

**COMBINATION SEWER AND CATCH BASIN CLEANER – SANDY TOWNSHIP**

The Board of Supervisors of Sandy Township, Clearfield County, will receive bids until 2:00 P.M. on September 10, 2020 for the purchase of a 2016 or newer single engine combination sewer and catch basin cleaner per specifications on file with the Secretary or online at [www.sandytownship.net](http://www.sandytownship.net). A Performance Bond guaranteeing performance of the contract in the amount of 10% total contract amount will be required of the successful bidder. The Board reserves the right to reject any or all bids. Bids will be opened on September 10, 2020 at 2:00 PM at the Sandy Township Municipal Building located at 1094 Chestnut Ave., DuBois, PA 15801.



PROPOSAL AND CONTRACT FOR EQUIPMENT AND/OR MATERIALS ONLY \*

(THIS PROPOSAL INCLUDES INSTRUCTIONS TO BIDDERS)

INSTRUCTIONS ON PAGE 3

A. DEPOSIT OF PROPOSALS.

- 1. All envelopes containing Bid proposals shall be clearly marked "Bid Proposal for letting of 9/10/2020."

DATE

Sandy Township, 2nd Class Township MUNICIPALITY (NAME & TYPE)

Sealed Proposals will be received on or before 2:00 PM, on the above Letting Date.

TIME

Shelly Reasinger SECRETARY

1094 Chestnut Ave., PO Box 267 DuBois, PA 15801

Bids will be opened and read at approximately 2:00 PM, on the above Letting Date.

TIME

ADDRESS 814-371-4220

MUNICIPAL CONTACT PHONE NUMBER

PROPOSALS MUST BE MAILED OR OTHERWISE DELIVERED TO THE ABOVE ADDRESS.

- 2. Supplier agrees to furnish and deliver those items for which prices have been indicated on the Schedule of Prices (Attachment 1) in accordance with the current PennDOT Specifications (Pub. 408), except bidders need not be prequalified by PennDOT (Sec. 102.01). It is understood that: (1) Bituminous materials will be purchased weight or converted gallons at 60° F. (2) Supplier must furnish Form CS-4171, CERTIFICATE OF COMPLIANCE and/ or TR-465 DAILY BITUMINOUS MIX CERTIFICATION. (3) The Municipality reserves the right to make an award on the basis of quotations received for any item or on the basis of the aggregate total for all like items on which quotations are received.

- 3. Contract shall expire in one year from Date of Award or (DATE)

B. CONTRACTOR'S CERTIFICATION

Proposal of (NAME OF CONTRACTOR)

(ADDRESS)

1. It is hereby certified as follows:

- a. The only person (s) having an interest in this proposal is (are) [include owners of leased equipment]:

b. None of the above persons are employees of the municipality.

c. This proposal is made without collusion with any other person, firm or corporation.

d. All specifications referred to above have been examined by the suppliers. The supplier understands that the quantities indicated herein are approximate and are subject to change as may be required; and that all work is payable on the basis of the unit prices listed on the Schedule of Prices (Attachment 1).

- 2. Accompanying this proposal is a certified check or bid bond in the amount of \$ made payable to the municipality, as a proposal guarantee which, it is understood, will be forfeited in case the supplier fails to comply with the requirements of the proposal.

- 3. Name(s) of source(s) of supply of bituminous materials:

\* For Contract Projects, use MS-944.

- 4. The supplier will comply with all requirements of the laws and implementing regulations of the Commonwealth of Pennsylvania and of the United States relating to human relations, equal opportunity and non-discrimination in employment, and will pay to workmen employed in the performance of the contract the wages to which they may be entitled and, when required by law, not less than the applicable prevailing wage.
- 5. The supplier will provide the municipality with a performance bond in the amount of ~~50%~~<sup>10% SA</sup> of the contract, conditioned upon the faithful performance of the contract.

**WITNESS OR ATTESTED BY:**

TITLE: \_\_\_\_\_



\_\_\_\_\_  
SUPPLIER

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_



*TO BE EXECUTED ONLY IN THE EVENT THE ABOVE PROPOSAL IS ACCEPTED*

**ACCEPTED ON:**

**ATTESTED BY:**

\_\_\_\_\_  
DATE

\_\_\_\_\_  
TITLE:

Sandy Township, 2nd Class Township

\_\_\_\_\_  
MUNICIPALITY

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

(SEAL)

\_\_\_\_\_  
TITLE:

TOTAL AMOUNT OF CONTRACT:

\_\_\_\_\_  
TITLE:

\$ \_\_\_\_\_

ITEMS INCLUDED IN CONTRACT:

## SCHEDULE OF PRICES FOR EQUIPMENT AND / OR MATERIALS

EQUIPMENT Type, Make, Model, Specifications: \_\_\_\_\_

Delivery Date: \_\_\_\_\_

F.O.B. \_\_\_\_\_

PRICE \$ \_\_\_\_\_

 OUTRIGHT PURCHASE - Trade-in \$ \_\_\_\_\_

Net \$ \_\_\_\_\_

 RENTAL WITH PURCHASE OPTION ( Rental to be applied to purchase price.)

 Rental: \_\_\_\_\_ per \_\_\_\_\_  
 ( Hour, day, week, month, etc.)

PRICE \$ \_\_\_\_\_

- Trade-in \$ \_\_\_\_\_

Net \$ \_\_\_\_\_

### PROPOSAL AND CONTRACT INSTRUCTIONS

1. The proposal must be typewritten or printed.
2. If more than one proposal on any project is submitted by any individual, firm or partnership, corporation or association under the same or different names, only one lowest proposal will be considered.
3. Bid bonds may be waived by municipality by crossing it out on Proposal Form 963.
4. Part A of page 1 is to be completed by the municipality. Part B of page 1 is to be completed by the supplier. Schedule of Prices - under equipment section the municipality must complete description, delivery date, delivery site, and check appropriate block (s) for outright purchase or rental with purchase option. Under material section all like materials must be listed together and space provided for a total of all like materials. EXAMPLE: All classes of concrete, all sizes of concrete pipe, all sizes corrugated metal pipe, all asphalt materials, etc. Columns 1, 2, 3, 4, and 5 (be sure to include delivery date) must be filled in by the municipality to insure equitable bidding. All of Columns 6, A, 7, B, 8, and C must be filled in by the supplier, unless otherwise indicated. ( Unit Price delivered as directed does not apply to bituminous pavements. Use form MS-944.) If more space is needed, add note at the bottom of the page: " Continued on Attachment 1 - A" and add additional sheet designated as Attachment 1-A, 1-B, etc. Repeat note for each additional sheet required. Municipality may eliminate one or two pairs of Columns 6 through C, if no bids are desired under one or two of the options.
5. Performance bonds are provided by only the successful bidder. Bond must be in 10% of contract amount.
6. Where Materials for a Wearing Surface Treatment are part of the contract Average Daily Traffic ( ADT ) Count must be included in the description.
7. Contractor awarded the bid shall receive an approved copy of the contract.
8. Form MS-963 is not to be used for purchasing bituminous or other pavements in place. IF ALTERNATE BIDS MUST BE SECURED, BOTH MS-963 AND MS-944 MUST BE USED.
9. This form is PRIMARILY for use when work is performed by Local Forces.
10. An ESCALATOR CLAUSE is optional; however, it must be included in the proposal prepared by the Municipality. An escalator clause MAY NOT be inserted by the contractor.
11. Freight On Board (FOB) asphalt is subject to the requirements of Publication 408, Section 110.04(a) Price Adjustment of Bituminous Materials.

**PERFORMANCE BOND**  
**(With Corporate Surety)**

**Attachment # 2**

**KNOW ALL MEN BY THESE PRESENTS, That we,** \_\_\_\_\_

as Principal and \_\_\_\_\_

a corporation incorporated under the laws of the State of \_\_\_\_\_

as Surety, are held and firmly bound unto \_\_\_\_\_

in the full and just sum of \_\_\_\_\_

( \$ \_\_\_\_\_ ) dollars lawful money of the United States of America, to be paid to the above

Municipality or its assigns, to which payment well and truly to be made, we bind ourselves, our heirs, executors administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, the above bounden Principal has entered into a contract with the above Municipality, bearing even date herewith, for the undertaking of certain obligations as therein set forth,

**NOW, THEREFORE**, the condition of this obligation is such that if the above bounden Principal, as Contractor, shall in all respects comply with and faithfully perform the terms and conditions of said contract, including the Specifications and conditions referred to and made a part thereof, and such alterations as may be made in said Specifications as therein set forth, then this Obligation shall be void, but otherwise the same shall be and remain in full force, virtue and effect.

It is further provided that any alteration which may be made in the terms of the contract or its specifications with the express approval to the Municipality or the Principal to the other, shall not in any way release the Principal and the Surety or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration or forbearance being hereby waived.

**IN WITNESS WHEREOF**, the said Principal and Surety have duly executed this Bond under Seal, pursuant to due and legal action authorizing the same to be done on \_\_\_\_\_

( DATE OF BOND )



**Attest / Witness**

\_\_\_\_\_  
CONTRACTOR

\_\_\_\_\_  
TITLE

**BY**

\_\_\_\_\_  
TITLE:



**Attest / Witness**

\_\_\_\_\_  
SURETY COMPANY

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
TITLE:

# FORM OF ADVERTISEMENT

Sealed proposals will be received by the:

Sandy Township, 2nd Class Township

of

Clearfield

(City, Borough, Twp.: 1st. Cl. or 2nd Cl.)

(County)

at 1094 Chestnut Ave., PO Box 267

DuBois, PA 15801

(Address)

until 2:00 PM, on September 10, 2020, for the following:

(Time)

(Month-Day-Year)

Options	Item Number	Quantity	Unit	Description
		1		Combination Sewer/Vactor

Liquidated Damages Apply \_\_\_\_\_

Proposals must be upon the forms furnished by the Municipality.

The bid must be accompanied by a certified check or bid bond in the amount of 10 % of the bid, made payable to the municipality.

The Municipality reserves the right to reject any or all proposals.

Sandy Township, 2nd Class Township

(City, Borough, Twp: 1st. Cl. Or 2nd Cl.)

BY: \_\_\_\_\_

(Name)

Township Manager

(Title)

**August 6, 2020**

(Date)

**THIS ADVERTISEMENT ENDS HERE**

**FOR DEPARTMENT USE ONLY**

This advertisement meets the requirements of regulation 1300.

**DETAILED BID SPECIFICATIONS**  
**FOR**  
Sandy Township's Used Combination Storm/Sewer Cleaner Unit

		<b>COMPLY</b>	
		<b>YES</b>	<b>NO</b>
<b>1.0</b>	<b>INTENT</b>		
1.01	The intent of this specification is to provide for the purchase of one (1) used single engine combination sewer and catch basin cleaner used for removing all debris commonly found in storm basins and leads and/or sanitary sewer lines and manhole structures using a front mounted operating station. The unit shall consist of a centrifugal compressor vacuum system, a hydraulically driven high pressure water pump, an enclosed sealed body for storage of collected debris and equipped with a self-contained water supply as the source for the water pump system. The unit shall have the capability of operating both vacuum and water system simultaneously at full operating speeds continuously. The Centrifugal Compressor system shall be powered by a hydrostatic drive system.		
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 Sandy Township considering long-term maintenance cost, parts availability, product support and service cost as well as guaranteed buyback value of bidders equipment. Sandy Township 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.		
<b>2.0</b>	<b>EQUIVALENT PRODUCT</b>		
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 Sandy Township 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 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.		
<b>3.0</b>	<b>BIDDER REFERENCES</b>		
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 10 units of same manufacturer within service area of Sandy Township is preferred and should include contacts with phone numbers.		
<b>4.0</b>	<b>SERVICE AND SUPPORT</b>		
4.01	Location of warranty service center and amount of inventory shall be within 125 miles and 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:		

<b>5.0</b>	<b>GENERAL</b>		
5.01	The specification herein states the minimum requirements of Sandy Township. 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 Sandy Township to make a reasonable determination of compliance to the specification will be considered "non-responsive" and grounds for rejection.		
<b>6.0</b>	<b>SUBFRAME</b>		
6.01	The equipment shall be of modular design consisting of vacuum system, water tanks system, debris body and drive system.		
6.02	A sub frame shall be fabricated to the exact dimensions of the truck chassis for mounting of modular components.		
6.03	All components of the module shall attach to the sub frame and not directly to the chassis.		
6.04	Sub frame shall be designed to ASME standards for maximum applied loads, chassis frame movement and even distribution of weight to the chassis and suspension.		
6.05	Sub frame shall be continuous and uninterrupted from back of cab to end of frame.		
<b>7.0</b>	<b>DEBRIS BODY</b>		
7.02	The body shall be cylindrical having a minimum usable capacity of 10 cubic yards.		
7.03	The body shall be capable of a 48" dump height.		
7.04	The debris storage body shall be constructed with a minimum 3/16" corrosion and abrasion resistant Ex-Ten steel.		
7.05	The debris storage body shall have a minimum yield point of 50,000 PSI and a minimum tensile strength of 70,000 PSI.		
7.06	Body shall have a rear door that is hinged at the top and is equipped with a replaceable neoprene type seal. Adjustable for periodic compensation of door seal wear.		
7.07	Dual outward mounted rear door props shall be included as standard to prevent operator from entering door swing path when engaging rear door prop.		
7.08	For optimal particulate separation, vacuum shall be drawn from separate ports in the top of the debris body.		
7.09	Body shall be dumped by raising the body to a 50 degree angle utilizing a forward mounted, double acting hydraulic dump cylinder.		
7.10	Dump controls, accessory controls, e-stop control shall be provided at a central curb side location directly behind the cab of the truck.		
7.11	For stability and safety, dumping must be accomplished while the pivot point of the body remains fixed to the subframe.		
7.12	Industrial style rear debris body door shall be flat, and shall open and close hydraulically by cylinders mounted at the top of the body. Door shall open 50 degrees from the fully closed position. Door shall be unlocked, opened, closed, and locked by a failsafe hydraulically activated sequential positive locking system, cam operated by a single hydraulic cylinder, with all controls located behind truck cab, forward of the debris body, so operator is not subject to sewage when dumping.		
7.13	Debris body shall have a body flush out system with a fan-type spray nozzle located in the front wall of the debris body to aid in the flushing of heavy debris. The nozzle shall also utilize (2) spray nozzles to flush the front most area of the debris body. System must produce a flow of 80GPM. Control valve shall be on the curb side of the unit.		
7.14	Debris body load limit alarm coupled to float indicator arm automatically activating vacuum relief to be provided.		



7.15	Body shall have a float type automatic shut-off system protecting the Fan System with (2) 10" stainless steel shut-off balls located in the debris body. Each float ball housing shall be within a non-corrosive slide-out screen assembly and be accessed without the use of tools.		
7.16	The debris body shall be equipped with a rear door drain to drain off excess liquids while retaining solids. No valve included		
7.17	The debris body shall be equipped with a rear door drain at bottom dead center to drain off excess liquids with an internal screen to prevent large solids from passing. A manually operated 6" knife valve with cam-lock coupler and 25' of lay flat hose having camlock quick connects shall be included at this location.		
7.18	A gravity drain system with 2-1/2" PVC pipe shall be provided from the body to the front bumper, with 2-1/2" x 25' drain hose and shutoff valve.		
7.19	The debris body and water tanks shall be interconnected so as to provide additional water storage capacity. It shall be supplied with separate air gap, shutoff valve, water fill, 3" Y-filter prior to pump, 3" shut off valve and 25' x 2-1/2" fill hose with storage rack.		
7.20	(4) Dual vertical (cyclone) centrifugal separators shall be installed in-line between the debris body and the air mover, (2) per side for each debris body discharge port. Each dual separator shall include large fallout chamber cleanout door.		
7.21	For safety, a minimum of (5) vacuum tubes shall be stored on curbside storage racks to minimize operator exposure to traffic side of unit. Shall include quick release retainer handles (no bungees or clamps).		
7.22	A curb-side, folding 3-pipe rack shall be provided, constructed of steel tubing, spring assisted. Shall include quick release retainer handles (no bungees or clamps).		
7.23	A street-side, folding 3-pipe rack shall be provided, constructed of steel tubing, spring assisted. Shall include quick release retainer handles (no bungees or clamps).		
7.24	A rear door mounted folding 3-pipe rack shall be provided, constructed of steel tubing, spring assisted. Shall include quick release retainer handles (no bungees or clamps).		
7.25	(2) Pipe Storage Racks Curbside waist level and (2) on rear door with quick releases.		
7.26	A splash shield shall be mounted around the lower 60% of door opening to direct liquid and debris away from the chassis. Shield shall be minimum 10" deep bolted assembly with no openings.		
7.27	A lubrication manifold system shall be provided to allow ground level greasing of boom lift and swing cylinders, float level indicator, top rear door hinges and debris body hoist cylinder pins.		
7.28	A 10" valve with 3" vent to atmosphere, electrically activated, air operated valve debris body vacuum relief system shall be located in the inlet of the vacuum system to allow the venting of the tank and relieve vacuum at the debris intake hose.		
7.29	A debris inlet deflector distributing load evenly in debris body shall be included.		
<b>8.0</b>	<b>WATER TANKS</b>		
8.01	The water tanks shall be manufactured from a non-corrosive material to prevent rust yet still provide for maximum strength.		
8.02	The water tank material shall require no internal coating and shall be repairable if patching is required.		
8.03	The water tanks shall be easily removed from the subframe to provide complete access to the truck chassis for maintenance purposes.		
8.04	The water tanks shall be adequately vented and connected to provide complete filling.		
8.05	The water tanks shall be totally separate from the debris tanks and provide no structural support.		
8.06	The water tanks shall share no common walls with the debris tanks to prevent corrosion.		
8.07	The water tanks shall come equipped with an anti-siphon device and 25' of hydrant fill hose and		

	fittings.		
8.08	The water tanks shall carry a 5 year warranty against corrosion or cracking.		
8.09	All water tanks shall be fully baffled to form a maximum compartment storage of 150 gallons for each compartment. Sandy Township has determined that for the stability of the vehicle when turning and stopping and for safety of personnel that systems baffled at 150 maximum gallon compartments are preferred. Exceptions of requirement shall be explained in detail accompanied with detailed engineering drawings.		
8.10	The water tank shall be located for the lowest possible center of gravity while providing 100% gravity flooded intakes to water pump.		
8.11	Fresh water shall enter the tanks through an in line 6" air gap, all aluminum covered anti-siphon device.		
8.12	Water level sight tubes of non-yellowing plastic shall be installed on both tanks.		
8.13	The sides of these water tanks shall not extend more than 48" out from the centerline of the truck chassis.		
8.14	A fresh water drain system shall be provided to completely drain the fresh water system from one location utilizing a 3 drain port and plug.		
8.15	A minimum 6" connection between tanks shall be provided.		
8.16	For stability safety, the water tanks shall not elevate with debris body during dump cycle.		
8.17	A low water alarm with light at the operator station shall alert operator when water storage has 150 gallons remaining.		
8.18	A hydraulic oil high temperature light and alarm shall be provided.		
8.19	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.		
8.20	An air purge system utilizing the chassis air system shall be provided to assist displacing of residual water out of the high-pressure water system. System shall utilize the truck chassis air compressor to fill a 30-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.		
8.21	A 3 in-line "Y" trap strainer shall be located at inlet of water tank fill air-gap.		
8.22	A 3 in-line "Y" trap Monel stainless steel strainer shall be located between the water cells and water pump.		
8.23	A 3" Gate Valve shall be provided at water pump.		
8.24	Water tank must be a certified metered capacity of 1000 gallons. Certification shall be necessary upon delivery.		
8.25	Water tanks shall be constructed of 1/8" aluminum with baffled compartments maximum 150 gallons each.		
8.26	An additional water tank sight gauge shall be provided.		
8.27	Liquid Float Level Indicator shall be provided.		
<b>9.0</b>	<b>VACUUM/VACUUM DRIVE SYSTEM</b>		
9.01	Vacuum shall be provided by compressing air within a single stage 38" diameter centrifugal fan.		
9.02	The centrifugal fan hours shall be no more than 550 hours to be deemed acceptable.		
9.03	Compressor fan constructed of non-corrosive material.		
9.04	Centrifugal compressor fan shall be constructed of non-corrosive, hardened 1/4" chrome blades.		
9.05	Centrifugal compressor shall be warranted against corrosion for one year.		
9.06	The outer housing shall be constructed of 1/4" spun steel.		
9.07	Compressor housing shall be equipped with a drain not exceeding 2" diameter.		
9.08	Complete compressor and housing assembly shall be warranted against materials and		

	workmanship for one year.		
9.09	Hydrostatic drive system that shall include an electronic controlled variable displacement hydrostatic pump producing up to 300 Bar.		
9.10	The compressor Hydrostatic Drive system shall utilize electronic controls located at the front operator station. The system shall be controlled on/ off with a switch that may be engaged or disengaged at any operating speed.		
9.11	The compressor controls will have a speed selection switch at the operator station to control compressor speed; manual levers on the hydrostatic pump to control compressor speed will not be accepted.		
9.12	The centrifugal compressor should be driven direct through a helical gear type step-up transmission drive with a step-up ratio 2 to 1.		
9.13	Hydraulic shut off valves shall be provided at the suction, return and filter lines to permit servicing of the hydraulic system.		
9.14	The drive shaft shall be supported via ball bearings and gears.		
9.15	Compressor shall be driven from a closed loop hydrostatic drive system utilizing available chassis power via split-shaft transfer case. The transfer case shall drive a variable displacement hydrostatic pump to energize a closed loop.		
9.16	The pump shall be mounted directly to the split shift transfer case. The pump will have a B10 life Rating of 10,000 hrs continuous duty.		
9.17	The hydraulic motor powering the compressor shall be a bent axis, bi-directional motor. Motor speed shall not exceed 2,500 RPM.		
9.18	The hydrostatic drive system shall utilize electronic soft start speed control to manage ramping speed.		
9.19	The control system shall provide a mode selection switch to control the compression drive in low vacuum, combination mode and full vacuum settings.		
9.20	The gear drive should attach directly to the rotor shaft without the use of multiple stage V-belts or jack shafts.		
9.21	The gears and bearings shall be lubricates with splash lubrication system, requiring no manual greasing.		
9.22	The drive system shall not utilize pillow block bearings that require excessive daily greasing.		
<b>10.0</b>	<b>VACUUM BOOM SYSTEM</b>		
10.01	Vacuum hose shall be designed for front operation with hose mounted and stored at front mounted work station. Front mounted location is required for ease of positioning vacuum hose as well as minimizing need for operator to swing hose into traffic.		
10.02	All connections between debris body and vacuum system will be of the self-adjusting pressure fitting type.		
10.03	Vacuum hose will remain stationary and not rise with debris body.		
10.04	Upper debris tube shall consist of an anchored steel tube and elbow.		
10.05	A sub-frame mounted cab guard shall be mounted behind cab with boom rest cradle.		
10.06	All vacuum pipes shall be connected to vacuum pick up tube and extension pipes by adjustable over-center quick clamps to join the aluminum flanges on pipes.		
10.07	One (1) quick clamp for each pipe supplied shall be provided.		
10.08	Boom pedestal shall be directly mounted to module subframe.		
10.09	Boom support used for travel mode shall not interfere with access or require removal to tilt hood forward.		
10.10	A control station shall be equipped with control switches for all directions as well as a safety emergency shut-down button, which shall automatically eliminate power to boom.		

10.11	The vacuum boom shall have a heavy-duty flexible hose assembly joining the transition pipe to the debris body, and a 70-degree elbow and 5-1/2 heavy duty hose at the suction end of the boom.		
10.12	Boom shall rotate 180 degrees and shall be operated by an electric over hydraulic system. Lift and swing movements shall be actuated by hydraulic cylinders.		
10.13	The horizontal inner box beam boom shall extend and retract (box beam within box beam) a minimum of 8' and shall be located at the front work station in its retracted position, providing 277" minimum reach off the longitudinal axis of unit.		
10.14	Boom shall be fully controlled by a remote push button pendant control station with 25 ft. cable. Controls to include up / down, left / right, in / out boom functions, vacuum relief, e-stop and main power switch.		
10.15	A joystick for hydraulic control of the boom shall be installed on hose reel front panel.		
10.16	A grate lifting hook shall be installed on the boom.		
10.17	A removeable 4" diameter storage "Post" to stabilize the lower boom hose during transport. Storage device shall not interfere with raising hood.		
10.18	A detailed engineering drawing must be supplied showing the relationship of the hose reel in relation with the vacuum boom range of motion. Drawing shall show module mounted on chassis, full arc of vacuum hose both retracted and extended, full rotation of arc for hose reel in the extended position and dimension all arc lengths of vacuum boom retracted and extended. Drawing shall highlight intersection areas whereby combination cleaning is possible (within full arc on telescoping boom system).		
<b>11.0</b>	<b>WATER PUMP AND DRIVE</b>		
11.01	For most efficient use of horsepower and reduced fuel consumption, high pressure rodder pump shall be hydraulically driven via (1) load sensing utility pump, (1) variable displacement pump and (1) fixed displacement pump		
11.02	Hydraulic powered rodder pump via twin variable displacement hydraulic pumps and (1) fixed displacement utilizing (2) 10-bolt PTO's.		
11.03	High pressure water pump shall be rated capable of continuous delivery of 80 GPM at 2500 PSI (submit manufacturer support documentation).		
11.04	High-pressure water (rodder) pump system shall allow front-mounted controls for operation of three modes: (1) Low flow range 0-22 GPM; (2) medium-flow range, 22-60 GPM / 2500 psi; and (3) High-flow range: 60 up to 100 GPM / 2500 psi.		
11.05	Digital flow meter shall be displayed in front LCD display. Flow meter shall be capable of displaying system flow in all pump operating modes. In addition, a low water alarm shall be provided.		
11.06	This hydraulic drive system shall allow variation of water pump speed independent of required vacuum drive speed within maximum drive engine speed of 1760 RPM.		
11.07	Variable flow systems routing water back-to-tank are not considered equal due to additional wear, horsepower and fuel consumption. Any deviation from this drive requirement should have full explanation of horsepower consumption.		
11.08	Water (rodder) pump shall include smooth and pulsation operation mode feature.		
11.09	When required to assist nozzle breaking through obstructions, water pump "pulsation mode" shall provide a forward-acting nozzle surge. Pulsation surge wave shall allow nozzle to punch forward 2" to 18" depending on flow dynamics and length of hose in sewer pipe.		
11.11	Water pump location shall provide a flooded gravity suction inlet to eliminate potential cavitations damage.		
11.12	An oil to water heat exchanger will be provided in the water system to cool all hydraulic fluids on the unit. State horsepower requirement to operate hydraulics at full speed:		

11.13	The water pump shall provide precise 0-80 GPM controlled flow at variable pressure up to 2500 PSI.		
11.14	An extreme cold weather recirculation system - minimum 25 GPM via transmission PTO at chassis engine idle speed.		
11.15	A hydro-pneumatic nitrogen charged accumulator system shall be provided with all control valves, piping and hoses for either continuous flow or jackhammer rodding. Accumulator shall be a 2.5 gallon capacity and 1400 to 2500 PSI pressure rating.		
11.16	Two (2) 1/2" high pressure ball valves shall be provided for draining the water pump and flushing sediment from the bottom of the pump.		
11.17	A nozzle rack accommodating (3) nozzles shall be provided in curbside toolbox. The nozzles shall be labeled on storage rack for pipe size/flow and application.		
11.18	System shall be relieved to protect operator.		
11.19	Handgun shall be supplied that allows for changing of flow pattern from a fine mist to a steady stream.		
11.20	Handgun shall come equipped with quick connect couplers.		
11.21	An additional 1" water relief valve shall be provided.		
11.22	A mid-ship quick disconnect handgun couplers shall be provided.		
11.23	Hydro-Excavation Package / Retractable Reel with 50' x 3/8" Hose, Hydroexcavation Handgun and Plumbing. Water system shall allow precise variable flow control range of 0-22 GPM at 2500 PSI with digital flow meter in clear view of adjustment control.		
11.24	A water pump hour meter shall be provided.		
<b>12.0</b>	<b>HOSE REEL</b>		
12.01	Hose reel assembly shall be direct frame mounted.		
12.02	Hose reel assembly shall be mounted on an independent frame that can be removed from brackets attached permanently to front of main truck frame members.		
12.03	Reel will 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.		
12.04	Hose reel shall be driven by adjustable gear reduction chain and sprocket assembly.		
12.05	Hose reel shall operate at full rotational speed while chassis engine is at idle.		
12.06	Hydraulic Telescoping Rotating Hose Reel - 800' capacity of 1" hose shall be provided.		
12.07	The front mounted hose reel shall telescope 15" forward down centerline of truck.		
12.08	Entire reel assembly shall rotate 270 degrees on a large diameter ball bearing.		
12.09	Hose reel shall include a dual locking device to positively lock reel in any position across operating range.		
12.10	The hose reel shall rotate about the reel assembly centerline so the reel shall never extend beyond the truck width. Reel coverage diagram shall be submitted with bid.		
12.11	Controls shall accessible on both sides of the hose reel, allowing operator to work at either side of unit for safety purposes.		
12.12	600' x 1" Sewer Hose / 2500 Psi shall be provided		
12.13	An automatic hose level wind scroll device shall be supplied. An air-cylinder actuated pinch-roller shall exert downward pressure across full width of reel to retain hose on reel when encountering nozzle blockages.		
12.14	An air-cylinder actuated pinch-roller shall exert downward pressure across full width of reel to retain hose on reel when encountering nozzle blockages.		
12.15	A hose footage counter shall be supplied to indicate the amount of hose travel within pipe.		
12.16	An additional hose footage counter shall be provided.		
12.17	1" X 10' Leader Hose		

<b>13.0</b>	<b>WASHDOWN EQUIPMENT</b>		
13.01	A spring retractable storage reel for handgun hose shall be provided to allow the operator to deliver water to area served by pick up hose and to the inside of the debris body for clean out. Reel shall be mounted midship on curbside, equipped with 1/2 x 50' 2000 psi hose. An additional 35' of 1/2" hose with quick disconnect couplers shall be supplied loose.		
13.02	Hand sprayer with adjustable spray-pattern to be provided with trigger-style gun.		
<b>14.0</b>	<b>FRONT OPERATING STATION AND CONTROLS</b>		
14.01	Primary operator station will be located at front of truck on right curb side of hose reel.		
14.02	All front operator controls shall be accessible while operating either front or rear side of reel assembly. All operations to either side of unit shall position operator in front of vehicle affording protection from oncoming traffic.		
14.03	Station shall include truck engine throttle, water pump (on/off), water pump mode, water pump flow meter, hose reel control valve (forward / reverse), adjustable hose reel speed control, oil dampened water pressure gauge, boom controls, digital water pump flow meter, and low water warning light.		
14.04	Tachometer and hour meter for chassis engine provided at control station shall be provided.		
14.05	Tachometer and hour meter for Centrifugal compressor at control station shall be provided.		
14.06	All Hydraulic Functions - Color Coded, Sealed Electric/Hydraulic NEMA 4 switches shall be provided.		
14.07	Fan Engagement/Vacuum Relief - Sealed Electric/Air NEMA 4 Switch shall be provided.		
14.08	Water pump hour meter shall be provided.		
14.09	PTO hour meter shall be provided.		
14.10	A temperature light and alarm shall be provided. Light and alarm will be activated when hydraulic temperature reaches 180 F.		
<b>15.0</b>	<b>ELECTRICAL &amp; SAFETY LIGHTING</b>		
15.01	The entire system shall be vapor sealed to eliminate moisture damage, "Nema-4" type or equal.		
15.02	Vansco Electronic Package: Chassis Tachometer, Auxiliary Engine Tachometer, Operating Mode, PTO Mode, Hydraulic Oil Temperature shutdown, and E-Stop shall be included. E-Stop activation must turn off rodder pump, shutdown PTO A & B, set chassis throttle to idle, & open vacuum relief. E-stop must be located at each operator interface, including front/rear hose reel controls, pendant control, & dump control location. Basic machine functions and both chassis and module diagnostics shall be provided.		
15.03	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 wiring.		
15.04	All wiring shall be color-coded and encased in conduit to scaled terminal boxes with circuit breakers.		
15.05	All light bulbs shall be shock mounted to eliminate bulb failure.		
15.06	All other lights required by State and Federal Laws.		
15.07	Two-piece directional LED 10-strobe-light arrow board shall be mounted on rear door of debris body, with controls mounted in cab.		
15.09	A pistol grip hand light with bumper plug and 25' coiled cord shall be provided.		
15.10	Handheld, Pistol Grip LED Spot light with rechargeable Lithium Ion battery.		
15.11	Strobe L.E.D. Amber Beacon-Rear Door-Facing rear shall be provided.		
15.12	Strobe L.E.D. Amber Beacon- Front Cab Guard mounted shall be provided.		
15.13	Operator station work lights shall be provided		
15.14	Hose reel manhole work lights shall be provided		
15.15	(2) L.E.D. Boom worklights shall be provided.		

15.16	Additional hand light plug shall be provided.		
15.17	L.E.D. Work light at midship curbside shall be provided.		
15.18	L.E.D. Work light at midship streetside shall be provided.		
15.19	(2) L.E.D. Rear door work lights shall be provided		
15.20	L.E.D. Lights, Clearance, Back-Up, Stop, Tail & Turn shall be provided.		
<b>16.0</b>	<b>SAFETY EQUIPMENT</b>		
16.01	E-stop shall be located at each operator interface location. Standard locations to include: front hose reel, mid-ship curbside dump controls, & wireless controller (if equipped.)		
16.02	Electrical system controls shall be configured to allow for single point operation only. Upon engagement of controls at specified locations, additional controls shall be disabled.		
16.03	Electrical system must enable self-check to ensure all switches are in home position prior to critical function enablement. System must "lock out" controls when switch is not in home position.		
16.04	Rear work lights shall be activated upon engagement of reverse gear.		
16.05	(1) Emergency Flare Kit		
16.06	(1) 5# Fire Extinguisher.		
16.07	7" dash monitor, 2-camera system shall be provided. A Front Hose Reel Color Camera with 130 deg Viewing Angle shall be provided to provide a front visual of the manhole cover to aid in equipment set-up. A rear back-up color camera with 130 deg viewing angle shall be provided. Camera to have automatic activation when the unit is switched to reverse.		
16.08	Debris Body-Up Alarm to indicate when debris body is not in the proper stowed position		
16.09	Digital water pressure shall be displayed in front LCD display. ♦ Pressure gauge shall be capable of displaying water system pressure in all pump operating modes.		
16.10	Boom out of Position Light/Alarm		
<b>17.0</b>	<b>SEWER TOOLS AND ACCESSORIES</b>		
17.01	(1) Cleaning Nozzle		
17.02	(1) Penetrating Nozzle		
<b>18.0</b>	<b>VACUUM TOOLS AND ACCESSORIES</b>		
18.01	The basic vacuum tube package shall include the following:		
18.02	(1) 8" x 3' aluminum pipe		
18.03	(2) 8" x 5' aluminum pipe		
18.04	(1) 8" x 6'6" catch basin tube		
18.05	(4) 8" quick clamps rubber tube		
<b>19.0</b>	<b>CHASSIS EQUIPMENT AND STORAGE</b>		
19.01	Two (2) front tow hooks shall be provided.		
19.02	Two (2) rear tow hooks shall be provided.		
19.03	A safety cone storage rack shall be provided to contain safety cones in the inverted position.		
19.04	(1) Aluminum Toolbox with nozzle storage and dump controls mounted curbside shall be provided.		
<b>20.0</b>	<b>MODULE FINISH</b>		
20.01	Painting of the module shall be with a DuPont Imron Elite Polyurethane Enamel Top Coat. Application is to be a wet top coat applied to a wet unsanded primer base.		
<b>21.0</b>	<b>CHASSIS SPECIFICATION</b>		
21.01	The unit shall be a used model. No discontinued models will be accepted		
21.02	The unit shall be a 2016 Freightliner 114SD Conventional Cab Chassis or newer with no more than 5,750 miles to be deemed acceptable.		
21.03	The unit shall be equipped with a diesel engine, turbo charged and after cooled, with a Cummins		

	ISL-370; 370 HP @ 1900 RPM, 1250 LB/FT @ 1400 RPM		
21.04	Set Forward Axle		
21.05	The unit shall be equipped with an Allison 3000 RDS Automatic Transmission with PTO Provision		
21.06	The unit shall be equipped with a Meritor MFS-20-133A 20,000# Wide Track, I-Beam Type Single Front Axle		
21.07	The unit shall be equipped with a 20,000# Flat Leaf Front Suspension		
21.08	The unit shall be equipped with a Meritor RS-26-185 26,000# T-Series Single Rear Axle		
21.09	The unit shall be equipped with a 30,000# Flat Leaf Spring Rear Suspension with Helper and Radius Rod		
21.10	The unit shall be equipped with a 114 inch BBC flat room aluminum conventional cab		
21.11	The unit shall have a wheelbase of 255 inches		
21.12	The unit shall have a 7/16 x 3-9/16 x 11-1/8 inch steel frame with 120 KSI rating		
21.13	The unit shall have a 1/4 inch C-Channel inner frame reinforcement		
21.14	The unit shall have a 38 inch rear frame overhang		
<b>22.0</b>	<b>ADDITIONAL PARTS</b>		
22.01	(1) New Flexible Hose Guide		
22.02	(1) New 10 Foot Leader Hose		
22.03	(1) New 1" x 600' of Plastic Rodder Hose		
<b>23.0</b>	<b>DELIVERY</b>		
23.1	Unit to be delivered within 60 days of awarded bid to Sandy Township.		
<b>24.0</b>	<b>WARRANTY</b>		
24.01	State Warranty Provided with Unit:		