. WILKERSON

JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

ONE HUNDRED TWENTY-FIVE MILLION (\$125,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of both SRCSAIC and SRCSPIC at meetings duly called and held on the 18th of November 2021 and WIC by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Managing Director, any Senior Vice President, any Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is, authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Corporation bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Corporation; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Corporation may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Corporation when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."



By Erik Janssens
Erik Janssens, Senior Vice President of SRCSAIC & Senior Vice President
of SRCSPIC & Senior Vice President of WIC

By Gerald Jagrowski
Gerald Jagrowski, Vice President of SRCSAIC & Vice President of SRCSPIC
& Vice President of WIC



IN WITNESS WHEREOF, SRCSAIC, SRCSPIC, and WIC have caused their official seals to be hereto affixed, and these presents to be signed by their authorized officers

this 10 day of NOVEMBER, 20 22

State of Illinois
County of Cook

SS

Swiss Re Corporate Solutions America Insurance Corporation
Swiss Re Corporate Solutions Premier Insurance Corporation
Westport Insurance Corporation

On this 10 day of NOVEMBER, 20 22, before me, a Notary Public personally appeared Erik Janssens, Senior Vice President of SRCSAIC and Senior Vice President of SRCSPIC and Senior Vice President of WIC and Gerald Jagrowski, Vice President of SRCSAIC and Vice President of SRCSPIC and Vice President of WIC, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.



Christina Manisco
Christina Manisco, Notary

I, Jeffrey Goldberg, the duly elected Senior Vice President and Assistant Secretary of SRCSAIC and SRCSPIC and WIC, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said SRCSAIC and SRCSPIC and WIC, which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 10th day of February, 20 23.

Jeffrey Goldberg
Jeffrey Goldberg, Senior Vice President &
Assistant Secretary of SRCSAIC and
SRCSPIC and WIC



CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this ____ day of _____, 2023, by and between the CITY OF INDEPENDENCE, MISSOURI, acting through the City Manager, thereunto duly authorized to do so, party of the First Part and hereinafter called the Owner; and _____ a corporation of the state of Missouri, Party of the Second Part and hereinafter called the Contractor, WITNESSETH:

THAT WHEREAS the Owner has caused to be prepared, in accordance with law, specifications, plans and other contract documents for the work herein described, and has approved and adopted said documents, and has caused to be published in the manner for the time required by law, an advertisement for and in connection with the construction of items in accordance with the terms of this contract; and,

WHEREAS the said Contractor, in response to such advertisement, has submitted to the Owner in the manner and at the time specified, a sealed Proposal in accordance with the terms of said advertisement; and,

WHEREAS the Owner, in the manner prescribed by law, has publicly opened, examined and canvassed the Proposals submitted in response to the published invitation therefore, and as a result of such canvass has determined and declared the aforesaid Contractor to be the lowest or best bidder for the said work and has duly awarded to the said Contractor a contract therefore, for the sum or sums named in the Contractor's Proposal, a copy thereof being attached to and made a part of this contract agreement.

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the Parties to these presents have agreed and hereby agree, the Owner for itself and its successors, and the Contractor for itself, himself, or themselves, or its, his, or their successors and assigns, or its, his, or their executors and administrators, as follows:

ARTICLE 1

That the Contractor shall:

- a. furnish all tools, equipment, supplies, insurance, superintendence, transportation, and other construction accessories, services, and facilities;
- b. furnish all materials, supplies, and equipment specified and required to be incorporated in and form a permanent part of the completed work;
- c. provide and perform all necessary labor and, in a good, substantial, workmanlike manner in accordance with the general provisions and technical specifications of this contract, which are attached hereto and made a part hereof, and in conformity with the contract plans and specifications designated and identified therein;
- d. make payment of all wages in conformance with the official schedule of wage rates

as determined by the Industrial Commission of Missouri for the Department of Labor and Industrial Relations, and in compliance with the Prevailing Wage Law of Missouri, all as set forth in the general provisions which are attached hereto and made a part hereof by reference, perform and observe all of the terms, agreements, requirements and conditions contained in the general provisions and technical specifications which are attached hereto and made a part hereof by reference;

- e. execute, construct and complete all work included in and covered by the Owner's official award of this contract to the said Contractor, such award being based on the acceptance by the Owner of the Contractor's Proposal, (or part thereof if Owner so elects).

ARTICLE 2

That the Owner shall pay to the Contractor for the performance of the work embraced in this contract, and the Contractor will accept as full compensation therefore, a sum (subject to change orders approved by the City Council) not to exceed _____ for all work covered by and included in the contract award and designated in the foregoing Article 1; payment thereof to be made in the manner provided in the general provisions hereto attached.

ARTICLE 3

That the Contractor shall work on, or within ten (10) days following the date of a written order from the Owner to the Contractor to proceed with the work to be performed under provisions of this contract, or on a subsequent date designated and authorized by the Owner in said order, and that the Contractor shall complete said work within **Two Hundred and Forty (240) calendar days** from and after the date of, or subsequent date authorized in, the said order by the Owner to proceed.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year above written.

CITY OF INDEPENDENCE, MISSOURI
Party of the First Part (Owner)

By: _____
Zachary Walker, City Manager

Party of the Second Part (Contractor)

ATTEST:

By: _____

Rebecca Behrens, City Clerk

SEAL:

ATTEST:

Corporation Secretary

Address:

*

The foregoing contract and bond(s) are in due form according to law and are hereby approved.

ATTORNEY FOR OWNER

Jeremy Cover, City Counselor

PAYMENT, PERFORMANCE AND MAINTENANCE BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENTS that we, _____ as Principal, and _____, as Surety, are held and firmly bound unto the CITY OF INDEPENDENCE, MISSOURI _____ for payment where of the Principal and Surety bind themselves, their heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal has, by means of a written agreement dated the ____ day of _____, 2023, entered into a contract with the CITY OF INDEPENDENCE, MISSOURI, for:

TRAIL RIDGE DRIVE AND PACIFIC AVENUE WATER MAIN REPLACEMENT

**Project No. C23-166-9749
C23-167-9749**

NOW, THEREFORE, if the Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract, and any extensions thereof that may be granted by the City of Independence, Missouri, with or without notice to the Surety and during the life of any guaranty required under the contract; and shall also faithfully perform all duly authorized modifications of said contract that may hereafter be made with or without notice to Surety; and shall also promptly make payment for material and supplies, lubricants, oil, gasoline, bottled gases, grain, hay, feed, coal and coke, groceries and foodstuffs, equipment and tools, repairs on machinery and other services, electricity, utility gas, water and telephones, any and all as consumed or used in connection with the work set forth in the contract referred to above, and all insurance premiums, including compensation and all other kinds of insurance or sureties, on said work, and for all labor performed on such work, whether by subcontractor or otherwise, at not less than the prevailing hourly rate of wages for legal holiday and overtime work, exclusive of maintenance work, in the locality in which the work is performed, both as determined by the Department of Labor and Industrial Relations and/or determined by court on appeal, as provided for in said contract and in any and all duly authorized modifications of said contract that be hereafter made, with or without notice to the Surety, then, this obligation shall be void and of no effect, but it is expressly understood that if the Principal should make default in or should fail to strictly, faithfully and efficiently do, perform and comply with any one or more of the covenants, agreements, stipulations, conditions, requirements or undertakings, as specified in or by the terms of said contract, and within the time therein named, then this obligation shall be valid and binding upon each of the parties hereto and this bond shall remain in full force and effect; and the same may be sued at the instance of any material supplier,

laborer, mechanic, subcontractor, individual, or otherwise to whom such payment is due, in the name of the City of Independence, Missouri, to the use of any such person.

AND IT IS FURTHER specifically provided that any modifications which may hereafter be made in terms of the contract or in the work to be done under it or the giving by the Owner of any extension of the time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal and the Surety, or either or any of them, their heirs, executors, administrators and successors, from their liability hereunder; notice to the Surety of any such extension, modification or forbearance being hereby waived.

PROVIDED FURTHER, the Contractor shall construct said improvement with such materials and in such manner that the same shall endure without need of any repairs resulting from defect for a period of two (2) years from and after the completion of said improvement and acceptance thereof; and if said improvement shall endure without the need of repairs in materials and workmanship for the same period of two (2) years from and after the completion and acceptance thereof as aforesaid, then this obligation shall be void, otherwise to be in full force and effect.

IN WITNESS WHEREOF, the herein bounden parties have executed the within instrument this _____ day of _____, 2023.

AS APPLICABLE:

An individual doing business as:

Company Name

/s/

A partnership:

Company Name

/s/

Partner

/s/

Partner

A corporation in the state of:

State

Firm Name

ATTEST:

/s/

Corporation Secretary

/s/

President:

corp. seal

/s/

Surety
(Surety shall attach Power-of-Attorney)

surety seal

/s/

Attorney-in-Fact

Corporation address:

Business address of President, if
different from corporation address:

DIVISION 1 - GENERAL PROVISIONS

1-1 Applicable Standards

Shall be the latest revision of the following, unless otherwise specified or indicated on the drawings:

Chapter 20 - Public Works Manual of the Independence City Code,
Article 13 - Contract General Provisions.

1-2 General

1. The bidder shall have three (3) verifiable sources of satisfactory completion of a job of this size, scope and magnitude. Please include with this list, customer contact name and phone number.
2. The property (right-of-way) and area surrounding the work area shall be kept in a clean and orderly manner while the work is being performed and after the completion of the work said property (right-of-way) shall be returned to its previous condition or better than before the start of the project.

DIVISION 2 - SPECIAL CONDITIONS

2-1 Description of Project

The contract provides for, but is not limited to, installation of approximately 2543 ft. of 6-inch. d.i. class 52 water pipe on the west side of Trail Ridge Drive from 23rd St. to Pacific Avenue, 1647 ft. of 6-inch d.i. class 52 water pipe on the south side of Pacific Avenue from Trail Ridge Drive to Ellison Way, 279 ft. of 6-inch d.i. class 52 water pipe on the south side of Sea Avenue from approximately 16060 E Sea Avenue to Trail Ridge Drive, 253 ft. of 6-inch d.i. water pipe on the west side of Queen Ridge Drive from the Pacific Avenue to approximately 704 S Queen Ridge Drive, and 50 ft. of 8-inch d.i. water pipe on the east side of Trail Ridge Drive from Pacific Avenue to approximately 1724 S Trail Ridge Drive including all labor, materials and equipment and all necessary appurtenances to complete the project as specified.

2-2 Scope of Contract

The contract provides for, but is not limited to, the design and construction, including all appurtenant work for the completion of the project as shown on the drawings and as outlined in the specifications, including all necessary equipment, labor, materials, and supplies required.

2-3 Reports

The Contractor shall deliver to the Engineer each week a memorandum of the number of personnel engaged upon the work each day of the previous week, weekly payrolls and a statement of all materials delivered at the site during the previous week, both for temporary use and for permanent construction.

2-4 Tests

Laboratory tests of materials and equipment, normally conducted by the manufacturer, and tests to establish preliminary design of the concrete mix, concrete cylinder compressive tests, as well as compaction tests, shall be paid for by the Owner. Tests other than the above will be paid for by the Contractor, including costs of transporting samples. Test results will be distributed via email to the following: Engineer, Contractor, Supplier or Manufacturer.

2-5 Subsurface Information

A limited amount of subsurface information has been obtained for this project. Bidders shall assume full responsibility for obtaining any data which they deem desirable. Any additional subsurface investigations shall be made at no additional cost to the Owner. The Contractor agrees that he will make no claims against the Owner or the Engineer if, in carrying out the job, he finds that the actual conditions encountered do not conform to those indicated by said surveys or other subsurface investigations.

DIVISION 2 - SPECIAL CONDITIONS (Continued)

2-6 List of Drawings

Trail Ridge Drive and Pacific Avenue Water Main Replacement Construction Plans

2-7 Conference

Preconstruction Conference

Prior to the start of construction, the Contractor, his superintendent, and his major subcontractors shall attend a preconstruction conference, which will be arranged by the Engineer. The purpose of this conference will be to discuss project supervision, progress schedules and reports, payroll and payment, contract change orders and other items pertinent to the project.

2-8 Minority/Women Business Enterprise Participation

All bidders are encouraged to solicit minority business enterprises for participation in the performance of this contract.

2-9 Definition

“Engineer” shall mean the Distribution Manager or Distribution Engineer of the Independence Water Department, or his duly authorized representatives.

2-10 Liquidated Damages

Time is of the essence of this contract. The work shall be prosecuted diligently at such rate of progress as will insure full completion thereof within the Contract Time. The Contract Time is reasonable in consideration of the average conditions usually encountered in the performance of such work. If the Contractor shall neglect, refuse, or fail to complete the work within the time set forth above, or any proper extension thereof granted by the Owner, the Contractor shall pay to the Owner for each and every day he is in default \$1,500.00 per day for each day the entire work is incomplete.

Section 20.13.018, paragraph B of the Public Works Manual shall remain the same for this project, except as follows:

B. The Contractor shall forfeit, as a penalty to the City of Independence, Missouri, One Hundred Dollars (\$100.00) for each worker employed for each calendar day or portion thereof, if such worker is paid less than the prevailing wage rate as set forth in the specifications for any work done under a given contract, or by any subcontractor working under such contract. In addition to the penalty, progressive contract payment shall be withheld until there is compliance with the prevailing wage rate.

DIVISION 2 - SPECIAL CONDITIONS (Continued)

2-11 Federal Taxpayer I.D. Number

The Contractor must provide the Engineer with his Federal I.D. Number prior to the issuance of the "Notice to Proceed."

2-12 Insurance Requirements

Section 20.13.030(B) of the Public Works Manual shall remain the same for this project, except as follows:

Bodily Injury:	\$1,000,000	per occurrence
Property Damage:	\$1,000,000	per occurrence

2-13 Material

It will be the responsibility of the contractor to provide a location for the pipeline material to be delivered. It will be the responsibility of the contractor to provide the labor and equipment to unload pipe, fittings, and fire hydrants from the delivery truck.

2-14 Material Inspection

It will be the responsibility of the contractor to inspect all material prior to its installation for any defects, etc. If material is found to be defective, the contractor **must** report the defect to the inspector.

2-15 Base Bid

The contractor is responsible for providing all the materials for the project, including, but not limited to, 6", 8" push on ductile iron pipe CI 52, 6", 8" push on ductile iron fittings and all necessary appurtenances.

2-16 Traffic Control

All traffic control barriers, signage and traffic control plan will be the contractor's responsibility. The traffic control plan will need to be approved by the City's Traffic Engineer.

RESIDENTS ARE TO HAVE ACCESS TO DRIVEWAYS AT ALL TIMES WITH MINIMAL IMPACTS.

Contractor responsible for street plates (steel plates) if required.

DIVISION 2 - SPECIAL CONDITIONS (Continued)

2-16 Compliance with Laws, Permits, Licenses and Taxes

I. Section 20.13.00.6 shall be amended to read as follows:

- A) The Contractor shall conform to and comply with all applicable laws, bylaws, regulations and ordinances with regard to all and every action and operation, and shall require conformity and compliance of all subcontractors and employees in such a manner as to save the Owner harmless. The Contractor shall secure and be financially responsible for all permits, licenses, approvals, acceptances, etc., relative to the conduct of all work and shall give all notices necessary to the due and lawful prosecution of the work. Fees for required City permits for work within the construction limits will **NOT BE WAIVED**.
- B) The City is exempt from sales tax. This includes purchases by contractors for City projects. The City will provide a certificate to contractors for their use in obtaining the sales tax exemption. Contractors are to prepare their bids for City projects without including sales tax.

2-17 Connection Point (6 inch Tie-in)

- A. **Line A** - 6-inch connection at S Ellison Way will need to be completed to supply water for filling and flushing new water main. The Contractor will need to schedule with Water Department two weeks ahead of when he or she wants this tie-in completed. Contractor will be responsible for the excavation, steel plates and traffic control for tie-in. Once work has begun the tie-in work must be completed (excavation must be backfilled and lanes of road must be re-opened to traffic) before the Contractor leaves the jobsite for that day.
- B. **Line C** - 6-inch connection at 16060 E Sea Avenue will need to be completed to supply water for filling and flushing new water main. The Contractor will need to schedule with Water Department two weeks ahead of when he or she wants this tie-in completed. Contractor will be responsible for the excavation, steel plates and traffic control for tie-in. Once work has begun the tie-in work must be completed (excavation must be backfilled and lanes of road must be re-opened to traffic) before the Contractor leaves the jobsite for that day.

All tie-ins to the existing system are to be completed by the Independence Water Department unless otherwise stated on the construction plans.

DIVISION 3 - CLEARING, GRUBBING AND DEMOLITION

3-1 Applicable Standards

Shall be the latest revision of the following:

Chapter 20 - Public Works Manual of the Independence City Code.
Article 5 - Grading and Site Preparation.

3-2 General

All work under this item shall be constructed in accordance with Article 5 of Chapter 20, Public Works Manual, of the Independence City Code, unless otherwise specified or indicated on the drawings.

3-3 Waste Material

All waste material will be removed from the site and hauled to a waste site secured by the Contractor at the Contractor's expense.

3-4 Sign Posts

All signs and signposts removed or disturbed by the contractor to construct water line or water service lines are to be reinstalled in their original location by contractor.

3-5 Sidewalks and Driveways

Contractor to maintain driveway cuts to allow traffic to cross driveways in a safe manner until final repairs are made. Contractor to notify residents or businesses of the time frame that half the driveway will not be accessible during repair

All sidewalks within CITY right-of-way when replaced must be installed as being five (5 ft.) wide.

3-6 Streets

All street cuts are to be repaired per City of Independence repair specifications.

**ALL STREET CUTS TO BE INSPECTED BY MUNICIPAL SERVICES ENGINEERING
PRIOR TO REPAIR BEING MADE.**

3-7 Parking Lot

All parking lot cuts are to be repaired per City street repair specifications and all striping disturbed during construction shall be repainted. Parking lot areas are to have traffic barriers to protect construction workers from traffic entering construction area.

DIVISION 3 - CLEARING, GRUBBING AND DEMOLITION (Continued)

3-8 Trees and Sod

All trees and sod removed by contractor are to be replaced by Contractor.

All sod or grassy area disturbed by Contractor to be replaced with sod – Contractor to water sod for 15 consecutive days upon installation. **The water truck is required to be equipped with an air-gap filling tube meeting MODNR Backflow Requirements.**

3-9 Fencing

All fencing removed or damaged to be replaced by Contractor.

3-10 Culvert Piping and Drainage Ditches

All culvert piping and drainage ditches damaged, disturbed or removed by Contractor are to be replaced by Contractor with an equivalent to the material present before construction if available, or a minimum 15" HDPE culvert pipe with flared end sections shall be provided if pipe matching the existing material is not available. Contractor shall submit the proposed culvert piping to the engineer for review prior to construction.

3-11 Traffic Control

Contractor will be responsible for providing a traffic control plan for working within the CITY right-of-way that is approved by the City's Traffic Engineer.

Contractor will be responsible for providing the necessary traffic control barriers to meet the CITY's approved traffic control plan.

3-12 Removal of Existing Water Main

Contractor responsible for the removal of fire hydrants, valve boxes, and other appurtenances along the existing water main once the main has been removed from service by the Independence Water Department. Contractor will be responsible for any restoration work required following removal of fire hydrants, valve boxes, and other appurtenances.

DIVISION 4 - PIPELINE MATERIALS

4-1. GENERAL: All pipeline materials necessary for the complete installation of the work shall be furnished by the Contractor. All materials shall be new and shall comply with the standards.

4-2. MATERIALS AND INSPECTION:

All materials to be used on this work will be inspected before being installed, and all rejected materials must be removed immediately.

The Contractor will be required to furnish such labor as may be necessary to aid the Water Department's Inspector in the examination of materials.

4-3. DUCTILE IRON PIPE:

Ductile Iron Pipe: All pipe and fittings to be incorporated into the City's potable water system shall be ductile iron pipe with a maximum joint deflection of 5 degrees in accordance with the following specifications: Centrifugally cast ductile iron pipe, with Tyton joints complete with necessary gaskets and lubricant in accordance with ANSI/AWWA Specifications C151/A21.51 for ductile iron pipe. Pipe will be furnished cement lined per ANSI/AWWA C104/A21.4, seal coated inside and Zinc coated outside. Nominal 18-foot or 20-foot lengths in quantity pipe class, and M.T. as shown below:

- I. 6 inch Class 52 Push On Cast Ductile Iron pipe, 0.31" M.T.
- II. 8 inch Class 52 Push On Cast Ductile Iron pipe, 0.33" M.T.

Coating: The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m² of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum not less than 2 mils. The coating system shall conform in every respect to ISO 8179-1 "Ductile iron pipes - External zinc-based coating - Part 1: Metallic zinc with finishing layer. Second edition 2004-06-01."

4-4. DUCTILE IRON FITTINGS:

Fittings are to be ductile-iron with Tyton joint per ANSI/AWWA C110/A21.10 specifications.

The Tyton joint shall conform in all respects to requirements for the push-on joint in ANSI/AWWA C111/A21.11 specifications.

All ductile-iron fittings to have a rated minimum working pressure of 350 psi and a maximum joint deflection of 5 degrees.

- I. 6 inch Class 350 Push On Cast Ductile Iron Fittings
- II. 8 inch Class 350 Push On Cast Ductile Iron Fittings

DIVISION 4 - PIPELINE MATERIALS (Continued)

FITTING METAL THICKNESS

FITTING SIZE	11 1/4° Min. M.T.	22 1/2° Min. M.T.	45° Min. M.T.	90° Min. M.T.
6"	.37	.37	.37	.37
8"	0.39	0.39	0.39	0.39

NOTE: All 6" fittings are to be Trim Tyton® as manufactured by U.S. Pipe or approved equal. Coating and lining shall be Permafuse® epoxy applied at the manufacturing facility of the fitting. Permafuse® epoxy shall be NSF-61 approved. All fittings & pipe shall be manufactured in United States.

Alternate coating and lining; ductile iron fittings may be coated with a 6-8 mil nominal thickness fusion bonded epoxy conforming to requirements of ANSI/AWWA C550 and C116/A21.16.

4-5. **V- BIO ENHANCED POLYETHYLENE ENCASEMENT:**

V- Bio Enhanced Polyethylene Encasement: All ductile iron pipe fittings, valves, and other appurtenant items shall be encased in polyethylene material as specified in the polyethylene encasement specifications contained herein. Polyethylene encasement materials shall be:

20 INCH POLYWRAP
(For 6 inch)

24 INCH POLYWRAP
(For 8 inch)

V- Bio Enhanced Polyethylene encasement of Ductile Iron Pipe in accordance with ANSI/AWWA C105/A21.5. It shall be Flat 20 Inch and be a natural color (not black) with an 8 mil thickness. It shall be perforated at 20 foot intervals.

Adhesive tape shall be a general-purpose adhesive tape 2-inch wide and approximately 8 mils thick, such as Scotchtape No. 50, Polyken No. 900, Tapecoat CT or accepted equal.

DIVISION 4 - PIPELINE MATERIALS (Continued)

V-Bio Enhanced Polyethylene Encasement

Polyethylene encasement for use with ductile iron pipe shall meet all the requirements for ANSI /AWWA C105/A21.5, *Polyethylene Encasement for Ductile Iron Pipe Systems*.

In addition, polyethylene encasement for use with ductile iron pipe systems shall consist of three layers of co-extruded linear low-density polyethylene (LLDPE), fused into a single thickness of not less than 8 mils.

The inside surface of the polyethylene wrap to be in contact with the pipe exterior shall be infused with a blend of anti-microbial biocide to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion.

Ductile iron pipe and the polyethylene encasement used to protect it shall be installed in accordance with AWWA C600 and ANSI/AWWA C105/A21.5 and also in accordance with all recommendations and practices of the AWWA M41, *Manual of Water Supply Practices – Ductile Iron Pipe and Fittings*. Specifically, the wrap shall be overlapped one foot in each direction at the joints and secured in place around the pipe and any wrap at tap locations shall be taped tightly prior to tapping and inspected for any needed repairs following the tap.

All installations shall be carried out by personnel trained and equipped to meet these various requirements.

The installing contractor shall submit an affidavit stating compliance with the requirements and practices of ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51, ANSI/AWWA C105/A21.5, AWWA C600, and M41.

DIVISION 4 - PIPELINE MATERIALS (Continued)

4-6. VALVES

Gate Valves: The type, size, and location of valves shall be as shown on the accepted plans. Except as modified or provided herein, all gate valves in pipelines shall be 250 psi (pressure rating shall be cast on the outside of the valve), d.i. resilient-seated, tight closure gate valves, with non-rising stems, with TYTON® joint ends and name shall be cast on near bell for recognition conforming with all applicable requirements of ANSI/AWWA C509 and/ or C500. List of acceptable manufactures: Clow, Mueller, American Flow Control, Kennedy or Approved Equal.

Valve Coating: All internal and external surfaces shall be coated with a fusion bonded epoxy to a minimum thickness of 8 mils. Said coating shall be non-toxic, impart no taste to water and shall conform to ANSI/AWWA C550. Said coating shall be applied prior to assembly such that all exposed external areas, including end connection bolt holes, body to bonnet bolt holes shall be coated with epoxy.

Valve Gate: The gate shall consist of a ductile iron gate having a vulcanized synthetic rubber coating with no rubber-to-metal seams or edges to the waterway when in fully closed position. The gate shall provide zero leakage at the water working pressure in either direction.

Stainless Steel Bolts and Nuts: The bolts and nuts that fasten the bonnet shall be ANSI Type 34 or 316 stainless steel.

Valve Seals: The valves shall be provided with two O-ring stem seals, one located above and one below the stem collar. The area between the O-rings shall be filled with lubricant. O-ring stem seal shall be replaceable with the valve under pressure in the full-open position.

One anti-friction washer shall be located below and one above the thrust collar. All seals between valve parts such as body and bonnet and bonnet cover, shall be O-rings.

Valve Operation: All valves shall be equipped with a two-inch (2") square wrench nut and THE DIRECTION OF ROTATION TO OPEN THE VALVE SHALL BE TO THE LEFT (COUNTERCLOCKWISE).

4-7. VALVE BOXES, BASES, LIDS, COVERS, AND VALVE STEM EXTENSION:

Valve Boxes: All valve boxes shall be made of cast or ductile iron as manufactured by Clay and Bailey Manufacturing Company or accepted equivalent. All roadway valve boxes shall consist of a base (no. 2260-6), shaft section of 6" diameter ductile iron pipe, top section and a lid marked "Water" (No. 2196). Valve boxes for valves not in a roadway shall have a base, a minimum 4-1/4" diameter shaft with lid marked "Water" and consist of an adjustable slip or screw type two-piece valve box. A valve box trench adaptor may be used in place of the valve box.

Valve Stem Extension: When the distance from the top of the valve cover to the valve operating nut exceeds 3 feet, each buried valve shall be provided with an extension stem and operating nut.

DIVISION 4 - PIPELINE MATERIALS (Continued)

4-8. FIRE HYDRANT: Fire hydrants shall conform to the requirements of AWWA Standard for Dry-Barrel Fire Hydrants (ANSI/AWWA C-502); and in addition, shall be listed by Underwriters Laboratories and Factory Mutual Research Corp. Cast marks or other permanent means shall be used to identify the fire hydrant as conforming to these standards.

Hydrants shall be rated for 250 psi operating pressure and tested at 500 psi per section 5.1 of AWWA C502. Production testing of each hydrant shall be performed at 500 psi to ensure proper assembly and operation and detect any imperfections. All iron parts as designated in section 3.1.2 of AWWA C/502 shall be ductile iron. Gray iron shall not be permitted, except for those parts which are designated to break upon traffic impact. The depth of bury shall be as stated on the drawings.

Nozzles shall have two 2-1/2" hoses 180° apart and one 4-1/2" pumper. All nozzles shall be at same elevation. Nozzle threads shall be National Standard Fire Hose Coupling Screw Thread as described in Appendix A of AWWA C502. Nozzle caps shall be provided with chains and gaskets. Nozzles shall be reversed threaded into the upper barrel and mechanically locked into place.

Hydrant shall be 5-1/4" main valve opening minimum, and shall be of the full compression design, opening and closing with the pressure. The main valve seat ring shall thread into a bronze subseat and all the gaskets sealing the seat ring shall be on a bronze-to-bronze seating surface. The seat ring threads shall not serve as a pressure seal. The entire valve and rod assembly shall be removable by use of a small lightweight seat removal wrench.

The drain valves shall allow complete drainage of all residual water in the hydrant. The circumferential drain passage inside the hydrant shall be bronze on all surfaces.

All exterior bolting and fasteners below the ground line shall be stainless steel. Plated steel bolts and nuts are not acceptable.

Hydrant shall be the breakaway type, with a frangible groundline and rod coupling designed to break upon traffic impact and prevent further damage to the hydrant and connecting piping. The frangible coupling shall allow the upper section to be rotated to any desired position. Couplings which employ lugs, keeper devices or a breakaway barrel are not acceptable. Frangible bolts are not acceptable either, due to the possibility of the use of non-frangible bolts.

Hydrant operating nuts shall be ductile iron and shall be pentagonal in shape, 1-1/2" point to flat (AWWA standard). The operating nut shall function as a weather shield. Hydrant shall open to the left.

The operating mechanisms shall utilize two O-ring seals between the revolving nut and bronze-sheathed upper section of the valve rod. The top of the rod shall also be fitted with a travel stop nut to limit downward travel of the rod. All-weather grease shall be used to reduce friction in the thruster collar while opening the hydrant. The hydrant inlet shall be Tyton® Joint. Opening shall be 6 inches.

DIVISION 4 - PIPELINE MATERIALS (Continued)

Hydrant shall be painted orange with black nozzle caps and chains using Benjamin Moore & Co., Industrial Maint. Coating, Orange M22-65, Black M22-82.

Manufacturer shall certify that hydrants furnished meet this specification.

Fire hydrants shall be Clow Medallion or American Darling.

4-9. **INSPECTION OF MATERIALS:** The Contractor shall submit (prior to construction) complete literature, shop drawings, and manufacturer's specifications on all material he proposes to furnish in connection with the Contract Agreement. Acceptance of such detailed information by the Engineering Supervisor will not release the Contractor of the responsibility for any error which may exist as the Contractor shall be responsible for the satisfactory completion of all work within the limits of the Contract. When required by the Standards or by the Engineering Supervisor, the Contractor shall furnish evidence in the form of test results or certificates that the material incorporated in the work conforms to the Standards.

All pipe, fittings, specials, valves, and other materials to be used in the construction of the water main shall be inspected by the Water Department's Inspector prior to installation. The Contractor shall furnish any necessary labor or equipment required by the Inspector to complete their inspection. No pipe, fitting, specials, valves, or other material shall be placed until they have been inspected by the Inspector.

Inspection and conformance of the materials to this Standard will not relieve the Contractor of his subsequent responsibility regarding the materials. Any defective materials shall be removed and replaced by the Contractor at his own expense.

4-10. **THRUST RESTRAINT:**

Thrust Blocks: Thrust blocking shall be designed for a minimum internal pipe pressure of 175 pounds per square inch plus 50% surge. Concrete for thrust blocks shall have a twenty-eight (28) day compression strength of two thousand (2000) psi. The blocking shall be kept clear of the entire bell configuration of any adjacent joint and shall be poured against undisturbed earth.

Bearing areas for concrete thrust block shown in the construction drawings are based on soil having an allowable safe lateral bearing of 1 ton per square foot. Calculated area must be increased for soils with lower bearing capacity.

4-11. **FIELD LOK GASKETS:**

The use of Field Lok Gaskets 350® is acceptable in lieu of concrete thrust block restraint provided they are manufactured by the U.S. Pipe and Foundry Company and installed in accordance with the recommendations of the Ductile Iron Pipe Research Association, but no less than the lengths shown in the construction drawing details.

NOTE: All thrust restraint to be provided using field lok gaskets or approved equal unless specified on the plans directly.

DIVISION 4a – SERVICE LINE MATERIAL

4a-1 General

All service materials necessary for the complete installation of copper service lines will be supplied by Contractor.

4a-2 Materials and Inspection

All materials to be used for service line work will be inspected before being installed, and all rejected materials must be removed immediately.

The Contractor will be required to furnish such labor as may be necessary to aid the Inspector in the examination of materials.

4a-3 Materials to be Furnished by Contractor

1. 3/4" Flexible Type "K" or "L" Copper
2. Cast Iron Stop Boxes
3. Brass Stop Cocks – T-Head
4. Couplings
5. Meter Wells (Vaults) and lids
6. Meter Setters
7. 3/4" Brass Curb Stop
8. 3/4" Brass Copper – Copper Union
9. Copper to galv. Ford Pack Joint Unions with rubber boot
10. Copper to Copper Ford Pack Joint Unions
11. Concrete Blocks
12. 3/4" clean gravel

All connections must be either flared or compression. There is to be no solder used.

4a-4 Materials to be Furnished by City

1. 3/4" Brass Corp - for tap at the water main

4a-5 Taps

Contractor will be responsible for all excavation and backfill of taps. The Independence Water Department is responsible for making all service taps. All taps are to be requested with the Water Department's Field Service Division a minimum of **72 hours** in advance of when the taps are to be completed. The Water Department's Field Inspector assigned to the project is to be notified of the request for service taps and will relay the request to the Field Service Division.

DIVISION 5 - EXISTING UTILITIES AND IMPROVEMENTS

5-1 Location of Underground Utilities

The Contractor shall locate all underground utilities and other obstacles which will be encountered during the course of construction; and locations shall be established before excavation by power-driven equipment. Destruction or damage to any utility such as telephone conduits, gas mains and services, water mains and services, valves, hydrants, electrical conduits, culverts, sewers, etc., shall be repaired or replaced at the expense of the Contractor.

5-2 Protection of Property and Existing Improvements

The Contractor shall protect from damage or injury all existing improvements. Any such items inadvertently damaged shall be replaced or repaired at the Contractor's expense.

Water and gas mains, sanitary and storm sewers, telephone and electric power conduits and cables, and house drains and services shall be exposed in advance of excavation so that they may be protected against damage and so that minor changes in grade and alignment may be made.

If the Contractor desires the removal of an existing sewer, conduit, cable, tree, shrub, curb, or pavement to facilitate construction, such item not conflicting with the final location of the water main or appurtenances thereto, they shall apply to the proper authority for permission for such temporary removal with the expressed understanding that if such permission is granted, all costs incurred in removing and replacing the item shall be paid by the Contractor.

Adequate provision shall be made for the flow of sewers, drains, and water courses encountered during construction; and the structures which may have been disturbed shall be satisfactorily restored upon completion of the work.

Trees, fences, poles, guy wires and anchors, shrubs, flower beds, sod, and all other property shall be protected unless their removal is authorized; any property damaged shall be satisfactorily restored by the Contractor.

To protect persons from injury and to avoid property damage, adequate barricades, construction signs, and guards, as required, shall be placed and maintained during the progress of the construction work and until it is safe for traffic to use the trenched roadway or walkway. Whenever required, watchmen shall be provided to prevent accidents. Rules and regulations of local authorities respecting safety provisions shall be observed.

5-3 Removing and Restoring Street Pavement, Driveways and Other Surfaced Areas

The Contractor shall remove and restore all street or roadway pavement, driveways, surfaced parking areas, and other surfaced or graveled areas wherever encountered in the laying of pipe, fittings, valves, hydrants, backing blocks, and other appurtenances.

DIVISION 5 - EXISTING UTILITIES AND IMPROVEMENTS (Continued)

The Contractor will be responsible to make sure that only one-half of each driveway to each business is removed at a time to install water line. Contractor must maintain access to parking lots and businesses in the construction area at all times.

All pavement cuts in driveways, parking lots, streets, etc., shall be made with a concrete saw or with tools designed for cutting the pavement with a minimum of damage to the surrounding area. The edges of all cuts shall be smooth and straight and shall be cut per the requirements of the governing authority.

Concrete pavement, asphaltic surface courses, macadam pavements, and any other type of pavement or surface course which is cut or damaged shall be restored to conform to and as specified in the "laying and backfill" section of these standards.

Street, highways, and roads, which in the opinion of the governing authority must be opened at their earliest possible time to traffic, shall be backfilled and the pavement restored immediately after the pipe and fittings are laid.

Driveways that are damaged or cut shall be restored equal or better in all respects to that which was removed. All driveways removed are to be replaced with concrete approaches within the Right-of-Way in accordance to Chapter 20 of the Independence, MO Public Works Manual.

All graveled areas, or areas otherwise surfaced for parking or for any other reason, which are cut or damaged in the construction shall be returned to a condition equal to that which existed before the construction. All materials used shall be of equal quality to the materials used in the original construction of the surface and shall be subject to the approval of the Water Department Inspector. All work must conform to Chapter 20 of the City Code.

5-4 Maintenance of Traffic

The Contractor shall conduct their work so as to interfere as little as possible with public traffic, whether vehicular or pedestrian. Where through-lanes of traffic will be obstructed, a permit is required from the Municipal Services Department, 2nd Floor, City Hall (111 E. Maple, Independence, MO 64051) and MODOT, Kansas City District (600 Northeast Colbern Rd., Lee's Summit, MO 64086) Whenever it is necessary to cross or interfere with roads, driveways, walks, whether public or private, the Contractor shall, at their own expense, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel. Contractor shall give reasonable notice to owners of private drives before interfering with them; provided, however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over public property involved, to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon.

DIVISION 6 - EXCAVATION AND TRENCHING

6-1 Scope

Excavation and trenching work 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 sub-grades; pumping and dewatering, as necessary or required; protection of adjacent property; and other appurtenant work.

Backfilling, pipe embedment, and surfacing and grading are covered in other portions of these standards.

6-2 General

Excavation and trenching work shall be performed in a safe and proper manner with suitable precautions being taken against all hazards and to provide adequate working space and clearances for the work to be performed therein.

The Contractor shall explore and expose any known or possible obstructions in advance of excavation for installation, for the purpose of eliminating abrupt changes in grade requiring the installation of unnecessary fittings.

In paralleling present water and gas mains, the Contractor shall protect all service connections and shall arrange to furnish service to the consumers with a minimum of interruptions.

All excavated material shall be placed in a manner that will not endanger the work, and that will avoid obstructing sidewalks and driveways. Gutters shall be kept clear or other satisfactory provisions made for street drainage. Sub-grade surfaces shall be clean and free of loose material of any kind when concrete is placed thereon.

Any excavation or portion of excavation, which is opened and remains idle for seven (7) calendar days or longer, as determined by the City, may be directed to be immediately refilled without completion of work, at no additional cost to the City.

6-3 Blasting

Before any blasting is done within the City limits of Independence, Missouri, the Contractor shall obtain a blasting permit from the City Engineer's office, 2nd floor of City Hall (111 East Maple Street). No person may do the actual work of preparing, placing, or detonating explosives unless he possesses a blasting permit issued by the City Engineer. The blasting permit and license must be shown to the Water Department Inspector before any blasting work is done.

All existing safety regulations, laws, and ordinances on the storage, transportation, and use of explosives shall be enforced at all times.

Blasting will be permitted only when proper precautions are taken for the protection of persons, the work, private property, public utilities, and the public, from damage or injury. Any damage done by

DIVISION 6 - EXCAVATION AND TRENCHING (Continued)

blasting will be repaired by the Contractor at his own expense.

The Contractor shall be liable for all injuries to, or deaths of, persons, or damaged to property caused by blasts or explosives.

6-4 Unauthorized Excavation

All material excavated below the bottom of concrete walls, footings, slabs on grade, and foundations shall be replaced by and at the expense of the Contractor with material as specified by the authority owning or having jurisdiction or control of said structures.

Any part of the trench excavated below grade shall be corrected with material accepted by the Water Department Inspector and placed and compacted by the Contractor.

6-5 Removal of Water

The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water entering excavations, trenches, or other parts of the work. Each excavation shall be kept dry during sub-grade preparation and continually thereafter until the pipe to be installed is installed, to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

All excavations for concrete structures or trenches which extend down to or below static ground water elevations, shall be dewatered by lowering and maintaining the ground water surface beneath such excavations a distance of not less than twelve inches (12") below the bottom of the excavation.

Surface water shall be diverted, or otherwise prevented, from entering excavated areas or trenches to the greatest extent practicable without causing damage to adjacent property.

The Contractor shall be held responsible for the condition of any pipe or conduit which he may use for drainage purposes, and all such pipes or conduits shall be left clean and free of sediment.

6-6 Sheet piling and Shoring

A. General

Except where banks are cut back on a stable slope, excavation for trenches shall be properly and substantially sheeted, braced, and shored, as necessary, to prevent caving or sliding to provide protection for workmen and work.

B. Specific

Reference must be made to:

OSHA 2207 - Construction Industry Standards

DIVISION 6 - EXCAVATION AND TRENCHING (Continued)

Part 1926 - Occupational Safety and Health Standards
Subpart P - Excavations, Trenching and Shoring
Sections 1926.650 through 1926.653

6-7 Stabilization

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 workmen.

Trench bottoms, which are otherwise solid but which become mucky on top due to construction operations, shall be reinforced with one or more layers of crushed stone or gravel. Not more than one-half inch (1/2") depth of mud or muck shall be allowed to remain on stabilized trench bottoms when the pipe bedding material is placed thereon.

6-8 Trench Excavation

The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. One block, or sixty feet (60') (whichever is the shorter), shall be the maximum length of open trench ahead of pipe laying, unless by written permission of the Water Department Inspector.

Except where tunneling is specified on the construction plans, or by the Water Department, all trench excavations shall be open cut from the surface.

All excavations shall conform to the regulations set forth in the City Code of the City of Independence, Missouri, or governing authority, and shall be protected with adequate lights and barricades.

A. Alignment and Grade

The Contractor shall establish lines and grades to govern construction by setting offset stakes every fifty feet (50'; 25' on curves) and offset stakes with hub elevations at each fitting and appurtenance, such as tees, bends, valves, fire hydrants, etc. Offset stakes are required and shall be marked to indicate the offset and cuts.

Vertical and horizontal alignment of pipes and the maximum joint deflection used in connection therewith shall be in conformity and as specified in the "laying and backfill" section of these standards.

When possible, stakes shall be set to locate any underground utilities that may conflict with the water main construction. However, in all cases the Contractor shall be governed by the section of these standards entitled "existing utilities and improvements."

It shall be the Contractor's responsibility to transfer the alignment and grades to the bottom of the pipeline trench.

DIVISION 6 - EXCAVATION AND TRENCHING (Continued)

The Contractor must maintain a constant check of the pipe alignment and trench depth and will be held responsible for any deviations therefrom.

Unless otherwise shown or indicated on the plans, or unless otherwise set forth by the Engineer, the horizontal and vertical alignment of the water main shall be maintained to within the following tolerances:

<u>HORIZONTAL</u>	<u>VERTICAL</u>
3" ±	42" to 48" Depth of Cover

B. Minimum Cover

Except where otherwise shown, trenches shall be excavated to a depth sufficient to provide a minimum depth of backfill cover over the top, as indicated above. Greater pipe cover depths may be necessary on vertical curves or to provide necessary clearance beneath existing pipes, conduits, drains, drainage structures, or other obstructions encountered at normal pipe grades.

Measurement of pipe cover depth shall be made vertically from the outside top of pipe to original ground or pavement surface elevations.

C. Limiting Trench Width

Trenches shall be excavated to a width which will provide adequate working space and pipe clearances for proper pipe installation, jointing, and embedment. However, the limiting trench widths below an elevation six inches (6") above the top of the installed pipe shall be as follows:

Pipe Size	Minimum Trench Width in Earth	Maximum Trench Width in Earth	Minimum Trench Width in Rock	Maximum Trench Width in Rock
<u>Ductile Iron Pipe</u>				
6"	24"	30"	34"	40"
8"	26"	32"	36"	42"

D. Trench Bottom in Earth

The trench in earth shall have a flat bottom the full width of the trench and shall be excavated to the grade to which the pipe is to be laid. The surface shall be graded to provide a uniform bearing and continuous support for each pipe at every point along its entire length.

DIVISION 6 - EXCAVATION AND TRENCHING (Continued)

E. Trench Bottom in Rock

All rock excavation shall be carried to a minimum of six inches (6") below the bottom of the pipe. Granular pipe embedment material is as specified in the "laying and backfill" section of these standards, and also as shown on construction drawings, "embedments of water mains."

F. Trench Grade

If after placing the pipe in the trench, it is found the prepared trench bottom is not at the proper elevation, the pipe shall be removed and the grade corrected. In no case shall the pipe be raised from and dropped on the trench bottom for the purpose of lowering a sub-grade which is too high.

6-9 Expedited Crossings

The installation of crossings for streets, driveways, obstructions, or any other purpose to facilitate the construction or development of projects prior to the actual installation of water mains, is prohibited unless prior approval is granted and all material and installations are inspected and approved.

6-10 Barricades and Warning Signs

The Contractor shall provide and maintain in place all barricades, warning signs, lights, and any other safety devices required to protect the work, divert traffic, and warn the general public of open excavations, unfilled trenches, and other areas or conditions which might be hazardous or dangerous during the daytime or at night.

DIVISION 7 - LAYING AND BACKFILL

7-1 Pipe Installation

A. Handling

Pipe, fittings, and accessories shall be handled in a manner that will insure installation in a sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, hauling, and laying pipe and fittings shall be such that the pipe, pipe coating, and fittings are not damaged. Hooks shall not be used. Under no circumstances shall pipe or accessories be dropped or dumped.

Pipe and fittings, on which the cement lining has been broken or loosened, shall be replaced by the Contractor.

All pipe coating, which has been damaged, shall be repaired by the Contractor before installing the pipe.

B. Storing Pipe

Pipe stored will be required to be stacked. Timbers should be used to keep bottom tiers off the ground and to keep dirt and debris out of the pipe. Pipe on succeeding tiers should be alternated bell end to plain end. A minimum of two rows of timbers should be placed between tiers with chocks nailed at each end to prevent movement of pipe. For safety and convenience, each size will be stacked separately. The maximum allowable stacking height for 6-inch and 8-inch ductile iron pipe is seven (7) tiers for safety and handling ease.

C. Cutting Pipe

Ductile iron pipe shall be cut with either a saw or an abrasive wheel.

The cutting of pipe with a torch will not be permitted.

Cutting shall be done in a neat manner without damage to the pipe or the cement lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be beveled. The bevel will be a minimum of one-fourth inch (1/4") wide at an angle of thirty degrees (30°).

C. Cleaning

The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been accepted. Such surfaces shall be wire brushed, if necessary, wiped clean, and kept clean until jointing is completed.

DIVISION 7 - LAYING AND BACKFILL (Continued)

D. Inspection

Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation. Spigot ends shall be examined with particular care since they are vulnerable to damage from handling. All defective, damaged, or unsound pipe and fittings shall be rejected and marked as such and removed from the site of the work.

E. Alignment of Bell and Spigot Pipe

Pipelines or runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the quantities stipulated in Table 4 of ANSI/AWWA C600.

Either shorter pipe sections (not less than 4' in length), or special bends, shall be installed where the alignment or grade requires them.

F. Laying Pipe

Pipe shall be protected from lateral displacement by pipe embedment material installed as specified for "pipe embedment" (see construction drawings). Under no circumstances shall the pipe be laid in water; and no pipe shall be laid under unsuitable trench conditions (see 6-7 "stabilization").

Pipe shall be laid with the bell ends facing the direction of laying, except when reverse laying is specifically authorized by the Inspector.

Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug, which will prevent trench water from entering the pipe.

G. Trench Backfilling

After the pipes and joints have been inspected, the trench shall be filled with selected material free of rock in the following manner when required by the Inspector: the material shall be carefully placed and tamped under the bell of the pipe to insure a uniform bearing surface and to prevent lateral movement of the pipe; then carefully placed until the fill reaches the one foot (1') depth over the top of the pipe; the remainder of the backfill shall be made by placing the excavated material back in the trench and compacting by a method approved by the local governing authority.

NOTE: no rocks larger than grapefruit size will be allowed in backfill, and at no time will there be over sixty (60) lineal feet of pipe left exposed to the atmosphere.

DIVISION 7 - LAYING AND BACKFILL (Continued)

H. Rock Excavation

When the excavation is made through rock or other material too hard to be readily removed for admitting the bell of the pipe, the trench shall be excavated at least six inches (6") deeper than the grade of the outside bottom of the pipe, and refilled with 1/2" X 5/16" clean crushed stone. After the pipe has been installed, 1/2" X 5/16" clean crushed stone will be placed one foot (1') above the pipe.

I. Freezing Weather Backfilling

Backfilling during freezing weather shall not be done except by permission of the Inspector. No backfill materials shall be placed on frozen surfaces, nor shall frozen materials, snow, or ice be placed in any backfill.

J. Push-on Joints

In the case of the push-on joint, the gasket seat in the bell shall be wiped clean with a cloth after which the gasket should be sprung into place. Thereafter, a thin film of lubricant should be applied to all of the inner surface of the gasket which comes into contact with the entering pipe.

The lubricant and the gaskets shall be as recommended and supplied by the manufacturer of the pipe being used. The lubricant shall be odorless, tasteless, and shall be non-toxic, suitable for use in potable water, and shall be water soluble.

The plain end of the pipe shall be wiped clean and a thin film of lubricant shall be applied to the outside of the plain end of the pipe and its beveled edge. The plain end of the pipe should then be placed in approximate alignment with the bell of the pipe to which it is to be joined. The joint can be made up with the entering pipe deflected at an angle, but this angle should not exceed the recommended maximum of the manufacturer. The plain end of the pipe should then be lifted and started into the socket so that it is in contact with the gasket.

The joint is made up by exerting sufficient force on the entering pipe so that its plain end is moved past the gasket (which is thereby compressed) until it makes contact with the base of the socket of the bell. This force can be applied by means of a jack type tool, backhoe, or other methods as approved by the Inspector.

K. Restrained Joints

Restrained joints shall be installed in strict accordance with construction drawings.

DIVISION 7 - LAYING AND BACKFILL (Continued)

L. Couplings

Mechanical couplings and flanged coupling adapters shall be carefully installed in strict accordance with the manufacturer's recommendations. The ends of pipe couplings shall be clean and smooth.

7-2 V-Bio Enhanced Polyethylene Encasement

A. General

V-Bio Enhanced Polyethylene encasement shall be installed on all ductile iron pipe and fittings. Although not intended to be a completely air-and water-tight enclosure, the polyethylene shall prevent contact between the pipe and the surrounding backfill.

B. Installation

Method 1

V-Bio Enhanced Polyethylene tubing shall be approximately two feet (2') longer than the length of the pipe section to provide a one-foot (1') overlap on each adjacent pipe section. Tube ends are required to be taped in place.

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.

Method 2

V- Bio Enhanced Polyethylene tubing shall be one foot (1') shorter than the length of the pipe section with a three-foot (3') length of polyethylene tube centered over pipe joint and lapped over pipe section and its tubing. Tube ends are required to be taped in place.

Repair any rips, punctures, or other damage to the polyethylene, as described in Method 1.

C. Pipe-shaped Appurtenances

Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene in the same manner as the pipe.

D. Odd-shaped Appurtenances

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.

E. Openings in Encasement

Openings for branches, service taps, blow-offs, air valves, and similar appurtenances shall be made by making an "x"-shaped cut in the polyethylene and temporarily folding the film back. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut as well as any other damaged areas in the polyethylene with tape.

7-3 Setting Valves and Fittings

All valves and fittings shall be set and jointed in the manner heretofore specified for cleaning, laying, and jointing pipe. The valves shall be set vertical in the horizontal pipe line. Cast iron valve covers and lids shall be installed by the Contractor and shall be supported and maintained, centered and plumb over the operating nut of the valve with the cover flush with the surface of the roadway or final grade (see construction drawings).

Each valve shall be inspected before installation to insure that all foreign substances have been removed from within the valve body, and shall be opened and closed to see that all parts are in first-class working condition.

Valve boxes **and valve bases** shall be installed on all valves.

All bends and tees shall be provided with adequate thrust blocking or restrained joint. This thrust blocking shall be of plain concrete, as called for on the construction drawings.

7-4 Setting Fire Hydrants

All new fire hydrant installations shall be as shown in the construction details on the construction drawings, and shall include all necessary excavation and backfill to make the installation complete. Hydrant lead to be polyethylene encased to hydrant shoe **only**.

The weep holes of the fire hydrant shall be kept clear and free to drain. All fire hydrants shall stand plumb, and when placed behind curbs, **the centerline of the fire hydrant shall be at least twenty-four inches (24") to thirty-six inches (36") from the back of the curb.**

In general, the fire hydrants shall be rotated to have the steamer nozzle facing the street. Special circumstances may require otherwise, as determined by the Inspector.

DIVISION 7 - LAYING AND BACKFILL (Continued)

7-5 Thrust Restraint

Thrust blocking shall be designed for a minimum internal pipe pressure of one hundred seventy-five pounds (175 lbs.) per square inch, plus fifty percent (50%) surge. Concrete for thrust blocks shall have a twenty-eight (28) day compression strength of two thousand (2,000) psi. The blocking shall be kept clear of the entire bell configuration of any adjacent joint and shall be poured against undisturbed earth. All thrust blocks shall meet the criteria found on construction drawings.

7-6 Air Release Assemblies

Air release assemblies shall be installed at the locations and in the arrangement shown on the drawings and in conformity with construction drawings.

7-7 Connections to Existing Mains

Independence Water Department will make final connection to existing water mains, unless noted otherwise. The Contractor is to start and stop his construction five feet (5') from the existing water mains (see construction drawings).

Contractor is responsible for horizontal and vertical alignment with existing water main.

7-8 Street Surface Restoration

Wherever street surfacing is cut or disturbed, the Contractor shall remove and restore all street or roadway pavement, furnishing all necessary labor and materials. Care and caution shall be observed when cutting the existing pavement for the installation of the water mains. The opening shall be made with tools designed for cutting the pavement with a minimum of damage to the surrounding area.

It shall be the responsibility of the Contractor to determine the nature and thickness of all pavements and surfacing to be cut and replaced, together with any base courses required in connection therewith.

Concrete pavement, asphaltic surface course, macadam pavement, and any other type of pavement or surface course, which is cut or damaged, shall be replaced in accordance with Chapter 20 of the City Code or Missouri Highway Transportation Commissions Standards.

Temporary surfacing shall be provided as necessary during construction so that all streets are kept in passable condition.

DIVISION 8 - WATER MAINS NEAR SEWERS

8-1 Horizontal Separation

In accordance with the Missouri Department of Natural Resources, water mains shall be laid at least ten feet (10'), horizontally, from any sanitary sewer, drainage pipe, storm sewer, or manhole. When local conditions prevent a lateral separation of ten feet, a water main may be laid closer than ten feet to a sanitary or storm sewer, provided that the water main is laid in a separate trench. At such an elevation that the bottom of the water main is at least eighteen inches (18") above the top of the sewer. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer must be constructed of mechanical or slip-on ductile iron pipe and should be pressure-tested to assure water-tightness before backfilling.

8-2 Vertical Separation

Whenever water mains must cross sanitary sewers, house sewers, or storm drains, the water main shall be laid at such an elevation that the bottom of the water main is eighteen inches (18") above the top of the drain or sewer. A full length of water main pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as remote therefrom as possible. This vertical separation shall be maintained for that portion of the water main located within ten feet (10'), horizontally, or any sewer or drain it crosses (see construction drawing "typical sanitary sewer main crossing water main").

8-3 Unusual Conditions

Where conditions prevent the minimum vertical separation set forth above from being maintained, or when it is necessary for the water main to pass under a sewer or drain, the water main shall be laid with Tyton ductile iron pipe and the water main shall extend on each side of the crossing to a distance from the sewer of at least ten feet (10'). In making such a crossing, a full length of water main pipe must be centered over or under the sewer to be crossed, so that the joints will be equidistant from the sewer and as remote therefrom as possible. The sewer line must also be constructed of ductile iron pipe with slip-on or mechanical joints until the normal distance from the sewer line to the water main is at least ten feet (10'). Where a water main must cross under a sewer, a vertical separation of eighteen inches (18") between the bottom of the sewer and the top of the water main shall be maintained, with adequate support, especially for the larger sized sewer lines to prevent them from settling on and breaking the water main. The sewer shall be constructed of ductile iron pipe for a distance of ten feet (10') on either side of the crossing, or other suitable protection, as approved by the Water Department, shall be provided. Where these conditions cannot be met, the Water Department shall be consulted as to the precautions to be taken to protect the public water supply.

8-4 Sewer Manholes

No water pipe shall pass through, or come in contact with, any part of a sewer or a sewer manhole.

DIVISION 9 - WATER MAIN DISINFECTION AND PRESSURE TESTING

9-1 Water Main Disinfection

Flushing, disinfection, and sampling of the new pipe system will be done by the Independence Water Department. The new pipe shall remain isolated from the existing system until satisfactory laboratory results can be obtained.

Pipe during installation must be kept free of dirt, debris, and contamination, as provided in AWWA standard C600. Should the pipeline require excessive flushing, disinfection, or other cleaning procedure necessary prior to satisfactory lab results, such work will be at the expense of the Contractor.

Contractor to provide HTH to give a minimum 50 ppm solution when the water main is filled with water by the Independence Water Department.

9-2 Pipe Pressure Testing

Perform pressure test using calibrated pressure gages. Select gage so that the specified test pressure falls within the upper half of the gage's range.

Notify the Water Department 24 hours prior to each test. No pressure testing is to occur without an Independence Water Department representative present to observe the testing procedure.

New pipe shall be completely assembled prior to testing and shall remain isolated from the existing system until satisfactory test results can be obtained.

Contractor shall bear the cost of all testing and inspecting, locating, and remedying of leaks and any necessary retesting and re-examination.

Test Requirements:

1. Medium: water
2. Pressure: 175 psig for the entirety of the project
3. Duration: 2 hours

The new piping shall have zero leakage at the specified test pressure throughout the duration of the test.

Contractor shall acknowledge satisfactory performance of testing and inspections in writing to the Water Department prior to final acceptance.

DIVISION 10 - CONCRETE SPECIFICATIONS

10-1 Scope

These specifications are intended primarily for concrete to be used for thrust blocks. Concrete for all roadway pavement and/or curb and gutter replacement shall conform to the requirements of Chapter 20 of the City Code or Missouri Highway Transportation Commission standards.

10-2 Concrete

The concrete shall be KCMMB 4K with granite aggregate, as designated by the Mid-West Concrete Industry Board, Inc., Kansas City, Missouri.

A. Cement

The cement shall be Portland Cement, Type III, high early strength. All cement shall conform to the "standard specification for Portland cement," ASTM Serial Designation C150.

B. Aggregate

All aggregates shall conform to the appropriate bulletins and specifications of the Mid-West Concrete Industry Board, Inc.

C. Water

Water for mixing and curing concrete shall be clean and free from injurious amounts of sewage, oil, acid, alkali, salt, or organic matter (only potable water will be acceptable without testing).

10-3 Mixing

Ready-mixed concrete shall be used, unless otherwise prohibited by the Engineering Supervisor or Inspector.

Ready-mixed concrete shall be mixed and delivered in accordance with the requirements set forth in the "standard specifications for ready-mixed concrete," ASTM Serial Designation C94.

10-4 Forms

Suitable and substantial forms shall be provided for all thrust blocks. All forms shall be constructed and maintained plumb and true, securely braced and shored, and tight enough to prevent leakage of mortar.

Forms shall be constructed of sufficient size to permit the entire bearing area of thrust block to bear against undisturbed earth. There shall be no form material between the thrust area and undisturbed earth (see construction drawings).

DIVISION 10 - CONCRETE SPECIFICATIONS (Continued)

10-5 Placing of Concrete

Only those methods and arrangements of equipment shall be used which will reduce to a minimum any segregation of coarse aggregate from the concrete.

Concrete shall be deposited into the forms or on the grade as nearly as practicable in its final position and in such manner that the concrete will completely fill the forms.

Concrete that has partially hardened, or has been contaminated by foreign material, shall not be used and shall be discarded.

Concrete shall not be placed on, or come in contact with, frozen sub-grade or forms and equipment containing ice or snow.

Concrete, when placed, shall have a slump not to exceed four inches (4") for thrust block.

10-6 Curing

All regular concrete shall be cured for a period of not less than seven (7) days, and concrete made with high early strength cement shall be cured not less than five (5) days, unless otherwise directed or specified by the Inspector.

DIVISION 11 – SERVICE LINES

11-1 Applicable Standards

Shall be the latest revision of the following:

City of Independence Water Department Water Service Line Standards

11-2 General

All work under this item shall be constructed in accordance with Article 11 of Chapter 20, Public Works Manual, of the Independence City Code, and Water Service Line Standards, of the Independence Water Department, unless otherwise specified or indicated on the drawings.

Contractor will be responsible for supplying all materials for adjusting or extending service line. Contractor will also be responsible for installing stop cocks on existing service line if one does not exist. Contractor will also be responsible for replacing stop cocks on existing service lines that do not work or are broken.

Water Department will attempt to make locates for existing service lines. The **Independence Water Department will not be responsible for service lines that are mismarked.**

Contractor shall demo all existing meter wells and curb boxes, as detail shows in the drawings, after the new service lines are placed in service.

Contractor will be responsible for moving those meters that are currently installed in the basement of the houses whose services are to be affected by the new main installation. Contractor will also be responsible for supplying a jumper pipe (Straight Connect) and installing the jumper pipe where the water meter is removed in the basement for each house. Contractor will re-install the removed meter in the new meter pit.

Contractor will be responsible for moving the meters that are currently installed in a meter pit to the new meter pit. Contractor will also be responsible for supplying a jumper pipe if one is required in the old meter pit.

Contractor will be responsible for installing a jumper pipe in the new meter pit until the meter can be removed from the basement.

DIVISION 12 – EROSION CONTROL

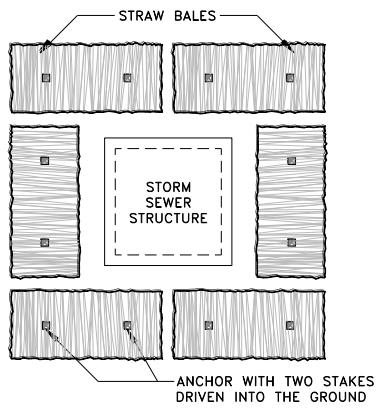
12-1 Applicable Standards

Proper erosion control procedures are required in accordance with Chapter 20, Article 16 of the Public Works Manual City Code.

12-2 General

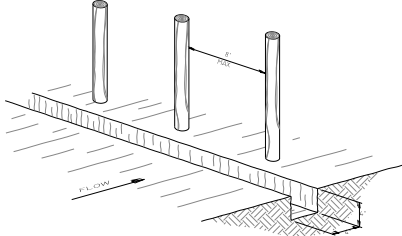
All work under this item shall be constructed in accordance with Article 16 of Chapter 20, Public Works Manual, of the Independence City Code, unless otherwise specified or indicated on the drawings.

Contractor will be responsible for supplying all materials to comply with Article 16 of Chapter 20, Public Works Manual – EROSION CONTROL REQUIREMENTS.

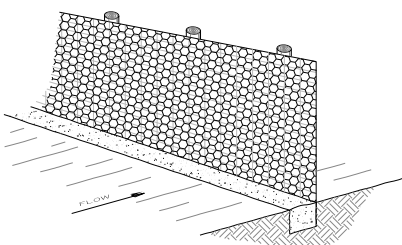


SILT CONTROL NO SCALE

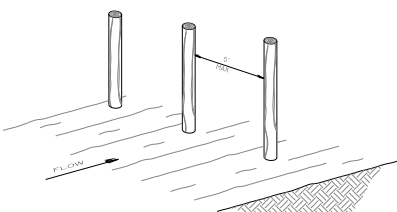
1. SET POSTS AND EXCAVATE A 4" x 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS



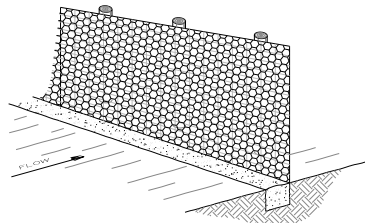
4. BACKFILL AND COMPACT THE EXCAVATED SOIL



1. SET THE STAKES

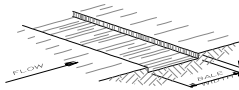


4. BACKFILL AND COMPACT THE EXCAVATED SOIL

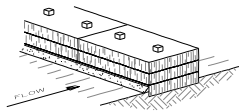


CONSTRUCTION OF STRAW BALE BARRIER

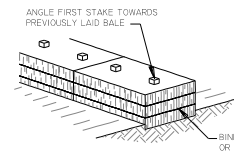
1. EXCAVATE THE TRENCH



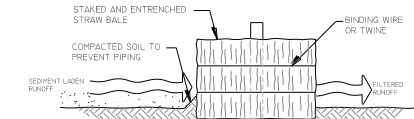
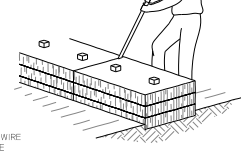
4. BACKFILL AND COMPACT THE EXCAVATED SOIL



2. PLACE AND STACK STRAW BALES

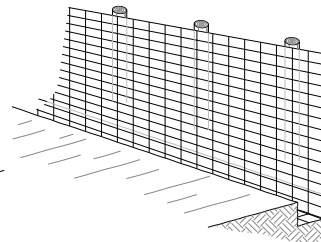


3. WEDGE LOOSE STRAW BETWEEN BALES

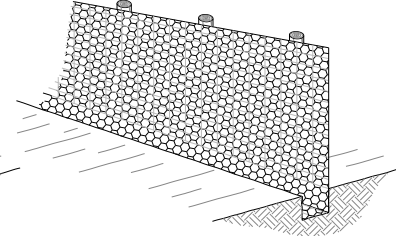


PROPERLY INSTALLED STRAW BALE (CROSS SECTION)

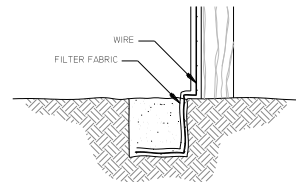
2. ATTACH WIRE FENCING TO POSTS



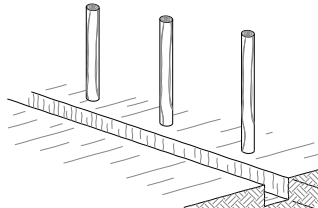
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH



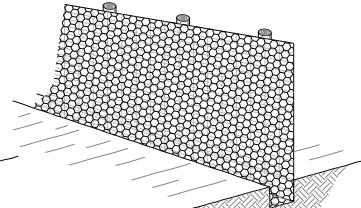
EXTENSION OF FABRIC AND WIRE INTO TRENCH



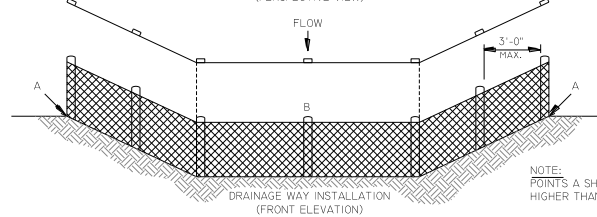
2. EXCAVATE A 4" x 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES



3. ATTACH FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH



SHEET FLOW INSTALLATION (PERSPECTIVE VIEW)



NOTE:
POINTS A SHOULD BE
HIGHER THAN POINT B

EROSION CONTROL DEVICES

