



**Request for Proposal  
SSES Phase 7 Project Addendum No. 1 to  
RFP No. 405146.78.0119  
April 28, 2020**



The following information encompasses Addendum No. 1 for the above referenced RFP. Bidders shall fully consider and acknowledge this Addendum in the preparation and submittal of its formal Proposal. Failure to do so may result in the rejection of the Proposal.

Section 1 – Mandatory Pre-Bid Meeting Notes and Questions and Sign-In Sheet

Section 2 – Table 00380.3.1 - Unit Price Proposal Form

Section 3 – 00581.3 Liquidated Damages

Section 4 – Technical Specifications 01501 and 02541

All other conditions and requirements remain unchanged.

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**Section 1  
Mandatory Pre-Bid Meeting Notes and Sign-In Sheet**

**Q1:** RFP only states that a combined M/WBE goal is 21% with no % breakdown for MBE or WBE specifically. Is this accurate?

**SARP10:** There is no breakdown for the minority and/or women owned businesses for this contract.

**Q2:** If the Prime Contractor is an MBE or WBE do they count towards the 21% goal on the project?

**SARP10:** Yes, it will count as 100% either MBE or WBE.

**Q3:** RFP verbiage says for the first 30 days liquidated damages will be assessed at a rate of five hundred dollars (\$1,000.00) per calendar day, and 31 days on will be assessed a rate of one thousand dollars (\$1,500.00) per day. Which is correct?

**SARP10:** The RFP should read, "the first 30 days liquidated damages will be assessed at a rate of one thousand dollars (\$1,000.00) per calendar day, and 31 days on will be assessed a rate of one thousand five hundred dollars (\$1,500.00) per day. Documents are revised and reflected in this addendum.

**Q4:** Due to the current COVID pandemic, will the program consider only accepting an emailed proposal submittal? Currently no one can enter the SARP building to hand deliver the submittal, and there have been issues recently using USPS, UPS and FedEx due to the volume of shipping they are currently handling.

**SARP10:** Black & Veatch will allow one individual from the proposing company to hand deliver the submittal if that is the delivering mechanism chosen. At this time, we are not accepting emailed proposals but if this changes, will update in an addendum.

**Q5:** Are you aware if any manholes lids are more than 5 feet above grade?

**SARP10:** To the best of our knowledge, there are no manhole lids that are above 5-feet above grade. However, it is the contractor's responsibility to conduct field investigations to confirm this.

**Q6:** Will any roads need to be built to get to sewers?

**SARP10:** To the best of knowledge, there are no access roads needed to be built for access to sewer lines. Refer to Section 2.01 A. 3. in the specification concerning right of way or easement assessment.

**Q7:** Would the SARP10 team be willing to allow smoke testing to be performed using the NASSCO specifications?

**SARP10:** Use the specifications indicated in the RFP.



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**Q8:** In section 01501 can you state the name and location of the landfill?

**SARP10:** There are two landfills where the contractor can dump:

North Shelby Landfill  
7111 Old Millington Rd.  
Millington TN, 38083

South Shelby Landfill  
5494 Malone Rd  
Memphis, TN 38118

**Q9:** In Section 01501 it states that the Program Manager will hire a consultant to facilitate the acquisition of the landfill disposal permit. However, in Section 02541-2 it states under E. Permits that the sub-contractor is responsible for obtaining the permit. Which is correct?

**SARP10:** Section 01501 is revised to state that the Program Manager has a consultant under contract to coordinate with a SSES subcontractor the acquisition of a solid and a liquid sample of sewer cleaning debris removed from the WCTS. Section 02541-2 is revised to state that the City of Memphis has secured a Special Waste Recertification from the Division of Solid Waste Management of the Tennessee Department of Environment and Conservation for continued disposal at North and South Shelby landfills as well as separate solid and liquid waste profiles with Republic Services. Subcontractor will be responsible for using a manifest form provided by the Program Manager and pre-signed by the Subcontractor's authorized representative for every disposal event. These revisions are reflected in this addendum.

**Q10:** In the same section it states that the sub-contractor will have to hold waste until the analytical come back. Typically, how long does that take?

**SARP10:** The process to complete the analytical testing and get results takes approximately 3 - 5 days.

**Q11:** It states in Section 3.02.C.1. the photos to be date/time stamped. Is it acceptable for the date/time stamp to be embedded in the JPG file metadata? Or is it required for the it to "burned" into the image?

**SARP10:** The date and time does not need to be burned into the image. It is acceptable to have this data embedded in the JPG file.

**Q12:** In Section 3.02.C.1 that a final smoke test report will be submitted to SARP10 team. Is this requirement still requested?

**SARP10:** SARP10 does not require reports for smoke testing. The change in the specs will be reflected in this addendum.

**Q13:** In section 01501 it states that a fax of where smoke testing is to be performed each morning before 7 to the fire department, can you confirm that this can be done through email instead?

**SARP10:** The method of communication varies by the fire department that covers the area to which the smoke testing will be held. They may request it by fax or email.

**Q14:** Section 02541-14 E. talks about traffic control being paid for on lump sum basis, could you please explain, since I thought traffic control was to be included in unit cost for CCTV pricing.

**SARP10:** All other regular traffic control should be included in the unit pricing for PACP and MACP.



## Mandatory Pre-Bid Meeting Attendee List



<b>Program: SARP10</b>	<b>Meeting Date: April 23, 2020</b>
<b>Project: SSES Phase 7 Project</b>	<b>Time: 9:30 AM</b>
<b>Facilitator: Josh Grabowski</b>	<b>Place/Room: Virtual Meeting</b>

Name	Company	Phone	E-Mail
AJ Robinson	Canopy Spatial	901-497-9944	aj.robinson@canopyspatial.com
Brad Dutruch	CES	225-769-2933	brad@ces-sses.com
Caldwell, Jerry	Black and Veatch	901-530-1805	CaldwellJ@bv.com
Chris White	RedZone	412-476-8980	cwhite@redzone.com
Collins, Joe J	OCI	913-458-9520	CollinsJJ@overlandcontracting.com
Darryl Jackson	Enfinity Supply	901-831-9626	djackson@enfinitysupply.com
David Guillory	CES	225-939-3019	dguillory@ces-sses.com
David Hamberlin	TREKK Design Group	816-278-0339	dhamberlin@trekkdesigngroup.com
Davis, Bradley J.	Black and Veatch	901-495-2646	DavisBJ@bv.com
Doug Boccuti	RedZone	412-476-8980	dboccuti@redzone.com
Eddie Moore	CCM	678-595-2741	emoore@cminc.us
Emmanuel Tuombe	ABES Engineering	901-340-3011	etuombe@abesengineering.com
Gabriel Stewart	Hydromax USA	502-303-4094	gabriel.stewart@hydromaxusa.com
Ivan Tamayo	Black and Veatch	901-552-0146	tamayolP@bv.com
Jared Carey	TREKK Design Group	417-291-2300	jcarey@trekkdesigngroup.com
Jeff Graham	Hydromax USA	502-548-8965	jeff.graham@hydromaxusa.com
Jonathan Kent	Hydromax USA	812-746-9930	jonathan.kent@hydromaxusa.com
Josh Grabowski	AWPM	901-514-1719	jgrabowski@allworldmail.com
Josh Wesselmann	Rain for Rent	618-419-5504	jwesselmann@rainforrent.com
JT Burden	Hydromax USA	812-305-6386	jeremy.burden@hydromaxusa.com
JT Malasri	Malasri Engineering	901-602-2889	jt@malasriengineering.com
Justin Avent	Gresham Smith	901-849-6554	justin.avent@greshamsmith.com
Ken Wethington	TREKK Design Group	901-333-9560	kwethington@trekkdesigngroup.com
Kendrick Norris	CCM	901-591-7302	knorris@cminc.us
Kevin Niblock	Malasri Engineering	901-602-2868	kevin.n@malasriengineering.com
Kiue-Anh Tran	Q Solutions, Inc.	404-579-5779	ka.tran@qsiworld.com
Kyle LeBlanc	CES	985-373-3526	kleblanc@ces-sses.com
Laurita Jackson	Enfinity Supply	901-219-1468	ljackson@enfinitysupply.com
Marcus Ray	Taliaferro & Browne Inc.	816-769-1688	mray@tb-engr.com
Marty Broussard	CES	225-678-7034	mbroussard@ces-sses.com
Michael J. Looney	Taliaferro & Browne, Inc.	816-283-3456	mlooney@tb-engr.com
Mike Gardner	Taliaferro & Browne, Inc.	816-283-3456	mgardner@tb-engr.com



## Mandatory Pre-Bid Meeting Attendee List



Name	Company	Phone	E-Mail
Morgan Stafford	CES	225-573-1365	mstafford@ces-sses.com
Patricia Cordova	Small Business Services	901-348-0590	office@smallbusinessserv.net
Scott Anderson	Hydromax USA	812-483-1664	scott.anderson@hydromaxusa.com
Scott McAmis	Gresham Smith	865-809-8618	scott.mcamis@greshamsmith.com
Thompson, Riley	OCI	901-495-2649	ThompsonLR@bv.com
Trenton Moore	CCM	770-652-1444	Tmoore@ccminc.us
Wachal, Robert E.	Black and Veatch	469-513-3207	wachalRE@bv.com
Wiley Richards	W&T	901-497-1291	wileyrichards@msn.com



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**Section 2  
Table 00380.3.1 - Unit Price Proposal Form**

**Table 00380.3.1 - Unit Price Proposal Form**

Bidder should refer to Section 00280, Instructions to Bidders, when completing this Proposal Form. Bidder shall complete this form entirely and return it with Bidder's Proposal.					
Submitted by (Company Name)					
00380.3 Proposal Pricing Information					
00380.3.1 Unit Pricing					
Bidder proposes to complete the RFP Work based on firm, fixed, unit prices (US dollars), which prices multiplied by the final Work quantities would represent the full consideration to Bidder for its complete and satisfactory performance of the Work in compliance with all the terms and conditions of the RFP Documents. The Unit Prices in this Table include the cost of all the work which is required or implied by the RFP documents or which may be inferred therefrom, and which is customarily provided in furnishing a complete and finished work item of its kind. Further, any and all alterations, modifications, and adjustments to the work item, which is reasonably foreseeable or customarily encountered in providing and installing equipment, material, and services of the work item kind, will be performed without additional compensation.					
In the event of a Purchaser-approved change in the scope of Work for which a unit price from this Table is not applicable, as determined by the Purchaser, the Service Contractor shall provide a new unit price for review and acceptance by the Purchaser. Service Contractor shall provide all information requested by the Purchaser to substantiate the value of the new unit price.					
00380.3.1.1 Unit Prices				Bidder Response	
Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
<b>Wolf South Tributaries Harrison WS05-1, WS05-2</b>					
<b>CCTV</b>					
02541-4.01.A	Pipeline Assessment and Certification Program (PACP) CCTV Inspection with Light Cleaning of Sewer				
	8 inch pipe	Linear Feet	310,226	\$ -	\$ -
	10 inch pipe	Linear Feet	17,619	\$ -	\$ -
	12 inch pipe	Linear Feet	6,363	\$ -	\$ -
	15 inch pipe	Linear Feet	7,636	\$ -	\$ -
	18 inch pipe	Linear Feet	4,411	\$ -	\$ -
02541-4.01.B	Heavy Cleaning of Sewer Line				
	8 inch pipe	Crew Hour	266	\$ -	\$ -
	10 inch pipe	Crew Hour	79	\$ -	\$ -
	12 inch pipe	Crew Hour	29	\$ -	\$ -
	15 inch pipe	Crew Hour	54	\$ -	\$ -
	18 inch pipe	Crew Hour	63	\$ -	\$ -
02541-4.01.C	Remote Trimming of Protruding Service Lateral				
		Each	5	\$ -	\$ -
02541-4.01.D	Siphon Cleaning and CCTV Inspection				
	8 inch pipe	Linear Feet	1,219	\$ -	\$ -
	12 inch pipe	Linear Feet	370	\$ -	\$ -
<u>02541-4.01. E</u>	<u>Traffic Control</u>	<u>Lump Sum</u>	<u>1</u>	<u>\$ -</u>	<u>\$ -</u>
02542-4.01.A	Sonar/TV				
	24 inch pipe and greater	Linear Feet	13,277	\$ -	\$ -
02542-4.01.B	Heavy Cleaning of Sewer Line				
		Crew Hour	25		
<b>Manholes</b>					
02544-4.01.A	GPS at Submeter Accuracy				
		Each	1,178	\$ -	\$ -
02544-4.01.B	Manhole Assessment and Certification Program (MACP) Level 1 Inspection				
		Each	5	\$ -	\$ -
02544-4.01.C.1	Manhole Assessment and Certification Program (MACP) Level 2 Inspection - No 3D Scan				
		Each	1,144	\$ -	\$ -
02544-4.01.C.2	Manhole Assessment and Certification Program (MACP) Level 2 Inspection - with 3D Scan				
		Each	34	\$ -	\$ -

Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
<b>Smoke Testing</b>					
02546-4.01.A	Smoke Testing with GPS at Submeter Accuracy				
	6 inch - 21 inch pipe	Linear Feet	346,254	\$ -	\$ -
02546-4.01.B.1	Dye Testing Type 1	Each	2	\$ -	\$ -
02546-4.01.B.2	Dye Testing Type 2	Each	2	\$ -	\$ -
02546-4.01.B.3	Dye Testing Type 3	Each	5	\$ -	\$ -
02546-4.01.C.1	Dye Testing Type 1	Crew Hour	20	\$ -	\$ -
02546-4.01.C.2	Dye Testing Type 2	Crew Hour	20	\$ -	\$ -
02546-4.01.C.3	Dye Testing Type 3	Crew Hour	20	\$ -	\$ -
<b>Miscellaneous</b>					
	Mobilization and Demobilization (not to exceed 8% of the total of all other bid items or \$50,000)	Lump Sum	1	\$ -	\$ -
<b>Wolf South Tributaries Harrison WS05-1, WS05-2 Subtotal Estimated Unit Price Value</b>					<b>\$ -</b>

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<b>Bidder should refer to Section 00280, Instructions to Bidders, when completing this Proposal Form. Bidder shall complete this form entirely and return it with Bidder's Proposal.</b>					
<b>Submitted by</b> (Company Name)					
<b>00380.3 Proposal Pricing Information</b>					
<b>00380.3.1 Unit Pricing</b>					
Bidder proposes to complete the RFP Work based on firm, fixed, unit prices (US dollars), which prices multiplied by the final Work quantities would represent the full consideration to Bidder for its complete and satisfactory performance of the Work in compliance with all the terms and conditions of the RFP Documents. The Unit Prices in this Table include the cost of all the work which is required or implied by the RFP documents or which may be inferred therefrom, and which is customarily provided in furnishing a complete and finished work item of its kind. Further, any and all alterations, modifications, and adjustments to the work item, which is reasonably foreseeable or customarily encountered in providing and installing equipment, material, and services of the work item kind, will be performed without additional compensation.					
In the event of a Purchaser-approved change in the scope of Work for which a unit price from this Table is not applicable, as determined by the Purchaser, the Service Contractor shall provide a new unit price for review and acceptance by the Purchaser. Service Contractor shall provide all information requested by the Purchaser to substantiate the value of the new unit price.					
<b>00380.3.1.1 Unit Prices</b>				<b>Bidder Response</b>	
<b>Item Number</b>	<b>Item Description</b>	<b>Unit of Measure</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Extension Price</b>
<b>Wolf South Tributaries Whitestation WS05-3, WS06-1</b>					
<b>CCTV</b>					
02541-4.01.A	Pipeline Assessment and Certification Program (PACP) CCTV Inspection with Light Cleaning of Sewer				
	6 inch pipe	Linear Feet	1,208	\$ -	\$ -
	8 inch pipe	Linear Feet	200,037	\$ -	\$ -
	10 inch pipe	Linear Feet	17,078	\$ -	\$ -
	12 inch pipe	Linear Feet	6,724	\$ -	\$ -
	15 inch pipe	Linear Feet	2,827	\$ -	\$ -
	18 inch pipe	Linear Feet	5,276	\$ -	\$ -
02541-4.01.B	Heavy Cleaning of Sewer Line				
	6 inch pipe	Crew Hour	18	\$ -	\$ -
	8 inch pipe	Crew Hour	198	\$ -	\$ -
	10 inch pipe	Crew Hour	72	\$ -	\$ -
	12 inch pipe	Crew Hour	30	\$ -	\$ -
	15 inch pipe	Crew Hour	15	\$ -	\$ -
	18 inch pipe	Crew Hour	71	\$ -	\$ -
02541-4.01.C	Remote Trimming of Protruding Service Lateral	Each	5	\$ -	\$ -
02541-4.01.D	Siphon Cleaning and CCTV Inspection				
	8 inch pipe	Linear Feet	564	\$ -	\$ -
<u>02541-4.01. E</u>	<u>Traffic Control</u>	<u>Lump Sum</u>	<u>1</u>	<u>\$ -</u>	<u>\$ -</u>
<b>Manholes</b>					
02544-4.01.A	GPS at Submeter Accuracy	Each	792	\$ -	\$ -
02544-4.01.B	Manhole Assessment and Certification Program (MACP) Level 1 Inspection	Each	5	\$ -	\$ -
02544-4.01.C.1	Manhole Assessment and Certification Program (MACP) Level 2 Inspection - No 3D Scan	Each	792	\$ -	\$ -



Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
<b>Smoke Testing</b>					
02546-4.01.A	Smoke Testing with GPS at Submeter Accuracy				
	6 inch - 21 inch pipe	Linear Feet	233,151	\$ -	\$ -
02546-4.01.B.1	Dye Testing Type 1	Each	2	\$ -	\$ -
02546-4.01.B.2	Dye Testing Type 2	Each	2	\$ -	\$ -
02546-4.01.B.3	Dye Testing Type 3	Each	5	\$ -	\$ -
02546-4.01.C.1	Dye Testing Type 1	Crew Hour	20	\$ -	\$ -
02546-4.01.C.2	Dye Testing Type 2	Crew Hour	20	\$ -	\$ -
02546-4.01.C.3	Dye Testing Type 3	Crew Hour	20	\$ -	\$ -
<b>Miscellaneous</b>					
	Mobilization and Demobilization (not to exceed 8% of the total of all other bid items or \$50,000)	Lump Sum	1	\$ -	\$ -
<b>Wolf South Tributaries Whitestation WS05-3, WS06-1 Subtotal Estimated Unit Price Value</b>					<b>\$ -</b>

**Table 00380.3.1 - Unit Price Proposal Form**

<b>Bidder should refer to Section 00280, Instructions to Bidders, when completing this Proposal Form. Bidder shall complete this form entirely and return it with Bidder's Proposal.</b>					
Submitted by (Company Name)					
<b>00380.3 Proposal Pricing Information</b>					
<b>00380.3.1 Unit Pricing</b>					
Bidder proposes to complete the RFP Work based on firm, fixed, unit prices (US dollars), which prices multiplied by the final Work quantities would represent the full consideration to Bidder for its complete and satisfactory performance of the Work in compliance with all the terms and conditions of the RFP Documents. The Unit Prices in this Table include the cost of all the work which is required or implied by the RFP documents or which may be inferred therefrom, and which is customarily provided in furnishing a complete and finished work item of its kind. Further, any and all alterations, modifications, and adjustments to the work item, which is reasonably foreseeable or customarily encountered in providing and installing equipment, material, and services of the work item kind, will be performed without additional compensation.					
In the event of a Purchaser-approved change in the scope of Work for which a unit price from this Table is not applicable, as determined by the Purchaser, the Service Contractor shall provide a new unit price for review and acceptance by the Purchaser. Service Contractor shall provide all information requested by the Purchaser to substantiate the value of the new unit price.					
<b>00380.3.1.1 Unit Prices</b>				<b>Bidder Response</b>	
<b>Item Number</b>	<b>Item Description</b>	<b>Unit of Measure</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Extension Price</b>
<b>Nonconnah North Tributaries NN03-1, NN03-2</b>					
<b>CCTV</b>					
02541-4.01.A	Pipeline Assessment and Certification Program (PACP) CCTV Inspection with Light Cleaning of Sewer				
	6 inch pipe	Linear Feet	1,164	\$ -	\$ -
	8 inch pipe	Linear Feet	252,157	\$ -	\$ -
	10 inch pipe	Linear Feet	12,770	\$ -	\$ -
	12 inch pipe	Linear Feet	8,627	\$ -	\$ -
	15 inch pipe	Linear Feet	4,462	\$ -	\$ -
	18 inch pipe	Linear Feet	6,170	\$ -	\$ -
02541-4.01.B	Heavy Cleaning of Sewer Line				
	6 inch pipe	Crew Hour	62	\$ -	\$ -
	8 inch pipe	Crew Hour	225	\$ -	\$ -
	10 inch pipe	Crew Hour	84	\$ -	\$ -
	12 inch pipe	Crew Hour	47	\$ -	\$ -
	15 inch pipe	Crew Hour	23	\$ -	\$ -
	18 inch pipe	Crew Hour	95	\$ -	\$ -
02541-4.01.C	Remote Trimming of Protruding Service Lateral	Each	5	\$ -	\$ -
02541-4.01.D	Siphon Cleaning and CCTV Inspection				
	8 inch pipe	Linear Feet	812	\$ -	\$ -
	12 inch pipe	Linear Feet	352	\$ -	\$ -
<u>02541-4.01.E</u>	<u>Traffic Control</u>	<u>Lump Sum</u>	<u>1</u>	<u>\$ -</u>	<u>\$ -</u>
02542-4.01.A	Sonar/TV				
	24 inch pipe and greater	Linear Feet	1,144	\$ -	\$ -
02542-4.01.B	Heavy Cleaning of Sewer Line				
		Crew Hour	25		
<b>Manholes</b>					
02544-4.01.A	GPS at Submeter Accuracy	Each	1,024	\$ -	\$ -
02544-4.01.B	Manhole Assessment and Certification Program (MACP) Level 1 Inspection	Each	5	\$ -	\$ -
02544-4.01.C.1	Manhole Assessment and Certification Program (MACP) Level 2 Inspection - No 3D Scan	Each	1,019	\$ -	\$ -
02544-4.01.C.2	Manhole Assessment and Certification Program (MACP) Level 2 Inspection - with 3D Scan	Each	2	\$ -	\$ -

Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
<b>Smoke Testing</b>					
02546-4.01.A	Smoke Testing with GPS at Submeter Accuracy				
	6 inch - 21 inch pipe	Linear Feet	285,350	\$ -	\$ -
02546-4.01.B.1	Dye Testing Type 1	Each	2	\$ -	\$ -
02546-4.01.B.2	Dye Testing Type 2	Each	2	\$ -	\$ -
02546-4.01.B.3	Dye Testing Type 3	Each	5	\$ -	\$ -
02546-4.01.C.1	Dye Testing Type 1	Crew Hour	20	\$ -	\$ -
02546-4.01.C.2	Dye Testing Type 2	Crew Hour	20	\$ -	\$ -
02546-4.01.C.3	Dye Testing Type 3	Crew Hour	20	\$ -	\$ -
<b>Miscellaneous</b>					
	Mobilization and Demobilization (not to exceed 8% of the total of all other bid items or \$50,000)	Lump Sum	1	\$ -	\$ -
<b>Nonconnah North Tributaries NN03-1, NN03-2 Subtotal Estimated Unit Price Value</b>					<b>\$ -</b>



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**Section 3  
00581.3 Liquidated Damages**

### 00581.3 Liquidated Damages

#### 00581.3.1 General

Service Contractor's failure to meet the requirements identified in this Article 00581.3 will cause Purchaser to incur harm that will be very difficult to ascertain with certainty. The Parties therefore agree the liquidated damages specified in this Article 00581.3 represent a reasonable estimate of Purchaser's harm and are not intended as a penalty. Service Contractor's obligation to pay liquidated damages for breach of one specified requirement does not relieve Service Contractor of its obligation to pay liquidated damages for breach of another specified requirement. Service Contractor's payment of liquidated damages for breach of the specified requirement is Purchaser's sole and exclusive remedy with regard to Service Contractor's breach of that requirement, except for any other express remedies stated in the Service Contract. If Purchaser terminates this Service Contract for cause, liquidated damages will cease to accrue after the termination date and Service Contractor's remaining liability will be calculated in accordance with Article 00582.21.

#### 00581.3.2 Not Used

#### 00581.3.3 Milestone Completion

Each milestone subject to liquidated damages for late completion is listed in the article titled "Milestone Completion Dates and Applicable Liquidated Damages". If not all portions of the Work comprising the milestone meet the Service Contract requirements on the milestone completion date, liquidated damages will accrue for each failure as shown below.

Beginning on the first calendar day after the specified milestone completion date for each milestone and continuing for thirty calendar days or until the milestone is completed, whichever is earlier, delay liquidated damages will be assessed at the rate of ~~five hundred~~ one thousand dollars (\$1,000.00) per calendar day.

Beginning on the thirty first calendar day after the specified milestone completion date for each milestone and continuing until the milestone is completed, delay liquidated damages will be assessed at the rate of one thousand five hundred dollars (\$1,500.00) per calendar day.

#### 00581.4 Taxes

Service Contractor shall pay all payroll and other related employment compensation taxes for Service Contractor's employees, federal, state and other taxes which may be assessed on Service Contractor's income from the Project, engineering and business license costs (collectively, the "Service Contractor Taxes"). Service Contractor shall administer and pay all sales, use, gross receipts and excise taxes (collectively, the "Project Taxes"). Service Contract price includes Service Contractor Taxes and all Project Taxes. Purchaser will not be responsible for any additional charges related to tax that were not included as part of the Service Contract Price. Where applicable, Purchaser shall furnish to Service Contractor a certificate complying with state and local governmental laws, regulations and ordinances identifying any components of the Work to be considered exempt from the Project Taxes. Service Contractor shall cooperate with Purchaser to establish appropriate procedures and minimize the amount of such taxes to the extent reasonable and practical. Service Contractor is responsible for all property taxes on the construction equipment; Owner is responsible for property taxes on all other items incorporated into the project. Service Contractor shall notify Purchaser, and Purchaser shall have the right to review prior to Service Contractor's response to such document, of any correspondence with a federal or local taxing authority as it relates to sales and use, gross receipts, or excise taxes.



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**Section 4  
Technical Specifications 01501 and 02541**

**SECTION 01501  
SPECIAL CONDITIONS**

**PART 1 GENERAL**

**1.01 SUBMITTALS**

- A. Site Contractor emergency phone numbers.
- B. Schedules of work on a weekly basis that will be delivered no later than 2:00 PM on Thursday for the week following, and daily AM email updates of approximate crew locations each day.
  - 1. Weekly schedule format shall contain the following elements:
    - a. Map format.
    - b. Sufficient streets labeled and identified at a scale to provide clarity.
    - c. Nature and type of crew location by map area.
  - 2. Contractor shall fax smoke test locations to local Memphis Fire Department station by 7:00 AM on each day of smoke testing.

**1.02 MEETINGS**

- A. The Program Team will arrange bi-weekly meetings (every other week) with the Subcontractor to discuss data management and field issues.

**1.03 WASTE DISPOSAL**

- A. All debris removed from sanitary sewer lines shall be disposed of in a lawful manner at a landfill. The Subcontractor shall not dispose of debris at a City of Memphis Wastewater Treatment Plant. **The Program Manager has a consultant under contract to coordinate with a SSES subcontractor the acquisition of a solid and a liquid sample of sewer cleaning debris removed from the WCTS, including laboratory analysis, and completion of the permit paperwork.** ~~The entity responsible for disposing of the debris must have a permit for disposal at the landfill. The Program Manager will hire a consultant to facilitate the acquisition of the landfill disposal permit including taking samples of debris, laboratory analysis, and completion of the permit paperwork.~~ The Subcontractor **shall coordinate with the consultant to provide** a full truckload of debris from which the sample will be pulled ~~and will work with the Program Manager's consultant to acquire the permit.~~ The Subcontractor shall be responsible for providing a location and legal means of storage for the truckload of debris to be stored until the analytical results are processed.

**1.04 ACCESS ROADS**

- A. For interceptor assessment, the Program Manager will construct access roads in accordance with the dates specified on the maps. Road building will not be covered by this contract.

**PART 2 PRODUCTS**

- 2.01** This part not used.

**PART 3 EXECUTION**

- 3.01** This part not used.

**END OF SECTION 01501**

**SECTION 02541**  
**CLOSED CIRCUIT TELEVISION INSPECTION OF SEWER MAINS & CONNECTIONS**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. This Work will consist of cleaning and Pipeline Assessment Certification Program (PACP) internal closed-circuit television (CCTV) surveys to digitally inspect and record conditions of existing sanitary sewer mains and connections. Sewer pipes and connections to be inspected are located in both improved streets, arterial and primary roads, backyards and unimproved easements.
- B. The Work covered by this section includes furnishing all labor, competent PACP certified technicians, equipment, tools, accessories, and materials required to clean and inspect the designated sanitary sewer lines.

**1.02 SUBMITTALS**

A. PACP Requirements

- 1. PACP compliant inspections, logs, data, and photos shall be delivered to the Program Manager (from hereon Program Manager shall be interpreted as “Program Manager or his designee”) on external hard drive(s) which will become property of the Program Manager. Data files shall be formatted to facilitate upload into a PACP compliant Exchange database or internet uploads formats to an FTP site approved by the Program Manager.
- B. Unless otherwise specified all sample submittals shall be delivered to the Program Manager within two weeks of the NTP.
- C. For rehabilitation work, only Post-Rehabilitation PACP submittals will be required by the Purchaser. All CCTV done prior to rehabilitation shall be at the expense of the Subcontractor to ensure conformance with the Specifications.

D. Traffic Control

- 1. Traffic Control Plan shall be submitted to the Program Manager, including the following items:
  - a. Outline of permit acquisition procedure for lane closures.
  - b. Methods for proper signing and barricades, which comply with City of Memphis requirements.
  - c. Major streets (e.g. Shelby County Principal Arterial & Minor Arterial) requiring a City approved permit if taking a lane for mobile operations, secured through Traffic Control Plan submittal to the City and signed by a TN P.E. The City requires two-week lead time for permit processing.
    - i. The Subcontractor will be required to deliver a sample primary/arterial road Traffic Control Plan for review by the City.
    - ii. If the City determines that the nature of the work operation or the type of road in which the Subcontractor is working requires a permit, the Subcontractor will be required to modify the sample Traffic Control Plan to obtain a permit from the City.



- d. For everywhere else where a permit is not required, the Subcontractor shall develop, provide, and implement a traffic control plan for all mobile operations in accordance with standard MUTCD specifications.

E. Permits

1. ~~The Subcontractor is also responsible for acquiring all necessary disposal and/or landfill site permits as required to perform this work.~~ The City of Memphis has secured a Special Waste Recertification from the Division of Solid Waste Management of the Tennessee Department of Environment and Conservation for continued disposal at North and South Shelby landfills as well as separate solid and liquid waste profiles with Republic Services. The Subcontractor will be responsible for using a manifest form provided by the Program Manager and pre-signed by the Subcontractor's authorized representative for every disposal event. The Subcontractor is also responsible of providing a copy of the manifest and invoice from Republic Services after each disposal event.
  2. Railroad Rights of Way: The Subcontractor shall notify the Program Manager when work or access to manholes and sanitary sewers lie within the 25 feet railroad easement as measured by 25 feet outside the nearest rail of the tracks. To access sewer facilities within the 25 feet of the railroad right of way the Subcontractor shall contact the Program Manager 48 hours in advance who will alert the City's Zone Construction Inspector to coordinate individual railroad direction and guidance.
  3. Permit required confined space entry plans in compliance with the Loss Control Manual.
- F. Copies of National Association of Sewer Service Companies (NASSCO) certification for all field staff conducting PACP inspections.
- G. Sample of PACP compliant television survey log in MS Access format.
- H. Sample of PACP compliant video inspection in MP-4 (Web optimized) format.
- I. Cleaning and CCTV vehicle, equipment, and cleaning supplies list.
- J. Disposal site(s) and appropriate landfill permits for appropriate disposal of all waste materials removed from the sewer during the light and heavy cleaning operations.

**1.03 DELIVERABLES**

A. Records

1. Pipe Cleaning Record
  - a. The Subcontractor shall provide a dated manifest of the volume or weight of the dewatered sewer cleaning loads taken and dumped at the permitted landfill. Each waste load manifest shall be associated with a list of corresponding sewer segments from where the waste originated.
2. Digital Inspection Record
  - a. In the digital PACP V.6.0.1 compliant format, the Subcontractor shall provide the following information:



5. Quality

- a. Rejection of deliverables will be submitted to the Subcontractor via the Program Team in a written communication discussing issues that must be addressed. The Subcontractor will be required to follow up with a response within three business days upon receipt of the written communication. Subcontractors will have seven (7) calendar days from the rejection notice date to make the necessary corrections and resubmit the data deliverable in its entirety.

**PART 2 PRODUCTS**

**2.01 EQUIPMENT**

A. General

1. All equipment used for PACP compliant CCTV sewer segment inspections of existing sanitary sewer mains and connections shall be specifically designed and manufactured for the purpose intended under this Contract. The software and hardware for the electronic capture of the inspection defects and recorded observations must be Version 6.0.1 NASSCO PACP compliant.
2. The Subcontractor shall submit an equipment list to the Program Manager for approval before the commencement of the Work and shall certify that back-up equipment is available and can be delivered to the worksite within 72 hours.
3. The Subcontractor shall provide equipment to perform inspections of sewer mains located in streets, street rights-of-way, backyards, easements and rights-of way that are off-road.
  - a. Including but not limited to portable CCTV equipment, vehicles capable of transporting TV equipment and accessing remote easements, and adequate cleaning equipment rights of way or easement applications.

B. PACP Compliant Software & Data Logger Requirements

1. Data logger
  - a. Internal inspection logs created and captured electronically during the television inspection through the use of commercially available electronic data loggers in the truck are required. NASSCO PACP protocols Version 6.0.1 shall be used for capturing and recording the observations. Audio commentary made during the inspection and captured on the digital video shall correspond with the PACP observations on the log.
  - b. The data logger equipment and software shall allow the Program Manager access directly to the captured electronic data and provide for a non-proprietary export of the data into MS ACCESS databases in accordance with PACP standards for standalone database review.
2. Software must be compliant with the NASSCO PACP V.6.0.1 standards. Follow PACP protocol for recording of observations and defects for sewer mains.
  - a. All software shall be capable of providing complete survey reports in compliance with PACP, and the software shall be the V.6.0.1 of the PACP compliant software.
  - b. The Program Manager has no intent to specify which software the Subcontractor shall use but requires the software and the submitted database to be fully compliant with

PACP V.6.0.1 and capable of being exported to ACCESS databases. No payment will be rendered for improperly formatted data.

- c. Software and data logger must be capable of capturing sewer main and sewer lateral observations by PACP descriptions, record travel footage along pipeline, and video time stamp the recorded observations to support hyper linking from the digital record to the event point or location within the digital inspection record. The same requirements apply to still photo images (if provided) which shall follow PACP guidelines and be hyperlinked to the inspection log.

#### C. Sewer Main CCTV

##### 1. Sewer Main Digital Color Video Camera

- a. All cameras used shall be digital format color CCTV units specifically designed and constructed for use in sewer pipe inspection work. The cameras shall be operable in 100 percent humidity conditions. The camera shall have a high-resolution, 360-degree pan and tilt or rotating head with a wide viewing angle lens and either automatic or remote focus and iris controls. Camera lighting shall be sufficient for use with digital color inspection cameras and for the manhole and pipe diameters identified in the contract.
  - i. Camera, Television Monitor, and Other Components shall be capable of producing a high-resolution color digital inspection record.
  - ii. Video file to be in MP-4 (Web optimized) format
- b. In all cases, the complete digital inspection system (camera, lens, lighting, cables, monitors, and recorders) shall be capable of providing a digital picture and digital video quality acceptable to the Program Manager. Inadequate lighting, image distortions, blurry or murky images, and dirty lenses will be a cause for rejection. No payment will be made for unsatisfactory inspections and the Subcontractor shall perform work until deliverable is of acceptable quality. Digital video cameras/digital recorders not specifically intended for use for internal television inspection of manholes and sewer lines shall not be permitted.
- c. Pan and tilt type camera, capable of turning at right angles to pipe's axis over an entire pipe wall perimeter shall be used.
  - i. The camera lens shall be capable of self-righting itself after a lateral view or connection view with a return view down the pipe with a "home" capability for the lens.
- d. Lighting shall be suitable to allow clear picture of entire inner pipe wall extending at least 10 feet in front, including black High Density Polyethylene (HDPE) pipe.
- e. Document header and observations shall be in accordance with PACP V.6.0.1 protocols.
- f. Subcontractor shall have equipment capable of cleaning and assessing 12" and smaller diameter siphons.

#### D. Cleaning Equipment

1. Hydraulic sewer pipe cleaners or combination hydraulic/vacuum cleaners shall be specifically designed and constructed for such cleaning.

2. Mechanical sewer pipe cleaners shall be specifically designed and constructed for such cleaning.
3. The Subcontractor shall possess equipment capable of hydraulically or mechanically cleaning a minimum of 1,000 linear feet of pipe from one direction and have a minimum 1,000 linear feet of hose or cable on-site during the cleaning execution.
4. Hydraulic sewer pipe cleaners shall be specifically designed and constructed for such cleaning. The sewer cleaner shall have a minimum usable water capacity of 600 gallons and a pump capable of delivering at least 30 gallons per minute at 1,500 psi at the nozzle.
  - a. The hydraulic cleaning equipment shall have multiple hydraulic cleaner hose nozzles for a variety of sewer cleaning conditions, including grease, roots, debris and granular materials.
  - b. Vacuum equipment shall be capable of lifting debris removed from the segment from the downstream manhole.
5. Mechanical sewer pipe cleaners (cable machines with buckets, brushes, swabs, root cutters, and power rodders with similar capability) shall be capable of controlled forward and reverse travel through the sewers without inflicting damage to the existing pipe in removing rocks, grit and other heavy debris and roots.

### **PART 3 EXECUTION**

#### **3.01 INSPECTIONS**

##### **A. CCTV Inspection of Sewer Mains**

1. Cleaning
  - a. Sewer pipe cleaners or combination hydraulic-vacuum cleaners must accompany CCTV units at all times. Ideally, sewers lines are to be cleaned and then followed immediately by CCTV inspection. All sewers must be cleaned in advance of CCTV during the same calendar day they are inspected.
  - b. Light Cleaning
    - i. Before CCTV work, the Subcontractor shall light clean the sewer line (three (3) cleaning attempts) from manhole to manhole, from upstream to downstream direction unless an obstruction is encountered, one sewer section at a time and performed as efficiently as possible at the Subcontractor's discretion.
    - ii. Materials shall not be passed from one sewer segment to another but must be trapped and removed from each sewer segment prior to CCTV inspection.
  - c. Heavy Cleaning
    - i. If a camera is inserted and additional debris or impediments to inspection are observed following the required light cleaning, heavy cleaning shall be approved by the Program Manager. Sections of pipe containing significant roots, large areas of debris, and/or several inches of depth of sands and gravels that will require the use of additional hydraulic nozzles, cable/bucket machine, power rodders and root cutters is considered heavy cleaning.

- ii. Heavy cleaning will be proposed by the Subcontractor and approved by the Program Manager. The Subcontractor must obtain prior approval for heavy cleaning in each sewer segment in order to receive payment for heavy cleaning.
  - d. Cleaning Execution
    - i. No roots, grease or debris from light or heavy cleaning shall be passed from sewer segment to sewer segment during the cleaning operation. All debris flushed from the sewer must be collected, captured, and removed from the sewer at the downstream manhole.
    - ii. Roots shall be removed in the sections where root intrusion is a problem. Special precautions shall be exercised during the cleaning operation to assure complete removal of visible roots from the joint area and so as not to incur further damage to the pipe. Any visible roots that may impact rehabilitation efforts shall be removed. Fine roots are allowed if the Subcontractor made a heavy cleaning attempt to remove roots with proper root removal means. Procedures may include the use of mechanical devices such as rodding machines, expanding root cutters and porcupines, and hydraulic procedures such as high-pressure jet cleaners.
    - iii. The Subcontractor is responsible for safe, responsible and legal handling of all material and debris removed from the sewers.
    - iv. Proper disposal arrangements are the exclusive responsibility of the Subcontractor. The Subcontractor shall provide a dated manifest of the volume and weight of the dewatered sewer cleaning loads taken and dumped at the permitted landfill. The Subcontractor shall not dispose of debris at a City of Memphis Wastewater Treatment Plant. Each waste load manifest shall be associated with a list of corresponding sewer segments from where the waste originated.
    - v. Siphons shall be cleaned to remove 95% of the debris from the pipe.
2. Sewer Flow Levels During Inspection Operations
  - a. Maintain low sewer flow during inspection by using sandbags or flow-through plugs or by inspecting during low flow times of day, evening, or early morning hours while camera is moving and recording observations in the sewer segment. Any items used to restrict flow shall be removed immediately after intended use.
    - i. Flow-through Plugs: If used, secure the plugs so as to remain in place during inspection. Use a fail-safe device at the downstream pipe connection to ensure the plug is not lost in the downstream sewer segment if it becomes dislodged from the upstream pipe connection.
    - ii. Conduct all cleaning and CCTV operations to prevent building backups and sewer overflows.
    - iii. Subcontractor shall be responsible for cleanup, repair, fines, property damage costs, and claims for any sewage backup, spillage or sanitary sewer overflow during or as a result of the cleaning and inspection operations.
  - b. Allowable Depth of Flow for Inspection Operations
    - i. For effective inspection, all flow shall be minimized in the segment being inspected. However, the depth of flow at the upstream manhole of the interceptor section being worked shall be within the specified limits provided herein.

- c. Maximum Allowable Depth of Flow for CCTV Inspection
  - i. 6 - 10-inch diameter Pipe - 20% of pipe diameter
  - ii. 12 - 18-inch diameter Pipe - 25% of pipe diameter
  - iii. 24-inch diameter and Larger Pipe - 30% of pipe diameter
  - iv. Exceptions to these guidelines shall result in rejection, and non-payment, of the CCTV inspection unless approved in advance by the Program Manager.
- 3. Camera Operations
  - a. Using the pan/tilt feature, pan the interior of the manhole for record purposes in accordance with V.6.0.1 PACP protocols and begin and terminate the inspection in the starting and ending manholes.
    - i. Capture the inside of manhole walls, manhole channel, and pipe connection to wall at both upstream and downstream manhole and lateral connections using the digital mainline sewer camera and the pan/tilt feature.
  - b. Place the camera at center of manhole and commence video before entering pipe.
    - i. Start footage counter at manhole wall/pipe connection or at a short pre-measured distance down the pipe for the sewer segment inspection.
  - c. Connections: The digital camera shall be used to look at connections and up laterals from the connection in the main sewer pipe being inspected. The camera shall pause, pan, and record all connections. Conditions noted in these sidelines and laterals shall be noted on the inspection logs.
  - d. Mainline camera operations:
    - i. Move through line at speed no greater than 30 feet per minute stopping for minimum 10 seconds to record lateral connections, mainline connections, defects, and features and points of interest.
    - ii. Do not float camera.
    - iii. Maintain technical quality, sharp focus, and distortion free picture with the camera lens centered in the pipe for the different diameters inspected.
      - (1) Eliminate steam in line for duration of inspection.
      - (2) Utilize blower as needed to defog sewer line.
    - iv. Digitally record a complete sewer segment in its entirety with no breaks, “blink-outs,” or interruptions from manhole to manhole according to PACP V.6.0.1 formats.
    - v. Pan, tilt, and rotate as necessary to best view and evaluate lateral connections, pipe defects, features, obstructions, and points of interest.
    - vi. Use power winches, powered rewinds, self-propelled tractors, or other devices that do not obstruct camera view or interfere with proper documentation of sewer conditions to move camera through sewer.



- (1) Whenever non-remote powered and controlled winches are used, set up telephones or other suitable means of communication between manholes to insure good communication.
- vii. Use hydraulic jet nozzle pressure and flow to remove standing water from depressions or sags in the sewer, if necessary, for complete inspection of the sag portion of the sewer segment.
- viii. Measurement for location of defects and service laterals:
- (1) At ground level by means of Program Manager-approved footage counter or metering device.
  - (2) Electronic display measurement meters: Accurate to PACP standards over length of section being televised.
  - (3) Do not pull unnecessary length of slack camera cable if it impacts the footage counter.
- ix. Stop camera at service connections and inspect lateral with pan and tilt camera.
- (1) Identify building connection in PACP compliant terms as active, capped, or abandoned.
  - (2) If no wastewater flows are being discharged from building, consider steady, clear observed flow as infiltration/inflow.
- x. Identification of Defects
- (1) If roots, sludge, or sediment material impedes inspection after the light cleaning, withdraw camera and perform heavy cleaning at the direction of the Program Manager.
  - (2) Upon completion of heavy cleaning operation, resume internal inspection.
  - (3) Furnish media confirmation for heavy cleaning (more than three passes with jet cleaner) to Program Manager.
  - (4) If protruding tap impedes inspection trim protruding tap to 1/2 inch.
- xi. If obstructions are not passable and cannot be removed by sewer cleaning, withdraw CCTV equipment and perform a reverse inspection from opposite end of the sewer segment in accordance with PACP protocols.
- (1) Subcontractor shall be responsible for costs associated for reverse set-ups when an obstruction is encountered that cannot be passed.
  - (2) Subcontractor shall be responsible for all judgments and impacts as to whether an obstruction in the sewer main can be passed. Costs involved in extracting a stuck camera in the sewer main will be borne by the Subcontractor and at no additional cost to the Program Manager.
  - (3) When additional obstructions are encountered after reversal of equipment and no means are available for passing a second obstruction in order to complete the sewer main inspection, remand the segment inspection to the Program



Manager for resolution. The portion of the main inspected will be paid for as prescribed.

xii. Undocumented facilities

- (1) If undocumented manholes or sewer mains (facilities not on the field updated GIS sewer maps) are encountered during the inspection, the Subcontractor needs to complete the documentation requirements per PACP requirements and capture on the video the following:
  - (a) Approximate horizontal distance from the upstream or reference manhole.
  - (b) Approximate depth of the undocumented manhole by turning the pan/tilt camera vertically and estimating the height of the cover from the invert.
  - (c) A provisional manhole asset ID number shall be used by the Subcontractor by adding a dash and two-character number to the closest upstream manhole ID.

xiii. Retrieval of Stuck Equipment

- (1) The Subcontractor is responsible for hiring a licensed sub-Subcontractor to retrieve any equipment/foreign objects that get stuck in the sewer system through the execution of the scope of work (fallen cameras, jet nozzles, inflatable plugs, sandbags etc.) at the Subcontractor's own cost. Such retrieval by an appropriately licensed sub-Subcontractor shall be made within 72 hours to avoid interfering with the City of Memphis sewer system operations. Any and all impacts and related costs due to the Subcontractor's equipment in the line shall be the responsibility of the Subcontractor. Subcontractor shall follow SARP10 sewer point repair specifications outlined in "Section 02540 Sanitary Sewer Point Repairs" and "Section 02950 Removal and Replacement of Pavements and Incidentals" during retrieval of equipment. Also, per "00585.2.2 Safety, Health, and Accident Prevention Program," Purchaser must approve sub-tier Subcontractors prior to mobilization to the jobsite.

4. Quality Assurance

- a. With each monthly invoice the Subcontractor shall provide a QA/QC memo documenting that 10% of the previous month's CCTV data has undergone a random, independent review by a PACP certified reviewer using NASSCO standards for Television Inspection of Main Sewer and PACP Quality control as the basis for the QA/QC procedures. The independent reviewer shall be a Tennessee P.E. or is a P.E. in another state and has a Tennessee P.E. license pending. Each line segment which has been randomly reviewed shall be identified in the QA/QC memo as well as any subsequent findings or recommendations. Internal independent QA/QC is acceptable, as long as the person is a Tennessee P.E. or is a P.E. in another state and has a Tennessee P.E. license pending. Failure to submit the QA/QC memo shall delay payment of the current month's invoice.
- b. For all new Subcontractors and Operators who begin PACP coding, an initial review of CCTV data will consist of reviewing, at a minimum, 20 of the first 100 PACP inspection records submitted. Subsequent reviews will be based on the results of the initial reviews as explained below.
- c. Auditing Procedures:

- i. Header Information: As explained in the NASSCO PACP Quality Control Standards each audited inspection record is given an accuracy level for the header information and the detailed observation records. It is expected that the accuracy of the header record exceed 90% because the majority of the contents are based upon facts and not subject to operator judgment. To assess the accuracy level of the header, record the number of errors as compared to the total number of header fields using the following formula:

(1)  **$100\% - (\text{error count}/\text{total header fields}) * 100\% = \text{Header Accuracy}$**

- ii. Detailed Observations: Determining the accuracy level for the detailed observation records is similar to the method for assessing the header record. The main difference being that a defect observation has multiple data entries that must also be counted towards the total number of entry fields. In the event that a defect is not coded all of the required entries for coding the missed defect are counted towards the total error count. The following formula is used to calculate the accuracy level of the detailed observation records:

(1)  **$100\% - (\text{error count}/\text{total entries}) * 100\% = \text{Detail Accuracy}$**

- iii. Review Scoring and Results

- (1) Satisfactory Review, no changes required. Accuracy Level of 90% or above for both the Header Record and Observation Detail with no major errors or omissions found.
- (2) Unsatisfactory Review (below levels of acceptance) will not be accepted by the Program Manager and will not be considered payable items in the Subcontractor's Request for Payment.

5. Deliverable Documentation

a. Mainline Sewer

- i. Submit V.6.0.1 PACP compliant records, logs, and electronic inspection data for sewer line inspection to Program Manager by the close of business on the Monday following a week after data acquisition.
- ii. Monthly QA/QC memo submittal listing which segments have been randomly reviewed, as well as any subsequent findings or recommendations.
- iii. Digital videos, data, and photos shall be delivered to the Program Manager on external hard drives which will become property of the Program Manager.
- iv. Data files shall be formatted to facilitate upload into a PACP Exchange Database with the approval of the Program Manager.
- v. Inspections displaying poor digital video/audio quality will be rejected. Quality refers to, but is not limited to, grease or debris on lens, camera under water, image too dark or light, image washed-out, distorted image, out of focus images, lines improperly cleaned, and poor/no audio.
- vi. Subcontractor will re-televised rejected inspections and resubmit inspections at no additional cost to the Program Manager.

b. Map changes/undocumented manholes:

- i. For map changes identifying undocumented manholes and network changes which were found as a result of field inspections or observations, a Map Edit Form shall also be prepared and supplied by the Subcontractor with a drawing or sketch

and shall indicate special details, field measurement or distances, or locations about an observed undocumented manhole or a change to the sewer network. The Map Edit Form should also identify buried manholes and siphons that have been encountered.

- ii. Subcontractor shall indicate all buried manholes identified in the field via CCTV using the provided Buried Manhole Form. Any additional manholes that have not been located or verified via CCTV but are impeding the completion of required CCTV work should be designated as unable to locate (UTL) and be included on the form.

c. Incident observation and data collection:

- i. The Subcontractor shall report all buried manholes, pipe collapses, large void, utility conflicts, Unable to Complete line segments, and heavy cleaning requests to the Program Manager through the program-defined reporting application (Teamworx) and shall fill out all required fields and attach picture documentation as necessary. At least one picture shall be included showing the incident or condition of the sewer line encountered that required it to be recorded. All reported incident observations will be monitored by the Program Manager and inadequate reporting will result in a meeting between the Program Manager and Subcontractor.

6. Easement or Turf Operation

- a. The Subcontractor will restore the work area to its original condition as quickly as possible after the inspection is complete. The Subcontractor will not be allowed to postpone restoration of the site until the end of the project.

**PART 4 MEASUREMENT & PAYMENT**

**4.01 MEASUREMENT**

A. Light Cleaning & CCTV Inspection

1. Light cleaning and mainline CCTV inspection shall be measured by linear foot by each diameter of mainline sewer inspected and documented in accordance with the specification.

B. Heavy Cleaning

1. Heavy cleaning shall be measured by crew hour for each diameter of heavy cleaning approved by the Program Manager and documented.

C. Remote Trimming of Protruding Service Lateral

1. Remote trimming of protruding service lateral that prevent a thorough inspection of the pipe will be measured per each.

D. Siphon Cleaning and CCTV Inspection

1. Siphon Cleaning and CCTV inspection shall be measured per linear foot of each diameter 12" and smaller of sewer inspected and documented in accordance with the specifications.

E. Traffic Control at Major Streets due to City Pavement Project

1. Traffic control and plans as required and approved by the City for Light Cleaning and Mainline CCTV due to a City pavement project of a major street shall be measured in a one-time basis.

#### 4.02 PAYMENT

##### A. Mainline CCTV Inspection

1. Light cleaning and mainline CCTV inspection shall be paid for at the unit price for each linear foot of each diameter inspected and documented in accordance with the specification.
2. The unit price for Light Cleaning and Mainline CCTV inspection shall cover the entire cost of the required light cleaning and CCTV inspection and reporting in accordance with PACP V 6.0.1 format, including but not limited to labor, mobilization and access, CCTV equipment, recording media, traffic control, light cleaning of mainline sewer, documenting results in PACP records and logs, digital format recordings, photo equipment, power supply for equipment, interim and final reports and all other appurtenant work.
3. No additional payment will be made for:
  - a. Re-inspection due to rejected inspection and/or records for any reason.
  - b. Reversals.
  - c. Performing excavation and associated sewer point repair to retrieve a stuck CCTV camera or hydraulic cleaning hose/nozzle.
  - d. Incomplete electronic logs.
  - e. Unapproved duplication of inspections: The Subcontractor is responsible to ensure duplications do not occur.
  - f. Traffic control at major streets (e.g. Shelby County Principal Arterial & Minor Arterial) requiring a City approved permit unless Light cleaning and Mainline CCTV inspection is assigned at the direction of the Program Manager due to a City pavement project of a major street.

##### B. Heavy Cleaning

1. Heavy Cleaning shall be paid for at the unit price for each crew hour of each diameter of heavy cleaned sewers at the direction of the Program Manager and in accordance with the specification.
2. The unit price for Heavy Cleaning shall include the entire cost including but not limited to labor, mobilization and access, traffic control, appropriate disposal of sewer debris removed from sewer at permitted site and all other appurtenant work. Payment includes non-hydraulic jet efforts such as porcupines, cutters, power rodding, clam buckets, and other mechanical means, traffic control, and re-cleaning with hydraulic jet, labor, materials, and equipment necessary to clean mainline sufficiently to allow video reviewers a clear picture of pipe conditions.
3. No additional payment will be made for:
  - a. Additional passes of heavy cleaning if the inspection observation reveals roots, grease or other debris remaining in the sewer after the heavy cleaning passes.

##### C. Remote Trimming of Protruding Service Lateral

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS  
 Modified by SARP10 Program

1. Remote trimming of protruding service lateral that prevent a thorough inspection of the pipe will be measured per each.

D. Siphon Cleaning and CCTV Inspection

1. Siphon cleaning and CCTV inspection shall be paid for at the unit price for each linear foot of each diameter 12" and smaller inspected and documented in accordance with the specification.
2. The unit price for Light Cleaning and Mainline CCTV inspection shall cover the entire cost of the required light cleaning and CCTV inspection and reporting in accordance with PACP V 6.0.1 format, including but not limited to labor, mobilization and access, CCTV equipment, recording media, traffic control, light cleaning of mainline sewer, documenting results in PACP records and logs, digital format recordings, photo equipment, power supply for equipment, interim and final reports and all other appurtenant work.
3. No additional payment will be made for:
  - a. Re-inspection due to rejected inspection and/or records for any reason.
  - b. Reversals.
  - c. Performing excavation and associated sewer point repair to retrieve a stuck CCTV camera or hydraulic cleaning hose/nozzle.
  - d. Incomplete electronic logs.
  - e. Unapproved duplication of inspections: The Subcontractor is responsible to ensure duplications do not occur.

E. Traffic Control at Major Streets due to City Pavement Project

1. Traffic control and plans as required and approved by the City for Light Cleaning and Mainline CCTV due to a City pavement project of a major street will be paid for on a lump sum basis. This item shall be pre-approved by Program Manager prior to installation and payment.

**4.03** PAYMENT WILL BE MADE UNDER:

Item No.	Pay Item	Pay Unit
02541-4.01.A	LIGHT CLEANING & MAINLINE CCTV INSPECTION FOR EACH DIAMETER	LINEAR FEET
02541-4.01.B	HEAVY CLEANING FOR EACH DIAMETER	CREW HOUR
02541-4.01.C	REMOTE TRIMMING OF PROTRUDING LATERAL	EACH
02541-4.01.D	SIPHON CLEANING AND CCTV INSPECTION FOR EACH DIAMETER	LINEAR FEET
02541-4.01.E	TRAFFIC CONTROL	LUMP SUM

**END OF SECTION 02541**