



*Jim:
Please forward to
PPW for consideration.
mmr
10/6/2016*

DATE: October 6, 2016
TO: Michael O. Geisel, P.E.
City Administrator
FROM: James A. Eckrich, P.E. *[Signature]*
Public Works Director / City Engineer
RE: Schoettler Road Bridge – Water Main Relocation

As you know, the City of Chesterfield has secured a federal grant (BRM program) to fund eighty percent of the costs to reconstruct the Schoettler Road Bridge. This project is currently in the final design and right of way acquisition phase, with construction scheduled to commence in the spring of 2017. Utility relocation plans are being designed with coordination through the City's engineering consultant for the project, Burns and McDonnell. Most utilities are located in the public right of way, and all costs to relocate the facilities in right of way will be borne by the utility company. The two exceptions are storm sewers, which are designed and incorporated into the project; and water, which is located in a private easement adjacent to Schoettler Road. Because the existing eight inch water main is located in private easement, the City will have to pay Missouri American Water Company to relocate that water main. This is described in detail in the attached memorandum from Senior Civil Engineer Kim Streicher.

In order to proceed with the project and the associated relocation of the existing eight inch water main, the Chesterfield City Council will need to adopt ordinances approving two agreements with Missouri American Water Company. This first agreement is a Contract for Water Facility Relocation which ensures the City will pay Missouri American Water Company for its costs to relocate the portion of the water main located in easement. The estimated cost to relocate the portion of the water main located in easement (89%) is \$48,935, and the City Staff is requesting an allocation of \$54,000 to cover potential overruns. The cost to relocate this water main is an eligible expense through the BRM grant, so the net financial obligation to the City of Chesterfield should not exceed \$10,800. *FUNDED by the Capital Projects fund*

The second agreement is a Utility Attachment Agreement which allows Missouri American Water Company to attach the new water main to the new bridge. This work will be completed by the City's contractor during the construction phase of the project, and the Missouri American Water Company will reimburse the City for 11% of the actual costs to attach the new water main to the bridge. The total cost of connecting to the water main to the bridge is estimated at \$5,000, which is also eligible for reimbursement through the BRM grant.

Action Recommended

This matter should be forwarded to Planning and Public Works Committee for consideration of the attached ordinances approving the Contract for Water Facility Relocation and the Utility Attachment Agreement. Should the PPW Committee recommend in favor of these ordinances, they should be forwarded to City Council for approval.

Memorandum

Department of Public Services



TO: James A. Eckrich, PE–Public Works Director/City Engineer

FROM: Kim Streicher, PE – Civil Engineer

DATE: October 5, 2016

**RE: Schoettler Road Bridge, 2013-PW-18
Missouri American Water Company Relocation**

As you are aware, Burns & McDonnell is completing the final design of the Schoettler Road Bridge reconstruction project.

With the exception of Missouri American Water Company (MAWC), each of the utility provider's facilities (Ameren, Charter, AT&T, and Laclede) are located within right-of-way and will be relocated without cost to the City prior to the beginning of the project. Approval for storm sewer work from MSD is forthcoming and will be completed by the City's contractor as part of the reconstruction project.

An eight (8) inch water main crosses Creve Coeur Creek on the upstream side of the existing Schoettler Road bridge. Several meetings took place between Burns & McDonnell, the City, MAWC, and Kivindyo (utility subcontractor) in the fall of 2015 to determine the necessary configuration and schedule for the required relocation of this main.

A plan of the necessary relocation work is attached. The relocation plan involves MAWC cutting and capping their water main prior to the commencement of the construction project. The City's contractor, as part of the bridge construction project, would then attach a new 12 inch main to the underside of the new bridge. The cost of the "betterment" from the eight inch main to the 12 inch main would be entirely borne by MAWC. MAWC would then coordinate with the contractor to tie the 12 inch main on the bridge back in to existing infrastructure off the bridge.

The MAWC Engineering Estimate for the relocation work totaling \$54,807.73 is attached. MAWC facilities are partially located in a private easement outside of right-of-way along Schoettler Road. MAWC is therefore entitled to and is requesting a pro rated reimbursement from the City for the relocation work of their facilities within

that private easement. Based on the lineal footage of MAWC's existing facilities in right-of-way and in private easement, the City's share of the reimbursement cost is an estimated \$48,935.47. The City's obligation is for 89.29% of the final cost of the relocation, be it more or less than the estimate.

MAWC would be responsible for 10.71% of the actual cost of attaching the new water line to the bridge as well as 100% of the costs associated with the "betterment."

The City's costs for the utility relocation are eligible for 80% federal participation under our BRM agreement.

Two agreements are needed to complete the relocation. The first is a "Utility Attachment Agreement" wherein the City agrees to allow MAWC to attach their main to the new bridge and MAWC agrees to compensate the City for their portion of the cost of the work to complete the attachment. The second is a "Contract for Water Facility Relocation" wherein the City agrees to pay for our portion of the utility relocation. MoDOT has reviewed the documentation and has submitted to FHWA for obligation of funds for utility relocation.

In order to authorize MAWC to proceed with the relocation work the "Contract for Water Facility Relocation" and "Utility Attachment Agreement" must be reviewed by the City Attorney, approved by City Council by ordinance (draft attached), and executed by the City Administrator.

At this time, I recommend:

- **Forwarding the "Contract for Water Facility Relocation" and "Utility Attachment Agreement" to the City Attorney for review and approval as to legal form.**
- **Requesting authorization from City Council, by ordinance, to execute a contract with Missouri American Water Company for reimbursement of 89.29% of the actual relocation cost in an amount not to exceed \$54,000.00. This amount includes an approximate 10% contingency to allow for additional reimbursement as may be necessary due to unforeseen conditions.**
- **Requesting authorization from City Council, by ordinance, to enter into a utility attachment agreement with Missouri American Water Company for attachment of their water line to the new Schoettler Road Bridge with Missouri American Water Company responsible for 10.71% of the actual costs of the attachment.**

Attachments: Contract for Water Facility Relocation
Draft Ordinance for Contract for Water Facility Relocation
Utility Attachment Agreement
Draft Ordinance for Utility Attachment Agreement

BILL NO. _____

ORDINANCE NO. _____

AN ORDINANCE AUTHORIZING THE CITY ADMINISTRATOR TO EXECUTE A CONTRACT FOR WATER FACILITY RELOCATION WITH THE MISSOURI AMERICAN WATER COMPANY REGARDING UTILITY RELOCATION FOR THE RECONSTRUCTION OF THE SCHOETTLER ROAD BRIDGE OVER CREVE COEUR CREEK.

WHEREAS, the City of Chesterfield desires to reconstruct the Schoettler Road bridge over Creve Coeur Creek; and

WHEREAS, in order to construct the project as designed Missouri American Water Company must relocate existing water facilities, located in private easements, along Schoettler Road; and,

WHEREAS, in order to proceed with the project, the City needs to enter into a Contract For Water Facility Relocation with the Missouri American Water Company; and,

WHEREAS, the City Council of Chesterfield, Missouri, after careful consideration of the matter and thorough discussion with the City's attorney, desires to authorize the City Administrator of Chesterfield to enter into a Contract For Water Facility Relocation similar in form to that attached as Exhibit 1;

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHESTERFIELD AS FOLLOWS:

Section 1. The City Council of the City of Chesterfield hereby authorizes and directs the City Administrator to act on behalf of the City of Chesterfield to enter into an agreement with the Missouri American Water Company relative to the utility relocation for the reconstruction of the Schoettler Road Bridge over Creve Coeur Creek, in a form substantially similar to that attached hereto as Exhibit 1.

Section 2. This Ordinance shall be in full force and effect from and after its passage and approval.

Passed and approved this _____ day of _____, 2016

PRESIDING OFFICER

Bob Nation, MAYOR

ATTEST:

Vickie Hass, CITY CLERK

FIRST READING HELD: _____

CONTRACT FOR WATER FACILITY RELOCATION

THIS CONTRACT, entered into this ____ day of _____, 2016, by and between MISSOURI-AMERICAN WATER COMPANY, a corporation existing under the laws of the State of Missouri, (hereinafter referred to as "COMPANY"), and the CITY OF CHESTERFIELD, (690 Chesterfield Parkway W, Chesterfield, MO 63017), (hereinafter referred to as ("CITY")),

WITNESSETH:

WHEREAS, CITY contemplates the location, widening, construction, and/or improvement of Schoettler Road, in accordance with certain plans titled Schoettler Road Bridge Replacement Improvements on file in the office of the CITY; and

WHEREAS, in carrying out the opening, widening, establishment, and improvement of Schoettler Road, it will be necessary to relocate certain portions of COMPANY'S water facilities now located partly within CITY right-of-way and partly on the COMPANY'S private easement along (Schoettler Road), in the CITY, and

WHEREAS, COMPANY is willing to accommodate CITY'S needs upon condition that CITY accepts the provisions hereinafter specified and evidences such acceptance by execution hereof in accordance with Section 432.070 RSMo and City Ordinance No. _____.

NOW THEREFORE, in consideration of the mutual covenants contained herein, it is agreed as follows:

1. COMPANY will, as soon as practicable after receiving notice from the CITY, and receipt of payment in full of the estimated cost described in Paragraph 2, furnish all labor, materials, and supervision necessary, and will relocate its said water facilities currently located partly within CITY right-of-way and partly within the private easement of the COMPANY as shown on the plans marked Exhibit "A" attached hereto and made a part hereof.
2. The estimated cost (Exhibit "B") for this relocation is **\$54,807.73** It is agreed that CITY'S obligation toward the cost of this relocation shall be **89.29%** of the actual costs thereof ("CITY'S OBLIGATION"), which is the percentage of the affected water facilities located within the COMPANY'S private easement. CITY agrees that prior to commencement of the relocation contemplated herein and upon receipt of a statement of cost, it will, or it will direct its agent or assign to promptly pay COMPANY for **89.29%** of the estimated cost of the relocation as set forth in

Exhibit B, hereinafter referred to as "CITY'S PAYMENT". The failure of any agent or assign of the CITY to promptly pay the COMPANY shall not be a defense and shall not mitigate the duty of the CITY to pay the COMPANY in full.

3. At the conclusion of the relocation work, the COMPANY shall calculate the difference between actual costs and estimated costs, if any. In the event the CITY's pro rata share of the actual costs exceeds CITY'S PAYMENT, the parties will enter into a supplement to this contract that addresses the CITY reimbursing the COMPANY for the additional amount owed. In the event the actual costs are less than CITY'S PAYMENT, the COMPANY will pay CITY its pro rata share of the difference between CITY'S PAYMENT and the actual cost. Payments owed to COMPANY shall be paid within forty five (45) days of receipt of invoice.
4. If any substantial change is made in the original plan and extent of the COMPANY'S relocation, work on the additional relocation will not be performed until estimated costs have been approved by the CITY. Upon completion of this additional relocation work, CITY will reimburse COMPANY for any incurred costs above the estimated costs set forth in paragraph 2 of the contract that directly result from such change of plans.
5. CITY agrees to furnish COMPANY with all necessary information of the project improvements including surveying and marking the proposed elevation and the right-of-way in order for COMPANY to properly carry out the utility relocation.
6. Upon completion of the relocation provided for herein, COMPANY shall remove all leftover materials and debris resulting from the work and leave the affected public and private rights-of-way in a neat, workman-like condition, free of holes, mounds of dirt, or other objectionable material.
7. This agreement shall inure to the benefit and detriment of the successors and assigns of CITY and COMPANY.

Project Manager: _

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed by their duly authorized officials.

ATTEST:

MISSOURI-AMERICAN WATER COMPANY

Secretary

(Title)

ATTEST:

CITY OF CHESTERFIELD, MISSOURI

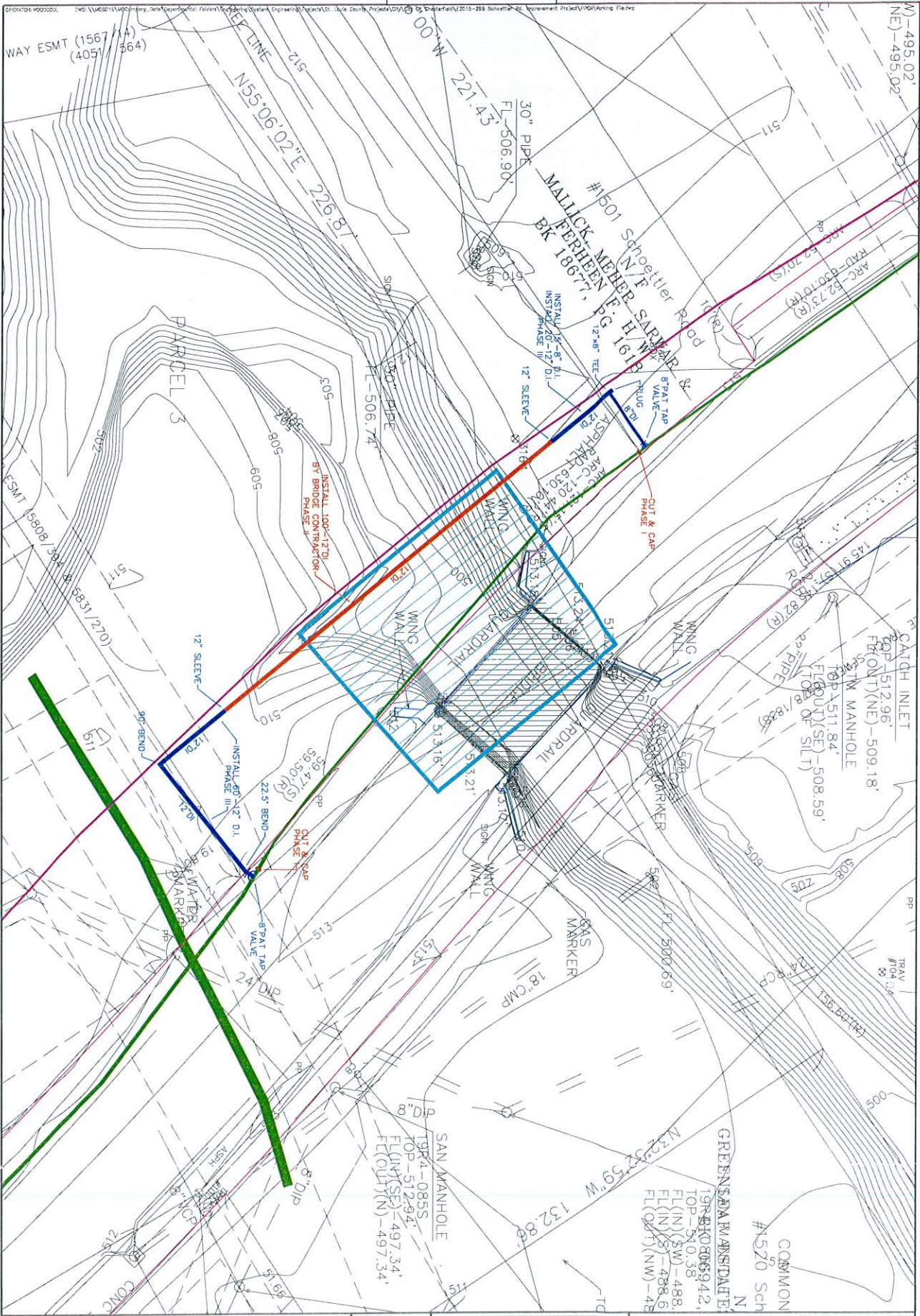
City Clerk

City Administrator

APPROVED AS TO LEGAL FORM:

City Attorney

EXHIBIT "A"



ENG. JOB # E2015-259
 W.O. R17 02/15 P-0027
 DATE 8/26/2015
 DRAWN BY Woodcock
 CHECKED BY
 APPROVED BY
 MAP GRD
 SHEET 1 OF 1



NO	DATE	INT	REVISIONS

PROJECT: SCHOETTLER ROAD BRIDGE REPLACEMENT PROJECT
 TITLE: PPOA
 COMMON #1520 Sch N
 GREENSBANK MARSDAEE
 19R-410-0855
 TOP-510.358
 FL(IN) (SW)-488.6
 FL(IN) (S)-488.6
 FL(OUT) (NW)-488.6

**American Water Company
Engineering Estimate**

Project Description:

Relocate approx 200' of 8" DI main on Schoettler Rd. due to new bridge.

Created By: Daniel L Woodcock

Date: August 26, 2015

Labor: \$46,355.11

Material: \$8,452.62

Outside Contractor Work: \$0.00

Company Share of Costs: \$5,872.26

% costs allocation: 10.71%

Public Agency Dev.Share of Costs: \$48,935.47

% costs allocation: 89.29%

Total Cost of Project: \$54,807.73

American Water Company

	RETIRE	Footage Outside of R/W	125.0	Footage on Public R/W	15.0
	INSTALLED:	Footage Outside of R/W	0.0	Footage on Public R/W	200.0
NET TOTAL CHARGES					\$54,807.73
Total Installed Footage = Footage Outside of R/W + Footage on R/W					200.0
Net Total Charges divided by Total Installed Footage =					\$274.04 per ft.
Company share of cost =					10.71%
	10.71%	X	\$54,807.73	=	\$5,872.26
Public Agency Share of Costs =					89.29%
	89.29%	X	\$54,807.73	=	\$48,935.47
Total Costs =					\$54,807.73

Records supporting the actual cost of relocations will be available in our Accounting Department at our offices at 727 Craig Road, St. Louis, MO 63141.

If American Water Company, at its option, recovers material for reuse from the existing facilities, credit shall be allowed for the salvage of materials in accordance with the practice followed by the Company in this regard.

Reimbursement Percentage (per Agreement)	=		89.29%		
Footage to Relocate, Reimbursable	=		125 ft.		
Total Footage to Relocate	=		140 ft.		
Footage Adjustment Factor	=		89.29%		
Cost for Relocating with Same Size Main	=		\$54,807.73		
Cost for Relocating with Actual Size Main	=		#N/A		
Cost Adjustment Factor	=		100.00%		
Adjusted Percent Reimbursable (Footage Factor X Cost Factor)	=		89.29%		
Total Installed Pipe	=		200		
Cost per Foot	=		\$274.04		

BILL NO. _____

ORDINANCE NO. _____

AN ORDINANCE AUTHORIZING THE CITY ADMINISTRATOR TO EXECUTE A UTILITY ATTACHMENT AGREEMENT WITH THE MISSOURI AMERICAN WATER COMPANY REGARDING UTILITY RELOCATION FOR THE RECONSTRUCTION OF THE SCHOETTLER ROAD BRIDGE OVER CREVE COEUR CREEK.

WHEREAS, the City of Chesterfield desires to reconstruct the Schoettler Road bridge over Creve Coeur Creek; and

WHEREAS, in order to construct the project as designed Missouri American Water Company must relocate existing water facilities, located in private easements, along Schoettler Road; and,

WHEREAS, in order to proceed with the project, the City needs to enter into a Utility Attachment Agreement with the Missouri American Water Company; and,

WHEREAS, the City Council of Chesterfield, Missouri, after careful consideration of the matter and thorough discussion with the City's attorney, desires to authorize the City Administrator of Chesterfield to enter into a Utility Attachment Agreement similar in form to that attached as Exhibit 2;

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHESTERFIELD AS FOLLOWS:

Section 1. The City Council of the City of Chesterfield hereby authorizes and directs the City Administrator to act on behalf of the City of Chesterfield to enter into an agreement with the Missouri American Water Company relative to the utility relocation for the reconstruction of the Schoettler Road Bridge over Creve Coeur Creek, in a form substantially similar to that attached hereto as Exhibit 2.

Section 2. This Ordinance shall be in full force and effect from and after its passage and approval.

Passed and approved this _____ day of _____, 2016

PRESIDING OFFICER

Bob Nation, MAYOR

ATTEST:

Vickie Hass, CITY CLERK

FIRST READING HELD: _____

EXHIBIT 2

**CITY OF CHESTERFIELD, MISSOURI
UTILITY ATTACHMENT AGREEMENT**

THIS AGREEMENT is made by and between Missouri American Water (hereinafter, "Company") and the City of Chesterfield (hereinafter, "City").

WITNESSETH:

WHEREAS, the City proposes to construct and improve a section of roadway designated as Job No. BRM-5410(623), Schoettler Rd., St. Louis County, in the vicinity of Creve Coeur Creek in accordance with certain road plans on file in the office of the County Clerk of St. Louis County, Missouri.

WHEREAS, the **Company** has requested the City to include in the design plans and construction contract, provisions for a utility attachment on Bridge No. 07930041 which is located in Chesterfield, MO and carries Schoettler Rd. over Creve Coeur Creek.

WHEREAS, the City acknowledges that the construction of the project will cause the **Company** the loss of its' existing 8" water main crossing Creve Coeur Creek adjacent to the southwest side of the existing Schoettler Rd. structure over Creve Coeur Creek.

WHEREAS, lack of right of way at the Schoettler Rd structure creates a need and will necessitate the construction of an attachment to the bridge of a new water main (hereinafter, "**bridge attachment**") thereon to Bridge No. 07930041.

WHEREAS, the Company, citing a need to improve its' system in the project area shall increase the main size from 8 inch to 12 inch. This will provide a betterment to the Company's system. The Company shall accept responsibility for the costs associated with this betterment.

WHEREAS, 125 feet of the 140 feet of the existing 8 inch main that will be affected by the project, are outside City right of way. The City agrees to take responsibility for the cost of relocating the portion of the main that is outside City right of way. The 125 feet outside of City right of way represent 89.29% of the overall relocation. The City shall pay 89.29% of the overall cost not including costs associated with the betterment. The Company shall pay 10.71% of the overall cost not including the betterment cost, plus all costs related to the betterment.

WHEREAS, the Company shall install the 12 inch main outside of the limits of the bridge attachment. The City is willing to provide the design and construction of the said bridge attachment.

NOW, THEREFORE, in consideration of the mutual promises, covenants, and representations in this Agreement, the parties agree as follows:

(1) COSTS: The **Company** does hereby agree as a consideration for the installation of the **bridge attachment** as herein set out, to pay the City a lump sum amount computed as follows:

(A) 10.71% of the actual construction contractors bid price for furnishing & placing the hanger system and placing the attached pipe furnished by the Company.

(2) PAYMENT PERIOD: The Company will be advised of the final lump sum amount due when the contract is awarded. Payment will be requested upon award of the contract and made in accordance with this Agreement and shall be made payable to the City. If the Company fails to make payment promptly upon notification from the City, the City may terminate this Agreement and the City may not include the attachment of the Company's facilities to Bridge No. 07930041 as part of City Project No. BRM-5410(623).

(3) PAYMENT ADJUSTMENTS: In the event of overruns or underruns in bid quantities during construction, adjustments in payments will be made in the form of additional billings to the **Company** or in refunds of the overpayments in the event of underruns.

(4) PERIOD OF PERFORMANCE: This Agreement shall be for a period of fifty (50) years, beginning with the date last written in this Agreement, or for the period of City maintenance of the bridge, whichever is of shorter duration. The City shall not be obligated to maintain said bridge solely for the benefit of the **Company** in the event of abandonment of said bridge for any cause.

(5) INSTALLATION: The **bridge attachment** shall be located on the bridge in accordance with approved plans marked "Exhibit A" attached and made a part of this Agreement. The City will construct the bridge attachment as part of the Schoettler Road Bridge Project. Subsequently, the **Company** shall maintain the **bridge attachment** and supporting equipment, at the expense of the **Company**, to the satisfaction of the City Engineer. Satisfactory maintenance shall be that which is mutually agreed upon by the parties. Should the maintenance not be satisfactory, the **Company** shall, immediately upon notice, do whatever is necessary to make the same satisfactory; and should the **Company** fail to do so within a reasonable time, the City may do whatever is necessary, in the opinion of the City Engineer, to make such construction, attachment, or maintenance satisfactory, or may cause said **bridge attachment** and supporting equipment to be removed entirely from the bridge, and in either such event the **Company** shall reimburse the City for the cost.

(6) REINSTALLATION OR REMOVAL: In the event of any repair, widening,

improvement, or reconstruction of the bridge or work on it, the City shall provide reasonable protection to the **bridge attachment** and supporting equipment. If necessary, the City may require the removal and reinstallation or relocation of the **bridge attachment** and supporting equipment, and the **Company** shall at its own expense remove, reinstall or relocate said conduit and supporting equipment in accordance with plans and specifications approved by the City, its engineer, successors or assigns. Should the City replace the bridge with a new structure, the **Company** may at its own expense place its **bridge attachment** and supporting equipment on such new bridge in accordance with plans and specifications approved by the City, with no additional charge to be made during the term of this Agreement, provided such new structure is not a part of the National System of Interstate and Defense Highways.

(7) TERMS OF AGREEMENT: The terms of this Agreement shall be subject to alteration under any law or laws of the State of Missouri which may be enacted after this Agreement takes effect relating to the location, maintenance, operation, or removal of public utility facilities within the right of way or on the structure of the state highways.

(8) ASSIGNMENT: The **Company** shall not assign, transfer or delegate any interest in this Agreement without the prior written consent of the City.

(9) INDEMNIFICATION: The **Company** shall defend, indemnify and hold harmless the City, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the **Company's** performance of its obligations under this Agreement.

(10) AMENDMENTS: Any change in this Agreement, whether by modification or supplementation, must be accomplished by a formal contract amendment signed and approved by the duly authorized representatives of the **Company** and the City.

(11) VENUE: It is agreed by the parties that any action at law, suit in equity, or other judicial proceeding to enforce or construe this Agreement, or regarding its alleged breach, shall be instituted only in the Circuit Court of St. Louis County, Missouri.

(12) LAW OF MISSOURI TO GOVERN: This Agreement shall be construed according to the laws of the State of Missouri. The **Company** shall comply with all local, state and federal laws and regulations relating to the performance of this Agreement.

[Remainder of Page Intentionally Left Blank. Signatures Appear of Following Page.]

IN WITNESS WHEREOF, the parties have entered into this Agreement on the last date written below.

Executed by the Company the _____ day of _____, 20____.

Executed by the City the _____ day of _____, 20____.

CITY OF CHESTERFIELD

MISSOURI AMERICAN WATER COMPANY

By _____

By _____

Title _____

Title _____

Attest:

Attest:

City Clerk

By _____

Title _____

Approved as to form:

Approved as to form:

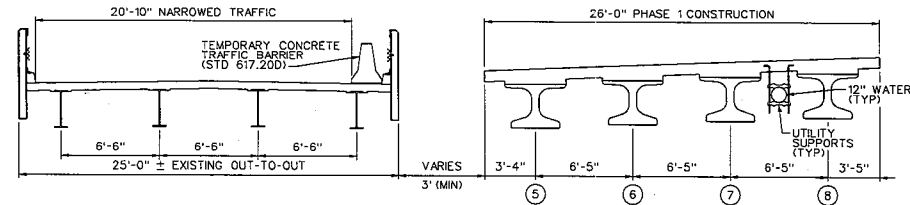
City Attorney

Title _____

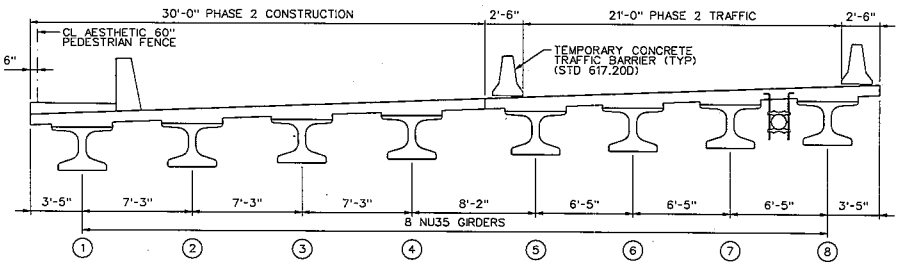
Ordinance No. _____

Seal

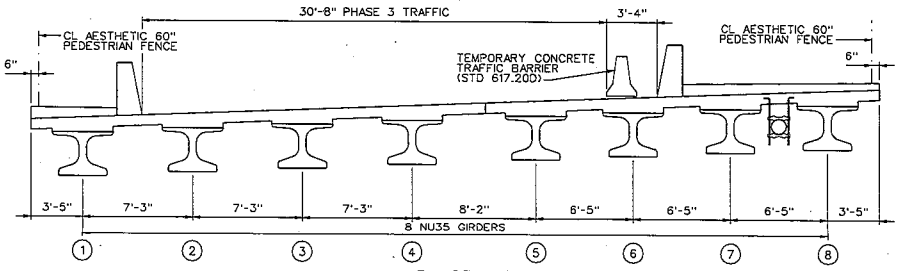
1 2 3 4 5 6 7 8 9 10 11 12 13



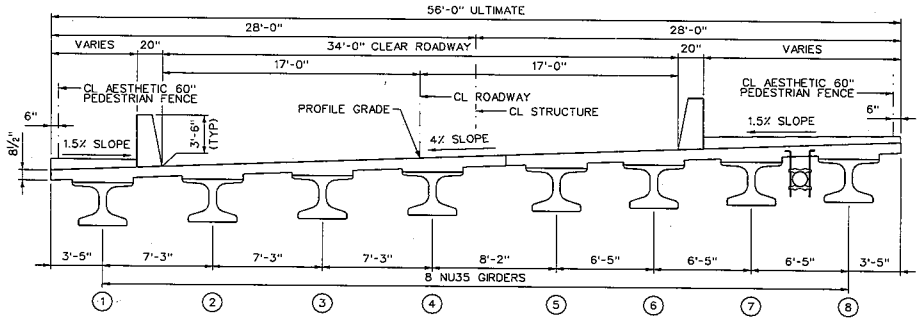
PHASE 1



PHASE 2



PHASE 3



PROJECT COMPLETION

no.	date	by	chkd	description
-----	------	----	------	-------------

1/8" = 1'-0" (Vertical Scale)
 1/4" = 1'-0" (Horizontal Scale)

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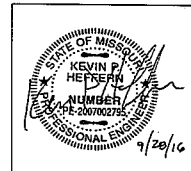
BRIDGE NUMBER:
07930041

BURNS & MCDONNELL
 425 SOUTH WOODS MILL ROAD
 CHESTERFIELD, MISSOURI 63017
 314-682-1500
 ENG. 000165

date	10-23-2015	detailed	A. Smith
designed	K. Heffern	checked	J. Stevenson



CITY OF CHESTERFIELD
 SCHOETTLER ROAD BRIDGE REPLACEMENT
 TYPICAL SECTION



project	82790	contract	BRM-5410(623)
drawing	BR02	rev.	0
sheet	11	of	67 sheets
file:	J:\Sheet011_Bridge Section.dgn		

LAP AND PROJECTION LENGTHS			
BAR 1	BAR 2	LENGTH	
A	*7H202	4'-0"	
A	*6H203	4'-0"	
B	*6H209	*6H229	3'-1"
C	*6H211	4'-4"	
D	*7H20(E)	*7H22(E)	4'-4"

SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 2				
ITEM	PHASE 1 QUANTITY	PHASE 2 QUANTITY	TOTAL	
			CU. YARD	FEET
CLASS 1 EXCAVATION			30	35
STRUCTURAL STEEL PILE (12 IN.)	LINEAR FOOT		84	80
PILE WAVE ANALYSIS	EACH			1
PRE-BORE FOR PILING	LINEAR FOOT		0	12
PILE POINT REINFORCEMENT	EACH		4	4
CLASS B CONCRETE (SUBSTRUCTURE)	CU. YARD		12.1	12.8
VERTICAL DRAIN AT END BENTS	EACH			1

no. | date | by | ckd | description

NOTE: THESE QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES TABLE ON BROS.

NOTES:
 FOR REINFORCEMENT OF SAFETY BARRIER CURB, SEE BR23.
 FOR DETAILS OF VERTICAL DRAIN AT END BENT, SEE BR14.
 BEND F201 BARS IN FIELD TO CLEAR GIRDERS.
 ALL CONCRETE IN THE END BENT ABOVE TOP OF BEAM AND BELOW TOP OF SLAB SHALL BE CLASS B-2.
 FOR DETAILS OF APPROACH SLAB, SEE BR27.
 STRANDS AT END OF THE GIRDER SHALL BE FIELD BENT OR, IF NECESSARY, CUT IN FIELD TO MAINTAIN 1 1/2" MINIMUM CLEARANCE TO FILL FACE OF END BENT.
 FOR LOCATION OF COIL TIE RODS, *5H216 (STRAND TIE BAR) AND *6H215 (THRU GIRDER WEB) SEE BR16 & BR17.
 FOR SECTIONS A-A, B-B, C-C, D-D & E-E, SEE BR12.
 FOR SECTIONS F-F, G-G & H-H, SEE BR13.
 FOR ELEVATIONS J-J & K-K, SEE BR12.
 (+) PLACED NORMAL TO BENT



BRIDGE NUMBER:
07930041



425 SOUTH WOODS MILL ROAD
CHESTERFIELD, MISSOURI 63017
314-682-1500
ENG. 000165

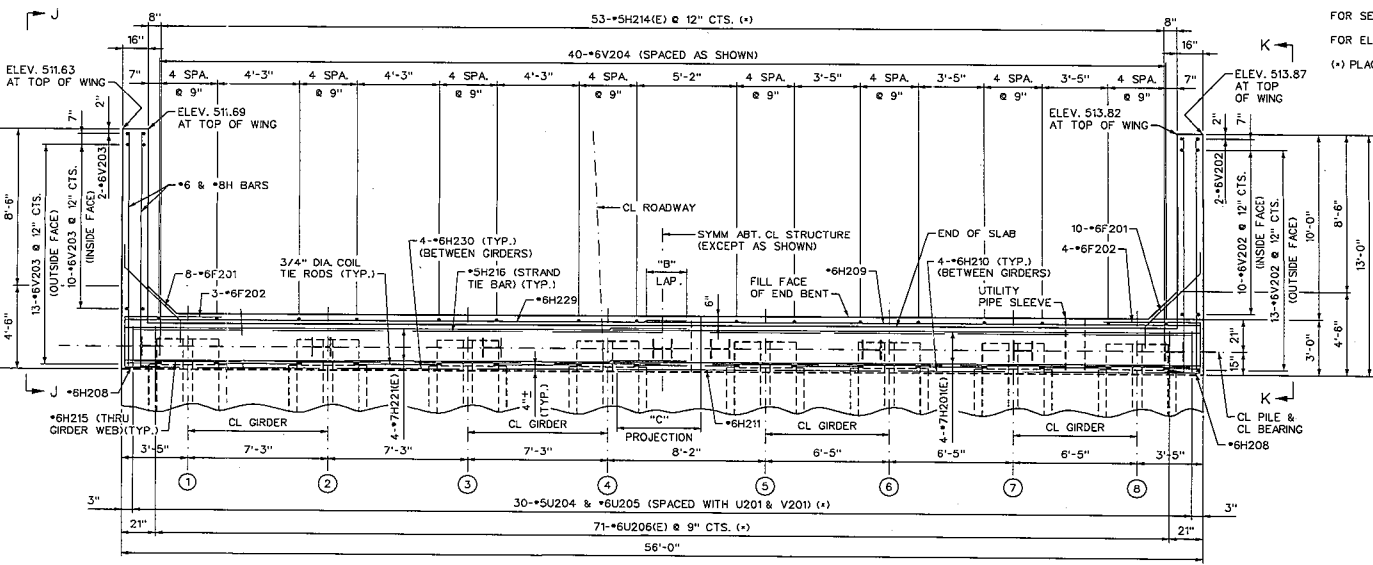
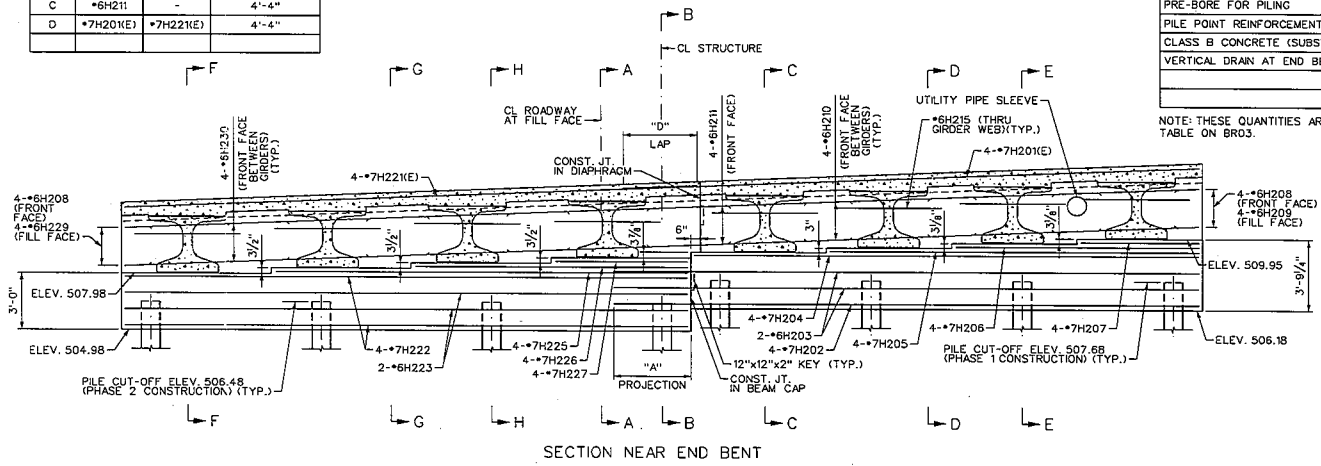
date 10-23-2015 detailed A. Smith
 designed K. Heffern checked J. Stevenson



CITY OF CHESTERFIELD
SCHOETTLER ROAD BRIDGE REPLACEMENT
END BENT 2
PLAN AND ELEVATION



project 82790 contract BRM-5410(623)
 drawing BR10 rev. 0
 sheet 19 of 67 sheets
 file: 019_END_BENT_2_PLAN_ELEV.dwg



PLAN AT TOP OF SLAB
(TEMPORARY SHORING NOT SHOWN)

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