



Request for Bid
Wolf River Interceptor Rehab Addendum # 2 to
RFB No. 194677.71.0397
February 3, 2017



The following information encompasses Addendum #2 for the above referenced RFB. Bidders shall fully consider and acknowledge this Addendum, in the preparation and submittal of its formal Bid. Failure to do so, may result in the rejection of the Bid

Section 1 – Bidder Questions

Section 2 – Updated 00370.3.1 Unit Price Bid Form

Section 3 – Updated Sections of Technical Specifications, Drawings, and Special Instructions

All other conditions and requirements remain unchanged.

Section 1
Bidder Questions

Q1: 09910-CIPP - 1.03 A. - -- Once lined, CIPP line must provide flow capacity greater than 100 % of the original pipe's flow capacity when new. Will other rehabilitation methods be required to provide a flow capacity of greater than 100% of the pipe's capacity when new as well?

SARP10: The specification has been changed, and updated in the attachment to this Addendum.

Q2: 09910. 4.02 - Leakage Testing will be required for CIPP rehabilitation, but it is not listed for the interceptor coating rehab. Will the same Leakage Testing be required for the coating rehab method?

SARP10: No, Different technology requires different testing, see specs for required testing.

Q3: Can plans be provided that detail the line's profile? (Depth, diameter, fall, etc..)

SARP10: As-built information was included with Addendum 1.

Q4: Is there flow data for this line available? If so, will it please be provided?

SARP10: No.

Q5: As listed in the Miscellaneous Construction Requirements, 2.C Item No. 09930.01 Special Structure for Bypass, there is not a detail in the technical specifications for this structure. This structure is to be set and to remain in place once complete. Can a detail be provided so that all contractors are looking at the design/construction of this structure in accordance with SARP10 expectations?

SARP10: This structure is to be designed as needed for bidders bypass needs. The design shall be approved by SARP10 prior to construction occurring. The finished structure shall be designed to City of Memphis standard drawing No.49 included in this addendum.

Q6: The bid forms provided in the specifications list the same bid items for each product, only differentiating between rehab products. However, in the construction specifications Section 09910 CIPP 7 Payment, and Section 09920 Interceptor Coating 6 Payment, the pay items listed vary significantly. Will all items listed on the bid form be paid as actual quantities performed for all approved rehab products?

SARP10: The specification and bid forms have been updated, and attached to this Addendum.

Q7: The current rehabilitation design calls for a fully deteriorated design to account for groundwater to surface. Please reconsider this requirement, as the project area appears to be mounded. Thus, groundwater to surface appears unlikely, as this condition would appear to cause the Interstate to be submerged.

SARP10: Assume a groundwater elevation of 30 feet. This answer replaces the answer to Question 18 in addendum 1.



Request for Bid
Wolf River Interceptor Rehab Addendum # 2 to
RFB No. 194677.71.0397
February 3, 2017



Q8: In regards to the special structure for the bypass, does the structure need to be brought to ground level upon completion or can structure be capped and buried in place?

SARP10: See the answer for question 5, on this Addendum.

Q9: Is the existing 96" sewer PCCP or RCP?

SARP10: All information known about pipe is located in the plans and Redzone report attachment, in Addendum 1.

Q10: The existing flows were not given for the 96" sewer, and the estimate for an average of ½ pipe of flow does not clearly define a flow value as a basis to bid the bypass. Especially, since there has been surcharging of the 96" pipe in the past due to the influent lift station at the MC Stiles WWTP. Per the bid documents: "All bypass pump schemes must be submitted to and approved by the purchaser in advance." This being the case what MGD flow value should the bypass be designed in order to be approved by the purchaser?

SARP10: See the specification updates in Addendum 1.

Q11: Are there any defined redundancy requirements for the bypass?

SARP10: There is no defined redundancy.

Q12: Is there an estimate of existing debris within the 96" pipe segment?

SARP10: The Redzone report is included with Addendum 1. The debris profile is estimated from this report.

Q13: If a repeat of the July 2015 floods were to occur again in during the project, will additional time be given for project completion?

SARP10: Any concessions for proven emergency situations will be evaluated on a case by case basis.

Q14: In reference to a repeat of the July 2015 flood, will there be an allowance for emergency demobilization & remobilization cost pertaining to the bypass pumping system?

SARP10: Any concessions for proven emergency situations will be evaluated on a case by case basis.

Q15: On the Bid Tabs for all spray items there is a line item for additional leak stop grouting, while it is implied with the CIPP process pricing. Shouldn't this line item be added to CIPP lining bid items in case leakage is determined too excessive to line over?

SARP10: The specification and bid forms have been updated, and attached to this Addendum.

Q16: If permitting for the suction structure and bypass ROE/ROW drags out ultimately affecting the contract completion date, will a time extension be granted?

SARP10: No, SARP10 will help coordinate with any permits to keep job on schedule.

Q17: Design for Spray-on is Manufacturers Recommendation, what are the required minimum material strengths for each spray on product?

SARP10: Refer to specifications.

Q18: What are the testing requirements for installed products?

SARP10: Refer to specifications.

Q19: What is the requirement for backup equipment?

SARP10: See question 11 of this Addendum.



Request for Bid
Wolf River Interceptor Rehab Addendum # 2 to
RFB No. 194677.71.0397
February 3, 2017



Q20: Will the contractor be allowed to use the Culvert north of the alignment for stringing bypass piping if the designed flow is assured? If this is not permitted the alternative of boring adds considerably to the cost and must be identified prior to the bid.

SARP10: It is the contractor's responsibility to obtain all permits and authorizations from TDOT to complete the work in accordance with the contractor's chosen construction methodology. However, SARP10 has begun preliminary discussions with TDOT concerning permits and will continue to aid the contractor with this effort throughout construction.

Q21: Are there any prequalification's for the bypass contractors?

SARP10: It is not necessary for the 2nd tier subs to pre-qualify with B&V corporate, but they do have to submit documentation to the Program Safety Manager. Refer to article 00575.9 of the RFB.

Q22: Will a certified Safety professional be required on site at all times of confined space entry?

SARP10: No unless the program deems your company is not following the legal and program requirements of Confined Space Entry.

Q23: What are the ventilation requirements for the pipe with man entry?

SARP10: This would be determined by the air monitor readings. If the readings are not within acceptable limits, ventilation would be required until the readings are within limits and meet OSHA requirements.

Q24: Do you know of any testing results or issues with Methane or H2S in this pipe?

SARP10: There are no testing results for gases in this pipe.

Q25: If the pipe remains in its current construction with 48" MH access at either end of the 1300' stretch, what safety implementations at the 48" MH entrances will need to be taken in order for the confined space to be considered non-permitted?

SARP10: This would depend on which manhole you choose and the hazards associated with that specific entry spot.

Q26: If the pipe is considered non-permitted what will be required for rescue from the space?

SARP10: Reference OSHA 1926 AA.

Q27: What training will be required for personnel involved in the man entry?

SARP10: Confined Space Training and any additional training based on the companies' choice of work methods.

Q28: Will you extend the bid date to give time for compiling the proper bid components, with only a week from the release of the 2nd addendum there is very little time to assemble a project of this magnitude?

SARP10: No, the bid date will not be extended.



**Request for Bid
Wolf River Interceptor Rehab Addendum # 2 to
RFB No. 194677.71.0397
February 3, 2017**



**Section 2
Updated 00370.3.1 Unit Price Bid Form**

Table 00370.3.1 - Unit Price Bid Form

Bidder should refer to Section 00270, Instructions to Bidders, when completing this Bid Form. Bidder shall complete this form entirely and return it with Bidder's Bid.					
Submitted by: (Company Name)					
00370.3 Bid Pricing Information					
00370.3.1 Unit Pricing					
Bidder proposes to complete the RFB 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 RFB Documents. The Unit Prices in this Table include the cost of all the work which is required or implied by the RFB 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 Subcontractor shall provide a new unit price for review and acceptance by the Purchaser. Subcontractor shall provide all information requested by the Purchaser to substantiate the value of the new unit price.					
00370.3.1.1 Unit Prices				Bidder Response Columns	
Item Number	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Extension Price
Wolf River Interceptor Rehab (Option A) CIPP					
Manholes					
00001-6.01	GPS Coordinates of Manhole Cover	Each	2	\$ -	\$ -
00001-6.02	Manhole Assessment and Certification Program (MACP) Level 2 Inspection - with 3D Scan	Each	2	\$ -	\$ -
00001-6.03	Removal of All Manhole Steps	Each	20	\$ -	\$ -
Lining / Coating Options					
09910-7.01.1	CIPP 96-INCH	LF	1,350	\$ -	\$ -
09910-7.02.1	Bypass Pumping for CIPP	LS	1	\$ -	\$ -
09910-7.03	Manhole Modification	Each	2	\$ -	\$ -
09920-6.04 09910-7.04	Site Preparation and Restoration	LS	1	\$ -	\$ -
09910-7.05	<u>Additional Leak-Stop Grouting</u>	<u>HR</u>	<u>50</u>	<u>\$ -</u>	<u>\$ -</u>
09920-6.07 09910-7.06	Heavy Cleaning 96-inch Pipe	LF	1,350	\$ -	\$ -
9930.01	Special Structure for Bypass	LS	1	\$ -	\$ -
Sonar / CCTV Inspection					
00004-6.01	Post CCTV Inspection	LF	1,350	\$ -	\$ -
Miscellaneous					
9931.01	<u>SRF Signage</u>	<u>Lot</u>	<u>1</u>	<u>\$ -</u>	<u>\$ -</u>
	100% Performance and Payment Bonds	Lot	1	\$ -	\$ -
Wolf River Interceptor Rehab (Option A)- Total Estimated Unit Price Value					\$ -



**Request for Bid
Wolf River Interceptor Rehab Addendum # 2 to
RFB No. 194677.71.0397
February 3, 2017**



**Section 3
Updated Sections of Technical Specifications, Drawings, and Special Instructions**

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATION
Modified by SARP10 Program
SECTION 09910 – CURED IN PLACE PIPE (CIPP) INSTALLATION

PART 1 - GENERAL

1.01 CONTRACTOR LICENSE

Subcontractors must be licensed to operate in the State of Tennessee under the appropriate classification as determined by the laws of the State of Tennessee. Classification for this project shall be MU A or B- Municipal and Utility Construction.

1.02 WORK INCLUDED

- A. The work covered by this contract will be for the installation of Cured-In-Place- Pipe (CIPP) in existing sanitary sewer lines that the Program Manager has selected for inclusion in this bid package. The contractor will go to each site and will ascertain the appropriate thickness of the CIPP material needed for the repair and will measure the actual lengths. The Program Manager will review and approve the design and will inspect the installation. The pipes selected for the work shown in the bid form range in size. The lengths of each run shown on the bid form are based upon plan measurements. The contractor will be paid based upon actual lengths determined from the post construction video log which may be less or more than the original bid quantities. CCTV work shall be done and paid for in accordance with Specification Section 00004.
- B. This specification covers the general requirements for the referenced specifications, CIPP manufacturer and installer qualifications, submittal and guaranty guidelines, materials, pre-installation and installation procedures, and testing.
- C. The object of this work is to pro-actively rehabilitate those sanitary sewers selected for this contract since failure could be very disruptive, hazardous to public health, and/or very expensive to repair after failure. It is critical that both the Product and the Installer have the ability to meet or exceed all requirements of the Program Manager. The intent of this Specification is to cover the minimum acceptable quality standards of a CIPP method for the complete rehabilitation of the designated sanitary sewer pipes.

1.03 DESCRIPTION OF SERVICES PROVIDED BY CONTRACTOR

It is the intent of this specification for the Subcontractor to provide for the rehabilitation and repair of certain underground piping ranging in diameter by the trenchless cured-in-place pipe reconstruction method.

- A. The process is defined as the rehabilitation of existing sewer lines by installation of a thermosetting resin impregnated flexible felt fiber tube coated on one side with polyurethane which is installed in the sewer by pulling it into place or by water column inversion. Curing is accomplished by circulating hot water or steam throughout the length of the inverted tube to cure the thermosetting resin into a hard impermeable pipe with the polyurethane coating on the interior surface of the reconstructed pipe. ~~After reconstruction, the "cured-in-place pipe" (CIPP) shall provide flow capacity greater than 100 percent of the original pipe's flow capacity when new.~~ The reconstructed pipe shall extend the full length of the original pipe and shall provide a structurally sound, joint-less, close fitting and corrosion resistant conduit suitable for service in a municipal sanitary sewage environment.
- B. The following work and components shall be provided by the Subcontractor:

09910-1

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATION
Modified by SARP10 Program
SECTION 09910 – CURED IN PLACE PIPE (CIPP) INSTALLATION

- C. The Subcontractor will be required to provide businesses with temporary service, as needed, and will be responsible for all necessary bypass pumping flows.

5.03 WATER

The Subcontractor will be required to Contact Memphis Light, Gas, & Water (MLGW) located at 3941 Grandview Avenue (telephone: 901-320-3910) in order to acquire a water meter for the lining process. Any water costs associated with the lining process will be considered incidental to the contract and not a separate pay item. Water for all construction operations shall be available from identified MLGW fire hydrants at normal commercial rates. Water usage shall be in accordance with MLGW's backflow and metering policies.

5.04 SAFETY

- A. The Subcontractor shall carry out his operations in strict accordance with all applicable OSHA and SARP10 standards. Particular attention is drawn to those safety requirements involving work on an elevated platform and entry into a confined space.
- B. The Subcontractor will be responsible for locating and accessing all manholes, or other structures associated with the pipe system to be lined. The Program Manager will provide personnel to guide the Subcontractor to the locations but will not provide additional access.

5.05 SITE **PREPARATION AND** RESTORATION

- A. The Subcontractor shall restore or replace all removed or damaged paving, curbing, sidewalks, gutters, shrubbery, fences, sod or other disturbed surfaces or structures to a condition equal to that before the work began, to the satisfaction of the Program Manager, and shall furnish all labor and material incidental thereto.
- B. The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the contract period. Compensation for this work will be included in the rehabilitation item to which it pertains.

5.06 PUBLIC NOTIFICATION

- A. Public

Prior to conducting CIPP field work, the Subcontractor shall provide notification to every residence and business that may be affected. The Subcontractor shall distribute the Program Manager approved door hangers between 48 and 72 hours prior to the start of the CIPP effort. Door hangers shall be double-sided with the notification information in the English language on one side and in the Spanish language on the reverse side. The local fire department shall be notified of the smoke testing at least seven days in advance.

At a minimum, the notifications shall advise residents of what to expect during the lining process, and the Subcontractor shall notify utility customers 48 hours in advance of disconnecting sewer services if the service will be offline for more than eight (8) hours.

Door hanger notifications shall use a fluorescent color for visibility and incorporate any SARP10-specific mascot or logo (if available and agreed upon by the Program Manager)

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATION
Modified by SARP10 Program
SECTION 09910 – CURED IN PLACE PIPE (CIPP) INSTALLATION

to link the CIPP work to the Program Manager's sewer improvement effort.

B. Program Manager

The Subcontractor 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.

5.07 WARRANTY

The warranty period shall be for a period of five (10) years from the installation date of the tube. Any defects, which in the opinion of the Program Manager, will affect the integrity or strength of the pipe shall be repaired at the Subcontractor's expense in a manner acceptable to the Program Manager. The material shall be unconditionally guaranteed to meet or exceed the design criteria detailed in this Specification.

PART 6 – MEASUREMENT

6.01 CURED-IN-PLACE-PIPE

A. Cured-In-Place-Pipe will be measured by the linear foot as measured by the final inspection video. The line lengths and quantities shown on the Bid Form are to provide a value for cost extension purposes and are approximate. The Subcontractor will be paid for actual quantities installed in the field. Documented lengths shall be the distance from the upstream inside face of manhole to the downstream inside face of manhole or similar structure. All lengths will be verified by the Program Manager. Diameters will be based on the original as-constructed nominal pipe diameter. Light Cleaning is to be included in the individual line bids.

6.02 BYPASS PUMPING

A. Bypass pumping shall be measured as a lump sum for the CIPP and associated manholes being rehabilitated.

6.03 MANHOLE MODIFICATION

A. Manhole modification will be measured in an each manhole modified.

6.04 SITE PREPARATION AND RESTORATION

A. The area to be considered for measurement will be the limit of the construction area unless otherwise directed by the Purchaser.

B. When the Proposal sheet(s) do(es) not contain an item for Site Preparation and Restoration, this work will be required within the construction limits and will not be paid for directly but will be considered as a subsidiary obligation of the Subcontractor under other contract items.

6.04 ADDITIONAL LEAK-STOP GROUTING

A. Additional continuous leak-stop grouting beyond four hours per interceptor shall be paid for

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATION
Modified by SARP10 Program
SECTION 09910 – CURED IN PLACE PIPE (CIPP) INSTALLATION

per hour. This item includes all materials and labor necessary to complete the grouting.

6.05 HEAVY CLEANING 96-INCH

A. Heavy Cleaning shall be measured by linear foot of heavy cleaning of 96-inch Pipe.

PART 7 – PAYMENT

7.01 CURED-IN-PLACE-PIPE

A. The accepted quantities of CIPP will be paid for at the contract extended unit price per linear foot, based upon the verified liner diameter and thickness. The price paid per linear foot for pipe lining shall include full compensation for furnishing labor, materials, tools, equipment, and incidentals necessary to furnish, install, and test the CIPP lining, plus manhole connections, preconstruction inspection, cleaning, sewer cleaning materials disposal, final inspection, post-construction inspection, protecting existing utilities and adjacent property, and all required surface restoration work, complete in place, as shown on the Drawings and specified herein.

7.02 BYPASS PUMPING

A. Bypass pumping will be paid as a lump sum for the CIPP and associated manholes. This item includes all materials and labor necessary to properly comply with the bypass pumping requirements listed in the specification.

7.03 MANHOLE MODIFICATION

A. Manhole modification will be payed on an each basis.

7.04 SITE PREPERATION AND RESTORATION

A. Payment will be made for Site Preparation and Restoration at the contract lump sum price, which will be full compensation for removal of trees, shrubs, plants, brush, rubbish, fences, manmade obstructions including but not limited to structures, abandoned cars and appliances, building foundations, and all other obstructions as may be directed by the Purchaser; the disposal of debris, removing of obstructions, and the restoration of fences, turfed areas, and all other items will be as specified in the Plans and Contract Documents or as directed by the Purchaser.

7.05 ADDITIONAL LEAK-STOP GROUTING

A. Additional continuous leak-stop grouting beyond four hours per interceptor shall be paid for per hour. This item includes all materials and labor necessary to complete the grouting.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATION
Modified by SARP10 Program
SECTION 09910 – CURED IN PLACE PIPE (CIPP) INSTALLATION

7.06 HEAVY CLEANING 96-INCH

- A. 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.

7.04 PAYMENT WILL BE MADE UNDER:

Item No.	Pay Item	Pay Unit
09910-7.01.1	CIPP 96-INCH Diameter	Linear Foot
09910-7.02.1	Bypass Pumping for CIPP and Associated Manholes	Lump Sum
09910-7.03	Manhole Modification	EA
<u>09910-7.04</u>	<u>Site Preparation and Restoration</u>	<u>Lump Sum</u>
<u>09910-7.05</u>	<u>Additional Leak-Stop Grouting</u>	<u>HR</u>
<u>09910-7.06</u>	<u>Heavy Cleaning 96-inch</u>	<u>LF</u>

END OF SECTION 9910

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
Modified By SARP10 Program
SECTION 09920 – INTERCEPTOR COATING

applicator found to be not qualified shall (at the written request of the Purchaser) be removed forthwith by the Subcontractor.

10. The COATINGS MANUFACTURER shall warranty the entire project to include any and all aspects of the surface preparation, base material installation and protective coating applications for a period of FIVE (5) YEARS from the date of acceptance by the Purchaser. The warranty shall make no distinction between installation practices and material performance and shall not be prorated with respect to elapsed time for the entire warranty period. Manufacturer shall, within a reasonable period of time after receipt of written notice thereof by the Purchaser [period not to exceed sixty (60) calendar days], repair defects in materials or workmanship during said FIVE (5) year period, and any damage to other work caused by such defects or repairing of same at his own expense and without cost to the Purchaser.

B. Interceptor Coating System. Spray applied or centrifugally cast interceptor coating system:

1. The material applied onto the surface of the interceptors shall be a coating system consisting of a base coat and top coat to provide corrosion resistance within a sanitary sewer environment. The thickness of the base coat and top coat shall meet the manufacturer's recommendation. Subcontractor can request to not use a base coat but must provide to the Owner and Purchaser evidence of successful installations of the product without using a base coat and its capability to properly adhere to the interceptor wall and form a smooth finish on the wall.

2. The top coat applied shall be an approved polymer based polyurethane, a geopolymer, or a high-build solvent free epoxy product in conjunction with a high-strength cementitious repair/patch/base coat. The following products are acceptable and approved: Spectrashield Liner Systems, Quadex QM-1s and Structure Guard, GeoKrete Geopolymer by Quadex, EcoCast by IPR, 4553 Epoxy Coating and Maximum CA Plus Cement, [Geocast](#) by Standard Cement and [Centripipe/Conshield by APM Permaform](#).

3. The installer shall warrant and save harmless the Owner and his Purchaser against all claims for patent infringement and any loss thereof. The Subcontractor shall handle and store all material and shall dispose of all wastes in accordance with applicable regulations.

4. Each system shall be designed for application over damp (but not active running water) surfaces without degradation of the final product and the bond between the product and the interceptor surfaces. Active leaks shall be stopped using a premixed fast-setting, volume-stable waterproof cement plug consisting of hydraulic cement, graded silica aggregates, special plasticizing and accelerating agents. It shall not contain chlorides, gypsum, plasters, iron particles, aluminum powder or gas-forming agents, or promote corrosion of steel it may come in contact with. Set time shall be approximately 1 minute. Ten-minute compressive strength shall be approximately 500 PSI.

C. Mortar

1. Mortar shall be composed of one part Portland cement and two parts sand (volumetric measure) thoroughly mixed in a tight box, with water added gradually and mixed continually until mortar has attained the proper consistency for use in brick masonry; prepared only in such quantities as needed for immediate use; mortar mixed for more than 30 minutes, re-tempered, or previously set will not be allowed.

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
Modified By SARP10 Program
SECTION 09920 – INTERCEPTOR COATING

1. The Subcontractor shall be responsible for plugging or diverting the flow of sewage as needed for repair and coating of interceptor.

E. Bypass of Flow:

1. As required for acceptable completion of the work and/or to avoid damages due to sewer spills or overflows, the Subcontractor shall provide for sewer flow maintenance around the interceptors designated for rehabilitation. The bypass shall typically be made by plugging the line at an existing upstream interceptor and pumping the flow into a downstream interceptor or adjacent sanitary sewer system. The pump and bypass lines shall be of adequate capacity and size to handle full pipe gravity flow as determined by Manning's equation. Bypassing of sanitary sewage into the storm water system will not be allowed. For all bypass pumping, pump noise shall be kept to a minimum to the satisfaction of the Purchaser. The Subcontractor shall be required to contact all residential and commercial customers whose service lines connect to the sewer main being bypassed and inform them that they will be temporarily out of service. The Subcontractor shall also advise those customers against water usage until the mainline is back in service. After completing the necessary work on the main line, the Subcontractor shall advise those customers that the sewer main is back in service.

2. Bypass pumping is defined as providing pumps, standby pumps, piping, elevated structural support for aerial crossings, manpower to operate, routine maintenance and repair capability, pipe plugs, fuel, route and pump site clearing and any other work necessary to provide a complete bypass pumping operation. Any structures proposed by the Subcontractor for construction over or penetration into the interceptor piping for the purpose of performing the bypass operations must be approved by the Purchaser prior to implementation. The Subcontractor shall submit design drawings and details that are signed and sealed by a professional engineer licensed in the State of Tennessee. All bypass pump schemes must be submitted to and approved by the Purchaser in advance.

F. Wastewater Spills

1. Should the Subcontractor spill any wastewater, such that the sewage either immediately or ultimately enters the waters of the State of Tennessee, then the Subcontractor will be completely responsible for any fines or penalties imposed on the Purchaser or the Subcontractor by the USEPA or the State of Tennessee.

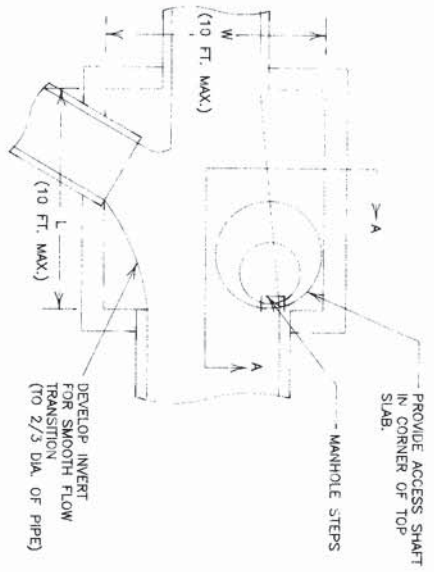
2. Public advisory services will be required to notify all parties whose service laterals will be out of service and to advise against water usage until the mainline is back in service.

3. The Subcontractor will be required to provide businesses with temporary service, as needed, and will be responsible for all necessary bypass pumping flows.

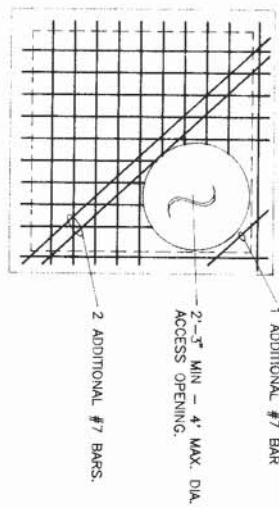
G. Safety

1. The Subcontractor shall carry out his operations in strict accordance with all applicable OSHA and SARP10 standards. Particular attention is drawn to those safety requirements involving work on an elevated platform and entry into a confined space.

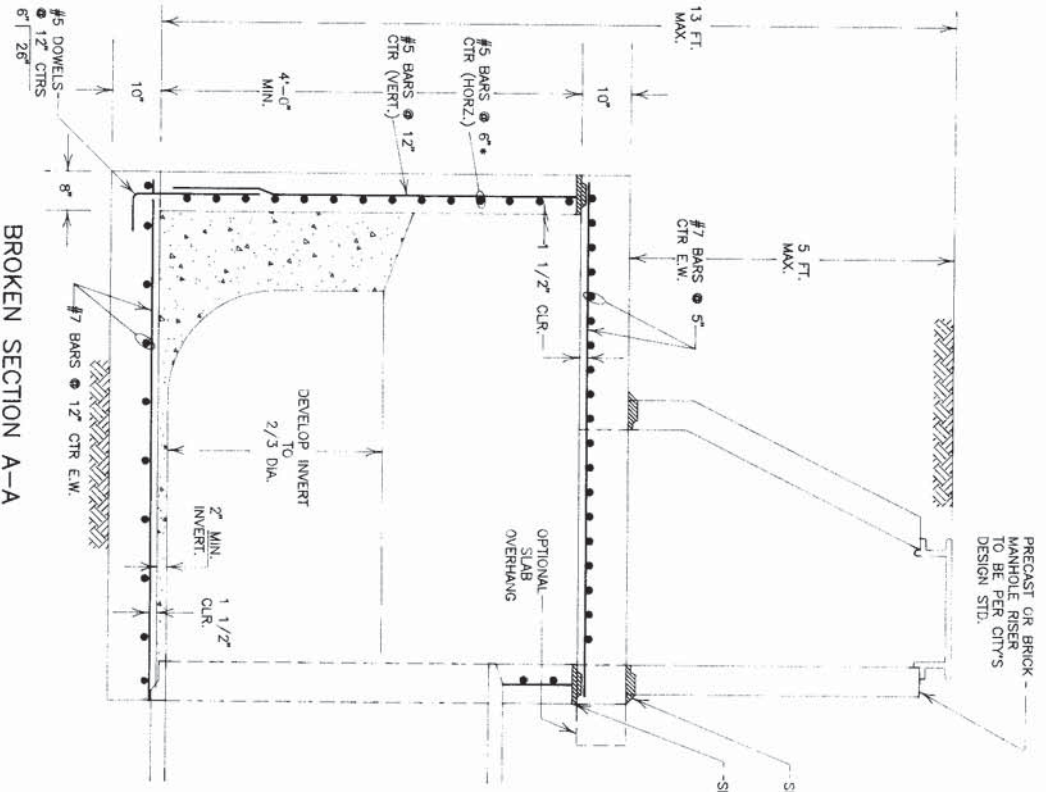
3.02 INTERCEPTOR REHABILITATION – PROTECTIVE COATING SYSTEM



TYP. INVERT PLAN



TOP SLAB REINFORCEMENT PLAN



BROKEN SECTION A-A

REVISIONS			REMARKS
NO.	DATE	BY	REMARKS
1	11-25-96	C.B.W.	GENERAL NOTES CORRECTED.

GENERAL NOTES

1. PROVIDE A MORTAR BED TO SET THE FIRST MANHOLE SECTION. TO ENSURE A GOOD BOND.
 2. IF THE TOP SLAB IS PRECAST PROVIDE A MORTAR BED BETWEEN THE TOP SLAB AND THE WALLS. CAST A 2" x 4" KEYWAY IN THE BOTTOM OF THE TOP SLAB AND BE USED TO FULLY FILL THE KEY.
 3. IF THE TOP SLAB IS POURED IN PLACE, EXTEND THE #5 WALL BARS 7" INTO THE TOP SLAB.
 4. MANHOLE STEPS TO BEGIN 18" ABOVE THE BENCH AND ONE ADDITIONAL STEP SHALL BE PLACED ON THE SIDE OPPOSITE THE LADDER NEAR THE TOP.
 5. THE FOUNDATION MATERIAL BELOW THE JUNCTION BOX SHALL BE ADEQUATE TO SUPPORT 2000 PSF OR SHALL BE UNDERCUT TO SUITABLE MATERIAL.
 6. ALL CONCRETE TO BE CLASS A CONCRETE (fc = 4000 PSI @ 28 DAYS).
 7. DESIGN LOAD: AASHTO HS20-44 WITH 0'-5" OF COVER.
- *ALL HORIZ. BARS TO BE DEVELOPED AROUND CORNERS WITH 18" LAPS.

ORDER OF STANDARD DIM. = L x W RCIIB

CITY OF MEMPHIS
DIVISION OF ENGINEERING

DESIGN STANDARD
FOR
REINFORCED CONCRETE
JUNCTION BOX

CHIEF STRUCTURAL ENGINEER
CITY ENGINEER
DATE 11-3-95
DATE 11/3/95