STATE OF KANSAS

DEPARTMENT OF HEALTH AND ENVIRONMENT
DIVISION OF ENVIRONMENT
CURTIS STATE OFFICE BUILDING
1000 SW JACKSON ST., SUITE 400
TOPEKA, KS 66612-1367

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GOVERNOR JEFF COLYER, M.D.
JEFF ANDERSEN, SECRETARY

August 21, 2018

Ms. Leslie Corcelli
U.S. Environmental Protection Agency
Clean Water State Revolving Fund
Office of Water, Office of Wastewater Management
1200 Pennsylvania Avenue, NW (Mailcode 4204M)
Washington, DC 20460

Re: Lyndon, Kansas
KWPCRF Project No: C20 2011 01
Wastewater Treatment Improvements
American Iron and Steel

Dear Ms. Corcelli:

The "Consolidated Appropriation Act of 2014" includes an "American Iron and Steel" (AIS) requirement requiring Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Loan Fund (DWSRF) assistance recipients to use specific domestic iron and steel products produced in the United States if the project is funded through an assistance agreement executed after January 17, 2014, such as the Lyndon Sanitary Sewer Collection Mainline Improvement project. Following the U.S. Environmental Protection Agency (EPA) guidelines, this office has reviewed the City of Lyndon Sanitary Sewer Collection Mainline waiver request for a non-domestic AIS product. This non-domestic AIS product is required to prevent unwanted water to enter a manhole and appears to one of a kind. This office has reviewed the recipient's consultant's application for the waiver and have determined the application provides the necessary information for a waiver.

Should you have any questions, please contact me by email at Frank.Weinhold@ks.gov or by voicephone at 785.296.5530.

Sincerely yours,

Frank R. Weinhold, P.E.
Municipal Programs Section
Bureau of Water

Attachments: AIS Applicable Components

pc: The Honorable Steve Morrison, Mayor - City of Lyndon
BG Consultants, Inc. – Manhattan (Wesley Weishaar.)
William Carr
2.1 File w/ attachments

BG CONSULTANTS
ENGINEE · ITEC ·

Frank R. Weinhold, P.E.
Municipal Programs-Bureau of Water
Kansas Department of Health and Environment
1000 SW Jackson, Suite 420
Topeka, KS 66612

August 9, 2018

Re: American Iron and Steel Availability Waiver for Project C20 2011 01

Dear Mr. Weinhold:

Project Explanation:

Plans and specifications for the Sanitary Sewer System Improvements Project in Lyndon, KS (Proj. C20 2011 01) specify the installation of the *Rausch USA* "QuickLock Liner End Sleeve". When sewer pipes are lined without hydrophilic material at the ends in the annular space between pipe liner and host pipe, water travels this annular space and is discharged into the manhole. The purpose of the QuickLock Liner End Sleeve is to eliminate infiltration through this annular space. This phase is critical to proper system rehabilitation as excess infiltration in a sanitary sewer system causes increased run time and wear on lift station pumps and equipment, decreased treatment time at the treatment facility, and surcharge of the collection system. 68 *Rausch USA* QuickLock Liner End Sleeves are planned to address each manhole entrance on 34 previously lined pipes in Lyndon.

Alternate Options:

Based on our research, there is not an equal, domestic product to the QuickLock Liner End Sleeve.

Hydrophilic (swelling) gasket material such as the *LMK Technologies* "Insignia End Seal Sleeve" must be installed before pipe liner installation. During design, *LMK Technologies* informed us that they do not currently offer a product that can be installed after a pipe has been lined to prevent infiltration.

Primeline Products, Inc. of *Trelleborg Pipe Seals* provides the "NPC – Liner End Seal", a product similar in design but that does not have a seamless stainless steel sleeve. The seamless stainless steel sleeve of the QuickLock Liner End Sleeve adds to the structural integrity of the pipe end section that the NPC – Liner End Seal cannot provide.

Link-Pipe of Canada provides the "End Sealer (Jacketed)". This product depends on an adhesive sealant to provide a water tight seal as opposed to the purely mechanical means of the Quicklock Liner End Sleeve. Additionally, clay is not listed in the compatible pipe materials on End Sealer literature while the majority of previously lined pipes in Lyndon are clay.

Summary:

An availability waiver request for the *Rausch USA* QuickLock Liner End Sleeve has been submitted for use on a similar project in Humboldt, KS (Proj. C20 2019 01). Please consider, in addition to the above information, the enclosed statement from the Lyndon Sanitary Sewer Improvements prime contractor and corresponding supplier regarding the availability of the QuickLock Liner End Sleeves as well as relevant plan sheets and specifications. I request that the QuickLock Liner End Sleeves for use in Lyndon Sanitary Sewer Improvements (Proj. C20 2011 01) be granted an American Iron and Steel Availability Waiver.

Sincerely,

Wesley Weishaar
Intern Engineer

SECTION 33 01 30.73

MANHOLE REHABILITATION

PART 1 – GENERAL

1.01 SCOPE OF WORK

A. This Section includes furnishing all work, materials, and equipment required for substrate rehabilitation for the purpose of eliminating infiltration, providing corrosion protection, repair of voids, and restoration of the structural integrity of the specified manholes as a result of applying a monolithic cementitious liner to the interior manhole wall and bench surfaces of brick, concrete, or any other masonry structures as identified in the project drawings.

B. The Contractor is responsible for all on site coordination of Work with the Owner, Engineer, Residents and Sub-Contractors. Therefore, the Contractor shall provide an experienced foreman on-site for all subcontracted manhole rehabilitation activities described in this specification.

C. Described are procedures for cleaning, preparation, application and testing. The applicator shall furnish all labor, equipment and materials for applying a cementitious mix to form a monolithic liner with machinery specially designed for the application. All aspects of the installation shall be in accordance with the manufacturer's recommendation and per the following specifications which includes:

1. The removal of any loose and unsound material.

2. Cleaning of the area to be sprayed with high pressure water.

3. The elimination of active infiltration prior to making the application.

4. The repair and filling of voids.

5. The repair and sealing of the invert and benches.

6. The spray application of a cementitious mix to form a structural enhanced monolithic liner.

1.02 RELATED WORK

A. Section 03 41 00 – Precast Structural Concrete

B. Section 33 01 30.50 Maintenance of Sewer Flows

1.03 SUBMITTALS

A. Manufacturer's Data: Manufacturer's technical literature on coating material, and description of installation method that includes the following:

1. Written description of construction procedures including bypass methods.

2. Compressive strength, bond strength and set time.

3. Environmental requirements for application and worker safety, including ventilation, humidity, and temperature ranges.

4. Maximum storage life and storage requirements.

5. Mixing and proportioning requirements as applicable.

6. Application film thickness per coat of primer and finish coat.

7. Curing time required.

1.04 QUALITY ASSURANCE

A. Product application shall be performed by trained workman and who have a minimum of 10 years' experience applying cementitious liner material under similar project conditions. Upon request by the Engineer, work experience shall be provided.

B. Contractor shall be certified by the manufacturer and have a minimum of three projects with similar applications of specified material.

1.05 GUARANTEE

A. All manholes that are rehabilitated shall have a one year warranty on the seal. No visual leaks shall be found and if found shall be repaired at no additional cost to the Owner. Those repairs shall also have a one year warranty after the repair date.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Product shall be manufactured by Strong-Seal Systems Corporation, Pine Bluff Arkansas

B. Patching Material: QSR

1. A quick setting corrosion resistant cementitious material shall be used as a patching material and is to be mixed and applied according to the manufacturer's recommendations and shall have the following minimum

requirements:

Compressive Strength (ASTM C109)	1800 psi, 1 hours 2600 psi 24 hours
Bond Strength (ASTM C321)	1600 psi at 28 days
Setting Times Initial (ASTM C293)	15-18 Minutes
Setting Times Final (ASTM C266)	22-25 Minutes
Cement	sulfate resistant
Freeze Thaw Durability (ASTM C666)	300 cycles not weight loss
Shrinkage (ASTM C596)	0%

C. Infiltration Control Material (Strong-Plug)

1. All visible leaks must be plugged prior to application of the cementitious monolithic liner. A rapid setting cementitious product specifically formulated for leak control shall be used to stop minor water infiltration and shall be mixed and applied according to manufacturers recommendations and shall have the following minimum requirements:

Compressive Strength (ASTM C109)	1000 psi at 1 hour 2500 psi at 24 hours
Sulfite Resistance (ASTM C267)	15 cycles no weight loss
Set Time	1 minute
Freeze Thaw Durability (ASTM C666)	100 cycles not weight loss

D. Pipe Sealant

1. Severe leaking around pipe entries shall be sealed around the exterior of the pipe with chemical grout. Chemical grout shall attain minimum tensile strength and elongation as follows:

Tensile Strength ASTM D-1564	21-30 psi
Elongation ASTM D-1564	150-250%

E. Liner Material

1. Cementitious-based liner products shall be used to form a structural/structurally enhanced monolithic liner covering all interior substrate surfaces of the manhole. All cementitious coating material shall be specifically designed for the rehabilitation of sanitary sewer precast or brick structures.

2. Material shall be applied by either low pressure spray or centrifugal spin cast equipment ensuring a monolithic application. Liner materials shall be applied per manufactures recommendations at a uniform thickness of 3/4 inch minimum. The material shall be troweled smooth following initial monolithic application to ensure proper bonding.

3. For mild sulfide conditions where pH is 3.0 or higher, or exterior lining conditions, Strong-Seal MS-2A shall be used. Material shall be made of Type 1 or 3 Portland cement and enhanced with silica fume, poly fiber

reinforcement.
Liner material shall have the following minimum characteristics:

Compressive Strength (ASTM C109)	9000 psi
Tensile Strength (ASTM C496)	800 psi
Flexural Strength (ASTM C293)	1200 psi
Bond Strength (ASTM C882)	2000 psi
Shrinkage (ASTM C596)	0%
Dry Bulk Density	82-85 pcf

4. For harsh sulfide conditions where pH is less than 3.0, Strong-Seal High Performance shall be used. Material shall be made of calcium aluminate cement and chemically stable aggregates

Compressive Strength (ASTM C109)	9000 psi
Tensile Strength (ASTM C496)	800 psi
Flexural Strength (ASTM C293)	1500 psi
Bond Strength (ASTM C882)	2000 psi
Shrinkage (ASTM C596)	0%
Dry Bulk Density	100-102 pcf

5. Liner material shall be factory blended requiring only the addition of water at job site. The cement content shall be 50%-60% of total bag weight.

6. Liner materials should meet or exceed industry standards and shall not have any basic ingredient that exceeds EPA maximum allowable limit for any heavy metal.

F. Water

1. Water used to mix product shall be clean and potable. Questionable water shall be tested by a laboratory in accordance per ASTM C-94 procedure. Potable water need not be tested.

G. Other Materials

1. No other material shall be used with the mixes as described without prior approval or recommendations from material manufacturer.

2.02 EQUIPMENT

A. Applicator must use approved equipment designed specifically for the application of cementitious liners in sanitary sewer system manholes.

B. Equipment shall be as recommended by the manufacturer to ensure proper mixing and pumping of the mortar and shall be clean and in good working order according to its recommendations for safe operation. Only factory certified workers shall operate the equipment. A high speed centrifugal spraying device with a controllable retrieval method shall be used to produce a uniform and dense application.

PART 3 – EXECUTION

3.01 PREPARATION

A. The manhole rehabilitation shall not be started until all pipe work is completed in the manhole.

B. All steps shall be removed by cutting and grinding flush to manhole walls.

C. Place covers over invert to prevent extraneous material from entering the sewer lines.

D. All foreign material shall be removed from the manhole wall and bench using a high pressure water spray (minimum 3500 psi). Unusual conditions such as heavy grease build-up or residues of industrial or processing wastes may require hydro-blasting or chemical cleaning which shall be subsidiary to other rehabilitation work. Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer and chisel and/or scraper. Fill any large voids with quick setting patching mix.

E. Active leaks shall be stopped using quick setting, specially formulated mixes according to manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application after which the weep holes shall be plugged with the quick setting mix prior to the final liner application.

Leaking around manhole pipe entries shall be sealed using rapid setting grout. For severe leakage a minimum of three holes will be drilled through the manhole wall around pipe entry larger in diameter than applicator probe. A chemical grout will be injected into the exterior around the pipe. Insert applicator in the lowest drilled hole. Pump chemical grout until voids are filled, soil or backfill is permeated, back pressure is encountered and grout re-enters through cracks. Repeat procedure in each drilled hole.

3.02 INVERT REPAIR

A. After all preparations have been completed, remove all loose material and wash wall again.

B. Any bench, invert, or service line repairs shall be made at this time using the quick setting patching mix and shall be used per manufacturer's recommendations.

C. Invert repair shall be performed on all inverts with visible damage or infiltration. After blocking flow through the manhole, and thoroughly cleaning invert, the quick setting patch mix shall be applied to the invert in an expeditious manner. The mix shall be troweled uniformly onto the damaged invert extending out onto the base of the manhole sufficiently to tie into the structural / structurally enhanced monolithic liner to be applied. The finished invert surfaces shall be smooth and free of ridges. The flow may be reestablished in the manhole within 30 minutes after placement of the mix.

D. Inverts that do not channel flow across the manhole shall be modified to function properly. This work shall include all labor, equipment, and materials necessary to reshape the existing invert and apply the patch mix described in this section.

3.03 MIXING OF LINER MATERIALS

A. For each bag of product, use the amount of water or water settings required per manufacturer's recommendations following mixing procedures noted on product bag and using the approved equipment for mixing and application.

B. Prepared mix shall be discharged into a hopper and mixing shall continue to occur in such a manner as to allow spraying continuously without interruption until each application is complete.

3.04 APPLICATION

A. Brick corbels and flat tops that have ledges shall be pre-sprayed by a hand held spray nozzle prior to centrifugal spraying to insure a complete monolithic liner transition. Material used shall be liner mix.

B. The wall surface shall be clean and free of all foreign material and shall be damp without noticeable free water droplets or running water, but totally saturated, just prior to application of each coat.

C. The wall liner shall be spray applied either by hand sprayer or by a centrifugal spraying device from the bottom of the wall to the top, using one pass for a uniform thickness of 3/4 inch. Trowel applying of the liner material will not be allowed. Trowel finishing after spray application is allowed.

D. The bench liner shall be spray applied in such a manner that a gradual slope is produced from the walls to the invert. The thickness at the edge of the invert shall be no less than 1/2 inch. The wall/bench intersection shall be rounded to a uniform radius the full circumference of the intersection. Bench lining shall be performed on every manhole.

E. When indicated on drawings, exterior cementitious lining shall be applied on exposed brick surfaces to a depth at least 6 inches below finish grade.

F. When indicated on drawings, application of a Strong Plug will be required as joint treatment in existing precast manholes that show visible signs of infiltration staining. The existing defective joint shall be ground out to a minimum depth of ½ inch and minimum width of 1/4 inch with right angle cuts. All debris will be power washed away prior to material application.

3.05 CURING

A. Caution should be taken to minimize exposure of applied product to sunlight and air movement. At no time should the finished product be exposed to sunlight or air movement for longer than 15 minutes before replacing the manhole cover.

B. In extremely hot and arid climates the manhole should be shaded while

reconstruction is in progress.

C. Exterior cementious lining shall be sprayed with a curing compound following application as recommended by the manufacturer and covered with plastic tarp or burlap sacks for a minimum duration of 7 days.

D. Traffic shall not be allowed over substrates for 24 hours after reconstruction is complete.

3.06 WEATHER

A. No application shall be made to frozen surfaces or if freezing is expected to occur inside the substrate within 24 hours after application.

B. If ambient temperatures are in excess of 95 degrees F, precautions shall be taken to keep the mix temperature at time of application below 90 degrees F. Mix water temperature shall not exceed 85 degrees F. Chill with ice if necessary.

3.07 FIELD TESTING AND ACCEPTANCE

A. Four two-inch cubes shall be cast each day or from every 50 bags of product used and shall be properly labeled and sent to manufacturer for testing in accordance with the owner's or manufacturers directions for compression strength testing as described in ASTM C109 procedure.

B. At the direction of the Owner and Engineer, the rehabilitated manholes shall be tested by the following methods:

1. Visually verify the absence of leaks.

2. Test each manhole in accordance with Manhole Vacuum Testing procedures as outlined in ASTM C 1244.

3.08 RAUSCH USA QUICKLOCK END SLEEVE

A. Install according to manufactures recommendations.

B. Incorporate hydrophilic waterstops with installation of Rausch USA QuickLock End Sleeve according to Rausch USA manufactures recommendations.

3.09 BASIS OF PAYMENT

A. The amount of completed and accepted work shall be paid for at the contract unit prices described in the itemized unit price schedule, which shall include all labor, materials, equipment, cleaning, preparation, tools and incidentals necessary for the proper and workmanlike completion of the work.

B. Payment for Manhole Cementitous Lining shall be paid as Vertical Foot and based on the field measurement from the bottom of manhole ring to the intersection of invert and bench of manhole. Accurate measurements will be made to the nearest inch by the Contractor and witnessed by the Site

Representative.

C. Bench lining shall be subsidiary to every manhole receiving Cementitous Lining.

D. Payment for Manhole Bench Repair shall be paid as Each.

E. Payment for New Bench shall be paid as Each.

F. Raise Manhole Ring and Cover shall be paid as Each

G. Remove Steps shall be subsidiary to manhole lining activities.

H. Reset Ring and Cover shall be paid as Each

I. Joint Treatment shall be paid for by the Linear Loot of joint repaired.

J. Rausch USA QuickLock End Sleeve shall be paid as Each.

END OF SECTION

Reed Dozing and Contracting, LLC

PO Box 158, 218 W. Main St.
Sheldon, MO 64784
417-884-2629 417-884-2256 fax
Reeddozingandcontracting@hotmail.com

To Whom it may concern:

Upon being awarded the contract for the City of Lyndon Sanitary Sewer Collections Mainline Improvements project Lyndon, KS we began researching all materials for project to meet required AIS standards. Our research has yielded no domestic alternative for the Rausch Quick-Lock end sleeve furthermore we have attached a letter from our subcontractor with experience in installed Rausch Quick-Lock end sleeve and they too were unable to find alternatives.

To Whom it May Concern,

PipeCheck, LLC has been an authorized installer for the Uhrig Quick-Lock system since 2009. To my knowledge there is no domestic products made that are equivalent.

The following is the cost per unit.

8” Quick-Lock End Sleeve	[redacted]	each
10” Quick-Lock End Sleeve	[redacted]	each
12” Quick-Lock End Sleeve	[redacted]	each

Please let me know if you have any questions.

With Regards,

Brian Gipson
Member

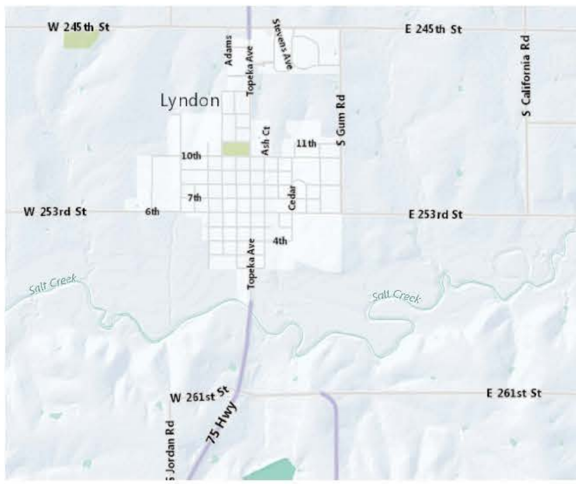
325R Emmett Ave.
Bowling Green, KY 42101
www.pipecheck.net
270-303-1028
615-498-2094

CITY OF LYNDON, KANSAS

SANITARY SEWER COLLECTION SYSTEM MAINLINE IMPROVEMENTS

CDBG PROJECT NO. 17-PF-008
USDA-RD PROJECT NO. 18-070-331412182
KDHE PROJECT NO. C20 2011 01

INDEX OF SHEETS



SUMMARY OF QUANTITIES

GENERAL

NO	DESCRIPTION	QUANTITY	UNITS
1	MOBILIZATION	1	LS
2	CLEARING AND GRUBBING	1	LS
3	TRAFFIC CONTROL	1	LS
4	SEEDING	1	LS
5	EROSION CONTROL	1	LS
6	PRE AND POST CONSTRUCTION PHOTO DOCUMENTATION	1	LS
7	CONTRACTOR CONSTRUCTION STAKING	1	LS

MANHOLE REHABILITATION

NO	DESCRIPTION	QUANTITY	UNITS
8	Raise Manhole Ring & Cover (0-6")	4	EA
9	Reset Manhole Ring & Cover	13	EA
10	Replace Manhole Ring & Cover	26	EA
11	Manhole Concrete Collar	65	EA
12	Manhole Cementitious Lining	300	VF
13	Manhole Joint Treatment	663	LF
14	4" Interior Drop Piping	9	EA
15	8" Interior Drop Piping	3	EA
16	Manhole Bench Repair	7	EA
17	Manhole New Bench	6	EA
18	Flush Tank Rehabilitation	13	EA
19	Manhole Pipe Entrance Rehabilitation	63	EA
20	Standard Precast Manhole	8	EA
21	Manhole Additional Height	15	VF

SEWER MAIN REHABILITATION

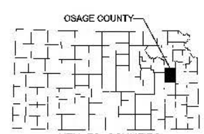
NO	DESCRIPTION	QUANTITY	UNITS
22	Service Tap Repair (In-Line)	19	EA
23	8" Sanitary Sewer Point Repair (10 Foot)(Depth 0-6)	15	EA
24	8" Sanitary Sewer Point Repair (10 Foot)(Depth 6-10)	31	EA
25	8" Sanitary Sewer Point Repair (10 Foot)(Depth 10-14)	2	EA
26	10" Sanitary Sewer Point Repair (10 Foot)(Depth 6-10)	3	EA
27	8" Sanitary Sewer Main (Depth 6-10)	94	LF
28	10" Sanitary Sewer Main (Depth 6-10)	4	LF
29	8" Sewer Main CIPP/Fold and Form Liner	17333	LF
30	10" Sewer Main CIPP/Fold and Form Liner	1222	LF
31	12" Sewer Main CIPP/Fold and Form Liner	508	LF
32	Heavy Turbuculation Removal in Iron Pipes	81	LF
33	Connect to Existing Manhole	5	EA
34	Flowable Fill	437	CY
35	Remove and Replace (Gravel Surfacing)	37	SY
36	Remove and Replace (Concrete Surfacing)	323	SY
37	CCTV Sewer Main Inspection (Post Construction)	20714	LF

N

750' 0 1500' 3000'

LEGEND

PROPOSED WATER MAIN	PROPOSED WATER VALVE
STREAMBED	PROPOSED HYDRANT
EXISTING TREE	EXISTING POWER POLE
EXISTING HEDGE	EXISTING GUY ANCHOR
EDGE OF TIMBER	EXISTING CABLE TELEVISION PEDESTAL
EXISTING CONTOUR	EXISTING WATER METER
EXISTING FENCE	EXISTING TELEPHONE PEDESTAL
EXISTING STORM SEWER PIPE	EXISTING LIGHT POLE
EXISTING SANITARY SEWER PIPE	EXISTING SANITARY SEWER MANHOLE
EXISTING WATER LINE	EXISTING SANITARY SEWER CLEANOUT
EXISTING UNDERGROUND TELEPHONE LINE	EXISTING FIRE HYDRANT
EXISTING GAS LINE	EXISTING WATER VALVE
EXISTING CABLE TV LINE	MAILBOX
EXISTING CURB AND GUTTER	BENCHMARK
EXISTING STONE WALL	
EXISTING RETAINING WALL	



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WICHITA: 687-2470
ONE CALL

UTILITY COMPANY CONTACTS

WATER & SANITARY SEWER:	CITY OF LYNDON (785) 828-3146
GAS:	KANSAS GAS SERVICE (800) 794-4780
CABLE:	CENTURY LINK (877) 862-9343
ELECTRICITY:	WESTAR ENERGY (800) 383-1183

BG CONSULTANTS
ENGINEERS · ARCHITECTS · SURVEYORS
4806 Vue du Lac Place Manhattan KS 66503
T: 1.785.537.7448 Web: www.bgcons.com
Lawrence Hutchinson Emporia

REVISIONS

NO.	DATE	INITIALS
1	1-9-18	BJF

AS BID

BRIAN J. FOSTER
LICENSED
20895
KANSAS
PROFESSIONAL ENGINEER

CITY OF LYNDON, KANSAS
SANITARY SEWER COLLECTION SYSTEM MAINLINE IMPROVEMENTS

TITLE SHEET

Engineer: BJF
Drafter: WGW
Check:
Date: 1/9/18
Project No. 17-1128E

Sht. No.	Total Shts.
G1.0	31

MANHOLE REHABILITATION SCHEDULE

MH#	RAISE LID (IN)	RESET RING AND COVER	NEW RING AND COVER	CONCRETE COLLAR	MATERIAL	DEPTH (FT)	LINER (VF)	JOINT TREATMENT (LF)	DROP LATERAL	DROP MAIN	BENCH REPAIR	NEW BENCH	FLUSH TANK REHAB	STEP REMOVAL	END SLEEVE	INDEX SHEET
1					Precast	8		25	2					X		C1.0
2					Precast	9		25						X		C1.0
3					Precast	9.5		12.5						X		C1.0
4		X			Precast	9.6		25								C1.0
5		X			Precast	6.4		25						X	8"(S)	C1.0
5A					Precast	7.5								X	8"(N), 8"(S)	C1.0
6					Precast	9.8				1	X				8"(N)	C1.0
8		X		X	Precast	8.3										C1.0
9					Precast	8.2			1						8"(S)	C1.0
10				X	Precast	9.5		12.5	1						8"(N)	C1.0
10A					Brick/Block	7.6	7.6							X	8"(N), 8"(S)	C1.0
11	0-6			X	Precast	8.3	8.3		1							C1.2
12					Precast	7	7	12.5								C1.2
13					Precast	6.7							X		8"(SE)	C1.2
14				X	Brick/Block	6.9	6.9					X	X	X	8"(NW), 8"(S)	C1.2
15				X	Precast	5.9						X	X	X		C1.1
16				X	Brick/Block	7.5	7.5							X		C1.1
17				X	Brick/Block	7.6	7.6							X	8"(S)	C1.1
19				X	Brick/Block	7.5	7.5							X		C1.2
20			X	X	Brick/Block	6.8	6.8							X		C1.2
21					Brick/Block	5.5		12.5			X		X	X	8"(S)	C1.1
22				X	Brick/Block	8.2		12.5						X	8"(N)	C1.1
23			X	X	Brick/Block	6.2	6.2							X		C1.1
24				X	Brick/Block	6.9	6.9		1							C1.4
25				X	Precast	6.5										C1.1
26				X	Brick/Block	6.3	6.3				X				8"(W)	C1.1
27			X	X	Brick/Block	12.7	12.7							X	8"(S)	C1.4
28				X	Precast	7.1		12.5						X	8"(E)	C1.1
29				X	Precast	6.2	6.2			1			X			C1.1
30				X	Brick/Block	5.5	5.5							X	8"(N), 8"(E)	C1.4
31				X	Brick/Block	14.1	14.1							X	8"(W), 8"(E)	C1.4
32				X	Brick/Block	8.3		12.5						X	8"(W), 10"(S), 10"(N), 8"(E)	C1.4
33				X	Brick/Block	7.2	7.2							X	10"(S), 8"(N)	C1.4
33A			X	X	Brick/Block	8.5	8.5							X		C1.5
34				X	Brick/Block	5.1	5.1							X	8"(N), 8"(S)	C1.1
37				X	Brick/Block	8.6	8.6							X		C1.5
38						5.5	5.5						X	X		C1.2
39	0-6			X	Brick/Block	7	7								8"(W)	C1.5
39A			X	X	Brick/Block	6.2	6.2									C1.5
40				X	Brick/Block	8.7		12.5						X	10"(N), 10"(S)	C1.4
41		X		X	Brick/Block	7.1	7.1					X	X	X		C1.4
42		X		X	Brick/Block	8									10"(N)	C1.4
43			X	X	Precast	6								X	10"(E)	C1.4
44			X	X	Precast	5.2						X	X	X	8"(S)	C1.5
45			X	X	Brick/Block	6.5	6.5	12.5						X	8"(N)	C1.5
46			X	X	Brick/Block	7.3								X		C1.5
47			X	X	Brick/Block	8.8	8.8								10"(W), 10"(S)	C1.5
48			X		Brick/Block	3.7	3.7								10"(N), 12"(E)	C1.5
49				X	Precast	8.7	8.7	37.5						X	12"(W),8"(N)	C1.5
50		X		X	Brick/Block	8.8	8.8							X	8"(S), 8"(N), 8"(E)	C1.5
51			X	X	Brick/Block	4.9	4.9							X	8"(S), 8"(N)	C1.5

MH#	RAISE LID (IN)	RESET RING AND COVER	NEW RING AND COVER	CONCRETE COLLAR	MATERIAL	DEPTH (FT)	LINER (VF)	JOINT TREATMENT (LF)	DROP LATERAL	DROP MAIN	BENCH REPAIR	NEW BENCH	FLUSH TANK REHAB	STEP REMOVAL	END SLEEVE	INDEX SHEET
52				X	Brick/Block	5.6	5.6	12.5						X	8"(S), 8"(N)	C1.5
53		X		X	Brick/Block	5.5		12.5					X	X	8"(S)	C1.5
54			X	X	Precast	4.7		25								C1.5
55				X	Precast	6		12.5								C1.5
56				X	Precast	3.8										C1.2
57				X	Brick/Block	6.7	6.7	12.5						X	8"(N)	C1.2
58				X	Brick/Block	6.5								X	8"(N), 8"(S)	C1.2
59				X	Precast	5.4	5.4						X			C1.2
60				X	Precast	6.7										C1.2
61			X	X	Precast	6.5		12.5						X		C1.5
62				X	Brick/Block	7.7	7.7								10"(S)	C1.5
63			X	X	Precast	6.8	6.8									C1.2
64			X		Precast	4.5										C1.2
65			X	X	Precast	8		12.5								C1.2
66				X	Precast	5.9	5.9								8"(E)	C1.3
67					Precast	8.2		25							8"(W)	C1.3
68		X			Precast	7		12.5			X					C1.3
69		X			Precast	6.6		12.5			X				8"(E)	C1.3
70		X			Precast	8.4		25							8"(W), 8"(E)	C1.3
71					Precast	9		12.5							8"(W)	C1.3
72		X			Precast	11.6		37.5								C1.3
73					Precast	7.1		25								C1.3
74				X	Precast	7.4		25						X		C1.5
75				X	Precast	6.7	6.7							X	10"(N), 10"(S)	C1.5
76				X	Precast	6.1	6.1							X		C1.6
77				X	Brick/Block	5.5	5.5							X		C1.6
78				X	Brick/Block	6	6									C1.6
78A				X	Precast	7.3	7.3									C1.6
79			X	X	Brick/Block	3	3									C1.6
80				X	Precast	7	7						X			C1.3
80B			X		Precast	4.2										C1.5
80C			X		Brick/Block	5.9		25							10"(N)	C1.5
80D				X	Precast	8.7		25								C1.5
81				X	Brick/Block	6.6	6.6				X		X	X		C1.6
82			X	X	Brick/Block	5.9	5.9							X	8"(S)	C1.6
83			X		Brick/Block	5.1	5.1							X	8"(N)	C1.6
84			X		Precast	4.3						X				C1.6
85		X			Precast	7.2		12.5	2							C1.6
86	0-6				Precast	5.9			1		X					C1.6
91		X			Precast	10		12.5								C1.7
92		X		X	Brick/Block	6.4									8"(W)	C1.5
93		X		X	Brick/Block	6.9	6.9									C1.5
94				X	Brick/Block	6.2	6.2					X	X	X		C1.5
96					Brick/Block	5.6	5.6							X	10"(N)	C1.7
97			X		Precast	6.7		25								C1.7
98		X			Precast	13.3		37.5								C1.5
99			X		Precast	4.2										C1.5
99A					Precast	6.3									10"(S)	C1.5
110					Precast	5.8										C1.2
111					Precast	7.7				1						C1.2
112			X		Precast	9.4										C1.2
114					Precast	10.1										C1.2

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NO.	REVISIONS	DATE	INITIALS
1	AS BID	1-9-18	BJF

BRIAN J. FOSTER LICENSED 20895 1-9-18 KANSAS PROFESSIONAL ENGINEER

CITY OF LYNDON, KANSAS
SANITARY SEWER COLLECTION SYSTEM MAINLINE IMPROVEMENTS

MANHOLE REHABILITATION SCHEDULE

Engineer: BJF
Drafter: WGW
Check:
Date: 1/9/18
Project No. 17-1128E
Sht. No. C2.0 Total Shts. 31

Lyndon KS Collection Repairs

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Mobilization	1	2	1	2	100%
Point Repairs (Reaves & Reed)	2	10	2	10	10%
Line Cleaning & Prep (Mayer)	4	3	4	3	0%
CIPP (MPT)	6	4	6	4	0%
Replace Manholes,Cocrete	9	8	9	8	0%
Manhole Rehab & End Sleeves (Mayer & Pipe	16	4	16	4	0%
Clean Up & Demobilization	18	4	18	4	0%