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# **PROJECT 2021-06**

## **GRAVITY DRAIN INSPECTIONS**

- **UPPER WOOD RIVER**
- **LOWER WOOD RIVER**
- **EAST AND WEST FORKS**

**CONSTRUCTION SPECIFICATIONS**

**SEPTEMBER 2021**

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INSTRUCTIONS TO OFFERORS

**02/14**

PART 1 GENERAL

1.1 Bid Notice

Notice is hereby given that the Wood River Drainage and Levee District (WRDLD), the OWNER, will receive sealed bids delivered to the District Office, 543 West Madison Avenue, Wood River, Illinois 62095 until 10:00 a.m. local time on Friday September 10, 2021, for Project 2021-06 GRAVITY DRAIN INSPECTIONS. Bids will be publicly opened and read at the District Office at 10:01 a.m. local time on Friday September 10, 2021.

1.2 Pre-Bid Conference

A pre-bid conference will be held at 2:00 p.m. local time on Friday September 3, 2021 at the District Office. Representatives of the Owner and Engineer will be present to discuss the Project. The Engineer will transmit to all prospective bidders such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

A site visit will be held immediately following the pre-bid meeting with representatives of the Owner and Engineer.

1.3 Bidding Documents

Plans and Specifications may be obtained after 10:00 a.m. local time on Friday August 6, 2021 by submitting the following information to Kevin Williams (kwilliams@wrldld.org):

Contact Name:  
Company Name:  
Company Address:  
Company Phone:  
Mobile Phone:  
Email Address:  
Contractor Type:

1.4 CONTRACT LINE ITEMS

The terms Offeror and Bidder and versions thereof (offer/bid) have the same definition as used within this contract.

Provide the Contract Line Item (CLIN) lump sum price for the following items:

1.4.1 CLIN 0001

Price Includes the following:

Labor and equipment to clean and inspect gravity drains at the Rand Avenue Pump Station on the Lower Wood River levee segment.

Work must be performed between October 1, 2021 and December 31, 2021.

CLIN 0001	LEVEE SEGMENT	STATION	DIAMETER (IN)	LENGTH (FT)
0001A	LOWER	284+16	24	405.00
0001B	LOWER	284+26	36	221.04

Inspection of both gravity drains requires close coordination with Phillips 66 (P66). Flow through the drains can only be bypassed by P66 for a period of 6 hours. At the end of this period, all obstructions, bulkheads, pumps, etc must be removed from all structures.

Work that requires P66 to bypass flow cannot per performed on successive days unless specifically approved by P66.

1.4.2 CLIN 0002

Price includes the following:

Labor and equipment to clean and inspect gravity drains on the Lower Wood River levee segment.

Work must be performed between October 1, 2021 and September 30, 2022.

CLIN 0002	LEVEE SEGMENT	STATION	DIAMETER (IN)	LENGTH (FT)
0002A	LOWER	12+37	42	256.41
0002B	LOWER	32+99	26	198.97
0002C	LOWER	40+02	36	218.72
0002D	LOWER	47+52	36	200.61
0002E	LOWER	50+63	54	193.98
0002F	LOWER	61+80	29	259.72
0002G	LOWER	73+75	24 / 30	203.52
0002H	LOWER	88+88	18	186.37
0002I	LOWER	97+11	18	105.54
0002J	LOWER	97+33	54 / 60	219.11
0002L	LOWER	104+64	26	299.56

1.4.3 CLIN 0003

Price includes the following:

Labor and equipment to clean and inspect gravity drains on the Lower Wood River levee segment.

Work must be performed between October 1, 2022 and September 30, 2023.

CLIN 0003	LEVEE SEGMENT	STATION	DIAMETER (IN)	LENGTH (FT)
0003A	LOWER	230+72	36	436.96
0003B	LOWER	236+35	84	264.38
0003C	LOWER	280+23	20	412.07
0003D	LOWER	309+86	48 X 48 BOX	516.99
0003E	LOWER	343+45	32	316.73
0003F	LOWER	377+71	22	182.35
0003G	LOWER	399+06	22	193.19

1.4.4 CLIN 0004

Price includes the following:

Labor and equipment to clean and inspect gravity drains on the Lower Wood River levee segment.

Work must be performed between October 1, 2023 and September 30, 2024.

CLIN 0004	LEVEEE SEGMENT	STATION	DIAMETER (IN)	LENGTH (FT)
0004A	LOWER	447+18	42	233.82
0004B	LOWER	463+67	42	233.19
0004C	LOWER	490+37	42	249.94
0004D	LOWER	506+06	72	246.08
0004E	LOWER	530+37	42	249.82
0004F	LOWER	557+71	54	280.42
0004G	LOWER	580+28	26	265.18
0004H	LOWER	594+30	63	280.25
0004I	LOWER	617+70	32	263.18
0004J	LOWER	665+11	26	155.82
0004K	LOWER	675+21	26	165.12

1.4.5 CLIN 0005

Price includes the following:

Labor and equipment to clean and inspect gravity drains on the Upper Wood River levee segment.

Work must be performed between October 1, 2024 and September 30, 2025.

CLIN 0005	LEVEE SEGMENT	STATION	DIAMETER (IN)	LENGTH (FT)
0005A	UPPER	133+80	54	782.49
0005B	UPPER	133+80	54	782.49
0005C	UPPER	217+75	63	281.74
0005D	UPPER	255+09	14	193.05
0005E	UPPER	260+29	14	180.70

1.4.6 CLIN 0006

Price includes the following:

Labor and equipment to clean and inspect gravity drains on the East and West Forks levee segment.

Work must be performed between October 1, 2025 and September 30, 2026.

CLIN 0006	LEVEE SEGMENT	STATION	DIAMETER (IN)	LENGTH (FT)
0006A	EAST FORK	33+27	42	206.49
0006B	EAST FORK	53+75	22	264.05
0006C	EAST FORK	62+63	32	243.70
0006D	EAST FORK	72+84	20	200.80
0006E	EAST FORK	91+33	36	262.57
0006F	EAST FORK	107+07	32	269.40
0006G	WEST FORK	124+90	30	246.07
0006H	WEST FORK	145+35	8	147.68

1.5 GENERAL BID NOTES

a. **820 ILCS 130 - Prevailing Wage Act**

**It is the policy of this District that a wage of no less than the general prevailing hourly rate as paid for work of a similar character in the locality in which the work is performed, shall be paid to all**

**laborers, workers and mechanics employed by or on behalf of any contractor engaged in public works.**

**Certified Payroll shall be submitted in accordance with 820 ILCS 130/5.**

**b. Olin Project License Agreement**

**The majority of the work in CLIN 0006 will be performed on lands owned by Olin Winchester LLC. Contractor will be responsible for complying with a project license agreement. A copy of the agreement will be provided prior to the bid.**

c. Award will be made on the total sum of Contract Line Item Numbers 0001 through 0006. Proposal should include a breakdown, per gravity drain, for each CLIN. If there is a difference between a unit price and the extended total, the unit price will be held to be the intended bid and the total recomputed accordingly. If an Offeror provides a total but fails to enter a unit price, the total divided by the specified quantity will be held to be the intended unit price.

d. The District may reject an offer as nonresponsive if it is materially unbalanced. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

**1.6 BID SECURITY**

**1.6.1 Bid Bond**

Each Bid must be accompanied by Bid security made payable to OWNER in an amount of five percent of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond issued by a surety.

The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned.

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER: (Name and Address)	
SURETY: (Name and Address)	
OWNER: (Name and Address)	
BID DUE DATE:	
DESCRIPTION: (Name and Location)	
BOND NUMBER:	
BOND DATE:	

BIDDER: (Name and Address)		
PENAL SUM:		\$
	(Words)	(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER		SURETY	
(Seal)		(Seal)	
Bidder's Name and Corporate Seal		Surety's Name and Corporate Seal	
By:		By:	
	Signature		Signature (Attach POA)
	Print Name		Print Name
	Title		Title
Attest:		Attest:	
	Signature		Signature
	Print Name		Print Name
	Title		Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1.6.1.1 Bid Bond Notes

- a. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

- b. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
- c. This obligation shall be null and void if:
  - 1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 2. All Bids are rejected by Owner, or
  - 3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
- d. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
- e. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
- f. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default is received by Bidder and Surety and in no case later than one year after Bid due date.
- g. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
- h. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
- i. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
- j. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said



statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

k. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

1.7 CONTRACT SECURITY

1.7.1 Performance Bond

When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR: (Name and Address)	
SURETY: (Name and Address)	
OWNER: (Name and Address)	
CONTRACT DATE:	
CONTRACT AMOUNT:	
CONTRACT DESCRIPTION: (Name and Location)	
BOND NUMBER:	
BOND DATE:	
BOND AMOUNT:	
MODIFICATION TO THIS BOND	

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL		SURETY	
(Seal)		(Seal)	
Contractor's Name and Corporate Seal		Surety's Name and Corporate Seal	
By:		By:	
	Signature		Signature (Attach POA)

CONTRACTOR AS PRINCIPAL		SURETY	
	Print Name		Print Name
	Title		Title
Attest:		Attest:	
	Signature		Signature
	Print Name		Print Name
	Title		Title

1.7.1.1 Performance Bond Notes

- a. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
- b. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences.
- c. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 1. Owner has notified Contractor and Surety that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice; and
  - 3. Owner has agreed to pay the Balance of the Contract Price to:
    - i. Surety in accordance with the terms of the Contract;
    - ii. Another contractor selected to perform the Contract.
- d. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
  - i. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefore to Owner; or
  - ii Deny liability in whole or in part and notify Owner citing reasons therefore.
- e. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
- f. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act as noted above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
  1. The responsibilities of for correction of defective Work and completion of the Contract;
  2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph D; and
  3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
- g. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors,

administrators, or successors.

- h. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
- i. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
- j. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
- k. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond

1. Definitions.

1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

1.7.2 Payment Bond

When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR: (Name and Address)	
SURETY: (Name and Address)	
OWNER: (Name and Address)	
CONTRACT DATE:	
CONTRACT AMOUNT:	
CONTRACT DESCRIPTION: (Name and Location)	
BOND NUMBER:	
BOND DATE:	
BOND AMOUNT:	
MODIFICATION TO THIS BOND	

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL		SURETY	
(Seal)		(Seal)	
Contractor's Name and Corporate Seal		Surety's Name and Corporate Seal	
By:		By:	
	Signature		Signature (Attach POA)
	Print Name		Print Name
	Title		Title
Attest:		Attest:	
	Signature		Signature

CONTRACTOR AS PRINCIPAL		SURETY	
	Print Name		Print Name
	Title		Title

1.7.2.1 Payment Bond Notes

- a. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
- b. With respect to Owner, this obligation shall be null and void if Contractor:
  - 1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
- c. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
- d. Surety shall have no obligation to Claimants under this Bond until:
  - 1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 2. Claimants who do not have a direct contract with Contractor:
    - i. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    - ii. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

- iii. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
- e. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
- f. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  2. Pay or arrange for payment of any undisputed amounts.
- g. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
- h. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
- i. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
- j. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
- k. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
- l. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
- m. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed,

any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

n. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

o. Definitions

1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Document --



SECTION 01 11 00

SUMMARY OF WORK  
08/15

PART 1 GENERAL

1.1 U.S. ARMY CORPS OF ENGINEERS GUIDANCE

This guidance is provided for information only and shall not supersede any of the provisions of 33 01 30.16

1.1.1 Background

Inspection of the interior of gravity pipes that penetrate under or through flood protection systems, discharge pipes from pump stations, and other third-party high-pressure pipelines (e.g., water distribution lines, petroleum product transmission lines) is necessary during pipe condition evaluation. This assists in developing an understanding of the need to replace or rehabilitate a pipe, and selecting appropriate and economical solutions for deteriorated pipes. Pipes are also inspected after replacement or rehabilitation to document the new baseline condition for the pipe.

The current inspection checklist allows for either visual or television camera video-taping (CCTV) with a report of the findings provided to U.S. Army Corps of Engineers (USACE) on a 5 year frequency. When CCTV or sonar is employed, pipes shall be inspected using the methods described in this guidance.

Entry/walking-through a pipe should only be done when size (diameter) permits, it is safe to do so, and only when appropriate confined space entry procedures are followed. Examples of unsafe conditions include the potential for fire and explosion, heat stress, asphyxiation, drowning, and engulfment or entrapment. It should also be noted that a heavily corroded or structurally damaged culvert could collapse at any time and is not safe to enter.

Third-party high-pressure pipelines are regulated by other agencies and USACE recognizes those inspection methods as appropriate on a case-by-case basis.

1.1.2 Gravity Pipes and Pump Station Discharge Pipes

1.1.2.1 Inspection Procedures for CCTV / Sonar

Pipe inspections are most efficient when planned and executed so that fieldwork is performed during periods of low or no flow in the pipe. Removal of small roots and debris is required prior to inspection. All debris shall be removed from the sewer system and properly disposed of with no debris passing downstream.

Pipes are inspected using either CCTV cameras, sonar devices, or both. The method(s) used are determined by the presence or absence of water in the pipe, the pipe material, and the wall configuration. CCTV inspection is the preferred method because it provides a complete view of the pipe interior. Sonar inspection, which may be used on non-metallic pipes that contain water, portrays offsets and distortions in the interior pipe

profile as well as sediment build up in the pipe invert. Sonar inspection will not reveal the presence of fractures without offset, cracks, corrosion or corrosion induced section loss. The process described below and illustrated in Figure 1 is used to determine proper inspection protocols.

Metallic pipes, including corrugated metal pipes (CMPs) and cast iron pipes, are subject to corrosion and must be CCTV inspected because sonar methods are not able to detect and quantify the nature and extent of corrosion. Therefore, metallic pipes must be temporarily bypassed and dewatered prior to inspection so that 100% of the interior pipe surface is visible to the CCTV camera.

Non-metallic pipes are also dewatered and CCTV inspected when reasonably possible. When nonmetallic pipes cannot be dewatered, partially submerged pipes are assessed using CCTV inspection above water and sonar inspection below water. Fully submerged non-metallic pipes are inspected using only sonar inspection. When sonar inspection of a submerged pipe indicates that the pipe cross-sectional profile deviates from the asbuilt condition, the pipe must be dewatered and CCTV inspected.

The PACP (Pipe Assessment Certification Program) provides procedural guidelines for CCTV pipe inspection. An inspection system specifically designed and constructed for pipe inspection is used. The CCTV camera is capable of panning 360° and tilting 270°. The camera is positioned in the center of circular pipes and 2/3 the height in oval pipes. Lighting for the CCTV camera is suitable to allow a clear picture of the entire periphery of the pipe. The camera is capable of operating in 100% humidity conditions. The minimum acceptable camera resolution is 500 lines. The CCTV monitor and other components of the CCTV system are capable of producing a color picture/CCTV quality to the Owner's satisfaction.

The CCTV camera moves through the sewer at a constant rate, stopping when necessary to permit proper documentation of the sewer's condition for coding. The CCTV camera does not move at a speed greater than 25 feet per minute. Obtain a still picture (color jpeg format) of all significant defects observed during inspection. Record segment, location along sewer, clock position, time and defect code for each picture. Obtain a still photograph coaxial with each lateral.

Sonar inspection equipment is positioned in the pipe in accordance with the equipment manufacturer's recommendations, and makes a complete 360 degree inspection of the pipe circumference at one inch intervals along the length of the pipe.

During the inspection the following information is clearly and continuously displayed on the periphery of the screen, monitor and CCTV recording: starting location ID, ending location ID, and distance from starting manhole or headwall. A global positioning System device is used to document the inlet and outlet locations.

If inspection of an entire sewer segment cannot be completed due to a collapse, excessive deformation, debris, intruding connections, obstructions or large displaced joints, move equipment to the downstream manhole/headwall and attempt inspection in the upstream direction. Advise the Owner's Representative on a daily basis if the complete sewer segment cannot be inspected.

Track all locations where a complete inspection is not obtained and

clearly document the length of sewer not inspected, location, segment, distance from adjacent manholes, etc.

#### 1.1.3 Limits of CCTV and Sonar Inspection

Within Levee Embankment Sections. Pipes penetrating the levee embankment cross section are inspected from headwall to headwall.

Beneath Levee Embankment Sections. Pipes underlying levee embankments which do not daylight at the levee toes are inspected a minimum distance of 15 horizontal feet as measured perpendicular from either toe; however, the inspection continues to the riverside headwall if the pipe does not daylight within the 15 horizontal feet.

T-Wall Sections. Pipes underlying T-Walls are inspected a minimum distance of 8 horizontal feet as measured perpendicular from either side of the base; however, the inspection continues to the riverside headwall if the pipe does not daylight within the 8 horizontal feet.

I-Wall Sections. Pipes underlying I-Walls are inspected a minimum distance of 15 horizontal feet as measured perpendicular from either face of the wall; however, the inspection continues to the riverside headwall if the pipe does not daylight within the 15 horizontal feet.

Discharge Pipes from Pump Stations. Discharge pipes from the pump stations are inspected between the pump discharge and the end of the discharge line at the headwall/gate well. If the discharge pipe ends in a gate well, inspection from the gate well to the headwall at the river is required. In this case, pipe access may be possible through an air vent and a push camera with adequate lighting may be used.

#### 1.1.4 Pipe Condition Coding

Pipe condition coding for pipes subjected to CCTV inspection is done in accordance with the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP). The company performing the inspection shall provide qualifications for performing this work including experience and knowledge of NASSCO's PACP procedures. The inspection team leader must demonstrate experience on similar projects and a minimum of 1-year experience in pipe inspection and PACP coding in accordance with NASSCO's pipeline assessment program.

The information called out includes, but is not limited to the following:

- Structural condition and deformation of the pipe walls
- Segment length (from inside walls of adjacent manholes)
- Manhole depth (invert to top of casting to nearest 0.1 ft)
- Blockages or obstructions and associated locations
- Condition of joints and pipe walls
- Standing water/sag conditions
- Infiltration/exfiltration
- Fluctuations in water level

Size, location and condition of sewer laterals with the clock position

Distance measurements are referenced to the nearest 0.1 foot, using a readily identifiable baseline such as a headwall, manhole, or sluice gate.

The five PACP defect grades are shown in Table 1. Further details of the PACP condition grading system are available at [www.nassco.org](http://www.nassco.org).

The NASSCO PACP coding procedure does not apply to pipes or portions of pipes where sonar inspection is used. A narrative description of the results of sonar inspection is provided along with profile images of pipe sections that display deterioration, profile offset, sediment accumulation, or any other concern with pipe integrity.

Table 1 - PACP Defect Grades		
Grade	Description	Estimated Time to Failure
1	EXCELLENT: Minor Defects.	Unlikely in the foreseeable future
2	GOOD: Defects that have not begun to deteriorate.	20 years or more
3	FAIR: Moderate defects that will continue to deteriorate.	10 to 20 years
4	POOR: Severe defects that will become grade 5 defects within the foreseeable future.	5 to 10 years
5	IMMEDIATE ATTENTION: Defects requiring immediate attention.	Has failed or will likely fail within the next 5 years

#### 1.1.5 Reports and Submittals

Submit two copies of the following items within two weeks following completion of all required CCTV or sonar inspection activities:

Electronic inspection videos recorded and organized on CD or DVD.

Electronic still-capture pictures and sonar images of significant defects on CD or DVD.

Printed inspection logs with As-Built stationing, defect codes, and the PACP Ratings including, the Structural, Operation and Maintenance, Overall Quick Rating shall be provided (see example in Attachment 1). Also provide an overall map locating these with pipe stationing shown. Sonar inspection defects are also mapped in a similar manner.

List of standard PACP defect codes.

Grade of the pipe invert in percent (if possible)

Coordinates of the pipe inlet and outlet determined by handheld GPS,

with estimated accuracy reported.

Copy of location maps (or as-built drawing, if possible) with an arrow added to show the pipe location and direction of CCTV camera travel (can be hand drawn).

Inspection reports shall be provided in a bound report.

The inspection video is either configured for viewing using the latest version of Windows Media Player, or the appropriate viewing software must be submitted on each CD or DVD. Files are configured to have the ability to use all features of the CCTV player including fast forward capability.

No payment is made for poor or unacceptable quality CCTV; or for portions of pipes that are not inspected for any reason. If, in the opinion of the Owner, the CCTV is of such poor quality that the condition of the sewer cannot be adequately assessed, the Contractor re-inspects the unacceptable segments and resubmit all deliverables for that segment at no additional cost to the Owner.

#### 1.1.6 Third Party High-Pressure Pipes

The primary types of third-party high-pressure pipes (TPHPPs) are water distribution lines, natural gas pipelines, and hazardous liquid transmission lines. The inspection protocol for TPHPPs used to determine pipe suitability is illustrated in Figure 2.

Water distribution pipes are not regulated by a federal agency and there are no national inspection standards. Several inspection techniques are available to pipe owners to evaluate the condition of the pipes. These methods include video inspection pressure testing, electrical methods, ultrasonics, acoustic emission, magnetic flux leakage, and remote field eddy current.

Owners of high-pressure water distribution pipes may have a pipe inspection program in place. If so, the Local Sponsor shall request confirmation in written format from the company operating the pressurized lines that they are in compliance with the appropriate regulatory agency requirements. The local sponsor should then provide feedback to USACE. USACE may require additional inspection effort for pipes that pass through levees when warranted. If the pipe owner has no inspection program in place, the Local Sponsor shall request the pipe owner to develop a plan for the portion of the pipe that passes through the levee.

Natural gas pipeline safety is regulated under 49 CFR 192, Part 192-Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. The Part 192 requirements include assessment of condition using methods that are set out in a baseline assessment plan. The plan may specify methods such as internal inspection tools capable of detecting corrosion and any other threats; pressure tests; or direct assessment to address threats of external corrosion, internal corrosion, and stress corrosion cracking. Other technology that an operator demonstrates can provide an equivalent understanding of the condition of the line pipe may also be used with approval. The assessment must be repeated at specified intervals.

Pipelines that transport hazardous liquids, such as petroleum products, are regulated under 49 CFR 195 Part 195 - Transportation of Hazardous

Liquids by Pipeline. The Part 195 requirements include the preparation of a baseline assessment plan similar to Part 192 for natural gas pipelines.

Both Parts 192 and 195 apply to pipes in "high consequence areas" which are defined based on the nearby presence of occupied structures. Because these pipes may penetrate a levee in areas without nearby structures, the Local Sponsor shall ensure that the pipes are included in the high consequence area inspection schedule. USACE requires no further inspection unless site specific conditions warrant.

1.2 Scope of Services

The following is a list of gravity drains that shall be inspected as part of this contract per the schedule in Section 00 22 13.00 20.

1.2.1 Upper Wood River

Wood River Levee System	Station	Original Diameter	Original Material	Liner Diameter	Liner Material	USACE Gate Well NO.
Upper	133+80	60	CMP	54	HDPE	GW-2
Upper	133+80	60	CMP	54	HDPE	GW-2
Upper	217+75	72	CMP	63	HDPE	GW-3
Upper	255+09	18	CMP	14	HDPE	GW-4
Upper	260+29	18	CMP	14	HDPE	GW-5

1.2.2 East and West Forks

Wood River Levee System	Station	Original Diameter	Original Material	Liner Diameter	Liner Material	USACE Gate Well No.
East Fork	33+27	48	CMP	42	HDPE	GW-6
East Fork	53+75	24	CIP	22	HDPE	GW-7
East Fork	62+63	36	CIP	32	HDPE	GW-8
East Fork	72+84	24	CMP	20	HDPE	GW-9
East Fork	91+33	42	CMP	36	HDPE	GW-10
East Fork	107+07	36	CMP/VCP	32	HDPE	GW-11
West Fork	124+90	36	CMP	30	HDPE	GW-12
West Fork	145+35	12	CMP/HDPE	8	HDPE	GW-13

1.2.3 Lower Wood River

Wood River Levee System	Station	Original Diameter	Original Material	Liner Diameter	Liner Material	USACE Gate Well No.
Lower	12+37	48	CMP	42	HDPE	GW-14
Lower	32+99	30	CMP	26	HDPE	GW-15
Lower	40+02	42	CMP	36	HDPE	GW-16
Lower	47+52	42	CMP	36	HDPE	GW-17
Lower	50+63	54	RCP	N/A	N/A	GW-17A
Lower	61+80	36	CMP	29	SPR	GW-18
Lower	73+75	30	RCP	N/A	N/A	GW-18A
Lower	88+88	24	CMP	18	HDPE	GW-19
Lower	97+11	24	CMP	18	HDPE	GW-20
Lower	97+33	60	CMP	54	HDPE	GW-20
Lower	104+64	30	CMP	26	HDPE	GW-20A
Lower	230+72	48	CMP	36	HDPE	GW-21
Lower	236+35	84	RCP	N/A	N/A	GW-22
Lower	280+23	24	CIP	20	HDPE	GW-23A
Lower	284+16	24	CIP	N/A	N/A	GW-23B
Lower	284+26	36	CIP	N/A	N/A	GW-23C
Lower	309+86	48 x 48	CONCRETE	N/A	N/A	GW-23D
Lower	343+45	36	CMP	32	HDPE	GW-24
Lower	377+71	24	CMP	22	HDPE	GW-25
Lower	399+06	24	CMP	22	HDPE	GW-26
Lower	447+18	48	CMP	42	HDPE	GW-27
Lower	463+67	48	CMP	42	HDPE	GW-28
Lower	490+37	48	CMP	42	HDPE	GW-29

Wood River Levee System	Station	Original Diameter	Original Material	Liner Diameter	Liner Material	USACE Gate Well No.
Lower	506+06	72	RCP	N/A	N/A	GW-30
Lower	530+37	48	CMP	42	HDPE	GW-31
Lower	557+71	72	CMP	54	HDPE	GW-32
Lower	580+28	30	CMP	26	HDPE	GW-33
Lower	594+30	72	CMP	63	HDPE	GW-34
Lower	617+70	36	CMP	32	HDPE	GW-34A
Lower	665+11	30	CMP	26	HDPE	GW-35
Lower	675+21	30	CMP	26	HDPE	GW-36

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --



SECTION 33 01 30.16

TV INSPECTION OF SEWER PIPELINES  
08/16

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 CCTV Video

CD, DVD, or other portable storage media containing the recorded video.

1.1.2 Cleaning

To remove soil or solid deposited materials from a pipe segment when the pipe is less than half full of deposited materials.

1.1.3 Defects

Defects in the pipe, manholes, structures, and services include cracks, separation of joints, collapsed pipe, grade irregularities, leaks, roots, grease buildup, offset joints, reverse grades, obstructions, delamination, missing pipe, restrictions, fractures and similar structural irregularities.

1.1.4 Entry Point

The leading edge of the access point or the manhole or structure wall where the pipe segment begins.

1.1.5 Exit Point

The point where the downstream access manhole or structure wall is encountered.

1.1.6 Heavy Cleaning

To remove soil or solid deposited materials from a pipe segment when the materials in the pipe are between half full to full.

1.1.7 Hydraulically Propelled Cleaning Tools

Tools that depend upon water pressure to provide their cleaning force.

1.1.8 National Association of Sewer Service Companies (NASSCO)

National Association of Sewer Service Companies (NASSCO) identifies the generally accepted industry standards for CCTV inspection, observation coding, and certification.

1.1.9 Pipe Segment

The length of pipe from entry point to exit point along the main or service.

1.1.10 Pipeline Assessment and Certification Program (PACP)

A CCTV Inspection standardization certification and observation coding system sponsored by NASSCO.

1.1.11 Point Repair

The location of a failure where a repair is has occurred.

1.1.12 Post-Installation CCTV (Post-TV)

Post-TV inspection is used to determine the slip lining of sanitary or storm sewers has been completed in accordance with the contract documents.

1.1.13 Pre-Installation CCTV (Pre-TV)

Pre-TV inspection is a video inspection of existing sewer lines to confirm cleaning activities, locations of service connections, and identify defects in the existing sewer system infrastructure prior to any work being performed.

1.1.14 Re-TV Inspection

Upon the completion of repairs made after performing a Post-TV Inspection or Warranty TV inspection, the mains or services are re-inspected by performing a Re-TV inspection. Also, refers to rework for a TV-Inspection that has video interruptions, gaps, or is not continuous.

1.1.15 TV Inspection Log

Information collected and recorded by the CCTV operator for each CCTV inspection effort and includes pertinent information for the respective inspection section; such as, date of inspection, location of site, CCTV technician, direction of CCTV inspection with manhole or structure identifiers, weather conditions, pipe size(s), pipe materials, conditions found, locations where the conditions were found.

1.1.16 Warranty CCTV (Warranty-TV)

Warranty-TV inspection is used to determine the slip lining of sanitary or storm sewers does not have any defects present, remains in compliance with project specifications and Post-TV inspection.

1.1.17 Wood River Drainage and Levee District

Shall be known as "District", "Owner", or "Client" throughout these documents.

1.2 ADMINISTRATIVE REQUIREMENTS

1.2.1 Work Plan

Submit a work plan describing the means and methods for performing the scope of work prior to performing any work at the site(s). Include a complete description of materials that are expected to be encountered and their proposed disposal sites. No changes to the work plan will be made without prior written acceptance by the District. Include with the work plan a site specific health and safety plan that addresses, at a minimum, confined space and fall protection concerns with this scope of work.

### 1.3 SUBMITTALS

Submit the following to the District for review and approval:

SD-07 Certificates

Work Plan

CCTV Technician's Qualifications

Pre-TV Inspection

Post-TV Inspection

Warranty-TV Inspection

### 1.4 QUALITY CONTROL

#### 1.4.1 CCTV Technician's Qualifications

Provide a CCTV technician with three years of total experience with the CCTV technology. Submit a current PACP Operator certification for personnel performing closed circuit television inspection and pipeline assessments.

## PART 2 PRODUCTS

### 2.1 SYSTEM DESCRIPTION

TV inspection of sewer pipelines encompasses cleaning, heavy cleaning, CCTV inspection and video recording of the existing sanitary or storm sewer mains included in the contract documents. This work includes by-pass pumping or diversion of sanitary sewer, sound reduction enclosure of by-pass pump, inspection logs, video requirements, permits, traffic control and the legal disposal of materials removed from the mains.

It includes the mechanical equipment used to clean and dispose of the materials found in sewer pipes and structures, CCTV cameras and recording devices used to record the internal conditions of non-pressurized sewer piping.

### 2.2 EQUIPMENT

#### 2.2.1 Cleaning Equipment

Utilize mechanically powered equipment necessary for flushing of the sewers.

##### 2.2.1.1 Hydraulic Flusher

Provide hydraulic high-pressure sewer cleaners used for sewer cleaning, specifically designed and constructed for such cleaning, that have a minimum usable water capacity of 600 gallons and a pump capable of delivering at least 30 gallons per minute (gpm) at 100 psi and having the following capabilities:

- a. Pressure regulator nozzle capable of adjustment from 1 psi to 1500 psi.
- b. Constructed for ease of use and safety of operation with two or more

high-velocity nozzles capable of producing a scouring action from 15 to 45 degrees in lines designated to be cleaned.

- c. A high-velocity gun for washing and scouring the manhole or structure walls and floor capable of producing flows from a fine spray to a solid stream.
- d. Carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.

#### 2.2.2 CCTV Equipment

Provide a video system capable of producing a sharply focused, well-lit and color balanced picture in accordance with the following requirements:

##### 2.2.2.1 Pipe Inspection Camera and Associated Equipment

- a. Provide a pipe inspection camera system that produces a video using a pan and tilt, radial viewing, that pans a minimum of 275 degrees and rotates 360 degrees. Illumination sensitivity of 3 Lux or less and a minimum of 460 lines of resolution is required.
- b. Utilize video cameras specifically designed and constructed for CCTV inspection.
- c. Provide a camera that is operative in 100 percent humidity conditions.
- d. Provide a camera with an accurate footage counter that displays on the monitor the exact distance of the camera to the nearest 1/10 of a foot.
- e. Provide a camera with a height adjustment so that the camera lens is typically centered in the pipe, or higher depending on water levels in the pipe.
- f. Provide equipment that will produce digital color images and allows the CCTV technician to remotely balance the iris and color to produce a clear and true video of the pipeline.
- g. Provide lighting for the camera that is suitable to provide a clear color picture of the entire periphery of the pipe.
- h. Provide a reflector in front of the camera as necessary to enhance the lighting on dark or large diameter pipes.
- i. Provide an accompanying computer and recording device capable of projecting and recording the facility location, project name, Contractor's name, date, line size, material type, line identification, manhole or structure ID numbers and ongoing footage counter onto the video screen.

### PART 3 EXECUTION

#### 3.1 PREPARATION

##### 3.1.1 Sewer Line Cleaning

Immediately prior to conducting CCTV activities, thoroughly clean the segment of sewer pipe to be video inspected. Clean the segments using hydraulically propelled, high-velocity jet, or mechanically powered

equipment.

- a. During cleaning and preparation operations, undertake precautions to protect the sewer system and property from damage. Restore property damaged as a result of such cleaning and preparation operations to pre-existing conditions.
- b. During the course of normal cleaning operations immediately report pre-existing damage such as broken or missing pipe to the District.
- c. When hydraulically propelled cleaning tools or tools which retard the flow in the sewer line are utilized, take precautions to ensure that the water pressure created does not damage or cause flooding on the adjacent site.
- d. If cleaning of an entire sewer section cannot be successfully performed from one manhole or structure, set up the equipment on the other entry or exit point and attempt cleaning again.
- e. If successful cleaning cannot be performed from the opposite end or the equipment fails to traverse the entire pipeline section, cease cleaning those specific sewer sections, notify the District and CCTV inspect both sides of the pipeline section to determine the cause of the blockage.

### 3.1.2 Manhole or Structure Cleaning

Clean concrete and masonry surfaces prior to CCTV inspection. Completely remove grease, laitance, loose bricks, mortar, unsound concrete, loose or damaged wall mounted steps (cut flush with wall), and other materials.

Perform a 360-degree CCTV inspection of all downstream and upstream structures. Include a full CCTV inspection of the annulus between the outside of the pipe and the structure.

### 3.1.3 Flow Control

Reduce the flow depth to allow a minimum of 80 percent of the pipe wall to be displayed at all times during inspection so that defects, features, and other notable information can be collected.

#### 3.1.3.1 Flow Reduction

Flow depth reduction can be accomplished by:

- a. Providing bypass pumping.
- b. High-pressure jet nozzle.
- c. Plugging or by pulling the camera with a swab.
- d. Performing the CCTV inspection during periods of minimal flow.

#### 3.1.3.2 Floating the Camera

Video inspection performed while floating the camera is not acceptable. Lower water levels as indicated in paragraph FLOW CONTROL.

### 3.1.4 Material Removal and Disposal

Remove sludge, dirt, roots, grease, and other solid or semi-solid material resulting from cleaning operations at the downstream manhole or structure of the section being cleaned.

#### 3.1.4.1 Dams or Weirs

When hydraulic cleaning equipment is used, place dam or weirs in the downstream manhole or structure to trap such materials. Do not allow material to pass from pipeline section to pipeline section, which could cause stoppages, accumulations of sand in wet wells, or damage to pumping equipment.

#### 3.1.4.2 Sludge and Debris Storage

Under no circumstances is sludge or other debris removed during these operations to be stored, dumped or spilled into streets, ditches, storm drains, or other sanitary sewer systems.

- a. Dispose of solids and semi-solids resulting from the cleaning operations no less often than the end of each work day in accordance with the approved Disposal Plan.
- b. Under no circumstances will debris be allowed to accumulate on the work site beyond the end of each work day, except in totally enclosed containers and as acceptable by the District.
- c. Continuously maintain the haul route and work areas neat, clean, and reasonably free of odor. Cleanup any spill which occurs during the transport of cleaning or surface preparation by-products. Perform the cleanup of any such material pursuant to this Contract and in accordance with applicable law and environmental regulations.
- d. Immediately notify the District of any spill and begin clean up any such spill or waste.
- e. The District will charge to the Contractor for any costs incurred or penalties imposed upon the District as a result of the spill, dump or discard.
- f. Under no circumstances is this material to be discharged into the waterways or any place other than where authorized to do so in accordance with the approved Work Plan.

### 3.2 APPLICATION

#### 3.2.1 Inspection of Sewer Lines

Inspection of sewer lines applies to Pre-TV inspection, Post-TV inspection, RE-TV inspection and Warranty-TV inspection. Perform inspections of sewer lines in the presence of the District.

##### 3.2.1.1 Communication

Set up hand operated radios, telephones, or other means of communication between the entry and exit points being inspected to ensure uninterrupted communication between members of the CCTV crew when manually operated winches are used to pull the television camera through the line.

### 3.2.1.2 Flush Main

Introduce a minimum of 1000 gallons of clear, potable water into the upstream manhole or structure or access structure of the mains to be CCTV inspected just prior to inserting the camera.

### 3.2.1.3 Camera Operation

Set counter to 0.00 feet at the entry point, which is the beginning manhole or structure wall. Move the camera through the line in either direction at a moderate speed, stopping to permit proper documentation of the sewer's condition or service connection locations. In no case will the camera be operated at a speed greater than 30 feet per minute. Slowly pan and tilt the camera at the beginning and ending manhole, structure connections, service connections, joints, visible defects, and pipe arterial transitions. Provide a full 360 degree view of the pipe, joints, and service connections.

Utilize manual winches, power winches, cable, powered rewinds or other devices that do not obstruct the camera view or interfere with camera operation or CCTV inspection of the pipe conditions as the camera is moved through the sewer line.

#### 3.2.1.3.1 Recording Defects

During CCTV inspection, temporarily stop the camera at each defect or feature along the line.

### 3.2.1.4 Documentation of CCTV Inspection

Documentation of CCTV inspection applies to Pre-TV inspection, Post-TV inspection, RE-TV inspection and Warranty-TV inspection.

Utilize a data logger and reporting system that is PACP compliant to make a video and audio recording of the CCTV inspections. Submit video recordings, inspection logs and digital photographs as indicated below.

#### 3.2.1.4.1 Video Recordings

Provide a color video showing the completed work and document the inspection on a digital recorder. Capture inspection video in either MPEG4 or Windows Media Video (WMV) format with a minimum resolution of 352 x 240 pixels and an interlaced frame rate at a minimum of 24 frames per second. Save video on CD or DVD. However, the CCTV inspection video of a segment must be wholly contained on a single CD, DVD or portable hard drive. The video recording must meet the following requirements:

- a. Provide a continuous and uninterrupted recorded video for the pipe segment being examined. Include the official project title, Contracting party, Contractor's name, street name, manhole or structure ID numbers, direction of video and flow, date and time video was recorded, continuous counter text, pipe size and material, material changes in the pipe segment, audio and text call outs of laterals, fixtures and problem areas in the recorded video.
- b. Include an audio track recorded by the CCTV technician during the actual inspection work with a description of the parameters of the line being inspected on the video recordings. The audio may be from

the voice of the CCTV technician or it may be computer generated.

- c. Include the location, pipe diameter, pipe material, defects, service lateral locations and any unusual conditions found in PACP format.
- d. Submit labeled CDs, DVDs, or portable hard drives of the video inspections.
- e. Without exception, CCTV inspections must be continuous without video interruption or gaps for pipe segments.
- f. Clean, flush, and RE-TV pipe segments with video interruptions or gaps.

#### 3.2.1.4.2 TV Inspection Logs

Submit computer generated records that clearly show the location and orientation in relation to an adjacent manhole or structure of each infiltration point observed during the inspection.

Record other points of significance such as locations and orientations of service connections, missing or broken pipe, roots, the presence of grease, scale or corrosion, bellies, fractures, cracks, and other discernible features using PACP designations.

#### 3.2.1.4.3 Digital Photographs

Submit JPEG images at a minimum resolution of 640 x 480 pixels. Save digital photographs in JPEG file format on CD, DVD, or portable hard drives. Document noted defects and lateral connections as color digital files and hard copy print-outs. Photo logs are to accompany each photo submitted.

#### 3.2.2 Pre-TV Inspection

Immediately after cleaning has been performed, complete a Pre-TV inspection, in accordance with paragraph INSPECTION OF SEWER LINES. Submit Pre-TV inspection documentation in accordance with paragraph DOCUMENTATION OF CCTV INSPECTION.

If cleaning and inspection are the only scope items, this inspection will suffice as the only necessary inspection.

#### 3.2.3 Post-TV Inspection

Immediately after visual, deflection, pressure and leak testing and service reconnections are complete on a pipe segment, complete Post-TV inspection accordance with paragraph INSPECTION OF SEWER LINES. Submit Post-TV inspection documentation in accordance with paragraph DOCUMENTATION OF CCTV INSPECTION.

##### 3.2.3.1 Post-TV Defects

If defects are found in the mains or services during the Post-TV inspection make repairs according to the specifications. RE-TV all repairs accordance with paragraph INSPECTION OF SEWER LINES. Provide additional RE-TV inspections of complete pipe segments as follows:

- a. Perform a RE-TV inspection of the complete pipe segment. If no additional defects are found in the Re-TV inspections, then the Post-TV inspection is complete.



- b. If defects are found in these additional inspections make repairs according to the specifications and provide Re-TV inspection for the complete pipe segment.
- c. If defects are found in these additional inspections make repairs according to the specifications and Re-TV the repaired pipe segments until no Post-TV defects are found.

#### 3.2.4 Warranty-TV Inspection

Complete a Warranty-TV inspection starting no earlier than 60 days prior to expiration of the warranty and submit no later than 30 days prior to the expiration of the warranty. Comply with paragraphs TV INSPECTION OF SEWER LINES and DOCUMENTATION OF CCTV INSPECTION. Complete Warranty-TV inspections in the presence of the District. The District has the option to select the pipe segments for the Warranty-TV inspection. Comply with the following requirements:

- a. Provide a complete pipe segment Warranty-TV inspection of pipe segments where a liner repair was performed during Post-TV Inspection.
- b. Provide a complete pipe segment Warranty-TV inspection of pipe segments where a point repair was performed.
- c. Provide a Warranty-TV inspection of at least one full pipe segment of each size and type of slip lining installed.
- d. Provide a Warranty-TV inspection of at least 10 percent of the total length of all pipe segments.

All of Warranty-TV inspections above may be included to satisfy the percentage of total length requirement. If no defects are found in the mains and services in the above minimum pipe segments inspected, then the Warranty-TV inspection is complete.

##### 3.2.4.1 Warranty-TV Defects

If defects are found in the mains or services during the Post-TV inspection make repairs according to the specifications. RE-TV all repairs. Provide additional Warranty-TV inspections of complete pipe segments as follows:

- a. Warranty-TV inspect an additional 15 percent of the footage based on the length of the total project. If no additional defects are found in the additional Warranty-TV inspections, then the Warranty-TV inspection is complete.
- b. If defects are found in these additional inspections make repairs according to the specifications, RE-TV all repairs and provide Warranty-TV inspections for the remaining pipe segments in the project.
- c. If defects are found in these additional inspections make repairs according to the specifications and Re-TV the repaired pipe segments.

##### 3.2.5 RE-TV Inspection

After repairs are made to a main or service, complete RE-TV inspection accordance with paragraph INSPECTION OF SEWER LINES and DOCUMENTATION OF

CCTV INSPECTION.

3.3 CLOSEOUT ACTIVITIES

3.3.1 Sewer Cleaning

Submit copies of all inspections within 1-week of project completion.

-- End of Section --