



**REQUEST FOR PROPOSAL
FOR
SEWER SYSTEM EVALUATION SURVEY (SSES) PHASE 3
PROJECT**

Proposal No. 179821.78.0021

May 6, 2015



City of Memphis, Tennessee

Black & Veatch and Overland Contracting Inc. (OCI), a subsidiary of Black & Veatch, are the Program Manager and Construction Manager respectively, for the SARP10 Program for the City of Memphis.

Overland Contracting Inc.
3485 Poplar Avenue, Suite 230, Memphis, TN, 38111

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00180 - Request for Proposal

00180.1 Introduction

This Request for Proposal ("RFP") is comprised of the documents listed below:

179821.78.0021 Complete RFP // pdf Format
179821.78.0021 00380 Proposal Fill-In Form // xls Format

00180.2 Project Overview

The Program consists of the management of the capital program needed to bring the city's wastewater and sewer system into compliance with federal and state regulations per The City of Memphis Wastewater Collection and Transmission System (WCTS) Condition Assessment and Rehabilitation Program Consent Decree signed on September 21, 2012, including the procurement of studies, design and construction services associated with the City of Memphis SARP10 Program.

00180.3 Scope of Work

The scope of work for this RFP is as follows:

SERVICE CONTRACT 78.0021 - Old Loosahatchie South Tributaries

Task: CONDITION ASSESSMENT OF SANITARY SEWER LINES AND MANHOLES

Service Contractor 78.0021 shall be responsible for completion and correct documentation per Technical Specifications of a condition assessment of the sanitary sewer lines and manholes in the assigned Phase 3 Area. The Old Loosahatchie South Tributaries Area would be assigned to Service Contractor 78.0021.

SERVICE CONTRACT 78.0022 - Wolf River Minor Tributaries

Task: CONDITION ASSESSMENT OF SANITARY SEWER LINES AND MANHOLES

Service Contractor 78.0022 shall be responsible for completion and correct documentation per Technical Specifications of a condition assessment of the sanitary sewer lines and manholes in the assigned Phase 3 Area. The Wolf River Minor Tributaries Area would be assigned to Service Contractor 78.0022.

SERVICE CONTRACT 78.0023 - Old Loosahatchie South & Wolf River North Tributaries

Task: CONDITION ASSESSMENT OF SANITARY SEWER LINES AND MANHOLES

Service Contractor 78.0023 shall be responsible for completion and correct documentation per Technical Specifications of a condition assessment of the sanitary sewer lines and manholes in the assigned Phase 3 Area. The Old Loosahatchie South & Wolf River North Tributaries Area would be assigned to Service Contractor 78.0023.

Purchaser has the right to combine or split the stated Service Contracts above.

00180.4 Proposal Submission Instructions

Within two business days after you receive this RFP, notify Purchaser at the email addresses listed immediately below of your intent to submit a proposal in response to this RFP.

One original hardcopy and three (3) copies of all Proposals shall be prepared and sent to:

SARP10 (Black & Veatch / OCI)
Attention: Brad Davis, Deputy Program Manager
3485 Poplar Avenue, Suite #230
Memphis, TN, 38111

One electronic copy shall be prepared and emailed to:

Program Mailbox: MemphisWCTS@bv.com
(Reference: SSES Phase 3 Project, PROPOSAL No. 179821.78.0021)

PROPOSAL DUE DATE: 3:00 PM (local time), June 16, 2015

****Responses will NOT be accepted after 3:00 PM****

The Sealed Envelope or other container containing the PROPOSAL shall be marked at a minimum with the Respondent's name, the name of the Project and the PROPOSAL number. Sealed Statements that are sent through the mail or other such delivery service shall be sent in such a manner so as to allow the opening of the "Mailing Container" and still have intact the sealed PROPOSAL. On the Mailing Container the sender shall state the words that a "**SEALED RESPONSE IS ENCLOSED**" and the PROPOSAL number.

Firms desiring to submit a Proposal should carefully review these instructions. Compliance with all requirements will be solely the responsibility of the Respondent.

00180.5 Request for Proposal Definitions

Terms used in this Request for Proposal documents are defined and have the meanings assigned to them as follows. The term "OCI", "Purchaser" or "Program Manager" means Overland Contracting Inc. The term "Respondent", "Firm", "Company", "Service Contractor" or "Bidder" means one who submits a Response directly to OCI for the purpose stated in this Solicitation Request for Proposal documents. The terms "Proposal", "Response", "PROPOSAL", or "Respondent's Response" mean all submittal documents provided by the Respondent as required by this Request for Proposal. The terms "Request for PROPOSAL" or "PROPOSAL Documents" mean the documents included in this Request for Proposal.

Every effort has been made to use industry-accepted terminology in this Request for Proposal. Any statement in this document, which uses words such as "must", "shall", "should", "provide for" or "have/provide the capability of/for", means that compliance with the intent of the statement is mandatory and that failure by the Respondent to satisfy that intent may be cause for the Response to be rejected.

00180.6 Not Used

00180.7 Proposal Format

Proposals should be concise. Excessive language or unclear responses may jeopardize your Firm's point accumulation for the project. Proposals must comply with the format and content described in the following Sections. Dividers with tabs should separate each Section, and the tabs should be labeled with the Section numbers listed below. Proposals shall be limited to a maximum of 35 pages total for Sections I through IV (not including the front and back covers and the dividers). Section V shall be limited to 00380 Proposal Fill-In Form only. Do not include any information in your Proposal that is not specifically requested. Scoring methodology is identified in Section 00180.18. Failure of a respondent to include all listed items may result in the rejection of respondent's proposal.

Section I – Project Approach

In this section, the respondent shall describe in detail its plans and approach for fulfilling the requirements reflected in the RFP. The RFP describes the minimum level of services to be provided by the respondent. The respondent must present respondent's understanding of the requirements and respondent's ability to fulfill all requirements successfully. The approach proposed by the respondent should demonstrate the respondent's ability to minimize costs, ensure compliance with the Consent Decree, and meet the proposed project schedule.

The respondent's Project Approach section should also set forth a summary of any problems and challenges anticipated during the term of the SSES Phase 1 Project. The respondent should identify and submit proposed solutions for each of the anticipated problems and challenges.

Section II – Project Team and Experience

This section should describe at a minimum the respondent's experience in successfully completing projects of a similar size and scope and include the following:

Identify the key roles, definitions of the identified roles and the personnel proposed for each role of the respondent's team.

Include an organizational chart depicting the entire organizational structure. This chart should demonstrate the relationship of the individuals performing under the agreement to the overall organizational structure.

Detailed resumes should be submitted for all management, supervisory, and key personnel who will be acting under the agreement. Resumes should be structured to emphasize the relevant qualifications and experience of these individuals in successfully completing projects of similar size and scope.

State the name(s) of all prime contractors and subcontractors that will assist respondent in completing the project.

State the level of participation of local prime contracts and subcontracts that will assist in completing the project.

Section III – Ability to Meet the Proposed Project Schedule

This section should describe respondent's ability to meet the proposed project schedule as indicated in Table 00380.5.1 Milestone Completion Dates and Applicable Liquidated Damages from notice to proceed (Effective Date), the anticipated challenges in meeting the schedule and what the respondent proposes in order to mitigate those challenges.

The submittal requirements of the project schedule portion are as follows:

Provide a realistic calendar day Work schedule as a Gantt Chart for each project with a Notice To Proceed date assumed to be within three weeks of the proposal submission date. Any proposed schedule which can realistically be achieved in less time will be duly considered.

List all appropriate assumptions.

List three references of projects you have performed with similar size, scope, and duration. Please list client, project name, contact name, and contact's phone number/email.

Section IV – M/WBE Participation

This section shall set forth the respondent's M/WBE Participation Plan that must be submitted and include: (1) the level and dollar amount of participation your firm anticipates to achieve in the performance of the contract resulting from this RFP; (2) the type of work to be performed by the M/WBE firms participating; and (3) the names of the M/WBE firms the Respondent plans to utilize in the performance of the project Service Contract resulting from this RFP.

The SRF Fair Share goal for this project is a minimum of **5.2%** for Minority Business Enterprises (MBE) and a minimum of **5.2%** for Women Business Enterprises (WBE). (Vendors from the TDOT TNUCP DBE list, other State or Federal DBE lists, or the City of Memphis EBO list.)

The Overall M/WBE Participation Goal is **21%**. (Vendors from the City of Memphis EBO list only)

Note that State Revolving Fund loans have been procured to finance this program, and that DBE requirements corresponding to federal and state regulations for SRF financing state a minimum goal of 5.2% for Minority Business Enterprises and a minimum goal of 5.2% for Women Business Enterprises. To meet the requirements for SRF loan compliance, firms must be registered with the TENNESSEE DEPARTMENT OF TRANSPORTATION (TDOT) other State or Federal Agencies or on the City of Memphis EBO list prior to submitting a proposal. Below is the link to

the Tennessee Department of Transportation (TDOT) Web Page for their Certified DBE List. This certified list is periodically updated by TDOT.

Link: <http://www.tdot.state.tn.us/dbedirectinternet/Vendor.aspx>

The City of Memphis has a combined MWBE goal of 21% for this project. Firms meeting the requirements for the City of Memphis' MWBE goals must be registered on the City's Equal Business Opportunity (EBO) List. Note that firms that are registered to both TDOT Certified Business Enterprise (DBE) List and the City of Memphis Equal Business Opportunity (EBO) List may satisfy the requirements of both goals simultaneously.

Section V - Cost Information

This section captures all cost information submitted for this Proposal and shall include the completed 00380 Proposal Fill-in Form included with this RFP.

00180.8 Clarification of Proposal

OCI reserves the right to obtain clarification of any point in a Response or to obtain additional information as necessary to properly evaluate a particular Response. Failure to respond to such a request for additional information or clarification in a timely manner may result in rejection of the Response.

00180.9 Acceptance of Proposal Content

The contents of any PROPOSAL submitted for consideration will become, at OCI's option, a part of any future contract agreement. Failure to accept this condition may result in rejection of the Response.

00180.10 Responsiveness

Respondents should respond to all requirements of the PROPOSAL to the maximum extent possible and are required to clearly identify any limitations or exceptions to the requirements.

00180.11 Examination of Request for Proposal Documents

Before submitting a Response, each Respondent must:

- A. Consider federal, state and local laws, ordinances, and any other rules and regulations that may in any manner affect the Response, including but not limited to: Executive Orders 11625, 11246, as amended, 12138 and 12432.
- B. Study and carefully correlate the Respondent's observations and responses with the PROPOSAL Documents.
- C. Notify OCI, of all conflicts, errors and discrepancies, if any, in the PROPOSAL document submitted.

Respondents by and through the submission of their Response, agree that they shall be held responsible for having therefore familiarized themselves with the nature and extent of the requirements in the PROPOSAL Documents.

OCI is an affirmative action employer. Accordingly, the parties hereby incorporate by reference the requirements of Executive Order 11246, as amended, and the applicable regulations contained in 41 C.F.R. Parts 60-1 through 60-60; 29 U.S.C. Section 793 and the applicable regulations contained in 41 C.F.R. Part 60-741; 38 U.S.C. Section 4212 and the applicable regulations contained in 41 C.F.R. Part 60-250 and/or 60-300; and 29 C.F.R. Part 471, Appendix A to Subpart A.

00180.12 Interpretations and Addenda

If any prospective Firm is in doubt as to the true meaning of any part of the Requirements For Preparing and Submitting Proposal for the requested services, they may submit a written request (verbal requests will not be accepted) for an interpretation up to five (5) business days prior to the due date of the submittal. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum transmitted to each party receiving a set of

such documents. OCI will not be responsible for any other explanations or interpretations of the proposed documents. Any requests not submitted within this time period will be deemed waived.

SUBMIT ALL QUESTIONS IN WRITING OR BY E-MAIL TO:

SARP10 (Black & Veatch / OCI)

Attn: Brad Davis

3485 Poplar Avenue, Suite #230

Memphis, TN 38111

E-Mail: DavisBJ@bv.com

CC: KinkelaarAB@bv.com

Reference: SSES Phase 3 Project, PROPOSAL No. 179821.78.0021

Each written request must reference the Proposal name and number "SSES Phase 3 Project PROPOSAL No. 179821.78.0021" in the subject line and mailed (or e-mailed) to the attention of Bently Green, Program Manager. All requests or questions should be clearly marked and must be received no later than the date and time listed in the Selection Schedule herein.

A response will be returned via addendum to all Firms along with the original question(s). There shall be no communication between the Firm, their employees or subcontractors concerning this Proposal to anyone within Black & Veatch, OCI, Allen & Hoshall, Allworld Project Management, Gresham Smith and Partners, Carter-Malone Group, TAMCO, Integrated Circle Technologies or City of Memphis employees or any such person's spouse, child, parent, brother, sister, dependent or person assuming a relationship being the substantially equivalent of the above except through Bently Green. Selection Committee members, other Black & Veatch or OCI personnel, are not to be contacted prior to OCI's decision to approve or reject the Selection Committee's recommendation. **Failure to comply with this requirement will be grounds for disqualification.**

00180.13 Modification or Withdrawal of Submittals

Responses may be modified or withdrawn by an appropriate document duly executed (in the same manner that a Response must be executed) and delivered to the place where Responses are to be submitted at any time prior to the submission deadline. A request for withdrawal or a modification must be in writing and signed by an authorized person. Evidence of such authority must accompany the request for withdrawal or modification. Withdrawal of a Response will not prejudice the rights of a Responder to submit a new Response prior to the Response deadline. After expiration of the period for receiving Responses, only OCI may request clarifications or additional information.

00180.14 Rejection of Responses

To the extent permitted by applicable local, state and federal laws and regulations, OCI reserves the right to reject any and all Responses, to waive any and all informalities not involving price, time, or changes in the work with the successful Respondent, and the right to disregard all non-conforming, non-responsive, unbalanced or conditional Responses. Also, OCI reserves the right to reject a Response, in its sole discretion, if the City of Memphis believes that it would not be in its best interest to make an award to that Respondent.

OCI reserves the right to reject any Response if the evidence submitted by the Responder or if the investigation of such Respondent fails to satisfy OCI that such Respondent is properly qualified to carry out the obligations and to complete the work contemplated therein. All Responses will be rejected if there is reason to believe that collusion exists among Respondents. Responses will be considered irregular and may be rejected if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alterations, or irregularities of any kind.

00180.15 Other Items

This PROPOSAL does not commit OCI to enter into a contract, nor does it obligate OCI to pay for any costs incurred in the preparation and submission of Responses or in anticipation of a contract. Costs of preparing the Proposal in response to this request are solely the responsibility of the Respondent.

By responding to this solicitation, the respondent attests that no employee of Black & Veatch, OCI, Allen & Hoshall, Allworld Project Management, Gresham Smith and Partners, Carter-Malone Group, or City of Memphis employee or any such person's spouse, child, parent, brother, sister, dependent or person assuming a relationship being the substantially equivalent of the above, has an existing or pending, direct or indirect, financial interest in the respondent's business.

No Respondents to this solicitation shall discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin.

00180.16 Selection Process

OCI intends to select one or more firm(s) based on experience and ability, including successful completion of similar projects; qualifications of personnel; and general construction performance; available bonding capacity; service experience including record keeping/administrative ability, critical path scheduling, cost control, quality control, and safety record, as described in the Selection Criteria below. Proposals will be reviewed based on the selection criteria and one or more firms will be selected to perform the work contained in the outlined scope of work.

00180.17 Selection Schedule

The following schedule will be adhered to during the selection process. It is subject to change at the sole discretion of OCI.

Event	Completed By
RFP Advertising Date, RFP Available, Vendor Registration for Prequalification is open	May 6, 2015
Pre-Proposal Meeting	May 14, 2015
Last date for receipt of questions, Registration for Prequalification Information Deadline	May 26, 2015
Issue Final Addendum to answer questions	June 2, 2015
Receive and Open Proposals	June 16, 2015 by 3:00 pm local time
Public Notice of Award	June 29, 2015
Preconstruction Meeting with Subcontractor	July 20, 2015
Tentative Notice to Proceed	July 22, 2015

00180.18 Selection Criteria

The criteria that will be used to rank the firms will be based on a 100 point system and require applicable information as follows:

Selection Criteria	Points
Project Approach	20
Project Team & Experience	25
M/WBE Participation	20
Cost of Scope of Work	35

00180.19 Mandatory Pre-Proposal Meeting

A mandatory pre-proposal meeting will be held at **10 A.M. (local time)** at **Benjamin Hooks Central Library, 3030 Poplar Avenue, Memphis, TN 381121** on the **date stated above**. You are required to attend at your own cost. Attendance shall be limited to three representatives per Bidder. Contact Purchaser at least two calendar days before the pre-proposal meeting in order to coordinate your attendance.

00280 - Instructions to Bidders

00280.1 Bidder's Compliance with Request for Proposal

Provide the information requested and any supporting information necessary to permit a complete analysis of your proposal. You acknowledge that preparation and submission of a proposal will be at your sole cost and that you will treat this RFP and any resulting discussions as confidential. If you do not agree to treat this RFP and associated discussions as confidential, return the complete RFP to Purchaser and delete or destroy any copies you made.

Purchaser may base its decision to award a subcontract solely on the initial proposal received by Purchaser without any discussion or clarification. Therefore, your initial proposal should include the most favorable commercial and technical terms you can offer for the duration of the proposal validity period identified in Article 00280.4.4. Purchaser reserves the right to: (a) award a subcontract solely on the initial proposal received by Purchaser without any discussion or clarification; (b) reject or accept a proposal that is not submitted in strict compliance with the RFP requirements; (c) make an award to other than the low bidder; and (d) issue multiple requests for proposals. Purchaser reserves the right to take the actions identified in the immediately preceding sentence without discussion or prior notification to you.

00280.2 General Proposal Parameters

Provide the information requested in Section 00280 and Section 00380 in the appropriate fields of Section 00380. Complete each line of Section 00380 in its entirety and submit it with your proposal in accordance with Article 00180.4. Do not alter Section 00380 forms in any way or deviate from the terminology used or the unit of measure indicated when completing Section 00380. Submit Section 00380 forms in their original core application software, with no embedded programming and no permissive encoding restricting access to the data provided.

00280.2.1 Bidder's Contact Information

Include contact information for your representative in Article 00380.2.1. Your representative must have the appropriate expertise and authority to negotiate on behalf of your company.

00280.2.2 Addenda to Request for Proposal

In Article 00380.2.2, list all addenda received from Purchaser and indicate "Yes" to show your receipt of and incorporation of the listed addenda into the proposal. Address any exceptions or clarifications to addenda in accordance with Article 00280.6.

00280.3 Proposal Pricing

You must include numerical values in the applicable fields of Table 00380.3.1. Non-numerical values, such as "included" or "not applicable," are not acceptable. Purchaser will evaluate fields left blank or filled with a zero as scope included in your proposal at no cost.

00280.3.1 Unit Pricing

Provide the unit prices to perform the Work in accordance with this RFP in Table 00380.3.1. A unit price is the total amount to be billed to Purchaser for a specific unit of work. Unit pricing includes all costs, overhead, profit and mark-up associated with delivering the complete unit.

00280.4 Supplemental Proposal Information

00280.4.1 Company Status

In Article 00380.4.1, indicate the type of your organization's legal entity and the state and country in which it is organized.

00280.4.2 Not Used

00280.4.3 Not Used

00280.4.4 Proposal Validity Period

Indicate "Yes" in Article 00380.4.4 if your proposal is valid for ninety calendar days after the Proposal Due Date (the "Proposal Validity Period"). If you indicate "No" in Article 00380.4.4, provide the number of calendar days that your proposal is valid in Article 00380.4.4 and declare an exception in accordance with Article 00280.6. Purchaser may reject your proposal without prior notice if your proposal is not valid for the full Proposal Validity Period.

00280.4.5 Firm Non-Escalatable Pricing

Indicate "Yes" in Article 00380.4.5 if the proposal pricing is firm and not subject to escalation. If you indicate "No," declare an exception in accordance with Article 00280.6 and include the terms of escalation in your exception.

00280.4.6 Taxes

Tax requirements are identified in Article 00581.4. Indicate "Included" in Article 00380.4.6 if your proposal includes the tax requirements. If you indicate "Excluded" in Article 00380.4.6, declare an exception in accordance with Article 00280.6.

00280.4.7 Work at Jobsite

Identify the type of craft labor as "open shop," "merit shop," or "union shop."

If you plan to subcontract any of the Work, indicate "Yes" in the appropriate section of Article 00380.4.7.

00280.5 Schedule Compliance

Indicate "Yes" in Article 00380.5 if you can meet the schedule dates included in Table 00380.5. If you indicate "No," submit an alternative summary level schedule with your proposal.

00280.6 Compliance with Request for Proposal

00280.6.1 Declared Exceptions to RFP Requirements

An exception is any variation from an express RFP requirement. Declare all exceptions, whether commercial or technical in nature, in Table 00380.6.1. Provide specific exceptions and accurately reference the article number to which each exception applies. Exceptions of a general nature or that refer to your standard specifications or terms are not acceptable and may result in Purchaser rejecting your proposal without prior notice.

00280.6.2 Declared Clarifications to RFP Requirements

A clarification is the means by which you offer to meet an RFP requirement if the RFP does not identify the specific means by which the RFP requirement must be met. Declare any clarifications, whether commercial or technical in nature, in Table 00380.6.2. Reference the article number to which each clarification applies.

00280.7 Nondiscrimination

All entities contracting with the Purchaser agree to abide by and to take affirmative action when necessary to ensure compliance with the nondiscrimination clauses set out below, and agree to show proof of non-discrimination upon request and to post in conspicuous places available to all associate agents and their employees. In the event of non compliance with nondiscrimination clauses, or with provisions of Executive Orders 11141 (age), 11246, 11375 (women), 12086 (Vietnam veterans), 11478 (federal employees), 11625 (minority business) 11701 (veterans), Title 41, Chapter 60 (handicapped) and specifically the handicapped affirmative action clause in Section 60-741.6.9 of OFCCP Rules, and any and all other federal laws prohibiting discrimination, contracts may be canceled, terminated, or suspended in whole or in part by the Purchaser.

The Bidder shall execute the specified Nondiscrimination Certificate (see 00681.5) agreeing that, if awarded the Service Contract, he/she shall not discriminate against any subcontractor, employee, or applicant for employment on the grounds of race, color, national origin or sex, in accordance with the citations listed in the above paragraph; and shall require the execution of such a certificate for each

subcontractor prior to award of any subcontract with the further requirement that each subcontractor shall include identical requirements in any lower tier subcontracts which might in turn be made. FAILURE TO EXECUTE AND SUBMIT SUCH CERTIFICATE WITH THE PROPOSAL MAY CAUSE THE PROPOSAL TO BE REJECTED AS NON-CONFORMING. The successful Bidder and all subcontractors under the general contract shall maintain copies of their payrolls and all subcontracts for each weekly payroll period for the life of the construction and for a period of **SEVEN (7) YEARS** after final release and payment is made by the Purchaser to the contractor.

00280.8 Equal Business Opportunity Program (EBO)

The Bidder must complete and return the Equal Business Opportunity Program Compliance Form included in Article 00681.6 of this RFP.

00380 – Commercial Proposal Form (13 pages)

00380 - Commercial 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.

00380.1 Proposal Submitted by		Bidder Response Column
	Company Name	
	Mailing Address/Number, Street	
	Mailing Address/State, Zip Code	
	Country	
	Taxpayer ID Number (or EIN)	
	Bidder's Proposal Date	
	Bidder's Proposal No.	
00380.2 General Proposal Parameters		
Bidder is providing the information defined by the articles comprising Section 00280, INSTRUCTIONS TO BIDDERS, in the corresponding fields of this Section 00380, COMMERCIAL PROPOSAL FORM.		
00380.2.1 Bidder's Contact Information		
	Bidder's Representative Name	
	Title	
	Mailing Address/Number, Street	
	Mailing Address/City	
	Mailing Address/State, Zip Code	
	Delivery Address/Number, Street	
	Delivery Address/State, Zip Code	
	Country	
	Email Address	
	Phone Number	() - ()
	Mobile Phone Number	() - ()
	Fax Number	() - ()
00380.2.2 Addenda to Request for Proposal		
Bidder acknowledges receipt and inclusion of the following Addenda to the RFP - Yes/No		
	Addenda Number	Date Issued
		Received and Incorporated
00380.3 Proposal Pricing Information		
00380.3.1 Proposal Prices		See Attached Pricing Table(s) 00380.3.1
00380.4 Supplemental Proposal Information		
Bidder provides the following information to supplement the Bidder's Proposal pricing.		
00380.4.1 Company Status		
Bidder's company status is:(i.e., partnership, individual owned, joint venture, corporation, etc.)		
	in State of	
	in Country of	
00380.4.2 Not Used		
00380.4.3 Not Used		

00380.4.4 Proposal Validity Duration	
Bidder's Proposal is valid for acceptance by the Purchaser for a period of 90 days from the Proposal due date. - Yes/No	
If no, Bidder's Proposal is valid for indicated days from Proposal due date. - No. Days	
00380.4.5 Firm Non-Escalatable Pricing	
All of Bidder's prices herein proposed are firm and are non-escalatable for services conducted on or before June 30, 2015. - Yes/No	
If No, explanation is included as an Exception.	
00380.4.6 Taxes	
Bidder's prices included herein are inclusive of all applicable state or local sales, use, gross receipts, or excise taxes. - Yes/No	
If No, explanation is included as an Exception.	
00380.4.7 Work at Jobsite	
Bidder's source of craft labor to be utilized in the performance of the Work is. - Open-Shop/Merit-shop/Union-shop	
Bidder has accounted for all Jobsite existing and controlling conditions and limitations which may affect the Work performance and the Bidder's Proposal. - Yes/No If No, explanation is included in Exception.	
Bidder proposes that it will perform all the Work at the Jobsite with its own forces. -	
Bidder proposes that it will perform the majority (over 75% of total value) of the Work at the Jobsite with its own forces and that specific portions of the Work not performed by the Bidder will be sub-subcontracted. - Yes/No	
Bidder proposes that it will sub-subcontract the majority (over 50% of total value) of the Work at the Jobsite. - Yes/No	
00380.5 Schedule Compliance	
Bidder agrees to meet the schedule dates indicated in the RFP documents: - Yes/No	
If No, explanation is included in Exception.	
If No, Bidder has completed and submitted an attached alternative summary level schedule: - Yes/No	
00380.6 Compliance with Request for Proposal	
NOTE: A Proposal based on Bidder's standard terms and conditions will not be considered. The Proposal must address specific exceptions, if any, to Purchaser's terms and conditions.	
Bidder certifies that its Proposal complies with all RFP commercial and technical requirements without exception and clarification. - Yes/No	
00380.6.1 Exceptions	
Bidder certifies that its Proposal complies with all RFP commercial and technical requirements except for the following:	
Proposal is based on acceptance of all commercial requirements of this RFP. - Yes/No	
If No, all Commercial Exceptions have been accurately defined and identified as "Commercial Exceptions" on the Purchaser provided and Bidder attached Exceptions Form: - Yes/No	
Proposal is based on acceptance of all technical requirements of this RFP. - Yes/No	
If No, all Technical Exceptions have been accurately defined and identified as "Technical Exceptions" on the Purchaser provided and Bidder attached Exceptions Form. - Yes/No	
00380.6.2 Clarifications	
Bidder certifies that its Proposal complies with all RFP commercial and technical requirements without clarification. - Yes/No	
If No, all Commercial Clarifications have been accurately defined and identified as "Commercial Clarifications" on the Purchaser provided and Bidder attached Clarification Form. - Yes/No	

<p>If No, all Technical Clarification have been accurately defined and identified as "Technical Clarifications" on the Purchaser provided and Bidder attached Clarification Form. - Yes/No</p>	
<p>00380.7 Proposal Attachments</p>	
<p>In addition to this Commercial Proposal Form and Tables indicated herein, the Bidder's Proposal contains supplemental information and details attached to this Proposal consisting of the following:</p>	
<p>(Attachment 1)</p>	
<p>(Attachment 2)</p>	
<p>(Attachment 3)</p>	
<p>(Attachment 4)</p>	
<p>(Attachment 5) (Add additional lines as needed)</p>	
<p>00380.8 Declarations</p>	
<p>The Bidder declares that it has familiarized itself with the conditions affecting the Work. The Bidder also declares that only the persons or firms interested in the Proposal as principal or principals are named herein; that no other persons or firms have any interest in this Proposal or in the Service Contract to be entered into; that this Proposal is made without connection with any person, company, or party likewise submitting a Proposal; and that it is in all respects for and in good faith, without collusion or fraud. - Yes/No</p>	
<p>If written notice of acceptance of this Proposal is delivered to the Bidder within "Proposal Validity" days after the date set for receipt of Proposals, or any time thereafter before the Proposal validity expires, the Bidder will, within 5 days after receipt of a formal Service Contract for signature, exercise and deliver to Purchaser a signed Service Contract in the form provided by the Purchaser in accordance with the documents provided herein. - Yes/No</p>	

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.					
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 Columns	
Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
78.0021 Old Loosahatchie South Tributaries (3-9, 3-12, 3-13, 3-14, 3-15)					
Manholes					
00001-6.01	GPS at Submeter Accuracy	Each	2,280	\$ -	\$ -
00001-6.02	Manhole Assessment and Certification Program (MACP) Level 1 Inspection	Each	20	\$ -	\$ -
00001-6.03	Manhole Assessment and Certification Program (MACP) Level 2 Inspection	Each	2260	\$ -	\$ -
Smoke Testing					
00002-6.01	Smoke Testing with GPS at Submeter Accuracy				
	6 inch pipe	LF	3,197	\$ -	\$ -
	8 inch pipe	LF	462,138	\$ -	\$ -
	10 inch pipe	LF	25,278	\$ -	\$ -
	12 inch pipe	LF	24,116	\$ -	\$ -
	14 inch pipe	LF	2,839	\$ -	\$ -
	15 inch pipe	LF	19,521	\$ -	\$ -
	16 inch pipe	LF	190	\$ -	\$ -
	18 inch pipe	LF	2,138	\$ -	\$ -
	24 inch pipe	LF	8,809	\$ -	\$ -
	27 inch pipe	LF	422	\$ -	\$ -
	30 inch pipe	LF	5,510	\$ -	\$ -
	Dye Testing Type 1	Each	15	\$ -	\$ -
	Dye Testing Type 2	Each	15	\$ -	\$ -
	Dye Testing Type 3	Each	5	\$ -	\$ -
	Dye Testing Type 1	Man Hour	50	\$ -	\$ -
	Dye Testing Type 2	Man Hour	50	\$ -	\$ -
	Dye Testing Type 3	Man Hour	50	\$ -	\$ -
CCTV					
00003-6.01	Pipeline Assessment and Certification Program (PACP) CCTV Inspection with Light Cleaning of Sewer				
	6 inch pipe	LF	3,197	\$ -	\$ -
	8 inch pipe	LF	462,138	\$ -	\$ -
	10 inch pipe	LF	25,278	\$ -	\$ -

Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
	12 inch pipe	LF	24,116	\$ -	\$ -
	14 inch pipe	LF	2,839	\$ -	\$ -
	15 inch pipe	LF	19,521	\$ -	\$ -
	16 inch pipe	LF	190	\$ -	\$ -
	18 inch pipe	LF	2,138	\$ -	\$ -
00003-6.02	Heavy Cleaning of Sewer Line				
	6 inch pipe	LF	320	\$ -	\$ -
	8 inch pipe	LF	46,214	\$ -	\$ -
	10 inch pipe	LF	2,528	\$ -	\$ -
	12 inch pipe	LF	2,412	\$ -	\$ -
	14 inch pipe	LF	284	\$ -	\$ -
	15 inch pipe	LF	1952	\$ -	\$ -
	16 inch pipe	LF	19	\$ -	\$ -
	18 inch pipe	LF	214	\$ -	\$ -
00003-6.03	Sonar/TV				
	24 inch pipe and greater	LF	14,741		
Miscellaneous					
00004 - 6.01	Remote Trimming of Protruding Service Lateral		20	\$ -	\$ -
00004 - 6.02	Mobilization and Demobilization (not to exceed 8% of the total of all other bid items or \$50,000)	Lot	1	\$ -	\$ -
78.0021 Old Loosahatchie South Tributaries Subtotal Estimated Unit Price Value					\$ -

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.					
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 Columns	
Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
78.0022 Wolf River Minor Tributaries (3-7, 3-8)					
Manholes					
00001-6.01	GPS at Submeter Accuracy	Each	1,108	\$ -	\$ -
00001-6.02	Manhole Assessment and Certification Program (MACP) Level 1 Inspection	Each	11	\$ -	\$ -
00001-6.03	Manhole Assessment and Certification Program (MACP) Level 2 Inspection	Each	1097	\$ -	\$ -
Smoke Testing					
00002-6.01	Smoke Testing with GPS at Submeter Accuracy				
	6 inch pipe	LF	2,955	\$ -	\$ -
	8 inch pipe	LF	243,640	\$ -	\$ -
	10 inch pipe	LF	22,085	\$ -	\$ -
	12 inch pipe	LF	10,370	\$ -	\$ -
	15 inch pipe	LF	5,832	\$ -	\$ -
	18 inch pipe	LF	409	\$ -	\$ -
	21 inch pipe	LF	3,554	\$ -	\$ -
	24 inch pipe	LF	2,865	\$ -	\$ -
	Dye Testing Type 1	Each	15	\$ -	\$ -
	Dye Testing Type 2	Each	15	\$ -	\$ -
	Dye Testing Type 3	Each	5	\$ -	\$ -
	Dye Testing Type 1	Man Hour	50	\$ -	\$ -
	Dye Testing Type 2	Man Hour	50	\$ -	\$ -
	Dye Testing Type 3	Man Hour	50	\$ -	\$ -
CCTV					
00003-6.01	Pipeline Assessment and Certification Program (PACP) CCTV Inspection with Light Cleaning of Sewer				
	6 inch pipe	LF	2,955	\$ -	\$ -
	8 inch pipe	LF	243,640	\$ -	\$ -
	10 inch pipe	LF	22,085	\$ -	\$ -
	12 inch pipe	LF	10,370	\$ -	\$ -
	15 inch pipe	LF	5,832	\$ -	\$ -
	18 inch pipe	LF	409	\$ -	\$ -

Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
	21 inch pipe	LF	3,554	\$ -	\$ -
00003-6.02	Heavy Cleaning of Sewer Line				
	6 inch pipe	LF	296	\$ -	\$ -
	8 inch pipe	LF	24,364	\$ -	\$ -
	10 inch pipe	LF	2,209	\$ -	\$ -
	12 inch pipe	LF	1,037	\$ -	\$ -
	15 inch pipe	LF	583	\$ -	\$ -
	18 inch pipe	LF	41	\$ -	\$ -
	21 inch pipe	LF	355	\$ -	\$ -
00003-6.03	Sonar/TV				
	24 inch pipe and greater	LF	2,865		
Miscellaneous					
00004 - 6.01	Remote Trimming of Protruding Service Lateral		20	\$ -	\$ -
00004 - 6.02	Mobilization and Demobilization (not to exceed 8% of the total of all other bid items or \$50,000)	Lot	1	\$ -	\$ -
78.0022 Wolf River Minor Tributaries Subtotal Estimated Unit Price Value					\$ -

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.					
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 Columns	
Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
78.0023 Old Loosahatchie South & Wolf River North Tributaries (3-6, 3-10, 3-11)					
Manholes					
00001-6.01	GPS at Submeter Accuracy	Each	1,538	\$ -	\$ -
00001-6.02	Manhole Assessment and Certification Program (MACP) Level 1 Inspection	Each	20	\$ -	\$ -
00001-6.03	Manhole Assessment and Certification Program (MACP) Level 2 Inspection	Each	1518	\$ -	\$ -
Smoke Testing					
00002-6.01	Smoke Testing with GPS at Submeter Accuracy				
	8 inch pipe	LF	367,757	\$ -	\$ -
	10 inch pipe	LF	24,725	\$ -	\$ -
	12 inch pipe	LF	1,960	\$ -	\$ -
	15 inch pipe	LF	1,224	\$ -	\$ -
	18 inch pipe	LF	12,877	\$ -	\$ -
	21 inch pipe	LF	5,149	\$ -	\$ -
	24 inch pipe	LF	1,417	\$ -	\$ -
	27 inch pipe	LF	2,554	\$ -	\$ -
	Dye Testing Type 1	Each	15	\$ -	\$ -
	Dye Testing Type 2	Each	15	\$ -	\$ -
	Dye Testing Type 3	Each	5	\$ -	\$ -
	Dye Testing Type 1	Man Hour	50	\$ -	\$ -
	Dye Testing Type 2	Man Hour	50	\$ -	\$ -
	Dye Testing Type 3	Man Hour	50	\$ -	\$ -
CCTV					
00003-6.01	Pipeline Assessment and Certification Program (PACP) CCTV Inspection with Light Cleaning of Sewer				
	8 inch pipe	LF	367,757	\$ -	\$ -
	10 inch pipe	LF	24,725	\$ -	\$ -
	12 inch pipe	LF	1,960	\$ -	\$ -
	15 inch pipe	LF	1,224	\$ -	\$ -
	18 inch pipe	LF	12,877	\$ -	\$ -
	21 inch pipe	LF	5,149	\$ -	\$ -

Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
00003-6.02	Heavy Cleaning of Sewer Line				
	8 inch pipe	LF	36,776	\$ -	\$ -
	10 inch pipe	LF	2,472	\$ -	\$ -
	12 inch pipe	LF	196	\$ -	\$ -
	15 inch pipe	LF	122	\$ -	\$ -
	18 inch pipe	LF	1288	\$ -	\$ -
	21 inch pipe	LF	515	\$ -	\$ -
00003-6.03	Sonar/TV				
	24 inch pipe and greater	LF	3,971		
Miscellaneous					
00004 - 6.01	Remote Trimming of Protruding Service Lateral		20	\$ -	\$ -
00004 - 6.02	Mobilization and Demobilization (not to exceed 8% of the total of all other bid items or \$50,000)	Lot	1	\$ -	\$ -
6.0023 Old Loosahatchie South & Wolf River North Tributaries Subtotal Estimated Unit Price Value					\$ -

00380.5 Schedule			
00380.5.1 Milestone Completion Dates and Applicable Liquidated Damages			
Item Number	Milestone Description	Milestone Completion Date	*LDs Apply?
1	Completion of all Work under Service Contract 78.0021	240 calendar days after Notice to Proceed	Yes
2	Completion of all Work under Service Contract 78.0022	240 calendar days after Notice to Proceed	Yes
3	Completion of all Work under Service Contract 78.0023	240 calendar days after Notice to Proceed	Yes
*LD indicates that completion of the Work after the "Milestone Completion Date" is subject to liquidated damages per applicable Articles of Section 00581.			
*Note Service Contractor performance will directly impact future procurements for the SARP10 Program, schedule is critical and must be maintained.			

00380.5.2 Schedule of Submittals and Applicable Liquidated Damages							
Effective Date: TBD							
The list is not all-inclusive. There are more requirements for Service Contractor to "provide notice," to "advise," to "update," to "inform," etc., or to "submit" should a condition precedent occur. These have not been included in the list. It will however remain Service Contractor's responsibility to comply with the submittal requirements whether or not the submittal is actually included on the following:							
Item No.	Reference Document	Submittals Item	Submittal Dates			LDs Apply?	
			Calendar Days	Event	Due Date		
Commercial Submittals							
C01	00582	Initial Issue Service Contractor's Work Schedule	7	After	Effective Date		No
C02	00582	Updated Issue Service Contractor's Work Execution Schedule	Weekly	After	Initial Issue Service Contractor's Work Schedule		No
C03	00582	Initial Payment Estimate Breakdown	30	After	Effective Date or Prior to First Payment		No
C04	00582	Progress Payment Breakdown w/ Backup	Monthly	Prior to	Monthly Progress Payment		No
C05	00582	Workers Compensation and Evidence of Coverage and Current Contributions	14	Prior to	Mobilization Onsite		No
C06	00582	Insurance Certificates		Prior to	Mobilization Onsite		No
C07	00681.2 00681.9	Lien Waivers and M/WBE Form		With	Each Payment Invoice		No
C08	LCM	Purchaser approval of Subcontractor Safety Documentation		Prior to	Mobilization Onsite		No
C09	LCM	Subcontractor Safety Documentation		With	Proposal		No
C10	SRF	W-9 of Service Contractor and Subcontractors		With	Proposal		No
C11	00681.5	Certificate of Nondiscrimination for Service Contractor and Subcontractor		With	Proposal		No
C12	00681.6	Equal Business Opportunity Program Compliance Form for Service Contractor and Subcontractor		With	Proposal		No
C13	00681.7	Certification Regarding Debarment for Service Contractor and Subcontractor		With	Proposal		No
C14	00681.7	Certification Regarding Equal Employment Opportunity for Service Contractor and Subcontractor		With	Proposal		No
Technical Submittals							
Refer to Technical Specifications for Technical Submittal requirements.							

Table 00380.6.1 - Exceptions Form

Bidder should refer to Section 00280, Instructions to Bidders, when completing this Form.		
Proposal Submitted by (Company Name)		
00380.6.1 Exceptions		
The Bidder's specific Exceptions herein itemized and included with the quotation represent an exhaustive list of any and all explicit variations or deviations from the requirements of the RFP documents. Bidder confirms that otherwise, it is the intent of Bidder's quotation that the Work will be performed in strict accordance with the requirements of the RFP documents.		
00380.6.1.1 Commercial Exceptions		
Count	Reference Article	Stated Commercial Exception
CE1		
CE2		
CE3		
CE4		
CE5		
CE6		
CE7		
CE8		
CE9		

00380.6.1.2 Technical Exceptions		
Count	Reference	Stated Technical Exceptions
TE1		
TE2		
TE3		
TE4		
TE5		
TE6		
TE7		
TE8		
TE9		
TE12		
TE13		
TE14		
TE15		
TE16		
TE17		
TE18		
TE19		
TE20		

Table 00380.6.2 - Clarifications Form

Bidder should refer to Section 00280, Instructions to Bidders, when completing this Form.		
Proposal Submitted by (Company Name)		
00380.6.2 Clarifications		
All of Bidder's Clarifications herein itemized and included with the quotation do not constitute explicit variation or deviation from performance of the Work by the Bidder in strict accordance with the requirements of RFP documents.		
00380.6.2.1 Commercial Clarifications		
Count	Reference Article	Stated Commercial Clarification
CC1		
CC2		
CC3		
CC4		
CC5		
CC6		
CC7		
CC8		
CC9		

00380.6.2.2 Technical Clarifications		
Count	Reference	Stated Technical Clarification
TC1		
TC2		
TC3		
TC4		
TC5		
TC6		
TC7		
TC8		
TC9		
TC12		
TC13		
TC14		
TC15		
TC16		
TC17		
TC18		
TC19		
TC20		

00581 - Supplementary Terms and Conditions

00581.1 Notices and Correspondence

The Parties agree to send all notices arising out of or relating to this Service Contract by one of the following methods: (a) personal delivery; (b) certified mail with return receipt; (c) nationally recognized overnight mail or courier service, with delivery receipt requested; or (d) email. The Parties may send routine correspondence by email or first class mail, each without confirmation of receipt. The Parties agree to address correspondence as indicated in this article.

Electronic Technical Correspondence

Addressed to Purchaser:

To: Brad Davis
DavisBJ@bv.com
Cc: Gary Older
OlderGS@bv.com

Addressed to Service Contractor:

To: [[name]]
[[email address]]
Cc: [[name]]
[[email address]]

Non-Electronic Technical Correspondence

Addressed to Purchaser:

Overland Contracting Inc.
3485 Poplar Avenue, Suite 230
Memphis, TN 38111
Attention: Bently Green
179821.78.0021

Addressed to Service Contractor:

[[service contractor entity]]
[[street address]]
[[city, state, zip code]]
Attention:
179821.78.0021

Electronic Commercial Correspondence (excluding invoices)

Addressed to Purchaser:

To: Aaron Kinkelaar
KinkelaarAB@bv.com

Addressed to Service Contractor:

To: [[name]]
[[email address]]
Cc: [[name]]
[[email address]]

Non-Electronic Commercial Correspondence (excluding invoices)

Addressed to Purchaser:

Overland Contracting Inc.
8400 Ward Parkway
Kansas City, MO 64114
Attention: Aaron Kinkelaar
179821.78.0021

Addressed to Service Contractor:

[[service contractor entity]]
[[street address]]
[[city, state, zip code]]
Attention:
179821.78.0021

Electronic Invoices

Prior to Invoice submission to BVAPMarkView@bv.com, Service Contractor will send a copy to OlderGS@bv.com and ChenJ2@bv.com for review and approval. Once Gary Older approves the Invoice, the Service Contractor will submit the Invoice to BVAPMarkView@bv.com.

Original Invoice:

To: Overland Contracting

BVAPMarkView@bv.com

Fax (866) 941-9458

Attention: BVAP

179821.78.0021

With a Copy to:

To: Julia Chen

ChenJ2@bv.com

00581.2 Not Used

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 "Construction Milestone Completion Dates and Applicable Liquidated Damages". If all portions of the Work comprising the milestone do not 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 (\$500) dollars 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 (\$1,000) dollars 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.

00582 - General Terms and Conditions

00582.1 Definitions

The terms below have the following definitions when used in this Service Contract:

"Applicable Law" means all laws, statutes, regulations, codes, rules, treaties, ordinances, judgments, permits, decrees, approvals, interpretations, injunctions, writs, orders, or other legal requirements of a Governmental Authority having jurisdiction over the Jobsite or performance of the Work.

"Claim" means claims, actions, suits, liabilities, demands, damages, losses, costs, expenses (including reasonable attorneys' fees), impacts to price, impacts to schedule, awards, fines and judgments, of every kind and nature.

"Consent Decree" means the negotiated plan between Owner, Department of Justice, Environmental Protection Agency, Tennessee department of Environment and Conservation, and the Tennessee Clean Water Network that requires Owner to develop and implement plans to improve its wastewater systems.

"Engineer" means the entity providing engineering services to Purchaser for this Project.

"Governmental Authority" means any governmental body entitled to exercise any administrative, executive, judicial, legislative, police, regulatory or taxing power.

"Indemnified Parties" means Owner and its officials, Purchaser, Engineer, and the parent companies, related companies, affiliated companies, subsidiaries, successors, and assigns of each, including the shareholders, officers, directors, partners, employees, and agents of each of the above firms.

"Indemnified Parties" does not include Service Contractor or any Subcontractor.

"Jobsite" means the parcel of land upon which the Project is constructed.

"Owner" means the City of Memphis, Tennessee.

"Parties" means Purchaser and Service Contractor.

"Party" means Purchaser or Service Contractor.

"Prime Agreement" means the agreement between Owner and Purchaser.

"Program Manager" means Black & Veatch Corporation or Overland Contracting Inc. (OCI).

"Project" means the project undertaken by Owner for which Purchaser is procuring the Work.

"Project Acceptance Date" means the date the Project is fully complete and accepted by Owner.

"Purchaser" means the Party so identified in the Service Contract Agreement.

"Purchaser's Engineer" means "Engineer".

"Service Contract" means the agreement between Purchaser and Service Contractor consisting of: (a) the Service Contract Agreement; (b) the documents listed in the Service Contract Agreement; (c) Service Contract Revisions; (d) attachments, appendices and exhibits to the Service Contract documents; (e) documents expressly incorporated by reference into the Service Contract; and (f) any requirements that can be reasonably inferred from any of the foregoing.

"Service Contract Agreement" means the Service Contract form executed by Purchaser and Service Contractor.

"Service Contractor" means the Party so identified in the Service Contract Agreement.

"Service Contract Price" means the total compensation set forth in Task Orders to be paid to Service Contractor by Purchaser under this Service Contract.

"Service Contract Revision" means a written order issued to Service Contractor under Article 00582.17 amending this Service Contract.

"Subcontractor" means any party, at any tier, having an agreement with Service Contractor or with a Subcontractor, to perform a portion of the Work.

"Supplier" has the same meaning as "Service Contractor".

"Task Order" is the document issued in the form of Article 00681.1 authorizing Service Contractor to perform the scope of work identified in that document.

"Work" means that which Service Contractor is to perform or provide under this Service Contract.

00582.2 Interpretation

00582.2.1 This Service Contract is the complete and final agreement between the Parties relating to the Work. All prior or contemporaneous negotiations and agreements relating to the Work are superseded by this Service Contract. The terms of this Service Contract are not supplemented, explained, or qualified by trade usage or a course of prior dealing. Service Contractor may only accept this Service Contract by signing and returning the Service Contract Agreement or by commencing the Work. Exceptions or terms submitted by Service Contractor in the course of accepting this Service Contract are void.

00582.2.2 The Service Contract documents are intended to complement one another. What is called for by one document is to be given effect as if called for by for all documents. Service Contractor agrees to obtain Purchaser's written clarification before proceeding with Work that may be affected by an apparent conflict, discrepancy or error in the Service Contract. If Service Contractor does not obtain Purchaser's written clarification, the provision imposing the more stringent requirement on Service Contractor will apply as determined in Purchaser's sole discretion.

00582.2.3 Provisions of this Service Contract which contemplate performance or obligations subsequent to completion or termination of the Work or which contain waivers or limitations of liability, including, but not limited to, Articles 00582.14, 00582.18, 00582.21, 00582.23 and 00582.26 will survive such completion or termination. Termination of the Work will not affect the rights and obligations that arose before termination.

00582.2.4 No obligation under this Service Contract may be waived without the written agreement of the Party against whom enforcement of the waiver is sought. Failure or delay in exercising a right or remedy or requiring the satisfaction of an obligation under this Service Contract does not constitute a waiver of that right, remedy or obligation.

00582.2.5 If any provision of this Service Contract is held to be unenforceable, the remaining provisions of this Service Contract will remain in effect. Provisions held to be unenforceable may be amended to effect, to the extent permitted by law, the original intent of the provision.

00582.2.6 English is the controlling language of this Service Contract. The Parties agree to make all payments due under this Service Contract in US dollars.

00582.3 Service Contractor's Representations and Status

00582.3.1 Service Contractor represents that it has sufficient resources and capacity and is fully qualified, properly equipped, sufficiently financed and otherwise able to perform the Work in accordance

with the Service Contract requirements. Purchaser may require that Service Contractor provide reasonable assurance of Service Contractor's continued satisfaction of these representations.

00582.3.2 Service Contractor also represents that it has satisfied itself as to the character, quality and quantity of surface and subsurface materials, structures, utilities, or other obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the Jobsite and the Service Contract. Service Contractor agrees that Purchaser has no responsibility or liability for Service Contractor's conclusions or interpretations based on information Purchaser has made available to Service Contractor.

00582.3.3 Service Contractor is an independent contractor in the performance of the Work. Service Contractor is solely responsible for the means, methods, sequences, procedures, and safety precautions used or adopted by Service Contractor and any Subcontractor in the performance of the Work. Except as provided in Article 00582.5, Service Contractor has sole authority and responsibility to employ, manage, discharge, and otherwise control its employees.

00582.4 Service Contractor Scope of Work

Service Contractor shall furnish all materials, tools, equipment, vehicles, supplies, services, labor and supervision required to perform the Work. Service Contractor may only perform Work as authorized in a Task Order. There is no obligation for Purchaser to authorize any Work pursuant to this Service Contract.

00582.5 Not Used

00582.6 Payment

00582.6.1 Purchaser shall pay Service Contractor in accordance with the terms of the applicable Task Order. Payment to Service Contractor for any Work performed, including any retention if specified, will be made by Purchaser after Purchaser's receipt of Owner's payment for the same Work and upon Purchaser's approval of such Work. Purchaser shall bill Owner for all Works performed by Service Contractor, excluding any amount that has been designated as authorized retentions, withholding, or backcharges under this Service Contract, and shall pay Service Contractor within fifteen days from the time Purchaser receives the correlated payment from Owner on account thereof, or from Purchaser's receipt of Service Contractor's invoice, whichever occurs later. To the extent permitted by Applicable Laws, Owner's payment to Purchaser for Works performed by Service Contractor is a condition precedent to Purchaser's obligation to pay Service Contractor for such Works. Therefore, Service Contractor will only be paid if and to the extent that Purchaser receives payment for the Work from Owner. Service Contractor shall include with the invoice supporting documentation required by this Service Contract and any additional information requested by Purchaser. Each invoice must clearly show the invoice number, the Work covered by the invoice, taxes, and the billing period (if applicable). If an invoice does not contain the requested documentation or information, Purchaser will notify Service Contractor of the deficiency. Calculation of the time for payment for an invoice begins when Purchaser receives an invoice free of deficiencies.

00582.6.2 Service Contractor agrees to provide additional itemization of the invoice as Purchaser reasonably requests. If payment to Service Contractor will be on a cost reimbursable basis or a unit price basis, or if Subcontractor files a Claim under Article 00582.17, Service Contractor shall furnish Purchaser complete breakdowns and supporting information in the detail required by Purchaser to verify the accuracy of the invoiced or claimed amounts. Service Contractor shall retain the breakdowns and supporting information for seven years after the Project Acceptance Date, during which time Purchaser or Purchaser's designee may audit the aforementioned records at Purchaser's expense.

00582.6.3 Purchaser may withhold or set-off amounts due under this Service Contract on account of: (a) Claims arising out of or relating to Service Contractor's breach or reasonably anticipated breach of this Service Contract; (b) any amounts owed by Service Contractor to Purchaser under this Service Contract; (c) non-conforming Work not yet corrected; (d) a claim filed against Service Contractor or reasonable evidence indicating a claim may be filed against Service Contractor; or (e) any amounts owed by Service

Contractor to Purchaser or to a parent, partner, joint venture, affiliate or subsidiary of Purchaser under any other contracts, claims, demands, lawsuits or other matters. If amounts owed by Service Contractor to Purchaser exceed the unpaid balance of this Service Contract, Service Contractor agrees to pay those amounts within forty-five calendar days after receipt of Purchaser's notice identifying the amounts due.

00582.6.4 Payment by Purchaser does not: (a) constitute approval or acceptance of any portion of the Work; (b) waive any of Purchaser's rights; or (c) relieve Service Contractor from responsibility or liability arising out of or relating to this Service Contract. Acceptance by Service Contractor of final payment constitutes a release and waiver of all Claims by Service Contractor against Indemnified Parties.

00582.7 Schedule

00582.7.1 Performance of the Work as scheduled under a Task Order is of the essence. Service Contractor shall furnish progress reports of the Work as requested by Purchaser. If the Work is not progressing as scheduled, Service Contractor shall implement appropriate corrective measures to get the Work back on schedule and advise Purchaser of such corrective actions. Service Contractor will be solely responsible for costs incurred to implement the corrective measures.

00582.7.2 Service Contractor shall give Purchaser written notice of any delay or anticipated delay within three calendar days after the occurrence of the event giving rise to the delay. Service Contractor's notice must identify the cause of the delay or the anticipated delay and the actions Service Contractor is undertaking to recover from or avoid the delay. If Service Contractor does not take steps that Purchaser determines are necessary to recover from or avoid a delay or if Service Contractor does not bring its performance into compliance with the schedule requirements of this Service Contract, Purchaser may direct Service Contractor to accelerate the Work by whatever means Purchaser deems necessary to recover and maintain the Service Contract schedule. Service Contractor shall be solely liable for costs to accelerate the Work. In the instance of schedule impact due to weather, reference 00681.9.

00582.7.3

Submittals

The Service Contractor shall submit to the Program Manager weekly schedules by Thursday at noon for the following week's work. Daily schedules shall be submitted to the Program Manager prior to Work starting each day.

The Service Contractor shall submit weekly and monthly progress updates to the Program Manager. At a minimum, the Service Contractor's progress update shall show Work completed versus estimated Work remaining for each Work item, time spent and time remaining, and notes on pending Work to be performed.

Sequence and Working Hours

In general, the Service Contractor shall begin the manhole smoke testing and CCTV operations at the top of each of the collection systems being inspected and work downstream from there.

Typical Work days consist of a Monday through Friday schedule with a 7am start at the earliest with a 6pm finish at the latest, for manhole inspections, smoke testing, and CCTV operations. Saturday Work may be permitted as necessary, and Sunday Work will only be permitted as warranted. No Work on Memorial Day, Independence Day, Labor Day, Thanksgiving Thursday and Friday, Christmas Eve, Christmas and New Year's Day during the Service Contract duration.

For weekend operations, request in writing by Thursday at NOON.

In cases where the Program Manager does not have the resources available to observe Saturday, Sunday and/or night work, the request will be denied and no time extension or impact will be considered.

Night Work is understood for CCTV when lower flow levels are present in the sewers and will be permitted as requested (48-hour advance notice required).

Noise attenuated equipment for night work is required when working in residential neighborhoods.

00582.8 Waivers of Lien

As a condition precedent to payment, Service Contractor shall furnish a lien waiver in the form of Article 00681.2a with each invoice except the final invoice. As a condition precedent to payment of the final invoice, Service Contractor shall furnish a lien waiver in the form of Article 00681.2b with the final invoice. If a lien is filed and Service Contractor does not remove or bond around the lien within seven calendar days after receipt of written notice from Purchaser or Owner, then Purchaser or Owner may remove the lien. Service Contractor shall reimburse Purchaser or Owner, as applicable, for all costs and expenses incurred by Purchaser or Owner in removing the lien, including reasonable attorneys' fees and court costs.

00582.9 Subcontracting

Except for portions of the Work for which a Subcontractor is named in this Service Contract, Service Contractor may not subcontract the Work without first obtaining Purchaser's written consent. If Service Contractor subcontracts any portion of the Work, Service Contractor remains responsible for complying with the Service Contract requirements and will be liable to Purchaser for the acts and omissions of Subcontractors as if the acts and omissions were those of Service Contractor. Purchaser has the right to contact Subcontractors to discuss their progress of the Work.

00582.10 Assignment

00582.10.1 Service Contractor may not assign all or part of this Service Contract voluntarily, by operation of law, or otherwise, nor may Service Contractor assign any of the money payable under this Service Contract, without obtaining Purchaser's prior written consent. Any assignment of this Service Contract in violation of the foregoing is voidable at the option of Purchaser. Subject to the foregoing, the provisions of this Service Contract will extend to the benefit of and be binding on the successors and assigns of the Parties.

00582.10.2 Purchaser may, at its sole discretion, assign this Service Contract to its affiliates or to Owner or Owner's designee and, upon such assignment, Purchaser will be released from all obligations or liabilities arising out of or relating to this Service Contract.

00582.11 Quality Control

Service Contractor agrees to maintain a Purchaser-approved quality control system during performance of the Work. Service Contractor also agrees to require each Subcontractor to maintain a quality control system appropriate for the Subcontractor's scope of work during Subcontractor's performance of the Work. If Service Contractor or a Subcontractor does not maintain a quality control system as required by this Article 00582.11, Purchaser may reject all or part of the Work.

00582.12 Inspection

00582.12.1 Service Contractor shall identify for Purchaser all locations where Work is to be performed and shall furnish information reasonably required by Purchaser to verify that the Work conforms to the requirements of this Service Contract. Service Contractor agrees to allow Purchaser and Owner reasonable access to all locations where the Work is being performed so Purchaser and Owner may: (a) inspect the Work; and (b) test or witness tests of the Work. Service Contractor shall arrange for Purchaser and Owner to have the same rights of inspection and access to locations where any Subcontractor is performing Work.

00582.12.2 Inspection or acceptance of the Work does not preclude subsequent inspection and rejection of the Work if the Work is later discovered not to conform to the Service Contract requirements or if Purchaser has reasonable grounds upon which to believe the Work does not conform to the Service Contract requirements. Inspection of the Work, performance or witnessing of tests, or any release for

shipment by Purchaser is solely for the benefit of Purchaser and does not discharge Service Contractor from complying with the Service Contract requirements.

00582.13 Passage of Title

Service Contractor warrants that the Work will be free of all liens, claims, charges, security interests, encumbrances or defects in title. Title to the Work will pass to Purchaser upon the earlier of Service Contractor's receipt of payment or delivery of the Work to Purchaser.

00582.14 Standards of Performance

00582.14.1 Service Contractor represents that the Work: (a) will meet the requirements of this Service Contract; (b) will meet standards of care, skill and diligence found in the industry to which the Work pertains; and (c) will conform with nationally recognized and accepted practices, codes and standards found in the industry to which the Work pertains. Personnel performing the Work must be qualified and competent personnel whose recommendations, guidance, and performance reflect the recognized standards of knowledge, judgment, and performance generally accepted and appropriate in the industry to which the Work pertains.

00582.14.2 Service Contractor acknowledges that: (a) review and comment by Purchaser of Service Contractor's submittals does not relieve Service Contractor of its obligations under this Service Contract; and (b) Purchaser's acceptance of the Work does not relieve Service Contractor of its obligations under this Service Contract.

00582.14.3 If, during the one year period following the earlier of completion or termination of the Work it is shown there is an error in the Work caused by Service Contractor's or any Subcontractors' failure to meet the standards, Service Contractor will perform, at its cost, corrective action within the original scope of Work as may be necessary to remedy such error.

00582.14.4 Service Contractor acknowledges that Owner's failure to achieve 100 percent compliance with the Consent Decree requirements may result in the imposition of penalties, costs, and other damages imposed against the Owner and Purchaser. To the extent caused by Service Contractor's failure to perform the Work in accordance with this Service Contract or to the extent caused by the negligence of Service Contractor or any Subcontractor, Service Contractor agrees to pay penalties and costs incurred by Owner and Purchaser under the Consent Decree.

00582.15 Compliance with Laws

00582.15.1 Service Contractor shall comply with all Applicable Laws in effect during its performance of the Work, including but not limited to the City of Memphis Living Wage Ordinance, the Fair Labor Standards Act, Occupational Safety and Health Administration (OSHA), and the Americans with Disabilities Act (ADA). Service Contractor shall obtain all licenses, permits, and inspections applicable to the Work. Service Contractor shall also comply with the USA's Foreign Corrupt Practices Act.

00582.15.2 Living Wage Ordinance:

The Prime Agreement is subject to Living Wage Ordinance #5185 as amended by Ordinance #5257 (effective July 1, 2008) that requires contractors who enter into a service contract with the City of Memphis to pay employees who work under the service contract a living wage. The minimum hourly wage shall be at least \$10.27 per hour with health benefits for employees and their dependents or \$12.32 per hour without health benefits. Service Contractor is also subject this ordinance as a subcontractor of Purchaser performing services. Service Contractor will submit certified payrolls as required by the ordinance to Purchaser, and Purchaser will forward to Owner. Copies of the ordinances are posted on Owner's website (www.memphistn.gov). Once on the homepage, click on the "Business" link, and then click on "Doing Business with the City" link. A link to the ordinance will be on the top right side under the section "Links". Annual adjustments to the rates will be posted on the site for the next year in February.

00582.15.3 Neither party shall engage in any conduct or activity in the performance of this Service Contract that constitutes a conflict of interest under Applicable Laws.

00582.15.4 Water is provided by Memphis Light Gas and Water (MLGW) to the Service Contractor but Service Contractor shall apply to MLGW's Building Services for permit and meter to record water usage. Service Contractor shall contact David Vick, 901-320-3939 (Water Meter Department Supervisor) directly to coordinate securing meter and permit. MLGW shall issue water permit and fire hydrant meter. Service Contractor shall provide a letter on Company letterhead that the Service Contractor is performing Work for the City of Memphis and acknowledging liability for any damage to or theft of the meter. Service Contractor is responsible for all costs associated with water usage.

00582.16 Business Practices

00582.16.1 Service Contractor shall uphold the good name and reputation of Purchaser and shall not take any action which is intended to or which causes damage to or discredits Purchaser. Service Contractor shall not:

- (a) offer to give or agree to give any director, officer, employee or agent of any potential client a gift or consideration of any kind as an inducement or reward for (i) doing or declining to do, or for having done or declined to do, any action in relation to obtaining or executing any contract or (ii) for showing or declining to show any favor or disfavor to any person in relation to any possible project; or
- (b) induce or attempt to induce any officer, servant, or agent of any private or public body to depart from his or her duties to his or her client or, in the case of any officer, servant or agent of a public body, his or her duties to the applicable public body, the applicable body politic, or both.

00582.16.2 Service Contractor shall not engage or employ, on a full, part-time or any other basis during the term of the Prime Agreement and for a period of one year after the termination or expiration, any professional or technical personnel who are or have been at any time during the term of the Prime Agreement in the employ of Owner with the explicit written consent of Owner.

00582.16.3 Nondiscrimination:

(a) Service Contractor certifies and agrees that all persons employed by it, its affiliates, subsidiaries, or holding companies are and will be treated equally without regard to or because of race, creed, color, religion, ancestry, national origin, sexual orientation, sex, age, condition of physical or mental handicap, marital status, or political affiliation, in compliance with all Applicable Laws. Service Contractor shall certify, at Purchaser's request, that it is in full compliance with all applicable EEO rules and laws.

(b) Purchaser and Owner reserve the right to investigate any claims of illegal discrimination by Service Contractor and in the event a finding of discrimination is made and upon written notification thereof, Service Contractor shall take all necessary steps to cure and rectify such action to the reasonable satisfaction of Purchaser and Owner. Service Contractor's failure or refusal to do so shall be cause for termination of this Service Contract in accordance with the terms of this Service Contract.

00582.16.4 Purchaser is an affirmative action employer. Accordingly, the parties hereby incorporate by reference the requirements of Executive Order 11246, as amended, and the applicable regulations contained in 41 C.F.R. Parts 60-1 through 60-60; 29 U.S.C. Section 793 and the applicable regulations contained in 41 C.F.R. Part 60-741; 38 U.S.C. Section 4212 and the applicable regulations contained in 41 C.F.R. Part 60-250 and/or 60-300; and 29 C.F.R. Part 471, Appendix A to Subpart A."

00582.17 Claims and Service Contract Revisions

00582.17.1 Service Contractor must give written notice, with appropriate supporting documentation, of all Claims for extra compensation or additional time for performance of the Work within ten calendar days after occurrence of the event giving rise to the Claim. If Purchaser agrees with the Claim, the Parties will negotiate an equitable adjustment to the Service Contract compensation or the schedule, or both, with the adjustment to be reflected in a Service Contract Revision. Service Contractor is responsible for all costs associated with the prosecution of the Claim. Service Contractor acknowledges that failure of Service Contractor to give Purchaser notice and appropriate supporting documentation within the required time frame constitutes a waiver of all Claims arising out of or relating to the event. Service Contractor may not halt Work pending resolution of a Claim without Purchaser's prior written consent.

00582.17.2 Purchaser may make additions, deletions, reductions in scope, or other changes to the Work. If a proposed change will cause a material increase or decrease in Service Contractor's cost or time for performance, Service Contractor shall so notify Purchaser in writing within ten calendar days after Service Contractor's receipt of Purchaser's notice of change. Service Contractor's notice must include supporting documentation in order to be effective. If Purchaser agrees with Service Contractor's notice, the Parties will negotiate an equitable adjustment to the Service Contract compensation or the schedule, or both, with the adjustment to be reflected in a Service Contract Revision. Service Contractor, however, shall proceed with the change as directed in writing by Purchaser pending such agreement. Purchaser will not be liable to Service Contractor for Claims arising from a decrease in the Work. No change is effective without a Service Contract Revision issued by Purchaser.

00582.17.3 In estimating the impact of a proposed Service Contract Revision, Service Contractor shall account for all cost and time impacts arising from or related to the proposed Service Contract Revision, including cumulative impacts associated with all previous Service Contract Revisions. Service Contractor's acceptance of payment under a Service Contract Revision or Service Contractor's agreement to a Service Contract Revision constitutes a waiver of all Claims related to or arising from that Service Contract Revision or Claims arising out of or relating to cumulative impacts of that Service Contract Revision and any previous Service Contract Revisions.

00582.18 Intellectual Property

00582.18.1 Service Contractor represents that the Work does not infringe on any intellectual property right and does not constitute an unauthorized disclosure or use of a trade secret. Service Contractor hereby agrees to grant to Purchaser and Owner an irrevocable, royalty-free, fully paid-up, non-exclusive license under all intellectual property or trade secrets owned or controlled by Service Contractor or Subcontractors to the extent necessary for Purchaser's and Owner's use of the Work. Purchaser and Owner may reproduce any submittals received from Service Contractor, despite any notice to the contrary appearing on the document.

00582.18.2 If all or part of the Work is held to constitute an infringement of any intellectual property right or an unauthorized use or disclosure of a trade secret, and if the use of all or part of the Work is enjoined, Service Contractor shall, at its own expense, and at Purchaser's or Owner's option: (a) procure for Purchaser or Owner the perpetual right to use such Work; (b) replace the Work with Work that does not infringe any intellectual property right or constitute an unauthorized use or disclosure of a trade secret; or (c) modify the Work so it does not infringe any intellectual property right or constitute an unauthorized use or disclosure of a trade secret. Replacement of or modification of the Work does not relieve Service Contractor of the Service Contract requirements.

00582.19 Non-Disclosure

Service Contractor shall not make any news releases, authorize or participate in any interview concerning this Service Contract, or issue other advertising pertaining to the Project or this Service Contract without the prior written approval of Purchaser. Service Contractor shall treat all information provided by Purchaser as confidential and only disclose such information as necessary to perform the Work, and will require the employees, agents, and Subcontractors who need to know to adhere to the terms of this

provision. Service Contractor agrees to require all Sub-subcontractors to whom such information is disclosed to also treat such information as confidential. Purchaser's disclosure of information to Service Contractor does not constitute a transfer of ownership of the information to Service Contractor. Service Contractor agrees Purchaser will be entitled to relief at law and in equity, including, but not limited to, injunctive relief and specific performance, upon any breach or anticipated breach of this Article 00582.19.

00582.20 Suspension of Work

00582.20.1 Purchaser may, at any time and in its sole discretion, suspend performance of all or part of the Work. Purchaser will provide a written notice to Service Contractor specifying the extent to which the Work is suspended and identifying the effective date of the suspension. Service Contractor shall suspend performance of the Work on the effective date to the extent specified in the notice, but shall continue to perform the Work not suspended. Service Contractor shall use all reasonable means to minimize the consequences of a suspension.

00582.20.2 If the suspension is unrelated to Service Contractor's failure to comply with this Service Contract, Purchaser will adjust the schedule to reflect the reasonable delay due to the suspension and will reimburse Service Contractor for the reasonable and direct additional costs incurred by Service Contractor due solely to the suspension. Service Contractor's sole and exclusive remedies for a Purchaser-directed suspension are the remedies specified in this Article 00582.20.2.

00582.20.3 Service Contractor shall promptly resume performance of all or part of the suspended Work in accordance with Purchaser's written authorization to resume the Work. Service Contractor must present all Claims and supporting materials related to a suspension under this Article 00582.20 within ten calendar days after the date set by Purchaser for resumption of the suspended Work. Failure of Service Contractor to present all Claims within the ten calendar day period will constitute a waiver of Service Contractor's right to receive an extension of the schedule or additional compensation related to the suspension.

00582.20.4 Service Contractor may not suspend performance of the Work except as directed by Purchaser under this Article 00582.20.

00582.21 Termination for Cause

00582.21.1 If Service Contractor defaults in any obligation under this Service Contract and does not cure the default within ten calendar days after receipt of Purchaser's written notice identifying the default, Purchaser may terminate all or part of the Work. If Purchaser terminates all or part of the Work, Purchaser will give Service Contractor written notice of termination specifying the extent to which the Work is terminated. Service Contractor shall continue to perform all portions of the Work not terminated.

00582.21.2 Upon request by Purchaser, Service Contractor shall promptly give Purchaser complete copies of agreements related to the terminated Work. Service Contractor shall, at Purchaser's request, preserve the Work purchased for or committed to the terminated Work, pending Purchaser's instructions. With respect to the terminated Work, Service Contractor shall promptly make every reasonable effort to cancel associated agreements and other commitments upon terms satisfactory to Purchaser or take other actions with respect to those agreements and other commitments as may be directed by Purchaser.

00582.21.3 Service Contractor, if and to the extent requested to do so by Purchaser, shall promptly assign to Purchaser or Owner, in form and content satisfactory to Purchaser, Service Contractor's rights, title, and interest to the Work purchased for or committed to the terminated Work, or shall otherwise dispose of same in accordance with Purchaser's instructions.

00582.21.4 Requests for compensation attributable to termination under this Article 00582.21 must be submitted to Purchaser in accordance with Article 00582.17. Service Contractor will not be entitled to recover from Purchaser any damages, losses, costs or expenses arising out of or relating to the terminated portion of the Work. Service Contractor's compensation under this Article 00582.21 will not

exceed an amount commensurate with the ratio that the terminated Work accepted by Purchaser bears to all of the Work.

00582.21.5 Purchaser is not required to provide a cure period before terminating the Work under this Article 00582.21 for the following: (a) commencement of a case by or against Service Contractor under bankruptcy law; (b) a general assignment by Service Contractor for the benefit of its creditors; (c) the appointment of a receiver to take charge of Service Contractor's assets, (d) a confession of insolvency by Service Contractor; and (e) a material adverse change in Service Contractor's financial status that in Purchaser's sole opinion would affect Service Contractor's ability to perform the Work.

00582.21.6 If this Service Contract is terminated under this Article 00582.21 and it is later determined by Purchaser or adjudged that there was no default, the termination will be considered a termination without cause and the provisions of Article 00582.22 will apply.

00582.22 Termination Without Cause

00582.22.1 Purchaser may, at any time and in its sole discretion, terminate all or part of the Work. Purchaser will provide a written notice to Service Contractor specifying the extent to which the Work is terminated and the effective date of the termination. Service Contractor shall continue to perform all portions of the Work not terminated.

00582.22.2 Upon termination under this Article 00582.22, Service Contractor may only place new agreements related to the Work as necessary to complete the Work not terminated. Upon request by Purchaser, Service Contractor shall promptly give Purchaser complete copies of agreements related to the terminated Work. Service Contractor shall, at Purchaser's request, preserve and protect the Work purchased for or committed to the terminated Work, pending Purchaser's instructions. With respect to the terminated Work, Service Contractor shall promptly make every reasonable effort to cancel associated agreements and other commitments upon terms satisfactory to Purchaser or Service Contractor shall take other actions with respect to those agreements and other commitments as may be directed by Purchaser.

00582.22.3 Service Contractor shall, if and to the extent requested to do so by Purchaser, promptly assign to Purchaser or Owner, in form and content satisfactory to Purchaser, Service Contractor's rights, title, and interest to the Work purchased for or committed to the terminated Work, or shall otherwise dispose of same in accordance with Purchaser's instructions.

00582.22.4 Subject to Service Contractor's compliance with the provisions of this Article 00582.22 and other applicable portions of this Service Contract, Service Contractor will recover from Purchaser, as the complete and final settlement for the terminated Work and all related Claims, a sum equal to Service Contractor's direct cost for the terminated Work satisfactorily performed as of the effective date of termination, plus an allowance for reasonable overhead and profit on such direct cost. Service Contractor's compensation under this Article 00582.22 will not exceed an amount equal to the ratio the terminated Work accepted by Purchaser bears to all of the Work, provided that Service Contractor will also recover from Purchaser the reasonable costs to terminate agreements with Subcontractors. Payment to Service Contractor for terminated Work will be reduced by the sum previously paid to Service Contractor on account of the terminated Work.

00582.22.5 If termination without cause is preceded by suspension under Article 00582.20, the Parties agree that any cost and schedule impacts associated with suspension will be addressed under that article, and will be excluded from calculation of costs for termination under this Article 00582.22.

00582.22.6 Requests for compensation under this Article 00582.22 must be submitted to Purchaser in accordance with Article 00582.17. Except as provided in this Article 00582.22, Service Contractor will not be entitled to recover from Purchaser any damages, losses, costs or expenses arising out of or relating to the terminated portion of the Work. Payment of the compensation specified in this Article 00582.22 is the sole and exclusive remedy of Service Contractor against Purchaser arising out of or relating to termination under this Article 00582.22.

00582.23 Indemnity

00582.23.1 SERVICE CONTRACTOR AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE INDEMNIFIED PARTIES AGAINST ANY CLAIM, LOSS, DAMAGE, EXPENSE, OR LIABILITY (INCLUDING ATTORNEYS' FEES AND COSTS OF ANY SUCCESSFUL ENFORCEMENT OF THIS INDEMNITY ARTICLE) ARISING OUT OF THE PERFORMANCE OR NON-PERFORMANCE BY SERVICE CONTRACTOR OR ITS SUBCONTRACTORS, OR THEIR OFFICERS, EMPLOYEES, OR AGENTS.

00582.23.2 Providing that Purchaser is not in breach of its obligation to make payments to Service Contractor for the Work, Service Contractor shall indemnify, defend and hold harmless the Indemnified Parties from any claims or mechanic's liens brought against the Indemnified Parties or against the Project as a result of the failure of Service Contractor, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within three (3) days of receiving written notice from Purchaser that such a claim or mechanic's lien has been filed, Service Contractor shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Service Contractor fails to do so, Purchaser will have the right to discharge the claim or lien and hold Service Contractor liable for costs and expenses incurred, including attorneys' fees.

00582.23.3 If an employee of Service Contractor, subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against any member of Indemnified Parties, its officers, directors, employees, or agents, Service Contractor's indemnity obligation set forth in this Article 00582.23.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Service Contractor, subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

00582.23.4 Service Contractor will immediately notify Purchaser of any claim or suit made or filed against Service Contractor or its Subcontractors in which Purchaser or Owner is named as a co-defendant.

00582.24 Insurance Requirements

00582.24.1 Service Contractor shall, at its sole cost, maintain insurance as required by this Service Contract and shall impose the obligations of this Article 00582.24 on all Subcontractors. Service Contractor shall give Purchaser ACORD insurance certificates evidencing the required coverage by the due date identified in the article titled "Schedule of Submittals and Applicable Liquidated Damages" and as Purchaser may request from time to time. Service Contractor shall also give Purchaser, as Purchaser requests from time to time, insurance policy information necessary to demonstrate Service Contractor maintains the insurance limits and endorsements required by this Service Contract. Service Contractor shall ensure the policies:

- (a) Contain a provision or endorsement that the coverage will not be cancelled, materially changed, or renewal refused unless the insurer gives at least thirty calendar days prior written notice to Purchaser.
- (b) Remain in effect through the Warranty Period if coverage is occurrence-based and remain in effect at least one year after expiration of the Warranty Period if coverage is claims-based.
- (c) Are primary with respect to insurance covering Indemnified Parties as additional insureds. All insurance carried by Indemnified Parties will be excess insurance.
- (d) Contain a waiver of all rights of subrogation by the insurance carriers in favor of Indemnified Parties, with the exception of professional liability coverage (if required under this Service Contract).

- (e) Comply with all applicable laws of the jurisdiction in which any part of the Work is to be performed including, but not limited to, admitted and compulsory coverage.
- (f) Are rated "A-" or better by A.M. Best's "Insurance Guide and Ratings".

00582.24.2 Service Contractor shall maintain broad form commercial general liability insurance protecting Service Contractor, and Indemnified Parties as additional insureds (using endorsements CG 20 10 and CG 20 37 or their equivalent), against claims arising out of or relating to bodily injury or property damage arising from the Work. The policy must include a cross-liability or severability of interest clause, a per project aggregate endorsement, and coverage for personal injury liability, contractual liability, products and completed operations (covering lawsuits brought in the USA and the country of the Jobsite), explosion, building collapse, and damage to underground property. Service Contractor shall maintain policy limits of at least one million dollars for each occurrence and in the aggregate.

00582.24.3 Service Contractor shall maintain worker's compensation insurance protecting Service Contractor against all claims under applicable worker's compensation laws. If Service Contractor is required to maintain worker's compensation insurance in the US, the worker's compensation insurance must contain an "all states" or "other states" endorsement. For Work performed in the US, Service Contractor shall also maintain employer's liability insurance protecting Service Contractor against claims for injury, disease or death of employees which are not covered by the worker's compensation insurance. Service Contractor shall maintain worker's compensation policy limits as required by statute and employer's liability policy limits of at least one million dollars for each occurrence and in the aggregate.

00582.24.4 Service Contractor shall maintain comprehensive automobile liability insurance protecting Service Contractor, and Indemnified Parties as additional insureds, against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, whether owned, non-owned, or hired. Service Contractor shall maintain policy limits of at least one million dollars combined single limit.

00582.24.5 Service Contractor shall maintain umbrella liability insurance that follows the form of the commercial general liability insurance, the employer's liability insurance and the automobile liability insurance. The umbrella liability insurance must protect Service Contractor, and Indemnified Parties as additional insureds, against claims in excess of the limits of the commercial general liability insurance, the employer's liability insurance, and the automobile liability insurance. Service Contractor shall maintain policy limits of at least four million dollars for each occurrence and in the aggregate.

00582.24.6 Service Contractor acknowledges that maintenance of insurance as required under this Service Contract does not release or discharge Service Contractor of any obligations assumed by Service Contractor under this Service Contract. If Service Contractor does not provide insurance meeting the requirements of this Service Contract or does not provide insurance certificates as required by Article 00582.24.1, Purchaser may purchase such coverage and charge the expense to Service Contractor. However, Purchaser's failure to exercise this right does not relieve Service Contractor of the obligations imposed by this Article 00582.24. Service Contractor shall pay any deductibles applicable to insurance policies purchased by Purchaser under this Article 00582.24.6.

00582.24.7 Service Contractor is responsible for maintaining any and all property insurance on their own equipment and shall require all Subcontractors to do likewise.

00582.25 Audit

Purchaser reserves the right to audit the records of Service Contractor. Accordingly, Service Contractor shall make and keep as the same accrue, full and complete records and books of accounts of revenue and income, and costs and expenses that specifically relate to performance under this Service Contract. Records and books of account, together with any or all memoranda pertaining thereto that may be kept, maintained, or possessed by Service Contractor, shall be opened to examination during regular business hours by Purchaser or its representatives for the purposes of inspecting, auditing, verifying, or copying the same or making extracts therefrom. Service Contractor shall make and keep said records and books

of account for a period of seven (7) years after the completion of the contract obligations of the final payment under the Service Contract, whichever is later.

00582.26 Governing Law and Disputes

00582.26.1 Except as detailed in Article 00582.26.2, claims and disputes arising out of or relating to this Service Contract will be governed by the law of the State of Missouri, USA, excluding provisions that would apply the law of another jurisdiction. The Parties hereby elect to exclude application of the United Nations Convention on Contracts for the International Sale of Goods pursuant to Article 6 of the Convention.

00582.26.2 Service Contractor agrees to be bound by all decisions arising out of or relating to the claims and dispute resolution process set forth in the Prime Agreement to the extent: (a) the decisions relate to the Work; (b) a claim by Owner against Purchaser involves the performance of Service Contractor or the Work; or (c) a Claim of Service Contractor gives rise to a claim by Purchaser against Owner. The initiation of claim and dispute resolution under the Prime Agreement will stay claim and dispute resolution under this Service Contract on any Claim related to the claim under the Prime Agreement.

00582.26.3 To the extent Service Contractor will be bound as set forth in Article 00582.26.2, Purchaser consents to Service Contractor's participation in such claim and dispute resolution process. Service Contractor and Purchaser will each bear their own costs associated with their participation in the Prime Agreement claim and dispute resolution process. A Party will follow the other Party's directions regarding that other Party's Claims, unless such directions adversely affect the Party's own Claims.

00582.26.4 Disputes between Service Contractor and Purchaser not addressed in Articles 00582.26.2 and 00582.26.3, will be resolved exclusively by the Tenth Judicial District Court of Kansas, located in Johnson County, Kansas, or the United States District Court for the District of Kansas, located in Kansas City, Kansas, as their jurisdiction permits. To the extent Purchaser or Service Contractor prevails against the other Party on such dispute, reasonable dispute resolution costs including attorney fees shall be recoverable from the losing Party.

00582.26.5 Pending resolution of any claim or dispute, and without prejudice to Service Contractor's rights, Service Contractor shall continue to perform as directed by Purchaser.

00582.27 Hazardous Conditions

00582.27.1 Service Contractor is not responsible for any Hazardous Conditions encountered in the performance of the Work at the Jobsite. Upon encountering any Hazardous Conditions, Service Contractor will stop services immediately in the affected area and duly notify Purchaser. For purposes of this Service Contract, Hazardous Conditions is defined as any materials, wastes, substances and chemicals deemed to be hazardous under any Applicable Law or the handling, storage, remediation, or disposal of which are regulated by Applicable Laws and applies to any hazardous or toxic substance, material, or condition present at the locations in which the Work is performed which was not brought onto such site or sites by Service Contractor for the exclusive benefit of Service Contractor.

00582.27.2 Service Contractor shall be obligated to resume the Work at the affected areas only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all Governmental Authority having jurisdiction over the location.

00582.27.3 Service Contractor will be entitled, to an adjustment in its compensation and all times for performance of the Work to the extent Service Contractor's cost or time of performance have been adversely impacted by the presence of Hazardous Conditions, subject to submission of appropriate documentation by Service Contractor and Service Contractor's duty to mitigate.

00582.28 Force Majeure

00582.28.1 If Service Contractor is delayed in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control, the times for performance shall be reasonably extended by on a not less than day for day basis. By way of example and not of limitation, events that will entitle Service Contractor to an extension of the times for performance include without limitation acts or omissions of Owner or Purchaser, or anyone under Owner's control (including separate contractors), Hazardous Conditions, wars, terrorism, civil unrest, actions and inactions of delay of Governmental Authorities, floods, labor disputes and unrest, unusual delay in transportation, epidemics, earthquakes, tsunami, adverse weather conditions, and acts of God.

00582.28.2 In addition to Service Contractor's right to a time extension for those events set forth above, Service Contractor shall also be entitled to an appropriate increase in the compensation due to the impacts or delays arising from such events. Service Contractor will file all claims in accordance with Article 00582.17.

00585 - Safety, Health and Accident Prevention

00585.1 Project Safety and Health Program

Purchaser will implement and coordinate the overall Project Safety and Health Program as defined in the Loss Control Manual which is available for inspection at the SARP10 Program Office.

00585.2 Safety, Health, and Accident Prevention Program

00585.2.1 Subcontractor shall implement and maintain a written Safety, Health and Accident Prevention Program specifically applicable to the Work. Subcontractor's Safety, Health and Accident Prevention Program must meet the requirements of Applicable Laws and adhere to the Project Safety and Health Program, if implemented by Purchaser. Subcontractor shall submit Subcontractor's Safety, Health and Accident Prevention Program for Purchaser's review at least thirty calendar days before starting Work at the jobsite. Purchaser's review does not relieve Subcontractor of Subcontractor's sole responsibility for safety and health in relation to the Work, nor does Purchaser's review limit Subcontractor's obligation to undertake any action necessary to establish and maintain safe working conditions relating to the Work at the jobsite. Subcontractor must include training, Master Job Hazard Analysis (JHA) and daily JSAs.

00585.2.2 Purchaser may monitor Subcontractor's safety and health performance and may require changes to Subcontractor's Safety, Health and Accident Prevention Program during the performance of the Work. Purchaser's monitoring and requirement of changes does not relieve Subcontractor of Subcontractor's sole responsibility for safety and health in relation to the Work, nor does Purchaser's monitoring and requirement of changes limit Subcontractor's obligation to undertake any action necessary to establish and maintain safe working conditions relating to the Work at the jobsite. Purchaser must approve sub-tier subcontractors prior to mobilization to the jobsite.

00585.3 Hazardous Waste Project Health and Safety Plan

00585.3.1 Subcontractor understands that the Work may involve hazardous substances or hazardous wastes. Subcontractor shall comply with all Applicable Laws, Owner's facility rules and regulations, and applicable guidance documents. Subcontractor shall prepare and implement a jobsite-specific Hazardous Waste Project Health and Safety Plan, based on Subcontractor's Safety, Health and Accident Prevention Program and all written programs required by Applicable Laws. Subcontractor is responsible for the completeness and accuracy of Subcontractor's Hazardous Waste Project Health and Safety Plan. Subcontractor shall submit Subcontractor's Hazardous Waste Project Health and Safety Plan to Purchaser at least thirty calendar days before starting Work at the jobsite and shall maintain a copy at the jobsite for review by Purchaser, Owner, and regulatory personnel.

00585.4 Protective Clothing, Equipment and Instrumentation

Subcontractor agrees to furnish special protective clothing, respiratory protective equipment, and monitoring instrumentation as required by Applicable Laws, the project's safety-related plans and programs, and Purchaser's and Owner's rules and regulations. Subcontractor shall ensure that personnel performing Work at the jobsite properly use the clothing, equipment, and instrumentation. Subcontractor shall furnish and maintain all safety equipment, including but not limited to, barriers, signs, warning lights, and guards necessary for adequate protection of persons and property.

00585.5 Safety and Health Representative

The Subcontractor shall identify a qualified person to be its representative for Environmental, Safety, Health & Security matters and make this person available as needed and requested by the Purchaser. The representative must have authority to correct unsafe conditions and to stop Work in the area of an unsafe condition. In addition, the representative shall routinely visit the jobsite.

00585.6 Safety and Health Goal

Subcontractor shall endeavor to attain the project's safety goal of zero injuries. Subcontractor shall maintain accurate accident and injury reports and shall furnish Purchaser a monthly summary of injuries

and man-hours lost due to injuries by the third of each month. Subcontractor accident rates must be calculated monthly in accordance with the Bureau of Labor Statistics incident rate, frequency rate, and days away from work rate methods. If Subcontractor or Sub-subcontractor accident rates exceed the project's safety goal, Subcontractor shall take immediate corrective action, which may include, but is not limited to:

- (a) submittal of a written corrective action plan to Purchaser by Subcontractor;
- (b) additions or modifications to Subcontractor's Safety, Health and Accident Prevention Program;
- (c) removal from the jobsite of any Subcontractor or Sub-subcontractor personnel not implementing or following the necessary safety and health measures; and
- (d) increasing the amount of Subcontractor safety and health training.

00585.7 Drug Prevention Program

As part of the Work, Subcontractor shall assist Purchaser in administering the project requirements for a drug detection and prevention program. Subcontractor agrees that all costs for drug testing and alcohol testing are included in the Subcontract price. Subcontractor must provide evidence to Purchaser that all personnel assigned to the Work at the jobsite have passed the drug test within three calendar days of completion of the test. The drug detection and prevention program will include, but will not be limited to, the following: (a) a pre-jobsite assignment test; and (b) additional assignment tests, such as reasonable suspicion tests, post accident tests, and unannounced random drug tests of ten percent of the workforce on a monthly basis. The drug test must be completed and passed no more than 10 days prior to arriving on the jobsite.

00585.8 Fall Protection

The OSHA Fall Protection Standard 29 CFR 1926 Subpart M shall be strictly adhered to by the Subcontractor. Fall protection is required for all of Subcontractor's Work operations one hundred percent of the time, whether climbing, traveling, or working. NO WORK OPERATION is exempt from the six (6) foot fall protection requirement.

Prior to starting work operations requiring fall protection, Subcontractor shall submit to Purchaser a fall protection plan. The fall protection plan shall include, but not be limited to, the following:

Name of qualified person in charge of operation.

Description of work operation.

List of fall exposures.

Description of fall protection methods used to eliminate fall exposures.

Training and enforcement methods used to ensure employee compliance with the plan.

Fall protection body harnesses, lanyards, and lifelines shall be used in accordance with OSHA Standard 1926 Subpart 502D, with the following exceptions:

Full body harnesses shall be used in lieu of safety belts.

Only lanyards with shock absorbers and locking type snap hooks shall be used.

At least two lanyards shall be used to provide one hundred percent fall protection when moving around obstructions, connection points, or other similar items.

Fall protection guardrail systems shall comply with OSHA Standard 1926 Subpart 502(b) except manila, plastic, or synthetic rope shall not be used as guardrails.

00585.9 Confined Spaces

All employees entering confined spaces and all attendants for such entries including supervisors shall receive confined space entry training and emergency rescue training at a minimum of once per year.

00681 - Service Contract Attachments

00681.1 - Sample Task Order

Service Contract No.: 179821.78.0021

Project: SSES Phase 3 Project – SARP 10 Program

Task Order No.:

1. General

This Task Order is issued under and governed by the above referenced Service Contract.

2. Effective Date

This Task Order is effective [[insert month, day and year for task order effective date]].

3. Scope of Work

Service Contractor shall perform the following Work for this Task Order:

4. Deliverables

Service Contractor shall to provide the following deliverables as part of the Work for this Task Order:

5. Schedule

Service Contractor shall complete the Work in accordance with the following schedule:

6. Payment Terms

The following payment terms shall apply in addition to the corresponding provisions contained in the General Terms and Conditions, Article 00582.6 Payment.

The Parties will meet each month at an agreed time in order to determine the quantity of materials used and man-hours expended during the invoice period. The Parties will use the field progress measurement system to calculate that month's payment total by adding the quantity of materials used times the Service Contract unit price of those materials to the man-hours expended times the Service Contract rates for those man hours.

00681.2a Partial Waiver and Release

**AFFIDAVIT AND PARTIAL WAIVER OF CLAIMS AND LIENS
AND RELEASE OF RIGHTS FOR SUBCONTRACTORS**

The undersigned, who is the _____ (designate title) of _____ which is the _____ (designate whether subcontractor, supplier or otherwise) for the _____ (designate the type of work, supplies or services rendered) on the improvements constructed on the premises hereafter identified, declares that his contract with _____ (General Contractor) is in the total amount of \$ _____, which includes extras and all change orders to the date hereof.

The undersigned further states that as of _____ (date) the total value of work completed and material stored is \$ _____. Of this amount \$ _____ has been received (the receipt and sufficiency of which is hereby acknowledged by the undersigned including \$ _____ in payment of Payment Application or Invoice Number _____. A total of \$ _____ is being held as retainage.

In consideration of the amounts and sums received, the undersigned does hereby waive and release to the **City of Memphis (Owner)** and to _____ (General Contractor) any and all claims and liens and rights to liens upon the premises described below and upon improvements now thereon, and upon the monies or other considerations (due as of the date of the aforesaid payment application or invoices from the **City of Memphis (Owner)** or _____ (General Contractor) or from any other person, firm or corporation), said claims and liens and rights to liens being on account of labor, services, materials, fixtures or apparatus heretofore furnished by or at the request of the undersigned. The premises as to which said claims and liens and rights to liens are hereby released are identified as follows:

Project Name: _____ **Address of Project:** _____
City: Memphis **County:** Shelby **State:** TN **Zip Code:** _____

The undersigned further represents and warrants that he is duly authorized and empowered to sign and execute this waiver on his own behalf and on behalf of the company or business for which he is signing; that he has properly performed all work and furnished all the materials of the specified quality per plans and specifications and in a good and workmanlike manner through the date of said payment application or invoice; that he has paid for all the labor, materials, equipment, and services that he has used or supplied to the above premises through the date of said payment application or invoice; that he has no other outstanding and unpaid payment applications, invoices, retentions, holdbacks, chargebacks or unbilled work or materials against _____ (General Contractor) as of the date of the aforementioned payment application; and that any materials which have been supplied or incorporated into the above premises were either taken from his fully-paid or open stock or were fully paid for and supplied as stated on the payment application or invoice.

The undersigned further agrees to reimburse and does hold harmless and fully indemnify the **City of Memphis (Owner)** and _____ (General Contractor) for any losses or expenses should any such claims, lien or right to a lien be asserted (by the undersigned or by any laborer, materialman or subcontractor of the undersigned), including, without implied limitation, attorneys' fees incurred in the defense thereof.

The undersigned further accepts and acknowledges the receipt of the aforesaid sums in full accord and satisfaction for the aforementioned claims with full knowledge that the contractors, **City of Memphis (Owner)** and _____ (General Contractor), their successors and assigns, are relying thereon; and furthermore, the undersigned agrees to perform, now and in the future, each and every covenant and provision of this written contract or supplier's agreement (as the case may be) as modified or changed in writing with _____ (General Contractor) or any subcontractor of _____ (General Contractor) hereby acknowledging that said contract or supplier's agreement is now in full force and effect.

In addition, for and in consideration of the amounts and sums received, the undersigned hereby waives, releases and relinquishes any and all claims, rights or causes of action whatsoever arising out of or in the course of the work performed on the above-mentioned project, contract or event transpiring prior to the date hereof, excepting the right to receive payment for work performed and properly completed and retainage, if any, after the date of the above-mentioned payment application or invoices.

Signed and delivered the _____ day of _____, 20____.
Company _____

By: _____
(Printed Name)

(Signature)

Title: _____

Before me, the undersigned Notary Public in and for the said County and State, personally appeared _____, and acknowledged execution of the foregoing affidavit as his voluntary act and deed and further stated that the facts recited are true of his personal knowledge.

My Commission Expires: _____

Notary Public
Residence

County/State: _____

00681.2b Final Waiver and Release

AFFIDAVIT AND FINAL WAIVER OF CLAIMS AND LIENS AND RELEASE OF RIGHTS FOR CONTRACTORS

The undersigned, who is the _____ (designate title) of _____ which is the _____ (designate whether subcontractor, supplier or otherwise) for the _____ (designate the type of work, supplies or services rendered) on the improvements constructed on the premises hereafter identified, declares that his contract with _____ (General Contractor) is in the total amount of \$ _____, which includes extras and all change orders to the date hereof.

The undersigned further states that as of _____ (date) all work on said project has been performed and completed in accordance with the plans and specifications for the project, and said work has been accomplished in accordance with the terms and conditions of his subcontract and those documents which, by reference, are a part of said subcontract. The total value of work completed and material stored is \$ _____. Of this amount \$ _____ has been received (the receipt and sufficiency of which is hereby acknowledged by the undersigned including \$ _____ in payment of Payment Application or Invoice Number _____. A total of \$ _____ is being held as retainage.

In consideration of the amounts and sums received, the undersigned does hereby waive and release to the **City of Memphis (Owner)** and to _____ (General Contractor) any and all claims and liens and rights to liens upon the premises described below and upon improvements now thereon, and upon the monies or other considerations (due as of the date of the aforesaid payment application or invoices from the **City of Memphis (Owner)** or _____ (General Contractor) or from any other person, firm or corporation), said claims and liens and rights to liens being on account of labor, services, materials, fixtures or apparatus heretofore furnished by or at the request of the undersigned. The premises as to which said claims and liens and rights to liens are hereby released are identified as follows:

Project Name:

Address of Project:

City: Memphis **County:** Shelby **State:** TN **Zip Code:** _____

The undersigned further represents and warrants that he is duly authorized and empowered to sign and execute this waiver on his own behalf and on behalf of the company or business for which he is signing; that he has properly performed all work and furnished all the materials of the specified quality per plans and specifications and in a good and workmanlike manner as required by the contract; that he has paid for all the labor, materials, equipment, and services that he has used or supplied to the above premises as required by the contract; that he has no other outstanding and unpaid payment applications, invoices, retentions, holdbacks, chargebacks or unbilled work or materials against _____ (General Contractor); and that any materials which have been supplied or incorporated into the above premises were either taken from his fully-paid or open stock or were fully paid for and supplied as stated on the payment application or invoice.

The undersigned further agrees to reimburse and does hold harmless and fully indemnify the **City of Memphis (Owner)** and _____ (General Contractor) for any losses or expenses should any such claims, lien or right to a lien be asserted (by the undersigned or by any laborer, materialman or subcontractor of the undersigned), including, without implied limitation, attorneys' fees incurred in the defense thereof.

The undersigned further accepts and acknowledges the receipt of the aforesaid sums in full accord and satisfaction for the aforementioned claims with full knowledge that the contractors, **City of Memphis (Owner)** and _____ (General Contractor), their successors and assigns, are relying

thereon; and furthermore, the undersigned agrees to perform, now and in the future, each and every covenant and provision of this written contract or supplier's agreement (as the case may be) as modified or changed in writing with _____ (General Contractor) or any subcontractor of _____ (General Contractor) hereby acknowledging that said contract or supplier's agreement is now in full force and effect.

In addition, for and in consideration of the amounts and sums received, the undersigned hereby waives, releases and relinquishes any and all claims, rights or causes of action whatsoever arising out of or in the course of the work performed on the above-mentioned project, contract or event transpiring prior to the date hereof, except retainage, if any, after the date of the above-mentioned payment application or invoices.

Signed and delivered the _____ day of _____, 20____.
Company_____

By:_____ (Printed Name)

(Signature)

Title:_____

Before me, the undersigned Notary Public in and for the said County and State, personally appeared _____, and acknowledged execution of the foregoing affidavit as his voluntary act and deed and further stated that the facts recited are true of his personal knowledge.

My Commission Expires:_____

Notary Public
Residence County/State:_____

00681.3 Not Used

00681.4 Loss Control Manual

The Loss Control Manual is available for viewing at the SARP10 Program Office:

Contact Gary Older, Construction Manager to schedule an appointment:

OlderGS@bv.com or 813-323-0502

00681.5 Certificate of Nondiscrimination (1 page)

As Bidder, Contractor, or Subcontractor on Purchaser's Contract, SSES Phase 3 Project

The undersigned states that it does not discriminate against any subcontractor, employee, or applicant for employment on the grounds of race, color, national origin or sex and, if awarded a contract for this project, agrees in performance of work:

1. Not to discriminate against any subcontractor, employee, or applicant for employment on the grounds of race, color, national original or sex;
2. To maintain payrolls of laborers and mechanics employed on this contract until seven (7) years after final release and final payment by the City;
3. To require a similar certificate to be executed by each subcontractor at the time a subcontract is executed under the contract with the requirement that such subcontractor agrees to require a similar certificate of requirement on any lower tiers of subcontracts.
4. To conform to federal law, state statutes, executive orders, and local ordinances identified and listed under Non-discrimination, Section 00280.7.

Service Contractor's Name

Date

Signature

Printed or Typed Name and Title

**THIS FORM MUST BE SUBMITTED WITH THE PROPOSAL OR THE PROPOSAL MAY BE
CONSIDERED NON-CONFORMING.**

00681.6 Equal Business Opportunity Program Compliance Form (1 page)

This form must be submitted with Bidder's proposal. Failure to execute and submit this document with Bidder's proposal may cause the proposal to be rejected as non-conforming. In addition, each Subcontractor must execute the form.

This Service Contract will be subject to the requirements of the City of Memphis Ordinance #5384 which establishes the Equal Business Opportunity ("EBO") Program. It is up to the Respondent to ensure that all requirements of this ordinance are met. The Ordinance may be accessed on the City's website at www.memphistn.gov under "Doing Business". The intent of the EBO Program is to increase the participation of locally owned minority and women owned business enterprises (M/WBE). Toward achieving this objective, the M/WBE participation goal for this solicitation is an overall combined M/WBE percentage of **21%**. The percentage of M/WBE participation is defined as the dollar value of subcontracts awarded to certified minority and/or women business enterprises divided by the total proposed base proposal amount.

Additionally, in accordance with federal executive Order 11625 and 12138, the local government must make a good faith effort to include participation from Disadvantage Business enterprises (DBE) in subagreement awards. The DBE fair share goal for this project is a minimum of **5.2%** for Minority Business Enterprises (MBE) and a minimum of **5.2%** for Women Business Enterprises (WBE).

Participation Plan

The Participation Plan must include: (1) level and dollar amount of participation your firm anticipates to achieve in the performance of contract resulting from this RFP; (2) the type of work to be performed by the M/WBE participation; and (3) the names of the M/WBE and/or DBE firm(s) the Respondent plans to utilize in the performance of the contract resulting from this RFP.

Eligible M/WBE and/or DBE Firms

To qualify as an M/WBE firm, per the requirements of City of Memphis Ordinance #5384, a firm must be included on the City of Memphis EBO list of certified M/WBE firms. All contractors identified as a Disadvantaged Business Enterprise (DBE) must be on the Tennessee Uniform Certification Program (TNUCP) List, other State or Federal DBE list, or the City of Memphis EBO list at the time of the proposal opening.

A list of the City's eligible M/WBE firms and DBE firms may be requested from Purchaser as a guide only. If a Bidder desires to utilize an M/WBE or DBE firm not included on the list, it is the Bidder's responsibility to confirm that the desired firm is certified by the City of Memphis. Such confirmation must be obtained from the City's Contract Compliance Office, in writing, before the proposal/response due date. Requests for verification must be submitted to the City's Contract Compliance Office listed below:

Requests for verification must be submitted to the City's Contract Compliance Office listed below:

Mary Bright, Esq.
City of Memphis
Contract Compliance Office
125 North Main Street, Suite 546
Memphis, TN 38103
Phone: (901) 576-6210
Fax: (901) 576-6560
Email: mary.bright@memphistn.gov

MINORITY/WOMEN BUSINESS ENTERPRISE COMPLIANCE FORM

SERVICE CONTRACT TITLE: SSES Phase 3 Project

Project M/WBE Goal:	MBE minimum	5.2%
	WBE minimum	5.2%
	Overall Combined	21%

The following sections must be completed by Bidder. A certified subcontractor or supplier is defined as a firm from the list of certified firms provided with this specification.

Bidder's Name

Section A - If the Bidder is a certified firm, so indicate here with a check mark.

_____ MBE _____ WBE _____ DBE

Section B - Identify below those certified firms that will be employed as subcontractors or suppliers on this Project. By submitting this Proposal, the Bidder commits to the use of the firms listed below.

\$ _____ = Show the dollar value of the subcontract to be awarded to this firm

% _____ = Show the percentage this subcontract is of your base Proposal

M/WBE = Show by inserting an M or W whether the subcontractor is an MBE or WBE

\$	%	<u>M/WBE</u>	<u>DBE</u>	<u>CERTIFIED SUBCONTR. NAME, ADDRESS, TEL. #</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

\$ _____ % _____ = Total M/WBE and/or DBE

THIS FORM MUST BE SUBMITTED WITH THE PROPOSAL OR THE PROPOSAL MAY BE CONSIDERED NON-CONFORMING.

00681.7 Not Used

00681.8 Report of Disadvantaged Business Enterprise Participation Form (1 page)

00681.9 Schedule Impact Due to Weather

Program Manager will determine Contractor's entitlement to an extension of the Contract Time as a result of weather delays, based on the data included in Tables 1 and 2. Extensions of time will be granted at the discretion of the Program Manager for circumstances not covered by the flow chart.

The following rules apply to any analysis for weather related delays to this Project. Weather delay days may be awarded if the first two rules are met. Additional days may be awarded if conditions in Rule 3 are met for unusually heavy precipitation independent of Rules 1 and 2.

1. Rule 1: The average monthly precipitation amount must have been exceeded.

If the total amount of actual precipitation in a month exceeds the average for that month shown in Table 1, the first test has been met. Go to rule number 2. (Precipitation is defined as the quantity of water deposited by rain, hail, sleet, or snow.)

2. Rule 2: The number of days in a month with actual precipitation greater than the threshold amount shown in Table 2 has been exceeded.

The number of days with actual precipitation greater than the threshold amounts shown in Table 2 are eligible for award as weather delays days.

Additional days may be awarded for unusually heavy precipitation independent of meeting the rules above.

3. Rule 3: Unusually heavy precipitation has occurred.

Precipitation greater than one inch in a single day may be justification for an additional day time extension for each precipitation day. This rule may be applied singly but not in addition with any other rule.

**National Weather Service Data for
Memphis International Airport – Years 2003-2013**

Table 1

Average Precipitation by Month (In Inches)											
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
4.14	3.79	4.49	5.54	6.30	2.52	4.19	3.23	3.01	3.79	4.27	4.87

Table 2

Average Number of Days with Precipitation Greater than 0.25 Inches											
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	5	5	5	5	3	4	3	3	4	5	5

Any weather-related extension of Contract time shall be non-compensable. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated weather days is less than expected, shall contribute to the project float and shall not affect the Contract Times.

Application for a weather related extension of time shall be submitted to the Program Manager, and shall state the extension requested and be supported by the relevant weather data.

Technical Specifications

**CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00001 - MANHOLE GPS & MACP INSPECTION**

PART 1 – SCOPE

- 1.01 This Work will consist of locating sanitary sewer system facilities, gathering sub-meter grade GPS coordinates of manhole (including lamphole) covers, Manhole Assessment Certification Program (MACP) protocol Level 1 and Level 2 manhole inspections using the National Association of Sewer Service Companies (NASSCO) MACP Version 6.0.1 protocols, associated photographs, camera inspection of manholes and the associated pipe connections, and documentation of manholes not found, not on grade and/or not showing. Manholes to be located, documented and inspected are in both improved streets, arterial and primary roads, backyards and unimproved easements. Once new manhole coordinates are obtained, the updated source GIS map data shall be delivered to Program Manager (from hereon Program Manager shall be interpreted as “Program Manager or his designee”) in order to reflect the actual sewer system network.

The Work covered by this section includes furnishing all labor, competent MACP certified technicians/crew leads, equipment, tools, accessories, and materials required to GPS, perform MACP Level 1 and Level 2 inspections, conduct camera inspections and document the specified manholes.

- 1.02 Sub-meter GPS coordinates, updated GIS map data, Levels 1 and 2 MACP data and records, and camera inspection photos of the manholes shall be delivered to the Program Manager on clearly labeled external hard drive(s) which will become property of the Program Manager. Inspection data for any one asset shall not be split between multiple drives. MACP data files shall be formatted to facilitate upload into a MACP Exchange Database or internet upload to an FTP site as approved by the Program Manager.
- 1.03 Selected Contractor(s) will be provided two Geo-databases; one will have supporting records (aerial photo overlays, outfall and block maps and as-builts, as available), and a maiden database which will include the asset ID for each manhole.

PART 2 - MATERIALS AND EQUIPMENT

2.01 MATERIALS

A. Submittals

1. Unless otherwise specified, all sample submittals shall be delivered to the Program Manager within two weeks of the NTP.

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2. A 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 local requirements and the City.
 - 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 a two-week lead time for permit processing.
 - i. The Contractor 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 Contractor is working requires a permit, the Contractor 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 Contractor shall develop, provide, and implement a Traffic Control Plan for all mobile operations in accordance with standard MUTCD specifications.
 - e. The Contractor is also responsible for acquiring all necessary disposal and/or landfill site permits required to perform this work.
 - f. Railroad Rights of Way: The Contractor 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 Contractor shall contact 48 hours in advance the Program Manager, who will alert the City's Zone Construction Inspector to coordinate individual railroad direction and guidance.
3. Site Contractors emergency phone numbers.
4. 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.
 - a. Weekly schedule format shall contain the following elements:
 - i. Map format.
 - ii. Sufficient streets labeled and identified at a scale to provide clarity.
 - iii. Nature and type of crew location by map area.
5. Permit required confined space entry plans in compliance with the Loss Control Manual.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
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6. GPS calibration standards, including frequency, are to be followed in the field; specify which available base stations will be used for the work.
7. Sample of sub-meter GPS coordinates delivered in electronic and pdf format.
8. Copies of NASSCO certifications for all field staff conducting MACP Levels 1 and 2 inspections.
9. Sample of MACP Level 1 and Level 2 documentation logs (with photo documentation comments and photos properly referenced) in MACP formats, in both electronic and pdf format.
10. Equipment list, including GPS and camera manufacturer and model equipment to be used.
11. Sample of the GPS coordinate delivery in an ESRI ArcPAD .axf file format.
12. Sample of the digital inspection data delivery in MS ACCESS database format.

2.02 EQUIPMENT

All equipment used for the gathering of GPS coordinates, collection of condition assessment information, and digital camera inspection of manholes shall be specifically designed and manufactured for the purpose intended under this Contract. The software and hardware for the electronic capture of the inspection defect observations must be consistent with NASSCO's MACP Level 1 and Level 2 requirements for the collection of data. ESRI ArcPad 10.1 is required for GPS data collection and GIS map updates for manhole / lamphole facility locations. Export of the electronic inspection data to an MACP format Microsoft ACCESS database for analysis is required.

The Contractor 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 in 72 hours.

A. GPS Equipment

1. Equipment shall be sub-meter grade, Trimble Pro Series Receivers with Floodlight technology capability, Top Con GRS-1 Series equipment or equal (to be approved by Program Manager prior to mobilization). GPS coordinates to be real-time or post-processed to achieve sub-meter accuracy. Equipment must have ESRI ArcPad 10.1 installed for use in data acquisition.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00001 - MANHOLE GPS & MACP INSPECTION

B. Camera

1. All cameras used shall be digital format color cameras specifically designed or modified for use in sewer manhole inspection work. All cameras used during inspections shall have a minimum of 5 mega pixels .jpg format for sufficient clarity and detail in the photos, and photos of at least 2 MB shall be submitted. The cameras shall be operable in 100 percent humidity conditions. The cameras shall be high-resolution cameras with wide viewing angle lenses 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 diameters and pipe connection diameters identified in the contract.

The following photo sequence is specified: Photo 1- surface view photos taken of the manhole should include a whiteboard (or similar) with the manhole ID number identified on it. The photographer should be standing with the outlet pipe facing their 6 o'clock position. Photo 2 - the downhole photo of the manhole channel should be taken with the outlet pipe facing their 6 o'clock position. Additional photos as specified by MACP guidance.

Inadequate lighting, image distortions, blurry or murky images, low resolution, dirty lens and/or other quality issues will be a cause for rejection. If unsatisfactory, Contractor shall perform work until deliverable is of acceptable quality. No payment will be made for unsatisfactory inspections or until product is accepted.

C. Data Logger and Software

1. MACP and camera inspections and logs created and captured electronically during the MACP inspection of the manhole through the use of commercially available electronic data loggers are required. Paper records for data collection in the field shall not be used. NASSCO MACP protocols shall be used for capturing and recording the observations.

The data logger equipment and software shall allow Program Manager direct access to the captured electronic data, and provide for export of the data in accordance with MACP formats and standards.

D. Retrieval of Stuck Equipment

1. The Contractor is responsible for hiring a licensed sub-contractor to retrieve any equipment that becomes lodged in the sewer

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00001 - MANHOLE GPS & MACP INSPECTION

system through the execution of the scope of work (fallen cameras, jet nozzles, inflatable plugs, sandbags etc.) at the Contractor's own cost. Such retrieval by an appropriately licensed sub-contractor 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 Contractor's equipment in the line shall be the responsibility of the Contractor.

PART 3 – CONSTRUCTION REQUIREMENTS

3.01 INSPECTION

A. GPS Coordinates of Manhole Cover

Program Manager will provide Contractor with a digital copy of the original GIS source map indicating the sewer system network compiled from existing City records.

The Contractor shall capture and record sub-meter grade x, y and z coordinates of each manhole cover identified in the original GIS maiden data map provided with a unique asset identification (ID) number. Additional sanitary sewer lamphole and manholes found in the field in the course of the inspection work that are not provided in current mapping nor identified with a current unique asset ID shall be documented and GPS coordinates shall be recorded. A provisional manhole asset ID number shall be used by the Contractor by adding a dash and a two-character number to the closest upstream manhole ID.

Record sub-meter GPS coordinates in NAD83 TN State Plane Coordinates horizontal, NAVD88 vertical in US Survey feet using properly-calibrated GPS equipment. If GPS coordinates cannot be obtained due to buildings, trees or cloud cover, Contractor shall note this on the inspection form and return at least one additional time at a different time of day or under different sky cover. If both attempts fail at securing the sub-meter coordinates, this is to be documented and reported in the submittal. Land surveying shall not be required where GPS is not available.

The Contractor shall be expected to use all reasonable means to locate the lampholes and manholes in the field. This includes walking the pipeline alignment, using measuring tapes or wheels from the last found manhole, using metal detectors, or other means. If manholes are not able to be found and documented or unknown manholes are found, record the reasons for not locating or not opening the manhole or the specifics of the new manhole found, and submit with supporting MACP documentation to the Program Manager daily.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00001 - MANHOLE GPS & MACP INSPECTION

Once GPS coordinates are obtained for known and newly discovered facilities, the original GIS map data shall be delivered to the Program Manager to reflect the actual sewer system network for the assigned inspection area.

The Contractor shall revisit predefined GPS control locations near project area at least one time per day per each GPS unit used as a quality control check on GPS accuracy. Contractor is to document these checks on a single log, which shall be kept on file for the duration of the project, and shall be released to Program Manager on a weekly basis.

B. MACP MH Inspection

The Contractor shall document and record each sanitary sewer manhole inspection in MACP Level 1 format for lampholes and Level 2 format for manholes with supporting completed MACP format database. The complete NASSCO MACP Levels 1 and Level 2 protocols must be utilized for the lamphole and manhole inspections respectively, and must be associated in the electronic database and pdf documentation with the unique asset ID provided.

The Contractor shall mark the direction of wastewater flow (one arrow per pipe) in and out of the manhole around the perimeter of the manhole cover on the street with discrete green arrows spray painted onto the road surface using a guide or template for the arrows. The arrows shall be a minimum of 12 inches and a maximum of 18 inches in length.

The Contractor shall follow the prescribed MACP Level 1 and Level 2 procedures and use the required nomenclature and formats to document the manhole interior and exterior conditions and defects.

Contractor 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 field operations.

C. Camera Inspection of Manholes and Associated Pipe Connections

Digital camera inspection of manholes shall be completed in conjunction with Level 2 manhole inspections of defects and include each sewer pipe connection in the manhole. The photo record of the inspection shall document defects and leaks and shall include a photo record of the connecting pipes in each manhole. Abbreviations, naming conventions, and numbering conventions shall be documented in MACP formats. For photo image quality reference back to Section 2.02.B.1.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00001 - MANHOLE GPS & MACP INSPECTION

File naming must be consistent. Additional instructions, naming conventions, file structures, etc. will be provided after contract award.

D. Meetings

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

PART 4 – DELIVERABLES

4.01 RECORDS

A. GPS Manhole Cover Coordinates

Contractor's Level 1 Manhole and Level 2 Manhole GPS coordinate delivery to the Program Manager shall be in an ESRI ArcPAD .axf file format. The updated GIS source map data reflecting the actual sewer system network shall also be delivered. Inspection data is to be delivered to the Program Manager by the close of business on the Monday following a week after data acquisition. Subsequent data will not be accepted if GPS data is not obtained and delivered at the same time as inspection is conducted. The requested GPS control check file (MS EXCEL) shall also be delivered at this time.

B. Level 1 and Level 2 Inspection Documentation

Deliver complete MACP Level 1 for manholes and Level 2 inspections for manholes in MACP electronic database and pdf electronic formats on an external hard drive. Delivery will be in MS ACCESS database format unless otherwise preapproved by the Program Manager. Inspection data is to be delivered to the Program Manager by the close of business on the Monday following a week after data acquisition.

C. Camera Inspection Documentation

Include specified camera photo documentation of defects, leaks and pipe connections in the MACP Image reference field as appropriate, for the Level 2 documentation. Inspection data is to be delivered to the Program Manager by the close of business on the Monday following a week after data acquisition.

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D. Manhole Reports

Deliver a summary report in PDF format of each manhole inspected. The report will include all MACP Level 1 & Level 2 data collected for the manhole. The report shall include the surface view photo of the manhole with the outlet pipe facing 6 o'clock as well as a downhole photo of the channel with the outlet pipe at 6 o'clock. Any defects noted in the manhole shall also have an accompanying photo in the report.

E. Draft Report and Final Report

In addition to the electronic database and pdf format reports, three copies of the Draft Report will contain hard copies of each of the MACP inspections with camera manhole defect and pipe connection photographs. The MACP compliant database of the inspections in ACCESS format shall also be submitted to the Program Manager electronically on an external hard drive.

Draft Report shall be delivered to Program Manager within fifteen working days of the last or final inspection. The Program Manager will have a two workweek period to review and provide comments to the Contractor. The Contractor shall address all comments and submit the Final Report within one workweek from receipt of comments. At the Program Manager's discretion, a meeting will be held upon submittal of the Final Report to have the Contractor go over the processes used to address comments.

F. Quality

Rejection of deliverables will be submitted to the Contractor via the Program Team in a written communication discussing issues that must be addressed. The Contractor will be required to follow up with a response within three business days upon receipt of the written communication. Contractors 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 5 – MEASUREMENT

5.01 GPS COORDINATES OF MANHOLE COVER

The capture and associated documentation of sub-meter GPS x, y and z coordinates for each lamphole and manhole cover will be measured for payment per each lamphole and manhole located by GPS and its coordinates recorded in accordance with the specification, provided that documentation meets QA/QC standards.

**CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00001 - MANHOLE GPS & MACP INSPECTION**

5.02 MACP LEVEL 1 FOR LAMPHOLE INSPECTIONS

The inspection and recording of all lamphole observations in a MACP compliant fashion will be measured for payment per each lamphole inspected in accordance with the specification.

5.03 MACP LEVEL 2 FOR MANHOLE INSPECTIONS

The inspection and recording of all manhole observations in a MACP compliant fashion will be measured for payment per each manhole inspected in accordance with the specification.

PART 6 – PAYMENT

6.01 GPS COORDINATES OF MANHOLE COVER

The capture and associated documentation of sub-meter GPS x, y and z coordinates for each manhole cover shall be paid for at the unit price bid for each lamphole and manhole cover coordinates documented and recorded in accordance with the specification provided that QA/QC standards are met.

The unit price for each manhole cover GPS set of coordinates shall cover the entire cost of the GPS equipment and time necessary to gather the coordinates, including but not limited to calibrating the equipment; setup and access; traffic control; documenting results in prescribed MACP electronic formats, records and logs; power supply for equipment; interim and final reports; and all other appurtenant work.

No additional payment will be made for:
Location or re-inspection due to cars parked over manholes or other impediments to on grade and showing manhole covers.
Additional visit(s) to secure the proper GPS coordinates due to lack of adequate satellite coverage or reception.

6.02 MACP LEVEL 1 FOR LAMPHOLE INSPECTIONS

The inspection and recording of all lamphole observations in a MACP format shall be paid for at the unit price bid per each MACP Level 1 inspection performed in accordance with the specification, provided that QA/QC standards are met.

The unit price for each MACP lamphole inspection shall cover the entire cost of the inspection and reporting, including but not limited to setup and access, documenting results in records and logs, power supply for equipment, interim and final reports and all other appurtenant work.

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6.03 MACP LEVEL 2 FOR MANHOLE INSPECTIONS

The inspection and recording of all manhole observations in a MACP format shall be paid for at the unit price bid per each MACP Level 2 inspection performed in accordance with the specification, provided that QA/QC standards are met.

The unit price for each MACP manhole inspection shall cover the entire cost of the inspection and reporting, including but not limited to setup and access, documenting results in records and logs, digital photos, power supply for equipment, interim and final reports, and all other appurtenant work.

6.04 PAYMENT WILL BE MADE UNDER:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
00001-6.01	GPS COORDINATES OF MANHOLE COVER	EACH
00001-6.02	MACP LEVEL 1 LAMPHOLE INSPECTIONS	EACH
00001-6.03	MACP LEVEL 2 MANHOLE INSPECTIONS	EACH

END OF SECTION 00001

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00002 – SMOKE TESTING AND DYE WATER TRACING

PART 1 – SCOPE

- 1.01 This Work will consist of smoke testing of sanitary sewer manholes, sewer pipes, sewer laterals and interceptors and confirming dyed water flooding of specified defects to identify and confirm sources of infiltration and inflow, including necessary public notices to areas affected by the smoke test and dye testing operations, notifications to individual buildings and residences, police, and fire, providing necessary barriers around access points to prevent injury to the public, securing the access to the sewer pipes to be tested, providing and operating blowers and smoke generators for performing the smoke test, and furnishing of all inspection documentation of observations concerning smoke test results.
- 1.02 The Work covered by this section includes furnishing all labor, competent technicians/crew leads, equipment, tools, accessories, and materials required to execute the smoke testing, sub-meter GPS of smoke defect sources and directed dye tracing of the identified sewer segments and associated sewer laterals. Work is included on public and private property. Smoke testing performed under this specification shall follow The National Association of Sewer Service Companies (NASSCO) Manhole Assessment and Certification Program (MACP) Level 2 manhole inspections performed of the asset and shall precede any subsequent CCTV inspection associated with this pipe asset in the scope of work. Dye testing of specified defects associated with the manhole or sewer asset shall be performed in conjunction with subsequent CCTV of the same asset.
- 1.03 GPS coordinates of the smoke located defects, photo records of the smoking defects, and associated record data 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 and photos shall be formatted to facilitate upload into a compatible Exchange ACCESS database or internet upload to an FTP site using procedures approved by the Program Manager.
- 1.04 Contractor will be provided two Geo-databases; one will have supporting records (aerial photo overlays, outfall and block maps, as-builts as available), and the second will be a maiden database which will include the asset ID for each manhole.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 00002 – SMOKE TESTING AND DYE WATER TRACING

PART 2 - MATERIALS AND EQUIPMENT

2.01 MATERIALS

A. Submittals

1. Unless otherwise specified all sample submittals shall be delivered to the Program Manager within two weeks of the NTP.
2. A 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 local requirements and the City.
 - 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 PE. The City requires 2-week lead time for permit processing.
 - i. The Contractor 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 Contractor is working requires a permit, the Contractor 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 Contractor shall develop, provide, and implement a Traffic Control Plan for all mobile operations in accordance with standard MUTCD specifications.
 - e. The Contractor is also responsible for acquiring all necessary disposal and/or landfill site permits required to perform this work.
 - f. Railroad Rights of Way: The Contractor shall notify the Program Manager when work or access to manholes and sanitary sewers lie within 25 feet of the 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 Contractor 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. Site Contractor emergency phone numbers.
4. 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.
 - a. Weekly schedule format shall contain the following elements:
 - i. Map format.

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- ii. Sufficient streets labeled and identified at a scale to provide clarity.
 - iii. Nature and type of crew location by map area.
 - b. Contractor shall fax smoke test locations to local Memphis Fire Department station by 7:00 AM on each day of smoke testing.
- 5. Proposed electronic field documentation format, including provisions for capture and recording of GPS coordinates of smoke sources and photo records of sources.
- 6. GPS calibration standards, including frequency, are to be followed in the field; specify which available base stations will be used for the work.
- 7. Sample of sub-meter GPS coordinates delivered in electronic and pdf format.
- 8. Equipment list, including GPS and camera manufacturer and model equipment to be used.
- 9. Sample of the digital inspection data delivery in MS ACCESS database format.
- 10. Manufacturer specification sheets and any associated material safety data sheets (SDS) for the smoke source and dye source to be used.
- 11. Proposed public notification process including daily police and fire contacts, neighborhood doorhanger canvassing, and other project and public contacts. All public notification shall be coordinated with the Program Manager.
- 12. Proposed rapid response to smoke in buildings including the Contractor's use of whole house fans and other mechanisms to clear smoke from affected properties
- 13. Digital inspection data delivery will be in MS ACCESS database format

B. Smoke

The smoke used in smoke testing shall be acceptable for both indoor and outdoor use, shall be non-contaminating, and shall leave no residue to stain clothing, drapes, carpeting or other fabrics in building interiors. Smoke shall be non-hazardous to humans and pets and shall be generated from liquid smoke (Hurco's LiquiSmoke™, or equal), as approved by Program Manager. The liquid smoke product shall be accompanied by Material Safety Data Sheets (MSDS) for both the liquid used to generate the smoke and the smoke itself that demonstrates these product qualities. If two MSDS's are not available for the contractor's proposed liquid smoke product, the contractor shall use Hurco's LiquiSmoke™

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C. Dye

Tracer dyes may be in tablet, powder or liquid form. The Contractor shall secure several colors to distinguish multiple tracings within the same sewer pipe segment. Fluorescent yellow/green, fluorescent red, and/or fluorescent orange are preferred indicator colors.

2.02 EQUIPMENT

A. Blowers

The smoke blower shall be specifically designed for the purpose intended and be a high volume air blower capable of producing a minimum capacity of 4,000 cfm at a single manhole or the Contractor shall use two minimum 2,000 cfm blowers in a double blower configuration on two manholes at each end of the set-up. The blower base shall be gasketed with foam or other suitable sealing material to restrict the escape of smoke from between the manhole structure and frame and blower. A backup blower of equal capacity shall be available onsite at all times.

B. Cameras

All cameras used shall be digital format color cameras specifically designed or modified for use in sewer manhole inspection work. All cameras used during inspections shall have a minimum of 5 mega pixels .jpg format for sufficient clarity and detail in the photos, and photos of at least 2 MB shall be submitted.

C. Sewer Plugs

Inflatable sewer plugs, sandbags, or other air flow restrictors or baffles shall be used to isolate individual sewer pipe segments for smoke testing. Any items used to restrict flow shall be removed immediately after intended use.

D. Ventilation Blower

The Contractor shall maintain a high capacity, whole house ventilation fan onsite during the smoke testing should any customer's building inadvertently fill with the smoke from the testing. The Contractor must be immediately responsive to any customer's smoke concerns or problems.

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SECTION 00002 – SMOKE TESTING AND DYE WATER TRACING

E. Dye Water Injectors

For localized sources of smoke to be confirmed by dyed water, the Contractor shall provide dye water injectors. These may be modified tree root fertilizer feeders or apparatuses developed by the Contractor. The injector shall be fitted with a garden hose, and a feed cup shall be capable of dispensing or dosing dye to the tip of the injector. The shaft of the dye water injector shall be a minimum of four feet long to enable injection directly into the soil adjacent to the smoke source.

F. GPS Equipment

GPS equipment shall be sub-meter grade, Trimble Pro Series Receivers with Floodlight technology capability, Top Con GRS-1 Series equipment or equal. GPS coordinates are to be real-time or post-processed to achieve sub-meter accuracy.

GPS coordinates must be in NAD83 TN State Plane Coordinates horizontal, NAVD88 vertical in US Survey feet using properly-calibrated GPS equipment.

G. Retrieval of Stuck Equipment

The Contractor is responsible for hiring a licensed sub-contractor 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 Contractor's own cost. Such retrieval by an appropriately licensed sub-contractor 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 Contractor's equipment in the line shall be the responsibility of the Contractor.

PART 3 – CONSTRUCTION REQUIREMENTS

3.01. NOTIFICATIONS

A. Public

1. Prior to conducting smoke testing field work, the Contractor shall provide notification to every residence and business that may be affected. The Contractor shall distribute the Program Manager approved door hangers between 48 and 72 hours prior to the start of the smoke testing effort. Door hangers shall be double-sided with the notification information in the English language on one side and in the

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Spanish language on the reverse side. The local fire department shall be notified of the smoke testing at least seven days in advance.

2. At a minimum, the notifications shall advise residents of what to expect during the smoke testing, to run water into all drains to ensure traps are not dry, and to alert them that they will observe smoke escaping from the roof plumbing vent. The notice shall also describe what to do should smoke escape to the interior of the house. The notice shall also describe any side effects of the smoke (e.g. potential for residual odor) and make SDS information available.
3. Door hanger notifications shall use a fluorescent color for visibility and incorporate any City-specific logo (if available and agreed upon by the Program Manager) to link the smoke testing to the City's sewer improvement effort.
4. One week (seven calendar days) prior to the scheduled smoke testing of public and health facilities such as schools, daycares, hospitals, and nursing homes, the Contractor and Program Manager shall meet in person and advise in writing the responsible person in charge of the facility of the expected activities and potential impacts to the facility. 24-hours before the test, the Contractor must advise the responsible person in charge by telephone of the scheduled tests the following day. At the conclusion of the test, a representative of the Contractor shall advise the responsible person in charge of the facility that testing has concluded and there will not be further impact. Records of the meetings with these facilities shall be maintained and shall include the date and time of the contact and the person contacted and shall be available for inspection at the Program Manager's request.

B. Program Manager

The Contractor shall provide daily morning updates prior to beginning daily field operations to the Program Manager, fire, police, or other agencies as directed by the Program Manager. List of entities and individuals requiring notification will be distributed prior to work commencing.

3.02 SMOKE TESTING

A. Field Operations

1. Testing shall not be done during rainy weather, and testing shall be closely monitored on windy days. If smoke coming out of the ground is blown away so quickly as to escape accurate detection, testing shall cease until such time that conditions permit.
 - a. Precipitation that creates active runoff along the curb and gutter shall be sufficient to suspend active smoke testing. The

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Contractor shall wait 24 hours after a rain event of ½ inch or greater before beginning smoke testing.

- b. Should precipitation interrupt scheduled testing and cause a delay, the public notification procedures must be repeated.
2. The sewer pipe segments to be tested shall be isolated by means of air flow restrictors, sewer plugs, sandbags, or other devices in the upstream and downstream manholes that limit the smoke travel to only the segment being tested. Bypass pumping is not required but flow-through plugs can be utilized. Contractor shall exercise care in the restricting of flow so as not to create backups into private property or overflow of wastewater. The blowers and the smoke addition shall begin simultaneously and be continuous for the entire time of the field inspection for determining sources of smoke. The Contractor 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 smoke testing operations.
3. The maximum length of sewer pipe segment(s) to be tested shall be 500 linear feet at a time. Adjacent sewers with a combined length of 500 linear feet or less may be tested together. Any adjustments to the length of testing shall be approved by the Program Manager. Contractor shall monitor the air volume used, particularly on shorter segments tested so as not to blow water from the private property plumbing traps.
4. The minimum smoke blowing duration shall be 5 minutes to enable full coverage of the properties and backyards adjacent to sewer and to enable sufficient time for the smoke to filter out of the sewer defects and reach the surface.

B. Smoke Observations and GPS Source Documentation

1. The area near each manhole and along the length of the isolated test segment shall be visually checked for the appearance of smoke. Sufficient staff shall be onsite to enable the inspection of the entire perimeter around each building connected to the sewer pipe while the blowers and smoke are continuously operating in the segment being tested. Storm drain inlets, curb boxes, cleanouts, building laterals, downspouts, areaway drains, foundation drains, and other potential sources of smoke shall be visually checked. The blowers and smoke injection shall continue until all suspect sources have been evaluated, but for no less than 5 minutes.
2. The Contractor shall document observations regarding each leak identified. The locations where smoke is observed shall be recorded using handheld, sub-meter accuracy GPS data collectors. Information regarding the characteristics of the defect and its surrounding tributary

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area shall also be recorded. The information shall include the smoke source location (street, curb, swale, sidewalk, driveway, front yard, side yard, backyard, field, parking lot, downspout, etc.), the unique asset identification of manhole or sewer segment, the house address that is nearest to the discharge point of the smoke, type of property (public or private), surface cover (asphalt, concrete, grass, paver, or other), date, mini-basin number, test number, date, crew, weather condition, wind condition, smoke intensity, susceptibility to ponding, and other comments. Specific data fields and allowable values (as applicable) will be provided to Contractor by the Program Manager.

C. Digital Photographs

The Contractor shall take two date and time stamped pictures of each defect. Photo 1 shall be taken to identify the general area of the defect, and Photo 2 shall be a close up picture of the defect. The precise location of the defect shall be identified using GPS equipment. The digital image files shall be linked to the field data gathering and observation form.

All cameras used shall be digital format color cameras specifically designed or modified for use in sewer manhole inspection work. All cameras used during inspections shall have a minimum of 5 mega pixels .jpg format for sufficient clarity and detail in the photos, and photos of at least 2 MB shall be submitted.

File naming must be consistent. Additional instructions, naming conventions, file structures, etc. will be provided after contract award.

3.03 DYE TESTING

A. Field Operations

Suspected sources identified by smoke testing and directed by the Program Manager shall be confirmed through dyed water tracing or flooding during this portion of the project for Type 1 sources or during the CCTV portion of the investigations for Type 2 or 3 sources. Verification of the suspect source is achieved when dyed water is introduced at the suspect source and observed at the downstream manhole. The dye mixing, pouring, or flooding procedure will be governed by the type of source to be tested. The Contractor shall immediately notify the Program Manager of any dye that reaches a receiving stream. The Program Manager reserves the right to direct water flooding with no dye to minimize the impact to the receiving water body.

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Contractor 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 field operations.

B. Type “1” Sources

1. Type 1 sources generally will be able to be dye traced by mixing limited quantities of dye colored water (e.g. maximum of five gallons) and pouring the water in the immediate vicinity of the suspect source, either in private or public space. Examples of Type 1 smoke sources generally are direct cross-connections to the sanitary sewer and include the following:
 - a. Driveway drain.
 - b. Stairwell or areaway drain.
 - c. Window well drain.
 - d. Downspout connection.
 - e. Sanitary sewer manhole :
 - i. With soil or grass surface cover.
 - ii. With cracked or deteriorated paving.
2. Dye will generally be poured into the source where smoke was observed. A positive confirmation results when the wastewater flow observed in the downstream manhole contains the transferred dye color.

C. Type “2” Sources

1. Type 2 sources generally include injecting dye water for a minimum of 5 minutes duration into soil to affect the transfer of the dyed water to underground sewer defect, either in private or public space. The injection is achieved by using a root fertilizing type spike attached to a garden hose with a fertilizer cup filled with dye to affect the transfer of color, and pressure injecting the dyed solution into the ground at the source of the smoke. The Contractor must comply with all appropriate backflow prevention requirements if the hose is connected to the public water supply.
2. Examples of Type 2 sources include the following:
 - a. Drainage swales.
 - b. Public/private lateral connection transitions (generally at the property line).
 - c. Building lateral (public or private).
 - d. Sanitary sewer manhole:
 - i. With soil or grass surface cover.
 - ii. With cracked or deteriorated paving.

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3. Dye will be injected into the soil at the location where smoke was observed. A positive confirmation results when the wastewater flow observed in the downstream manhole contains the transferred dye color.

D. Type “3” Sources

1. Type 3 sources are generally public sector sources which require the plugging of storm sewers. The downstream storm sewer pipe, which includes the catch basin or storm sewer pipe segment which smoked, is plugged and filled with dyed water. The downstream sanitary manhole is observed for dye. If dye is observed, the parallel or adjacent sanitary sewer is televised concurrently to identify the specific sources of dye transfer.
2. The Contractor is responsible for meeting all requirements for dechlorinating the water used for dye flooding in accordance with local regulatory requirements so as not to create a problem with chlorinated water in receiving streams.
3. Examples of Type 3 sources include the following:
 - a. Catch basins.
 - b. Storm sewer pipes.

PART 4 – DELIVERABLES

4.01 RECORDS

A. Smoke Testing Logs, Record Sketch, and Digital Photo Documentation

1. Smoke testing records shall be submitted to the Program Manager by the close of business on the Monday following a week after data acquisition.
2. The address or house number shall be recorded. A description of the leak and possible cause shall also be recorded on the field data gathering and observation form.
3. The reports shall provide a north arrow orientation. A sketch of the building and/or structure shall be drawn. A reference to the GPS documented field location shall be generally shown in the sketch.
4. The Contractor shall also submit an electronic database in an MS ACCESS database on an external hard drive that summarizes all of the information recorded on the field data gathering and observation forms and recorded via the GPS data collectors during smoke testing.
 - a. The electronic database shall include the information recorded on the forms and the sub-meter GPS coordinates obtained at the defect locations where smoke was observed.

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- b. The external hard drive shall also include the digital pictures taken during smoke testing in .jpg file format which shall be linked to the defect locations where the pictures were taken via the GPS coordinates obtained.
- c. Inspection data is to be delivered to the Program Manager by the close of business on the Monday following a week after data acquisition.
5. The Draft Report shall show the location of each defect, including dimensions referenced to the nearest manhole and pipe segment. For each pipe segment, the Contractor shall submit the electronic database and a report in pdf format that includes the data (including site photos) associated with any leaks that were found and a map showing the location of the pipe segment, nearby manholes, aerial photography, labeled street names, and an approximate location showing how the defect location is oriented with respect to a nearby manhole. GPS coordinates in the electronic database are accepted as the precise location of the defect.
6. Draft Report shall be delivered to the Program Manager within fifteen working days of the last or final inspection.
7. The Program Manager will review and provide comments within two workweeks from receipt of Draft Report. The Contractor shall address all comments provided and shall submit the Final Report within one workweek from receipt of comments. At the discretion of the Program Manager, a meeting will be held so Contractor can explain the processes used to address the comments provided.

B. Dye Tracing Logs, Record Sketch and Digital Photo Documentation

Each dye tracing shall be identified in an observation log which shall include a sketch showing the location and the results, a digital photo of the dye source, and the downstream dye confirmation in the sewer. The sketch shall include direction, street names, address, and relative dye application (Type 1, 2, or 3) to an identifiable feature. A digital photograph shall document the dye transfer in the downstream manhole and include the pipe segment and closest downstream manhole asset ID.

C. Final Report & Deliverable

1. Complete electronic database on an external hard drive of the smoke testing results including GPS coordinates of smoke sources and dye testing results, including linked digital photos. Inspection data is to be delivered to the Program Manager by the close of business on the Monday following a week after data acquisition.

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2. Three (3) color copies of the logs, record sketches, and digital photographs shall be submitted within fifteen working days of the last or final inspection.

D. Meetings

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

E. Quality

Rejection of deliverables will be submitted to the Contractor via the Program Team in a written communication discussing issues that must be addressed. The Contractor will be required to follow up with a response within three business days upon receipt of the written communication. Contractors 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 5 – MEASUREMENT

5.01 SMOKE TESTING

Smoke testing shall be measured by the linear foot of smoke testing performed along the centerline of the sanitary sewer pipe from center to center of manholes. For dead-end sewers, the length will be the CCTV inspected length.

5.02 DYE TRACING PER TYPE

Dye tracing shall be measured per each Type “1”, Type “2”, or Type “3” source tested.

5.03 DYE TRACING PER HOUR (ALTERNATE MEASUREMENT TO SECTION 5.02)

Alternatively, Dye Tracing may be measured at the Program Manager’s direction per man-hour supplied by the Contractor to perform Type “1”, Type “2”, or Type “3” source testing.

PART 6 – PAYMENT

6.01 SMOKE TESTING

Smoke testing shall be paid by the linear foot of sanitary sewer pipe actually tested and include all labor, equipment and materials. Payment shall be made at the contract unit price without regard to the size of sewer

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pipe inspected. Separate measurement and payment shall not be made for any incidental work including, but not limited to, gaining access to the sewer; jobsite preparation; traffic control; safety provisions; blowers; liquid smoke; and providing of records, documentation, and photos, which shall be subsidiary to the bid price. No Payment shall be made for any smoke testing without receipt of the corresponding records, logs, and photographs.

6.02 DYE TRACING

Dye Tracing shall be paid by the unit actually tested as Type “1”, Type “2”, or Type “3” and will include all labor, equipment and material. Separate measurement and payment shall not be made for any incidental work including, but not limited to, gaining access to the sewer; jobsite preparation; traffic control; safety provisions; dye, injectors; and providing of records, documentation, and photos, which shall be subsidiary to the bid price. Concurrent CCTV inspection (in accordance with Section 00003 CCTV) required for Type “2” (if necessary) or Type “3” dye tracing shall be measured separately for payment. No Payment shall be made for any dye tracing without receipt of the corresponding records, logs and photographs.

6.03 DYE TRACING PER HOUR (ALTERNATE MEASUREMENT TO SECTION 6.02)

Alternately, Dye Tracing shall be paid at the Program Manager’s direction by the man-hour for the Type “1”, Type “2”, or Type “3” testing and will include all associated equipment and material to perform the tests. Separate measurement and payment shall not be made for any incidental work including, but not limited to, gaining access to the sewer; jobsite preparation; traffic control; safety provisions; dye, injectors; and providing of records, documentation, and photos, which shall be subsidiary to the bid price. Concurrent CCTV inspection (in accordance with Section 00003 CCTV) required for Type “2” (if necessary) or Type “3” dye tracing shall be measured separately for payment. No Payment shall be made for any dye tracing without receipt of the corresponding records, logs and photographs.

6.04 PAYMENT WILL BE MADE UNDER:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
00002-6.01	SMOKE TESTING	LF

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00002-6.02.1	DYE TRACING TYPE 1	EACH
00002-6.02.2	DYE TRACING TYPE 2	EACH
00002-6.02.3	DYE TRACING TYPE 3	EACH
00002-6.03.1	DYE TRACING TYPE 1	MAN-HOUR
00002-6.03.2	DYE TRACING TYPE 2	MAN-HOUR
00002-6.03.3	DYE TRACING TYPE 3	MAN-HOUR

END OF SECTION 00002

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SECTION 00003 - CLOSED CIRCUIT TELEVISION INSPECTION
OF SEWER MAINS & CONNECTIONS**

PART 1 – SCOPE

- 1.01 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.
- 1.02 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.
- 1.03 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.

PART 2 – MATERIALS & EQUIPMENT

2.01 MATERIALS

A. Submittals

1. Unless otherwise specified all sample submittals shall be delivered to the Program Manager within two weeks of the NTP.
2. 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 Contractor 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 Contractor is working requires a permit, the Contractor will be required to modify the sample Traffic Control Plan to obtain a permit from the City.

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- d. For everywhere else where a permit is not required, the Contractor shall develop, provide, and implement a traffic control plan for all mobile operations in accordance with standard MUTCD specifications.
 - e. The Contractor is also responsible for acquiring all necessary disposal and/or landfill site permits as required to perform this work.
 - f. Railroad Rights of Way: The Contractor 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 Contractor 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. Site Contractor emergency phone numbers.
 4. Schedules of work on a weekly basis that will be delivered no later than 2:00 PM on Thursday for the week following with daily AM email updates of approximate crew locations each day.
 - a. Weekly schedule format shall contain the following elements:
 - i. Map format.
 - ii. Sufficient streets labeled and identified at a scale to provide clarity.
 - iii. Nature and type of crew location by map area.
 5. Permit required confined space entry plans in compliance with the Loss Control Manual.
 6. Copies of National Association of Sewer Service Companies (NASSCO) certification for all field staff conducting PACP inspections.
 7. Sample of PACP compliant television survey log in MS Access format.
 8. Sample of PACP compliant video inspection in MP-4 (Web optimized) format.
 9. Cleaning and CCTV vehicle, equipment, and cleaning supplies list.
 10. 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.

2.02 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

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capture of the inspection defects and recorded observations must be Version 6.0.1 NASSCO PACP compliant.

2. The Contractor 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 Contractor 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 Contractor 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

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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 Contractor 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.

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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 Contractor shall possess equipment capable of cleaning hydraulically or mechanically 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 – CONSTRUCTION REQUIREMENTS

3.01 CCTV Inspection of Sewer Mains

A. Cleaning

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.

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1. Light Cleaning
 - a. Before CCTV work, the Contractor shall light clean the sewer line 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 Contractor's discretion.
 - b. 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.
2. Heavy Cleaning
 - a. 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.
 - b. Heavy cleaning will be proposed by the Contractor and approved by the Program Manager. The Contractor must obtain prior approval for heavy cleaning in each sewer segment in order to receive payment for heavy cleaning.
3. Cleaning Execution
 - a. 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.
 - b. 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 Contractor 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.
 - c. The Contractor is responsible for safe, responsible and legal handling and disposal of all material and debris removed from the sewers. The Contractor is responsible for all permits and landfill fees associated with the disposal of debris collected and removed from the sewer.

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- d. The Contractor shall provide a dated manifest of the volume or weight of the dewatered sewer cleaning loads taken and dumped at the permitted dump site selected by the Contractor. Each waste load manifest shall be associated with a list of corresponding sewer segments from where the waste originated.

B. Sewer Flow Levels During Inspection Operations

1. 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.
 - a. 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.
 - b. Conduct all cleaning and CCTV operations to prevent building backups and sewer overflows.
 - c. Contractor 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.
2. Allowable Depth of Flow For Inspection Operations
 - a. 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.
3. Maximum Allowable Depth of Flow for CCTV Inspection
 - a. 6 - 10 inch diameter Pipe - 20% of pipe diameter
 - b. 12 - 18 inch diameter Pipe - 25% of pipe diameter
 - c. 24-inch diameter and Larger Pipe - 30% of pipe diameter
 - d. Exceptions to these guidelines shall result in rejection, and non-payment, of the CCTV inspection unless approved in advance by the Program Manager.

C. Camera Operations

1. 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.
 - a. Capture the inside of manhole walls, manhole channel, and pipe connection to wall at both upstream and downstream manhole and

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lateral connections using the digital mainline sewer camera and the pan/tilt feature.

2. Place the camera at center of manhole and commence video before entering pipe.
 - a. Start footage counter at manhole wall/pipe connection or at a short pre-measured distance down the pipe for the sewer segment inspection.
3. 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.
4. Mainline camera operations:
 - a. 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.
 - b. Do not float camera.
 - c. Maintain technical quality, sharp focus, and distortion free picture with the camera lens centered in the pipe for the different diameters inspected.
 - i. Eliminate steam in line for duration of inspection.
 - ii. Utilize blower as needed to defog sewer line.
 - d. 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.
 - e. Pan, tilt, and rotate as necessary to best view and evaluate lateral connections, pipe defects, features, obstructions, and points of interest.
 - f. 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.
 - i. Whenever non-remote powered and controlled winches are used, set up telephones or other suitable means of communication between manholes to insure good communication.
 - g. 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.

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- h. Measurement for location of defects and service laterals:
 - i. At ground level by means of Program Manager-approved footage counter or metering device.
 - ii. Electronic display measurement meters: Accurate to PACP standards over length of section being televised.
 - iii. Do not pull unnecessary length of slack camera cable if it impacts the footage counter.
- i. Stop camera at service connections and inspect lateral with pan and tilt camera.
 - i. Identify building connection in PACP compliant terms as active, capped, or abandoned.
 - ii. If no wastewater flows are being discharged from building, consider steady, clear observed flow as infiltration/inflow.
- j. Identification of defects
 - i. 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.
 - ii. Upon completion of heavy cleaning operation, resume internal inspection.
 - iii. Furnish media confirmation for heavy cleaning (more than three passes with jet cleaner) to Program Manager.
 - iv. If protruding tap impedes inspection trim protruding tap to 1/2 inch.
- k. 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.
 - i. Contractor shall be responsible for costs associated for reverse set-ups when an obstruction is encountered that cannot be passed.
 - ii. Contractor 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 Contractor and at no additional cost to the Program Manager.
 - i. 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.
- l. Undocumented facilities
 - i. If undocumented manholes or sewer mains (facilities not on the field updated GIS sewer maps) are encountered during the inspection, the Contractor needs to complete the

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documentation requirements per PACP requirements and capture on the video the following:

1. Approximate horizontal distance from the upstream or reference manhole.
2. Approximate depth of the undocumented manhole by turning the pan/tilt camera vertically and estimating the height of the cover from the invert.
3. A provisional manhole asset ID number shall be used by the Contractor by adding a dash and two-character number to the closest upstream manhole ID.

m. Retrieval of Stuck Equipment

The Contractor is responsible for hiring a licensed sub-contractor 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 Contractor's own cost. Such retrieval by an appropriately licensed sub-contractor 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 Contractor's equipment in the line shall be the responsibility of the Contractor.

D. Quality Assurance

1. With each monthly invoice the Contractor 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.
2. For all new Contractors 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.
3. Auditing Procedures:

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- a. 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:

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

- b. 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:

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

- c. Review Scoring and Results
- i. 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.
 - ii. Unsatisfactory Review (below levels of acceptance) will not be accepted by the Program Manager and will not be considered payable items in the Contractor's Request for Payment.

E. Deliverable Documentation

1. Mainline Sewer.
 - a. 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
 - b. Monthly QA/QC memo submittal listing which segments have been randomly reviewed, as well as any subsequent findings or recommendations.
 - c. Digital videos, data, and photos shall be delivered to the Program Manager on external hard drives which will become property of the Program Manager.
 - d. Data files shall be formatted to facilitate upload into a PACP Exchange Database with the approval of the Program Manager.

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- e. 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.
 - i. Contractor will re-televisе rejected inspections and resubmit inspections at no additional cost to the Program Manager.
- 2. Map changes/undocumented manholes:
 - a. 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 Contractor 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.
 - b. Contractor 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.

F. Easement or Turf Operation

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

PART 4 –DELIVERABLES

4.01 RECORDS

A. Pipe Cleaning Record

The Contractor shall provide a dated manifest of the volume or weight of the dewatered sewer cleaning loads taken and dumped at the permitted dump site selected by the Contractor. Each waste load manifest shall be associated with a list of corresponding sewer segments from where the waste originated.

B. Digital Inspection Record

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In the digital PACP V.6.0.1 compliant format, the Contractor shall provide the following information:

1. Digital CCTV survey inspection which shall be recorded and shall be continuous as the inspection proceeds through the manholes and sewer pipes. Inspection videos should be delivered in an MP-4(Web optimized) format.
2. Digital Recordings: The digital recording shall document the visual and audio record of the manhole and sewer pipe inspection and shall be the basis of measurement and payment. Digital recording playback shall be at the same speed that it was recorded. Original digital recordings for the Project shall be forwarded to the Program Manager on clearly labeled external hard drive(s) in PACP ACCESS format with final report submittals and shall become the property of the Program Manager. Data for a single facility asset will not be split across multiple hard drives. Digital recordings shall be available to the Program Manager by the close of business on the Monday following a week after data acquisition. File naming must be consistent. Additional instructions, naming conventions, file structures, etc. will be provided after contract award.
 - a. Picture Quality: The sewer inspection digital record shall be free of steam, fog, vapor, or other headspace distortion that degrades the quality of the picture from the intended purpose of evaluating the sewer for structural and watertight integrity. If necessary, the Contractor shall provide positive ventilation or other means through the sewer pipe to draw out steam, fog, and vapor that will degrade the recorded image of the pipe.

C. Inspection Documentation Logs

Observations made during television inspection shall be documented in an unmodified PACP compliant manner within an electronic inspection log form, supported by accompanying audio, digital photographs and MP-4 (Web optimized) format recording written to an external hard drive and submitted to the Program Manager. Hard copies of completed inspection log photographs shall be furnished to the Program Manager with invoicing.

D. Electronic & Hard Copy Records

1. Reports:
The Contractor shall prepare printed inspection log reports for each associated sewer pipes inspected during the actual field inspection activities. These field logs shall then be reviewed by the Contractor's technical staff, along with reviewing the associated digital video record, as a means of ensuring that no defects or entries are omitted

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or incorrect. Edited field logs shall then be used in the final project reports and submitted in pdf format.

2. Draft Report and Final Report:

The Draft Final Report will contain electronic and hard copies of each of the PACP CCTV log pipe segment inspection logs. Digital recordings of the inspections written to an external hard drive and the PACP compliant database of the inspections in ACCESS format shall also be submitted in electronic and pdf format.

Draft Report shall be delivered to the Program Manager within fifteen working days the last or final inspection. The Program Manager will have two workweeks to review and comment. Contractor shall address all comments provided and submit a Final Report within one workweek upon receipt of comments. At the Program Manager's discretion a meeting will be held so the Contractor can explain the processes used to address the comments.

E. Meetings

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

F. Quality

Rejection of deliverables will be submitted to the Contractor via the Program Team in a written communication discussing issues that must be addressed. The Contractor will be required to follow up with a response within three business days upon receipt of the written communication. Contractors 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 5 – MEASUREMENT

5.01 LIGHT CLEANING & CCTV INSPECTION

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.

5.02 HEAVY CLEANING

Heavy cleaning shall be measured by linear foot of each diameter of heavy cleaning approved by the Program Manager and documented.

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PART 6 – PAYMENT

6.01 MAINLINE CCTV INSPECTION

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.

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.

No additional payment will be made for:

1. Re-inspection due to rejected inspection and/or records for any reason.
2. Reversals.
3. Performing excavation and associated sewer point repair to retrieve a stuck CCTV camera or hydraulic cleaning hose/nozzle.
4. Incomplete electronic logs.

6.02 HEAVY CLEANING

Heavy Cleaning shall be paid for at the unit price for each linear foot of each diameter of heavy cleaned sewers at the direction of the Program Manager and in accordance with the specification.

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.

No additional payment will be made for:

1. Additional passes of heavy cleaning if the inspection observation reveals roots, grease or other debris remaining in the sewer after the heavy cleaning passes.

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6.03 PAYMENT WILL BE MADE UNDER:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
00003-6.01	LIGHT CLEANING & MAINLINE CCTV INSPECTION FOR EACH DIAMETER	LF
00003-6.02	HEAVY CLEANING FOR EACH DIAMETER	LF

END OF SECTION 00003

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PART 1 – SCOPE

- 1.01 This Work will consist of assessment, Pipeline Assessment Certification Program (PACP) internal closed circuit television (CCTV), and Sonar surveys to digitally inspect and record conditions of existing sanitary sewer mains and connections in 24-inch and larger diameter sanitary sewer pipe and siphons. Larger diameter sewer pipes to be inspected are located in both improved streets, arterial and primary roads, backyards and unimproved easements. No cleaning of the sanitary sewer is required prior to CCTV and Sonar inspection.
- 1.02 The Work covered by this section includes furnishing all labor, competent PACP certified technicians, equipment, tools, accessories, and materials required to CCTV and Sonar inspect the designated 24-inch diameter and larger sanitary sewer lines.
- 1.03 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 drives 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.

PART 2 – MATERIALS & EQUIPMENT

2.01 MATERIALS

A. Submittals

1. Unless otherwise specified all sample submittals shall be delivered to the Program Manager within two weeks of the NTP.
2. 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 Contractor 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 Contractor is working requires a

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- permit, the Contractor 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 Contractor shall develop, provide, and implement a traffic control plan for all mobile operations in accordance with standard MUTCD specifications.
 - e. The Contractor is also responsible for acquiring all necessary disposal and/or landfill site permits as required to perform this work.
 - f. Railroad Rights of Way: The Contractor shall notify the Program Manager when work or access to manholes and sanitary sewers lie within the 25 feet of 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 Contractor 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. Site Contractor emergency phone numbers.
 4. Schedules of work on a weekly basis that will be delivered no later than 2:00 PM on Thursday for the week following with daily AM email updates of approximate crew locations each day.
 - a. Weekly schedule format shall contain the following elements:
 - i. Map format.
 - ii. Sufficient streets labeled and identified at a scale to provide clarity.
 - iii. Nature and type of crew location by map area.
 5. Permit required confined space entry plans in compliance with the Loss Control Manual.
 6. Copies of National Association of Sewer Service Companies (NASSCO) certification for all field staff conducting PACP inspections.
 7. Sample of PACP compliant television survey log in MS Access format.
 8. Sample of PACP compliant video inspection in MP-4 format.
 9. CCTV and Sonar inspection vehicle and equipment supplies list.
 10. Sample of combined CCTV & Sonar inspection report.

2.02 EQUIPMENT

A. General

1. All equipment used for PACP compliant CCTV sewer segment inspections of existing larger diameter sanitary sewer mains shall be specifically designed and manufactured for the purpose intended under this Contract. The software and hardware for the electronic

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capture of the inspection defects and recorded observations must be Version 6.0.1 NASSCO PACP compliant.

2. All CCTV equipment requirements contained in Section 00003 – Closed Circuit Television Inspection of Sewer Mains & Connections, Paragraph 2.02 are applicable, except 2.02.D. Cleaning Equipment since pre-cleaning of the larger diameter sewers is not required.

PART 3 – CONSTRUCTION REQUIREMENTS

3.01 CCTV & Sonar Inspection of Sewer Mains

A. Sewer Flow Levels During Inspection Operations

1. 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.
 - a. 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.
 - b. Conduct all cleaning and CCTV operations to prevent building backups and sewer overflows.
 - c. Contractor 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.
2. Allowable Depth of Flow For Inspection Operations:
 - a. 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.
3. Maximum Allowable Depth of Flow for CCTV Inspection
 - a. 24-inch diameter and Larger Pipe - 30% of pipe diameter. Flow in excess of the 30% depth of flow limitation shall include the provision for Sonar inspection for below the water surface level in addition to a raft mounted CCTV inspection for above the water level.
 - b. Exceptions to these guidelines shall result in rejection, and non-payment, of the CCTV inspection unless approved in advance by the Program Manager.

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B. Camera Operations

1. When flow is in excess of the 30% depth of flow limitation, the Contractor shall include the provision for Sonar inspection for below the water surface level in addition to a raft/float mounted CCTV inspection for above the water level.
2. Raft/float supports shall be collapsible to fit through existing manhole frames associated with 24-inch diameter and larger sewers.
3. Camera Operations requirements shall be as contained in Section 00003 – Closed Circuit Television Inspection of Sewer Mains & Connections, Paragraph 3.01 are applicable for the execution of the CCTV operations with the camera mounted on a raft or float, except as modified below.
4. Contractor 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 Contractor and at no additional cost to the Program Manager.

C. Camera & Sonar Combined Operations

1. The combination CCTV and Sonar equipment shall be capable of inspecting a length of sewer up to at least 1,000 linear feet when entry into the sewer may be obtained at each end and up to 750 feet where a self-propelled unit is used and where entry is possible from one end only.
2. Each inspection unit shall contain a means of transporting the CCTV camera or Sonar equipment in a stable condition through the sewer under inspection. Such equipment shall ensure the maintained location of the CCTV camera and Sonar equipment when used independently on or near to the central axis of a circular shaped sewer. The maximum allowable flow depth that is permissible for the combination Sonar/CCTV is equal to 75% of the pipe diameter.
3. Where the CCTV camera or Sonar head are towed through the sewer, all winches shall be stable with either lockable or ratcheted drums. All connection shall be steel or of an equally non-elastic material to ensure the smooth and steady progress of the CCTV camera or Sonar equipment through the surcharged sewer. All winches shall be inherently stable under loaded conditions.
4. Each inspection unit shall carry sufficient numbers of guides and rollers such that, when inspecting, all connecting materials are supported away from pipe and manhole structures and all CCTV & Sonar lines used to measure the CCTV camera and the Sonar head location within the sewer are maintained in a taut manner and set a right angles where possible, to run through or over the measuring equipment.

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5. The CCTV Camera and Sonar head shall be positioned to reduce the risk of picture distortion. In circular sewers the CCTV camera lens and/or Sonar head shall be positioned, when possible, centrally within the “dry” area for the CCTV and centrally within the “wet” area for the Sonar head. In non-circular sewers, picture/sonar image orientation shall be taken at mid-height, unless otherwise agreed, and centered horizontally. In all instances the camera/sonar lens shall be positioned looking along the axis of the sewer. A positioning tolerance of + 10% of the vertical sewer dimension shall be allowed.
6. When the scanning Sonar is deployed, either stand alone or combined with CCTV, the speed or travel shall be limited to 4 inches per second or 20 feet per minute.
7. A General Condition 360° CCTV rotational scan must be implemented at every 50 feet interval (min) along sewers, and at all manholes and all salient, specified, defect features. More frequent scans must be made should the condition of the pipe differ from the previous scan. The tilt must not be less than 225°.
8. The color palette shall have a minimum of 16 colors with text. The Sonar image, inside the viewing area shall be in color.
9. The picture update speed shall not result in unsatisfactory picture resolution. The range of resolution shall be 1/10 inch.
10. The maximum beam width of Sonar energy pulse shall be no greater than two degrees from the center of the transducer.
11. The transducer shall be of the continuous scanning type, the speed of which shall be 1 second per 360° scan.
12. The Contractor is responsible for hiring a licensed sub-contractor 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 Contractor’s own cost. Such retrieval by an appropriately licensed sub-contractor 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 Contractor’s equipment in the line shall be the responsibility of the Contractor.

D. Quality Assurance

1. QA/QC shall be as contained in Section 00003 - Closed Circuit Television Inspection of Sewer Mains & Connections, Paragraph 3.01.D. Quality Assurance.

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E. Deliverable Documentation

1. Mainline Sewer:
 - a. 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
 - b. Digital videos, data, and photos shall be delivered to the Program Manager on external hard drives which will become property of the Program Manager.
 - c. Data files shall be formatted to facilitate upload into a PACP Database with the approval of the Program Manager.
 - d. 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, image washed-out, distorted image, or out of focus images, lines improperly cleaned, and poor/no audio.
 - i. Contractor will re-televise rejected inspections and resubmit inspections at no additional cost to the Program Manager.
2. Map changes/undocumented manholes:
 - a. 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 Contractor 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.
 - b. Contractor shall indicate all buried manholes identified in the field via Sonar/CCTV using the provided Buried Manhole Form. Any additional manholes that have not been located or verified via Sonar/CCTV but are impeding the completion of required Sonar/CCTV work should be designated as unable to locate (UTL) and be included on the form.
3. Sonar Reports
 - a. The Contractor shall submit two hard copies of all details, i.e. a typed "Full Detail" report for each inspection, showing the position and full text of each defect encountered and their grades. The Contractor shall also supply an overall Summary Report detailing major defects and those inspections that require attention along with a statistical report showing lengths of sewers inspected and a breakdown of sizes and lengths inspected.
 - b. The Contractor shall supply a MS ACCESS database and free issue software for both the viewing of the media files and the Sonar images from within the database.

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- c. The Sonar Inspection shall include complete structural and service assessment to the equivalent PACP standard as that obtained through conventional CCTV imagery.
- d. The Sonar inspection shall include measurement of flow depth and debris/silt depth.
- e. A Color High Resolution Sonar image of cross sections of the sewer must be taken (saved) every 50 feet or more frequently should the internal profile or debris/silt depth of the sewer change from the previously saved image.
- f. These images are to be cross-referenced to the reports and database(s) for ease of retrieval.

PART 4 –DELIVERABLES

4.01 RECORDS

A. Digital Inspection Record

In the digital PACP V.6.0.1 compliant format, the Contractor shall provide the following information:

- 1. Digital CCTV survey and Sonar inspection which shall be recorded and shall be continuous as the inspection proceeds through the manholes and sewer pipes.
- 2. Digital Recordings: The digital recording shall document the visual and audio record of the sewer pipe inspection and shall be the basis of measurement and payment. Digital recording playback shall be at the same speed that it was recorded. Original digital recordings for the Project shall be forwarded to the Program Manager on clearly labeled external hard drive(s) in PACP ACCESS format with final report submittals and shall become the property of the Program Manager. Data for a single facility asset will not be split across multiple hard drives. Digital recordings shall be available to the Program Manager by the close of business on the Monday following a week after data acquisition. File naming must be consistent. Additional instructions, naming conventions, file structures, etc. will be provided after contract award.
 - a. Picture Quality: The sewer inspection digital record shall be free of steam, fog, vapor, or other headspace distortion that degrades the quality of the picture from the intended purpose of evaluating the sewer for structural and watertight integrity. If necessary, the Contractor shall provide positive ventilation or other means through the sewer pipe to draw out steam, fog, and vapor that will degrade the recorded image of the pipe.

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B. Inspection Documentation Logs

1. CCTV Records

- a. Observations made during television inspection shall be documented in an unmodified PACP compliant manner within an electronic inspection log form, supported by accompanying audio, digital photographs and MP-4 (web optimized) format recording written to an external hard drive and submitted to the Program Manager. Hard copies of completed inspection log photographs shall be furnished to the Program Manager with invoicing.

2. Sonar Records

- a. Where combined CCTV and Sonar inspections are performed, the display in the viewing area shall show the combined CCTV and Sonar images of the sewer being inspected. The Sonar image shall be superimposed on the real CCTV image, and continuously recorded, as a combined operation at the time of the inspection resulting in a single combined video file in MP-4 (Web optimized) format for each inspection.
- b. The Sonar Inspection shall include a comprehensive final report on the findings concerning major defects including fractures, displaced joints, deformation, corrosion, lateral intrusions, dominant surface features, encrustation, and debris/silt depths.

C. Electronic & Hard Copy Records

1. Reports: The Contractor shall prepare printed inspection log reports for each associated sewer pipe inspected during the actual field inspection activities. These field logs shall then be reviewed by the Contractor's technical staff, along with reviewing the associated digital video record, as a means of ensuring that no defects or entries are omitted or incorrect. Edited field logs shall then be used in the final project reports and submitted in pdf format.
2. Draft Report and Final Report: The Draft Final Report will contain electronic and hard copies of each of the PACP CCTV log pipe segment inspection logs. Digital recordings of the inspections written to an external hard drive and the PACP compliant database of the inspections in ACCESS format shall also be submitted in electronic and pdf format.

Draft Report shall be delivered to the Program Manager within fifteen working days of oldest inspection. The Program Manager will have two workweeks to review and comment. The Contractor shall address all comments provided and submit a Final Report within one workweek

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upon receipt of comments. At the Program Manager's discretion a meeting will be held so the Contractor can explain the processes used to address the comments.

D. Meetings

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

E. Quality

Rejection of deliverables will be submitted to the Contractor via the Program Team in a written communication discussing issues that must be addressed. The Contractor will be required to follow up with a response within three business days upon receipt of the written communication. Contractors 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 5 – MEASUREMENT

5.01 CCTV & SONAR INSPECTION

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

PART 6 – PAYMENT

6.01 CCTV & SONAR INSPECTION

CCTV & Sonar inspection shall be paid for at the unit price for each linear foot of each diameter inspected and documented in accordance with the specification.

The unit price for CCTV & Sonar inspection shall cover the entire cost of the required CCTV & Sonar 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.

No additional payment will be made for:

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1. Re-inspection due to rejected inspection and/or records for any reason
2. Incomplete electronic logs for either CCTV or Sonar digital records

6.02 PAYMENT WILL BE MADE UNDER:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
00004-6.01	CCTV & SONAR INSPECTION FOR EACH DIAMETER	LF

END OF SECTION 00004