



Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Centralized Request for Quote
 Equipment

Proc Folder: 1294516			Reason for Modification: Addendum No_3 Vendor Questions and Responses
Doc Description: ADDENDUM NO_3 Truck Mounted Culvert Cleaner			
Proc Type: Central Master Agreement			
Date Issued	Solicitation Closes	Solicitation No	Version
2023-10-13	2023-10-23 13:30	CRFQ 0803 DOT2400000023	4

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

RECEIVED

2023 OCT 23 AM 11:48

WV PURCHASING
DIVISION

VENDOR

Vendor Customer Code: 000000204452

Vendor Name: West Virginia Tractor Company

Address: PO Box 473

Street: 214 Virginia Street West

City: Charleston

State: WV **Country:** US **Zip:** 25322

Principal Contact: Gary Grady

Vendor Contact Phone: 304-346-5301 **Extension:**

FOR INFORMATION CONTACT THE BUYER
 John W Estep
 304-558-2566
 john.w.estep@wv.gov

Vendor Signature X  **FEIN#** 550621655 **DATE** 10-17-23

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION

ADDENDUM NO_3

Addendum No_3 issued to publish and distribute the attached information to the Vendor Community.

REQUEST FOR QUOTATION:

The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Division of Highways, Department of Transportation to establish an open-end contract for a (WVDOH Class 813) Truck Mounted Culvert Cleaner Vector Ramjet or Equal. Per the Bid Requirements, Specifications, Terms and Conditions attached to this solicitation.

INVOICE TO**SHIP TO**

DIVISION OF HIGHWAYS
EQUIPMENT DIVISION RT 33
83 BRUSHY ROAD
CROSSING, PO BOX 610
BUCKHANNON WV
US

DIVISION OF HIGHWAYS
EQUIPMENT DIVISION
83 BRUSHY FORK RD
CROSSING
BUCKHANNON WV
US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Truck Mounted Culvert Cleaner	10.00000	EA		

Comm Code**Manufacturer****Specification****Model #**

25101935

Extended Description:

Truck Mounted Culvert Cleaner

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	Pre-Bid Equipment Division Buckhannon @ 11:00am	2023-10-05
2	Tech Questions due by 10:00am	2023-10-12

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ DOT2400000023

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|----------------------------------------------------|------------------------------------------|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input checked="" type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

West Virginia Tractor Company

Company



Authorized Signature

10-17-23

Date

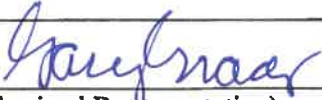
NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Gary Grady President
(Address) PO Box 473 Charleston WV 25322
(Phone Number) / (Fax Number) 304-346-5301 304-346-5305
(email address) wvtractor@msn.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

West Virginia Tractor Company
(Company) 
(Signature of Authorized Representative)
Gary Grady President
(Printed Name and Title of Authorized Representative) (Date)
304-346-5301 304-346-5301
(Phone Number) (Fax Number)
wvtractor@msn.com
(Email Address)

REQUEST FOR QUOTATION
(WVDOH CLASS 813) Truck Mounted Culvert Cleaner Vactor Ramjet Or Equal.

7.1.4 Failure to remedy deficient performance upon request.

7.2 The following remedy shall be available to Agency upon default.

7.2.1 Immediate cancellation of the contract.

7.2.2 Immediate cancellation of one or more release orders issued under this Contract.

7.2.3 Any other remedies available in law or equity.

8. MISCELLANEOUS:

8.1 No Substitutions: Vendor shall supply only Contract Items submitted in Response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.

8.2 Reports: Vendor shall provide quarterly reports and annual summaries to the Agency showing the Agency's items purchased, quantities of items purchased, and total dollar value of the items purchased. Vendor shall also provide reports, upon request, showing the items purchased during the term of this Contract, the quantity purchased for each of those items, and the total value of purchases for each of those items. Failure to supply such reports may be grounds for cancellation of this Contract.

8.3 Contract Manager: During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Gary Grady
Telephone Number: 304-346-5301
Fax Number: 304-346-5305
Email Address: wvtractor@msn.com

VENDOR: West Virginia Tractor Co **Truck mounted culvert cleaner**

Item No.	Description:	Model & Part Number Being Bid	Estimated Unit Quantity	Unit Price	Item Total Cost
1	Vactor Ramjet truck mounted culvert cleaner or equal	Vactor Ramjet	10	\$302,976	\$302,976
Total Bid Cost					\$3,029,760

Bid Will Be Awarded To The Lowest Overall Bid Total For All Items

Vendor Information

Company Name:	West Virginia Tractor Company
Contact Manager:	Gary Grady
Address:	PO Box 473 Charleston WV 25322
Phone:	304-346-5301
Fax:	304-346-5305
E-mail:	wvtractor@msn.com
Signature:	<i>Gary Grady</i>

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. Application is made for 2.5% vendor preference for the reason checked:

- Bidder is an individual resident vendor and has resided continuously in West Virginia, or bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia, for four (4) years immediately preceding the date of this certification; **or**,
- Bidder is a resident vendor partnership, association, or corporation with at least eighty percent of ownership interest of bidder held by another entity that meets the applicable four year residency requirement; **or**,
- Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or**,

2. Application is made for 2.5% vendor preference for the reason checked:

- Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,

3. Application is made for 2.5% vendor preference for the reason checked:

- Bidder is a nonresident vendor that employs a minimum of one hundred state residents, or a nonresident vendor which has an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia and employs a minimum of one hundred state residents, and for purposes of producing or distributing the commodities or completing the project which is the subject of the bidder's bid and continuously over the entire term of the project, on average at least seventy-five percent of the bidder's employees or the bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years and the vendor's bid; **or**,

4. Application is made for 5% vendor preference for the reason checked:

- Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or**,

5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

- Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or**,

6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

- Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with West Virginia Code §5A-3-59 and West Virginia Code of State Rules.

- Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

8. Application is made for reciprocal preference.

- Bidder is a West Virginia resident and is requesting reciprocal preference to the extent that it applies.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) rescind the contract or purchase order; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: West Virginia Tractor Company

Signed: _____

Date: 10-17-23

Title: President



CERTIFICATE OF GARAGE INSURANCE

DATE (MM/DD/YYYY)
04/21/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Sentry Insurance 1800 North Point Drive Stevens Point, WI 54481	CONTACT NAME: Sentry Customer Service
	PHONE (A/C, No, Ext): 800-473-6879 FAX (A/C, No): 800-514-7191 EMAIL ADDRESS: businessproducts_direct@sentry.com
INSURER(S) AFFORDING COVERAGE	
INSURER A : Sentry Select Insurance Company	NAIC # 21180
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

COVERAGES PROD / CUSTOMER ID: CERTIFICATE #: 1311744 REVISION #:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSRD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS			
A	GARAGE LIABILITY			A0053698001	04/01/2023	04/01/2024	AUTO ONLY (Ea accident)		\$ 500,000	
	<input checked="" type="checkbox"/> ANY AUTO	<input checked="" type="checkbox"/> HIRED AUTOS ONLY					OTHER THAN AUTO ONLY	EA ACCIDENT	\$ 500,000	
	<input checked="" type="checkbox"/> OWNED AUTOS ONLY	<input checked="" type="checkbox"/> NON-OWNED AUTOS USED IN GARAGE BUSINESS						AGGREGATE	\$ 2,500,000	
	<input checked="" type="checkbox"/> Scheduled Autos									
A	GARAGE KEEPERS LIABILITY			A0053698001	04/01/2023	04/01/2024	<input checked="" type="checkbox"/> COMP / OTC SPECIFIED PERILS	LOC	1	\$ 250,000
	<input type="checkbox"/> LEGAL LIABILITY						<input checked="" type="checkbox"/> COLLISION	LOC	1	\$ 250,000
	<input type="checkbox"/> DIRECT BASIS							LOC		\$
	<input type="checkbox"/> PRIMARY <input type="checkbox"/> EXCESS									
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY			A0053698005	04/01/2023	04/01/2024	EACH OCCURRENCE		\$ 1,000,000	
	<input type="checkbox"/> CLAIMS-MADE	<input checked="" type="checkbox"/> OCCUR					DAMAGE TO RENTED PREMISES (Ea occurrence)		\$ 500,000	
			X				MED EXP (Any one person)		\$ 5,000	
							PERSONAL & ADV INJURY		\$ 1,000,000	
							GENERAL AGGREGATE		\$ 3,000,000	
							PRODUCTS - COMP/OP AGG		\$ 2,000,000	
	GEN'L AGGREGATE LIMIT APPLIES PER:									
	<input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC									
	<input type="checkbox"/> OTHER							\$		
A	<input checked="" type="checkbox"/> UMBRELLA LIAB	<input checked="" type="checkbox"/> OCCUR		A0053698008	04/01/2023	04/01/2024	EACH OCCURRENCE		\$ 2,000,000	
	<input checked="" type="checkbox"/> EXCESS LIAB	<input type="checkbox"/> CLAIMS-MADE					AGGREGATE		\$ 6,000,000	
	<input type="checkbox"/> DED	<input type="checkbox"/> RETENTION \$					PRODUCTS - COMP/OP AGG		\$ 6,000,000	
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY		N / A				<input type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER			
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT	\$		
	If yes, describe under REMARKS below						E.L. DISEASE - EA EMPLOYEE	\$		
							E.L. DISEASE - POLICY LIMIT	\$		
A	ERRORS & OMISSIONS			A0053698004	04/01/2023	04/01/2024	Employee Benefits	Occurrence Limit	\$ 500,000	
							Errors & Omissions	Annual Aggregate Limit	\$ 1,000,000	
								Deductible	\$ 1,000	
							All Other Errors & Omissions	Occurrence Limit	\$ 250,000	
								Annual Aggregate Limit	\$ 500,000	
								Deductible	\$ 1,000	

REMARKS (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Refer to attached

CERTIFICATE HOLDER

VV DOH
83 Brushy Road Xing
PO Box 610
Buckhannon, WV 26201-0610

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

ACORD 30 (2016/03)



AGENCY CUSTOMER ID: XXXXXX1655

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

Page 2 of 2

AGENCY Melanie Rosenbaum		NAMED INSURED West Virginia Tractor Co.	
POLICY NUMBER A0053698001			
CARRIER Sentry Select Insurance Company	NAIC CODE 21180	EFFECTIVE DATE: 04/01/2023	

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: ACORD 30 **FORM TITLE:** Certificate Of Garage Insurance

General Liability

WV DOH AND STATE OF WEST VIRGINIA ARE ADDITIONAL INSURED ON THE GENERAL LIABILITY, PER THE POLICY PROVISIONS IF REQUIRED AS SUCH IN WRITTEN CONTRACCT WITH THE NAMED INSURED. GARAGE LIABILITY INCLUDES THE AUTOMOBILE LIABILITY. ANY AUTO COVERAGE INCLUDED. EXCESS/UMBRELLA LIABILITY FOLLOWS FORM.

Errors and Omissions Liability Coverage:

Policy Number: A0053698004 Effective date: 04/01/2023 Expiration Date: 04/01/2024
 Per Occurrence Limit: \$250,000 General Aggregate Limit: \$500,000
 Truth-In-Lending and Truth-In-Leasing
 Odometer Hour Meter and Prior Damage Disclosure Errors and Omissions
 Title Errors and Omissions

Prepared For:

West Virginia Division Of Highways
Crystal G Hustead
83 Brushy Road Crossing
Buckhannon, WV 26201-
(304)558 - 2307
Reference ID: N/A

Presented By:

NEWLONS INTL SALES LLC
Beau Newlon
RT 250 S BEVERLY PIKE
PO BOX 134
ELKINS WV 26241 -
(304)636-4561

Thank you for the opportunity to provide you with the following quotation on a new International truck. I am sure the following detailed specification will meet your operational requirements, and I look forward to serving your business needs.

Model Profile
2025 MV607 SBA (MV607)

AXLE CONFIG:	4X2
APPLICATION:	Tank, Other
MISSION:	Requested GVWR: 35000. Calc. GVWR: 37000. Calc. GCWR: 80000 Calc. Start / Grade Ability: 39.83% / 2.55% @ 55 MPH Calc. Geared Speed: 75.9 MPH
DIMENSION:	Wheelbase: 179.00, CA: 111.90, Axle to Frame: 63.00
ENGINE, DIESEL:	{Cummins L9 270} EPA 2024, 270HP @ 2200 RPM, 860 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 270 Peak HP (Max)
TRANSMISSION, AUTOMATIC:	{Allison 3500 RDS} 6th Generation Controls, Wide Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, with 80,000-lb GVW and GCW Max, On/Off Highway
CLUTCH:	Omit Item (Clutch & Control)
AXLE, FRONT NON-DRIVING:	{Meritor MFS-14-122A} I-Beam Type, 14,000-lb Capacity
AXLE, REAR, SINGLE:	{Meritor RS-23-160} Single Reduction, 23,000-lb Capacity, 200 Wheel Ends Gear Ratio: 5.38
CAB:	Conventional, Day Cab
TIRE, FRONT:	(2) 315/80R22.5 Load Range L HAU 3 WT (CONTINENTAL), 480 rev/mile, 68 MPH, All-Position
TIRE, REAR:	(4) 11R22.5 Load Range H DH37 (HANKOOK), 497 rev/mile, 75 MPH, Drive
SUSPENSION, REAR, SINGLE:	23,500-lb Capacity, Vari-Rate Springs, with 4500-lb Capacity Auxiliary Rubber Springs
PAINT:	Cab schematic 100WP Location 1: 4421, School Bus Yellow (Std) Chassis schematic N/A

<u>Code</u>	<u>Description</u>
MV60700	Base Chassis, Model MV607 SBA with 179.00 Wheelbase, 111.90 CA, and 63.00 Axle to Frame.

AXLE CONFIGURATION

1ANA	AXLE CONFIGURATION {Navistar} 4x2
	<u>Notes</u> : Pricing may change if axle configuration is changed.

ENGINE

12EYV	ENGINE, DIESEL {Cummins L9 270} EPA 2024, 270HP @ 2200 RPM, 860 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 270 Peak HP (Max)
12VJS	EMISSION, CALENDAR YEAR {Cummins L9} EPA, OBD and GHG Certified for Calendar Year 2024
12XCS	CARB EMISSION WARR COMPLIANCE Does Not Comply with CARB Emission Warranty
12WZE	CARB IDLE COMPLIANCE Does Not Comply with California Clean Air Idle Regulations
12WVG	EPA IDLE COMPLIANCE Low NOx Idle Engine, Complies with EPA Clean Air Regulations; Includes "Certified Clean Idle" Decal on Hood
12XCA	RADIATOR Aluminum, 3-Row, Down Flow, Front to Back System, 837 SqIn Louvered, with 477 SqIn Charge Air Cooler, Includes In-Tank Oil Cooler
12THT	FAN DRIVE {Horton Drivemaster} Two-Speed Type, Direct Drive, with Residual Torque Device for Disengaged Fan Speed
	<u>Includes</u> : FAN Nylon
12VCE	AIR CLEANER Single Element, Fire Retardant Media
12703	ANTI-FREEZE Red, Extended Life Coolant; To -40 Degrees F/ -40 Degrees C, Freeze Protection
12XBM	ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls and Starter Lockout, with Ignition Switch Control, for Cummins B6.7 and L9 Engines
12WUN	ENGINE WATER COOLER Auxiliary, Supply and Return Connections for Customer Installed Cooler Package, Located Inside Right Frame Rail
12VXT	THROTTLE, HAND CONTROL Engine Speed Control; Electronic, Stationary, Variable Speed; Mounted on Steering Wheel

TRANSMISSION

13BDR	TRANSMISSION, AUTOMATIC {Allison 3500 RDS} 6th Generation Controls, Wide Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, with 80,000-lb GVW and GCW Max, On/Off Highway
13WYH	TRANSMISSION TCM LOCATION Located Inside Cab
13WUH	ALLISON SPARE INPUT/OUTPUT for Rugged Duty Series (RDS), Airport Refueler, Sewer Evac, Package Number 150
13WVV	NEUTRAL AT STOP Allison Transmission Shifts to Neutral When Service Brake is Depressed and Vehicle is at Stop; Remains in Neutral Until Service Brake is Released
13XAM	PTO LOCATION Dual, Customer Intends to Install PTO at Left and/or Right Side of Transmission
13WYU	SHIFT CONTROL PARAMETERS {Allison} 3000 or 4000 Series Transmissions, Performance Programming
13WLP	TRANSMISSION OIL Synthetic; 29 thru 42 Pints

<u>Code</u>	<u>Description</u>
13WET	TRANSMISSION SHIFT CONTROL Column Mounted Stalk Shifter, Not for Use with Allison 1000 & 2000 Series Transmission

CLUTCH

11001	CLUTCH Omit Item (Clutch & Control)
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REAR AXLES, SUSPENSIONS

14051	AXLE, REAR, SINGLE {Meritor RS-23-160} Single Reduction, 23,000-lb Capacity, 200 Wheel Ends . Gear Ratio: 5.38
14VAH	SUSPENSION, REAR, SINGLE 23,500-lb Capacity, Vari-Rate Springs, with 4500-lb Capacity Auxiliary Rubber Springs

FRONT AXLES

2AST	AXLE, FRONT NON-DRIVING {Meritor MFS-14-122A} I-Beam Type, 14,000-lb Capacity
------	-------------------------------------------------------------------------------

FRONT SUSPENSIONS

3ADD	SUSPENSION, FRONT, SPRING Parabolic Taper Leaf, Shackle Type, 14,000-lb Capacity, with Shock Absorbers <u>Includes</u> : SPRING PINS Rubber Bushings, Maintenance-Free
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CABS, COWLS, BODIES

16030	CAB Conventional, Day Cab <u>Includes</u> : CLEARANCE/MARKER LIGHTS (5) Flush Mounted
16ZBT	ACCESS, CAB Steel, Driver & Passenger Sides, Two Steps per Door, for use with Day Cab and Extended Cab
16BAM	AIR CONDITIONER with Integral Heater and Defroster
16VKB	CAB INTERIOR TRIM Classic, for Day Cab <u>Includes</u> : CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets, Retainer Nets and CB Radio Pocket; Located Above Driver and Passenger : DOME LIGHT, CAB Door Activated and Push On-Off at Light Lens, Timed Theater Dimming, Integral to Overhead Console, Center Mounted : SUN VISOR (2) Padded Vinyl; 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Toll Ticket Strap
16VLK	CAB REAR SUSPENSION Air Suspension, for Mid Cab Height
16GEG	GAUGE CLUSTER Premium Level; English with English Electronic Speedometer <u>Includes</u> : GAUGE CLUSTER DISPLAY: Base Level (3" Monochromatic Display), Premium Level (5" LCD Color Display); Odometer, Voltmeter, Diagnostic Messages, Gear Indicator, Trip Odometer, Total Engine Hours, Trip Hours, MPG, Distance to Empty/Refill for : GAUGE CLUSTER Speedometer, Tachometer, Engine Coolant Temp, Fuel Gauge, DEF Gauge, Oil Pressure Gauge, Primary and Secondary Air Pressure or Auxiliary Air Pressure (if Air Equipped) : WARNING SYSTEM Low Fuel, Low DEF, Low Oil Pressure, High Engine Coolant Temp, Low Battery Voltage (Visual and Audible), Low Air Pressure, Primary and Secondary (if Air Equipped)
16XJN	INSTRUMENT PANEL Flat Panel

<u>Code</u>	<u>Description</u>
16HKT	IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster
16SNM	MIRRORS (2) C-Loop, Heated, Black Heads and Arms, 7.5" x 14" Flat Glass, Includes 7.5" x 7" Convex Mirrors, for 102" Load Width
	<u>Notes</u> : Mirror Dimensions are Rounded to the Nearest 0.5"
16JNT	SEAT, DRIVER {National 2000} Air Suspension, High Back with Integral Headrest, Vinyl, Isolator, 1 Chamber Lumbar, with 2 Position Front Cushion Adjust, -3 to +14 Degree Angle Back Adjust
16SMN	SEAT, PASSENGER {National} Non Suspension, High Back, Fixed Back, Integral Headrest, Vinyl
16XDU	TELEMATICS BRACKET with Universal Mount, 1.5" Ball Mount Size, for Customer Supplied Telematics Device, Mounted in Auxiliary Gauge Location in Flat Panel, Includes (1) APO, (1) USB-A Port, (1) USB-C Port
16XCK	WINDOW, MANUAL (2) and Manual Door Locks, Left and Right Doors

FRAMES

1CAG	FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.250" x 3.610" x 0.375" (260.4mm x 91.7mm x 9.5mm); 456.0" (11582mm) Maximum OAL
1LNG	BUMPER, FRONT Contoured, Steel, Painted Gloss Black
1MEJ	FRAME DIMPLE Dimple on Left and Right Top Flange of Frame Rail to Reference Rear Axle Centerline
1570	TOW HOOK, FRONT (2) Frame Mounted
1WEH	WHEELBASE RANGE 134" (340cm) Through and Including 197" (500cm)

BRAKES

4091	BRAKE SYSTEM, AIR Dual System for Straight Truck Applications <u>Includes</u> : BRAKE LINES Color and Size Coded Nylon : DRAIN VALVE Twist-Type : GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster : PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel : PARKING BRAKE VALVE For Truck : QUICK RELEASE VALVE On Rear Axle for Spring Brake Release: 1 for 4x2, 2 for 6x4 : SPRING BRAKE MODULATOR VALVE R-7 for 4x2, SR-7 with relay valve for 6x4/8x6
4AZA	AIR BRAKE ABS {Bendix AntiLock Brake System} 4-Channel (4 Sensor/4 Modulator) Full Vehicle Wheel Control System
4GBM	BRAKE, PARKING Manual Push-Pull Pneumatic Parking Brake
4XDP	BRAKES, FRONT {Meritor 16.5X5 Q-PLUS CAST} Air S-Cam Type, Cast Spider, Fabricated Shoe, Double Anchor Pin, Size 16.5" X 5", 14,700-lb Capacity
4EXV	BRAKE CHAMBERS, FRONT AXLE {Bendix} 24 SqIn
4LAG	SLACK ADJUSTERS, FRONT {Gunite} Automatic
4XDR	BRAKES, REAR {Meritor 16.5X7 Q-PLUS CAST} Air S-Cam Type, Cast Spider, Fabricated Shoe, Double Anchor Pin, Size 16.5" X 7", 23,000-lb Capacity per Axle
4EXU	BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 30/30 SqIn Spring Brake
4LGG	SLACK ADJUSTERS, REAR {Gunite} Automatic
4WDM	DUST SHIELDS, REAR BRAKE for Air Cam Brakes

<u>Code</u>	<u>Description</u>
4ERC	BRAKE CHAMBERS, POSITION Relocated To Rear Of Rear Axle For Maximum Ground Clearance
4SPA	AIR COMPRESSOR {Cummins} 18.7 CFM
4EDN	AIR DRYER {Bendix AD-9SI} with Heater, Includes Safety Valve
4VLE	AIR DRYER LOCATION Mounted Inside Engine Compartment, Right Side
4XEZ	AIR TANK LOCATION (2) Mounted Between the Rails, Back of Cab, One on Each Side, Parallel to Rails
4722	DRAIN VALVE {Bendix DV-2} Automatic, with Heater, for Air Tank

STEERING

5PSA	STEERING GEAR {Sheppard M100} Power
5708	STEERING COLUMN Tilting
5CAW	STEERING WHEEL 4-Spoke; 18" Dia., Black

DRIVELINES

6DGC	DRIVELINE SYSTEM {Dana Spicer} SPL170, for 4x2/6x2
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EXHAUST SYSTEMS

7BLW	EXHAUST SYSTEM Horizontal Aftertreatment System, Frame Mounted Right Side Under Cab, for Single Vertical Tail Pipe, Frame Mounted Right Side Back of Cab
7BEV	AFTERTREATMENT COVER Steel, Black
7SCP	ENGINE EXHAUST BRAKE for Cummins ISB/B6.7/ISL/L9 Engine with Variable Vane Turbo Charger
7WDM	EXHAUST HEIGHT 10'
7WDN	MUFFLER/TAIL PIPE GUARD (1) Aluminum
7WAZ	TAIL PIPE (1) Turnback Type

ELECTRICAL SYSTEMS

8000	ELECTRICAL SYSTEM 12-Volt, Standard Equipment <u>Includes</u> : DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab : HAZARD SWITCH Push On/Push Off, Located on Instrument Panel to Right of Steering Wheel : HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever : PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light : STARTER SWITCH Electric, Key Operated : STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector : TURN SIGNAL SWITCH Self-Cancelling for Trucks, Manual Cancelling for Tractors, with Lane Change Feature : TURN SIGNALS, FRONT Includes Reflectors and Auxiliary Side Turn Signals, Solid State Flashers; Flush Mounted : WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), Integral with Turn Signal Lever : WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted : WIRING, CHASSIS Color Coded and Continuously Numbered
8GXD	ALTERNATOR {Leece-Neville AV1160P2013} Brush Type, 12 Volt, 160 Amp Capacity, Pad Mount, with Remote Sense
8RPR	ANTENNA for Increased Roof Clearance Applications

<u>Code</u>	<u>Description</u>
8THB	BACK-UP ALARM Electric, 102 dBA
8XDU	BATTERY BOX Steel, with Aluminum Cover, 14" Wide, 2-3 Battery Capacity, Mounted Left Side Under Cab
8XHD	BATTERY DISCONNECT SWITCH 300 Amp, Disconnects Charging Circuits, Locks with Padlock, Cab Mounted
8MSG	BATTERY SYSTEM {Fleetrite} Maintenance-Free, (3) 12-Volt 1980CCA Total, Top Threaded Stud
8HAB	BODY BUILDER WIRING Back of Day Cab at Left Frame or Under Sleeper, Extended or Crew Cab at Left Frame; Includes Sealed Connectors for Tail/Amber Turn/Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn
8XAH	CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III with Trip Indicators, Replaces All Fuses
8WPH	CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade
8XMB	CONNECTOR, DASH, CENTER PANEL Cab Wiring for TMC RP1226 Vehicle Accessory Connector; Includes 14-pin Connector with Switched Power, Battery Power, Ignition Power, Ground & Body 250K Datalink, Connector Located Behind Instrument Panel Center Console
8XNY	HEADLIGHTS Halogen
8XHN	HORN, AIR Single Trumpet, Black, with Lanyard Pull Cord
8VBE	HORN, ELECTRIC (1) Trumpet Style
8WWJ	INDICATOR, LOW COOLANT LEVEL with Audible Alarm
8RPS	RADIO AM/FM/WB/Clock/Bluetooth/USB Input/Auxiliary Input
8RMV	SPEAKERS (2) 6.5" Dual Cone Mounted in Doors
8WXG	STARTING MOTOR {Mitsubishi Electric Automotive America 105P} 12-Volt, with Soft-Start

FRONT END

9WBW	FRONT END Tilting, Fiberglass, with Three Piece Construction, Dual Air Intakes
9WBN	FENDER EXTENSIONS Painted
9HCX	GRILLE Stationary, Molded in Black
9AAB	LOGOS EXTERIOR Model Badges
9AAE	LOGOS EXTERIOR, ENGINE Badges

SPEEDOMETER, TOOLS, MISC

10AGB	COMMUNICATIONS MODULE Telematics Device with Over the Air Programming; Includes Five Year Data Plan and International 360
10060	PAINT SCHEMATIC, PT-1 Single Color, Design 100 <u>Includes</u> : PAINT SCHEMATIC ID LETTERS "WP"
10761	PAINT TYPE Base Coat/Clear Coat, 1-2 Tone
10SLV	PROMOTIONAL PACKAGE Government Silver Package

FUEL TANKS

15SXJ	FUEL TANK Top Draw, Non-Polished Aluminum, 24" Dia, 50 US Gal (189L), Mounted Left Side, Under Cab
15WCN	DEF TANK 5 US Gal (19L) Capacity, Frame Mounted Outside Left Rail, Under Cab

<u>Code</u>	<u>Description</u>
15WCS	FUEL COOLER Less Thermostat; Mounted in Front of Cooling Module
15LMR	FUEL/WATER SEPARATOR {Racor 400 Series,} with Primer Pump, Includes Water-in-Fuel Sensor
15LRE	LOCATION FUEL/WATER SEPARATOR Mounted Under Hood, Left Side, Above Front Axle

WHEELS, TIRES - FRONT

27DUL	WHEELS, FRONT {Accuride 29300} DISC; 22.5x9.00 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs
7792545437	(2) TIRE, FRONT 315/80R22.5 Load Range L HAU 3 WT (CONTINENTAL), 480 rev/mile, 68 MPH, All-Position

WHEELS, TIRES - REAR

28DJM	WHEELS, REAR {Maxion 91541} DUAL DISC; 22.5x8.25 Rims, Painted Steel, 2-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs
7382135810	(4) TIRE, REAR 11R22.5 Load Range H DH37 (HANKOOK), 497 rev/mile, 75 MPH, Drive

WHEELS MISC OPTIONS

29PBB	PAINT IDENTITY, REAR WHEELS Disc Wheels; with Vendor Applied Black Powder Coat Paint
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Services Section:

WARRANTY

40129	WARRANTY Standard for MV Series, Effective with Vehicles Built July 1, 2017 or Later, CTS-2020A
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VACTOR

BID SPEC

Ramjet

Truck Mounted Sewer Cleaner

For

WVDOT-Highways

US Rt 33 83 Brushy Rd Crossing

Buckhannon

WV

26201

US



VACTOR

Detailed Specifications

For
Ramjet

		COMPLY	
		YES	NO
1.0	INTENT		
1.01	The intent of this specification is to provide for the purchase or lease of one (1) new and unused single-engine sewer cleaner used for removing blockages caused by stones, bottles, cans, grease, sludge and other debris from sanitary sewer and/or storm drain lines by the flushing action of high pressure water. The unit shall consist of a hydraulically driven high pressure water pump and equipped with a self-contained water supply as the source for the water pump system. The machine shall be capable of being operated by one person with all operating controls for high pressure water and hose reel located at the operator's station of the machine. (Submit horsepower requirements of all systems on unit)		
1.02	This specification is not to be interpreted as restrictive, but rather as a measure of the safety, quality, performance and overall cost of ownership against which all equipment bid will be compared. In comparing proposals, consideration will be given to life cycle cost guarantees whereby bidder shall provide all pertinent information to evaluate long-term cost. Contract will be awarded for the product which best serves the interests of considering long-term maintenance cost, parts availability, product support and service cost as well as guaranteed buyback value of bidders equipment. reserves the right to reject any or all bids or any part thereof, and to waive any minor technicalities. Award shall be to the bidder showing most favorable life cycle costing while meeting the requirements of these specifications.		
2.0	EQUIVALENT PRODUCT		



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2.01	Bids will be accepted for consideration on any make or model that is equal or superior to the equipment specified. Decisions of equivalency will be at the sole interpretation of the Purchasing and Public Services Director.		
2.02	Bidder shall demonstrate a reasonable likeness of the equipment being offered within a reasonable time of request. Equipment demonstrated shall be equipped with all accessories and components required in this specification to ascertain equivalence.		
2.03	A blanket statement that equipment proposed will meet all requirements will not be sufficient to establish equivalence. Original manufacturer's brochures of the proposed unit are to be submitted with the proposal.		
3.0	BIDDER REFERENCES		
3.01	To ensure adequate local availability of parts and competent service from experienced suppliers, bids are preferred from local vendors who have sold and serviced at least 30 units of same manufacturer within service area of is preferred and should include contacts with phone numbers.		
4.0	SERVICE AND SUPPORT		
4.01	Location of warranty service center and amount of inventory shall be noted which may be verified and inspected.		
4.02	Amount of OEM parts at this facility: \$		
4.03	Years of servicing equipment being bid: Years		
4.04	Number of factory qualified service technician(s):		
5.0	GENERAL		
5.01	The specification herein states the minimum requirements of the . All bids must be regular in every respect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. Any bid not prepared and submitted in accordance with the bid document and specification, or any bid lacking sufficient technical literature to enable the to make a reasonable determination of compliance to the specification will be considered "non-responsive" and grounds for rejection.		
8.0	WATER TANK		
8.01	The water tank shall have a minimum capacity of 1500 gallons.		



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8.02	The water tank shall be constructed from stainless steel; Type 304.		
8.03	The water tank shall be round in cross section with domed ends to maximize the structural integrity and minimize corner stress concentrations found in rectangular flat sided tanks.		
8.04	The water tank shall incorporate a domed water tank baffling system that will maximize hydrodynamic dampening.		
8.05	The water tank shall be located for the lowest possible center of gravity while providing 100 % of water to gravity feed water pump to maximize volumetric efficiency and eliminate the potential for water pump damage due to cavitation		
8.06	A water level sight tube gauge shall be located on the street side and the curb side.		
8.07	The water tank shall come equipped with an anti-siphon device and 25 feet of 2-1/2 " hydrant fill hose with a quick disconnect cam lock fitting.		
8.08	A water tank filling connection shall be provided on the street side and the curb side.		
8.09	The water tank shall be adequately vented to provide complete filling.		
8.10	A 3 inch "Y" strainer with 80 mesh stainless steel filter screen shall be located in the water tank fill.		
8.11	A low water alarm with indicator at the operator station shall alert operator when water capacity is at 150 gallons.		
8.12	A drain valve shall be provided to allow complete draining of the water tank.		
8.13	The water tank base shall be constructed from stainless steel; type 304. The water tank base shall extend the entire length of the water tank for maximum support. The water tank base shall be bolted to the chassis frame at the rear and spring mounted at the front to allow chassis flexure.		
8.14	The stainless steel water tank and base shall have a ten (10) year warranty against defects in workmanship, corrosion, cracking, UV degradation and other forms of fatigue. Warranty shall not be prorated.		
8.15	An air purge system utilizing the chassis air system shall be provided to assist displacing of residual water out of the high-		



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	pressure water system. System shall utilize the truck chassis air compressor to fill a 14-gallon auxiliary air storage chamber with pressure gauge and pressure protection valves to isolate the holding tank from the chassis compressor. System shall be equipped with ball valve and all necessary high pressure piping hoses, couplings and controls.		
8.16	An ASME coded and safety stamped 2.5 gallon capacity, nitrogen charged bladder type accumulator shall be supplied to eliminate the cycle pulsation action and provide smooth operation at the nozzle when desired. The accumulator system shall have a 1" ball valve shut off to allow the water pump system to operate with pulsation action or smooth flow operation at the nozzle.		
8.17	An extreme cold weather recirculation system - minimum 25 GPM via transmission PTO at chassis engine idle speed.		
8.18	A continuous water fill system shall be provided at the water tank inlet including an air operated valve which opens when the water level in the tanks are low. This water start and stop levels shall be operator set on control screen.		
9.0	WATER PUMP SYSTEM		
9.01	The high pressure dual acting single piston water pump shall be hydraulically driven that directly converts hydraulic oil pressure into water pressure.		
9.02	The hydraulic pump(s) used to power the water pump shall be engaged/disengaged independently from the water pump eliminating unnecessary high pressure ball valve bypass and to help reduce water pump wear.		
9.03	The hydraulic system shall contain a direct acting relief valve. For added protection, the high pressure water system shall also contain a direct acting relief valve.		
9.04	The high pressure water pump shall have a maximum rated flow capacity of 100 GPM and a maximum rated output pressure of 3000 PSI.		
9.05	The high pressure water pump system shall be certified to deliver 0 to 80 GPM at a variable pressure up to 2500 PSI at the hose reel. Full flow and pressure ranges shall be achieved without diverting high pressure water back to the water tank. Variable flow systems diverting or relieving water back to the water tank to achieve full flow range (0 to 80 GPM) are not considered equal		



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	due to additional wear and horsepower/fuel consumption. Any deviation from this requirement shall have full explanation of horsepower consumption.		
9.06	The water system shall be power demand matched to chassis to optimize performance and fuel economy. The high pressure water system shall have hose reel mounted controls for operation.		
9.07	The water pump and associated water suction plumbing shall be located below the water storage tank. With the water pump located below the water tank, 100 % of the water will gravity feed to the pump to optimize water pump volumetric efficiency and eliminate the potential for water pump damage due to cavitation.		
9.08	The water pump and associated plumbing shall be easily accessed from ground level.		
9.09	This water pump cycle shall provide a pulsation action to assist the nozzle in navigating difficult lines or breaking through obstructions/blockages. Pulsation surge wave shall allow nozzle to punch forward 2" to 18" depending on flow dynamics and length of hose in sewer pipe. There shall be no interruption in the system water flow at the nozzle when this event occurs.		
9.10	The water pump shall use a single water piston that provides a relatively slow pump stroke (as compared to triplex piston/plunger type pumps) that provides minimal wear and allows the pump to run at normal operating conditions or speed without water for thirty minutes.		
9.11	In order to maintain an optimized oil temperature for the hydraulic oil system, an oil to water shell and tube type oil cooler shall be provided in the water pump suction plumbing.		
9.12	A 3 inch "Y" strainer with 80 mesh stainless steel filter screen shall be located in the water pump suction between the water tank and water pump. A 3 inch gate valve shall be provide in the water pump suction to isolate the water tank and provide the ability to inspect/clean the 80 mesh stainless steel filter screen with water in the water tank.		
9.13	A compliment of drain valves and drain plugs shall be provided that allows the water pump and water tank system to be easily drained at ground level.		
9.14	The water pump shall have a two (2) year warranty.		



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9.15	Handgun shall be supplied that allows for changing of flow pattern from a fine mist to a steady stream.		
9.16	Handgun shall come equipped with quick connect coupler and 3/8" x 35' hose.		
9.17	A mid-ship quick disconnect with shut off valve shall be provided.		
9.18	Low Water Alarm with Water Pump Flow Indicator		
9.19	A nozzle rack accommodating (3) nozzles shall be provided in a toolbox. The nozzles shall be labeled on storage rack for pipe size/flow and application.		
9.20	Digital Water Pressure Gauge		
9.21	Front and rear quick disconnect handgun couplers shall be provided.		
9.22	The water pump enclosure shall keep the water pump and plumbing enclosed and protected from the elements.		
9.23	The water pump enclosure shall be constructed of aluminum to provide maximum corrosion protection.		
9.24	The water pump enclosure shall have two aluminum doors with full length stainless steel hinges and doors shall allow complete access to the water pump and plumbing from ground level.		
9.25	The water pump enclosure doors shall be secured with a lockable system providing three latching points from a single point of actuation.		
9.26	When equipped with a water pump enclosure, there shall be two (2) 1/2" high pressure ball valves provided for draining the water pump and flushing sediment from the bottom of the water pump.		
9.27	The water pump enclosure shall be heated with a 20,000 BTU heater.		
9.28	Shut off valves shall be provided to isolate heater from chassis engine coolant when heat is not required.		
9.29	An additional 1" water relief valve shall be provided.		
9.30	The water pump shall provide precise 0-80 GPM controlled flow at variable pressure up to 2500 PSI.		
9.31	An additional 1" water relief valve shall be provided.		
12.0	HOSE REEL (REAR)		
12.01	Hydraulic Extending Hose Reel - 900' capacity of 1" hose shall be provided.		



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12.02	The hose reel assembly shall mount to a heavy duty slewing bearing mounted to a stationary, independent frame bolted between the chassis frame rails.		
12.03	In order to optimize functionality of the hose reel assembly, the hose reel assembly shall be mounted such that the outer edge of the reel spool is approximately 7" above the top of the chassis frame.		
12.04	The hose reel assembly shall rotate on a greaseable heavy duty slewing bearing a total of 180 degrees, 90 degrees to curb side and 90 degrees to street side providing direct alignment to manholes.		
12.05	In order to equally optimize functionality of the hose reel assembly to both curb side and street side, the hose reel assembly shall be mounted at the rear in the center of the chassis frame rails. The hose reel assembly shall rotate about the slewing bearings vertical centerline such that the hose reel assembly shall never extend beyond the width of the truck.		
12.06	The rotation of the hose reel assembly through the 180 degree working range will require minimal effort and shall not require any power assist complexity.		
12.07	The rotation of the hose reel assembly shall have a dual locking mechanism to positively lock the hose reel assembly in any position through the 180 degree operating range.		
12.08	In order to facilitate serviceability and reduce wear, all hoses and electrical cables used to control the hose reel assembly shall be routed above the hose reel assembly.		
12.09	In order to eliminate the movement and potential for damage of the high pressure water feed line to the hose reel assembly, a rotating swivel joint that is adjustable and rebuildable shall be used at both the vertical and horizontal rotation points of the hose reel assembly.		
12.10	The hose reel spool shall be manufactured out of 1/4" spun steel for added structural strength and shall require no internal or external reinforcements that could damage rodder hose.		
12.11	The hose reel spool shall be powered in both directions by a hydraulic motor and an adjustable double roller chain/sprocket assembly.		



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12.12	In order to optimize performance and fuel economy, the hose reel hydraulic system shall be supplied by a load sensing/pressure compensated variable displacement hydraulic pump. The operator input to precisely control the hose reel direction and the pay in/out rate shall be through an electro proportional joystick and a variable speed switch mounted in the hose reel control panel.		
12.13	The hose reel control panel shall be located to the right of the hose reel spool and shall provide convenient access to all necessary operating controls.		
12.14	The hose reel control panel shall be mounted to the hose reel frame and shall rotate with the hose reel assembly.		
12.15	10' Leader Hose		
12.16	Primary operator station shall be located at the hose reel.		
12.17	Station shall include: truck engine throttle, water pump on/off, water pump mode, water pump multiflow control, hose reel pay in/out joystick, hose reel speed control, water pressure gauge, low water indicator, alarm on/off, rotating hose reel lock control, LCD monitor, and E-Stop.		
12.18	500' x 1" Piranha Sewer Hose / 2500 Psi shall be provided		
12.19	Digital footage counter displaying absolute and relative footage values shall be provided. System must be capable of resetting relative value to ensure operator safety.		
12.20	Must have accuracy to within one percent of actual distance.		
12.21	Will include an easy to read LCD screen		
12.22	A manual hose level wind guide shall be provided for rewinding of jet hose onto the reel.		
12.23	An air actuated 1" ball valve shall be installed in lieu of the manual 1" ball valve. This air actuated ball valve will have the switch mounted on the ball valve plate at the side of the unit.		
18.0	SHROUD PACKAGE		
18.01	The rear hose reel shroud package shall keep the hose reel, water pump, and associated plumbing enclosed and protected from the elements.		
18.02	The rear hose reel shroud package shall be constructed of aluminum to provide maximum corrosion protection.		
18.03	The rear hose reel shroud package shall consist of a rotating cylindrical enclosure with welded in floor with fixed top cover for		



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	the hose reel, an enclosure for the water pump and a storage cabinet that connects the two.		
18.04	The cylindrical enclosure shall rotate on the same vertical axis as the hose reel assembly.		
18.05	The cylindrical enclosure/hose reel assembly vertical axis shall lie in the center of the chassis frame rails.		
18.06	The overall width of the cylindrical enclosure shall be at least 14 inches narrower on both sides than the widest point of the truck jetter providing improved driver rear vision with side mirrors over truck jetter shrouds that are as wide as the overall unit.		
18.07	The cylindrical enclosure shall rotate a total of 180 degrees, 90 degrees to the curb side and 90 degrees to the passenger side.		
18.08	The cylindrical enclosure shall have a fixed top cover that protects the hose reel and associated plumbing from the elements at all times; in road mode or work mode.		
18.09	There shall be two lockable sliding doors at nearly the same radius as the cylindrical enclosure that allow the hose to pay off the reel into the sewer.		
18.10	Brush type seals shall be used to seal the cylindrical rotating enclosure.		
18.11	The rotation of the cylindrical enclosure/hose reel assembly through the 180 degree working range will require minimal effort and shall not require any power assist complexity.		
18.12	The rotation of the cylindrical enclosure/hose reel assembly shall have a dual locking mechanism to positively lock the cylindrical enclosure/hose reel assembly in any position through the 180 degree operating range		
18.13	There shall be two large access panels provided on either side of cylindrical enclosure for easy access for service.		
18.14	The water pump enclosure shall have two aluminum doors with full length stainless steel hinges that provide complete access to the water pump and plumbing from ground level.		
18.15	The water pump enclosure doors shall be secured with a lockable system providing three latching points from a single point of actuation.		



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18.16	When equipped with a water pump enclosure, there shall be two (2) 1/2" high pressure ball valves provided for draining the water pump and flushing sediment from the bottom of the water pump.		
18.17	A storage cabinet shall be provided that connects the water pump enclosure to the rear cylindrical enclosure area.		
18.18	Rodder pump, accumulator, recirculation system quick coupler shall be mounted in an insulated, heated aluminum storage cabinet located at the curb side of vehicle.		
19.0	ELECTRICAL & SAFETY LIGHTING		
19.01	All electrical connections shall be void of exposed wires or terminals nor should they be painted. Paint process shall be completed prior to installation of electrical wiring and components.		
19.02	Harnessed wiring shall be color coded and labeled by function for easy troubleshooting.		
19.03	The entire system shall be vapor sealed to eliminate moisture damage, "NEMA 4" type or equal.		
19.04	All power cables coming from the chassis batteries shall be fuse protected at the battery to provide maximum system protection.		
19.05	Individual circuits shall be protected with resettable circuit breakers housed in a conveniently located sealed junction box accessible from ground level.		
19.06	For serviceability, major components shall contain a Deutsch or Weather Pack type sealed connector within the wiring harness.		
19.07	Unit shall be equipped with a high quality, weatherproof, color LCD monitor at the operator station		
19.08	The LCD monitor shall have the ability to display the following standard features:		
19.09	* Chassis Engine: Actual Engine RPM, Desired Engine RPM, Engine Coolant Temp, Engine Oil Temp, Engine Oil Pressure, Engine Hours, Fuel Rate, and Actual Engine Load (%).		
19.10	* RamJet Module: PTO Status, Mode (Stationary, E-Stop), Hydraulic Oil Temp, Chassis Engine RPM, and Low Water Indicator.		
19.11	LED lights shall be provided: clearance, back-up, stop, tail/turn.		
19.12	Rear work lights shall be provided		
19.13	L.E.D. Lights, Clearance, Stop, Tail & Turn shall be provided.		



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19.14	L.E.D. Lights, Clearance, Back-Up, Stop, Tail & Turn shall be provided.		
19.15	Handheld, Pistol Grip LED Spot light with rechargeable Lithium Ion battery.		
20.0	SAFETY EQUIPMENT		
20.01	An E-stop shall be located at the operator station.		
20.02	The E-stop shall turn off water pump, disengage hydraulic PTO's/ Pumps and set chassis engine speed to idle.		
20.03	The electrical system controls shall be configured to allow for single point operation only. Upon engagement of controls at a specific location, additional/optional controls shall be disabled.		
20.04	The electrical system shall enable a self-check to ensure all switches are in home position prior to critical function engagement. Electrical system shall lock out function when control switch is not in home position.		
20.05	The electrical system shall display the hydraulic oil temperature. The electrical system shall display a message and shall have an indicator if the hydraulic oil temperature reaches 180 degrees F. The hydraulic system shall be disabled if the hydraulic oil temperature reaches 200 degrees F.		
20.06	(1) Road side hazard kit.		
20.07	(1) 5# Fire extinguisher.		
20.08	A rear back up color camera with 130 degree viewing area shall be provided. The back up camera shall have automatic activation when the chassis transmission is shifted to reverse.		
21.0	SEWER TOOLS AND ACCESSORIES		
21.01	Hydrant wrench		
21.02	Hose Guide with Tie-off rope		
21.03	(1) P-15 Penetrator		
21.04	(1) Power Cleaner		
21.05	(1) Super Flusher		
21.06	(1) 1" Small finned nozzle pipe skid		
23.0	CHASSIS EQUIPMENT AND STORAGE		
23.01	Two (2) front tow hooks shall be provided.		
23.02	Two (2) rear tow hooks shall be provided.		
24.0	MODULE FINISH		



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24.01	Hose reel and components not constructed from aluminum or stainless steel shall be painted or powder coated black		
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