Attachment 7.1

MINIMUM CHASSIS REQUIREMENTS

1. Must be 2024 Freightliner 114 SD or equivalent.
2. Minimum GVWR: Front Axle 20,000#, Rear Axle 46,000#; Total GVWR 66,000#
3. Allison 4500 series automatic transmission or equivalent.
4. Minimum engine rating Cummins 455 hp at 2000 rpm or equivalent. (For blower/water pump drive purposes only, road speeds may require a higher hp) Provided powertrain must support simultaneous use of water pump and blower at 100% output and will be assessed to confirm performance upon delivery.
5. Engine operating design speed: 1700 rpm
6. Provisions for FEPTO out-drive with 24" frame extension
7. Provision for REPTO out-drive.
8. Set forward front axle.
9. Driver and passenger air ride seats.
10. Minimum 100-gallon fuel tank.

ROTATING SAFETY HOSE REEL AND CONTROLS

1. The Hose reel capacity shall be a minimum of 800' x 1" high pressure sewer hose.

2. The hose reel will be constructed of one-fourth" steel with a spinning profile designed to withstand maximum working pressure without distortion.

3. Reel flanges shall be 1 1/2” and shall be designed to prevent hose damage from contact during all normal working conditions.

4. All hoses used to supply the hose reel, or its hydraulic system shall be flexible and shall be fully enclosed in a shroud and routed underneath the reel structure below the reel drum. The hoses shall be fully secured and protected against chafing and rubbing.

5. The reel shall be driven with hydraulic power for pay out and retrieve, either with or without the water pump in operation. The hydraulic drive shall have sufficient power to retract the hose when fully extended into the pipe with the cleaning nozzle in operation.

6. The hose reel drive system shall utilize a dual chain system.

7. The hose reel shall have the ability to extend and retract from the front of the truck hydraulically via two telescoping support rails. Reels extending via a pivoting motion or other similar methods will not be deemed acceptable.

8. The hose reel shall extend linearly 14" from the fully retracted position to the fully extended position.

9. The safety reel will rotate a minimum of 250 degrees providing direct alignment to manholes. The rotating ability of the hose reel allows the operator to manipulate the hose reel into various positions depending on location of manhole. This allows for proper positioning of the hose reel

without backing up or repositioning sewer machine. The hose reel is mounted on an industrial swivel bearing that is sealed and eliminates contamination from dirt. This industrial swivel bearing shall have minimum requirements of 7.88 I.D., fourteen" O.D., and two" thickness. The industrial swivel bearing shall have a minimum load bearing weight of 5,000 Ft.-lbs. The bearing design shall have no wear points except the greaseable ball bearings and the races, which are constructed of hardened steel to minimize wear. The bearing design minimizes any friction for easy pivoting. The rotating hose reel will lock into position using a manual, spring-loaded safety pin at 2" intervals. Reel rotation locks utilizing electric, or air actuation are not acceptable.

10. Controls mounted on the rotating hose reel control panel shall be limited to: Engine throttle control, water pump on/off, water pump pressure adjustment, blower on/off, blower speed adjustment, water pressure gauge, vacuum gage, vacuum relief, work light switches, work mode indicator light and low water warning light.

11. The hydraulic controls for the rotating hose reel will consist of variable speed control and payout/retrieve directional control. Payout/retrieve levers will be hydraulic, not electric over hydraulic.

12. The Sewer Hose Reel shall be equipped with an Automatic Level Wind, which allows for "hands-free" winding of sewer hose onto the hose reel without operator touching sewer hose. This option will incorporate a drive system, which scrolls a pivoting four roller head back and forth across the hose reel for proper winding of sewer hose onto reel. The system is equipped with a hydraulic controlled elevation system, which incorporates dual cylinders and a pivot arm to raise and lower the level wind guide depending on location of manhole. Level Wind raises/lowers minimum of 45 degrees.

13. The unit will be supplied with a Footage Meter mounted on the Hose Reel.

14. The unit will be supplied with 600 ft. of 1" sewer hose rated at 2500 psi.

CLEANING ATTACHMENTS

1. The unit will be supplied with 6 - 18" DOT certified orange safety cones.

2. The unit will be supplied with a central lubrication system that will provide a common location that is ground accessible for all grease zirks.

WATER SYSTEM PUMPS

1. The water system will be used for Jetting, washing out the debris body as well as assisting in the cleaning process.

2. Water pump to be driven hydrostatically directly off the chassis engine complete with the ability to vary the water volume from zero to maximum water flow with one dial. Pumps driven via belt drive, drive shaft, transmission mounted PTO, auxiliary engine, or transfer case shall not be deemed acceptable.

3. The water pump must be located with liquid end facing out toward the curb. This allows servicing the pump at ground level. Pump must be level with or below the discharge of the lowest water tank on truck (flooded).

4. Water pump shall be a hydraulically driven triplex PLUNGER design unit having a capacity of 0 to 80 gallons per minute and up to 2500 psi. System shall be activated via control located on the unit's control panel.

5. Unit shall have the ability to use water system and drive chassis in gear simultaneously.

WATER SYSTEM TANKS

1. **1500 Gallon Water Capacity**. Tank shall be constructed of welded/repairable .50", U.V. stabilized Duraprolene™ , or equivalent, with a ten (10) year factory warranty. The Duraprolene™ is to be ultraviolet stabilized to prevent material break down. Total tank capacity shall be 1500 gallons of water with two interconnected 750-gallon tanks. The tanks shall be interconnected with a 6" crossover pipe. The baffles in the tank will be constructed of .50" Duraprolene™. These baffles will reduce sloshing and distortion by forming internal compartments. Tank bottom will be flat bottom type; pump intake will be located such to allow sediment to settle at tank bottom rather than entering and damaging pump.

2. Water tanks must remain stationary and should not raise with the debris tank.

3. Low water light will illuminate at operator station when two hundred gallons is left in tank.

4. A Digital LED Water Level Gauge shall be supplied.

WATER SYSTEM ATTACHMENTS

1. Water recirculation system for cold weather operation shall be included. Water recirculation shall not require more than one switch to activate. Switch must be located in cab. System must be useable at full highway speeds.

2. An air purge valve will be installed which allows high-pressure air to force water from system.

3. Water system shall be equipped with a 2.5" Hydrant fill system with a 25' fill hose complete with standard hydrant connection fitting.

4. Water system shall be equipped with an analog water pressure display mounted at operators' station, pressure relief valve for system safety, and overflow pressure will return to water tank.

5. A standard wash-down system shall be included with quick connect ports located at the front of the unit as well as midship. A handgun shall be included with on/off trigger. Gun shall have fifty' of one-half" extension hose attached.

6. A central washdown package shall be included. Said package shall include a washdown gun and 50' of 1/2"" hose on a retractable reel regulated to 500 psi and mounted mid-ship of the unit.

7. A second operators station located mid-ship of the unit on the curb side shall include controls to vary the water volume from zero to full flow as well as work mode switch, throttle switch, and water on/off switches mounted in a NEMA 4 rated enclosure. These electrical switches shall also be independent of the front operating station such that only this station can control the appropriate function when the mid-ship work mode switch is activated.

8. Unit shall be equipped with a storage rack for the fill hose.

9. A filter for the water tank fill inlet shall be provided in order to clean the water coming from the hydrant. Said filter shall be of a "Y" strainer design complete with a 25-micron filter.

10. A lateral line cleaning system shall be included to facilitate the cleaning of smaller ancillary lines. This system shall have its own pressure protection system rated at no more than 1200 psi. In addition, this system shall include a rolling cart complete with 200' of 1/2" hose mounted on the driver's side bumper.

ALL-WEATHER TOOL STORAGE SYSTEM

1. All toolboxes shall be constructed of aircraft grade aluminum alloy and come equipped with rubber seals.

2. All toolboxes shall come complete with rain gutters, "T" handle paddle latches, swing down doors and key locks all keyed to a common key.

3. (1) Alum Toolbox 24"x36"x96" - Behind Cab
   (2) Alum Toolbox 18"x18"x30" – Passenger
   (2) Alum Toolbox 18"x18"x24" – Rear
   (1) Alum Long Handle Toolbox able to accommodate 96" long tools- Rear

4. Total tool storage capacity should be a minimum of 68 sq./ft.

5. Long Handled Tool Storage Tubes Accessible via Rear Cabinet. Subject To Certain Chassis Requirements.

DEBRIS BOX AND REAR DOOR ASSEMBLY

1. Debris tank capacity shall be fifteen cubic yards and will be constructed of 3/16" EXTEN steel. Body shall be continuously welded for strength and pressure rated for appropriate operating conditions.

2. Debris inlet and air exhaust shall be co-located along the central axis of the machine. Designs with air routings along the side of the unit shall not be accepted.

3. Tank to be equipped with an external debris level indicator, which monitors the internal level of debris in the tank. Sight eyes are not acceptable.

4. Rear door of the unit to be equipped with six" brass discharge valve.

5. Rear door to be a flat profile constructed of one-fourth" EXTEN steel, or equivalent, with adequate reinforcement.

6. Door to be top hinged with two (2) heavy-duty industrial hinges which shall utilize shims to allow for adjusting the door for seal wear. Hinge assemblies utilizing slotted plates or other arrangements shall not be deemed acceptable.

7. Door gasket to be one piece, 1-1/2" heavy-duty neoprene material and mounted on the rear door.

8. Door to be equipped with (4) four hydraulic door locks to assure proper sealing. These locks shall be mechanical over hydraulic such that if hydraulic pressure is lost the door shall remain sealed.

9. The air inlet from the tank is to be equipped with a minimum of two automatic shut-off float balls. These floats shall be 10" in diameter and constructed of stainless steel.

10. The rear door to be equipped with two (2) hydraulic cylinders to open and close door of the debris tank. Single cylinder arrangements are not acceptable as they allow for no redundancy.

11. Tank shall be capable of dumping by raising 50 degrees using a single hydraulic cylinder; hydraulic cylinder rating is 49,000 LBS.

12. A splash plate shall be provided which wraps around the lower half of the debris body and acts to direct the material being dumped toward the rear of the body. This splash plate shall cover an arc of approximately 180 degrees and shall be a minimum of 6" deep.

13. A tube storage rack shall be mounted on the curb side of the truck and shall hold (6) 8" tubes. The tube storage rack shall not have any moving parts. Fold down pipe racks shall be deemed unacceptable.

14. A 10' rear storage tray shall be installed between the frame rails with access from the rear of the truck.

15. A debris body wash out system shall be supplied. This system shall be rated to utilize the entire output of the water system with nozzles located at floor level of the body in order to assure the most effective body cleaning.

16. An additional 6" knife valve, or total of two, shall be mounted on the rear door ports.

17. A full door Stainless Steel decant screen shall be supplied which will filter the rear door drain ports. The screen shall be hinged at the top such that when the rear door opens said screen will pivot out of the way and allow for easy cleaning of the screen media.

HYDRAULIC BOOM ASSEMBLY

1. Unit shall be equipped with a rotating hydraulic boom, which allows for vacuuming of debris within a 180-degree arc.

2. Boom shall be equipped with a 120” hydraulic extension to allow for ease of operation in areas varying from 17' to 27'.

3. All boom functions shall be hydraulically actuated via a 12V joystick mounted on the front hose reel operator's station. Functions shall include rotation, lift and extension.

4. Boom shall utilize an eight" suction hose.

5. Boom shall be equipped with curved guide plate at operating end for protection of hose during extension and retraction.

6. Boom rotation to be facilitated by dual hydraulic cylinders.

7. The boom shall be telescoping in design such that the debris hose will not change height when extending said boom. This telescoping feature will be of a tube-in-tube design and said tubes shall be sealed by both a static packing ring as well as a self-adjusting dynamic seal constructed of segmented sections of ultra-high-density polypropylene. Boom shall telescope 10'.

POSITIVE DISPLACEMENT 4400 CFM & 18"HG AIR CONVEYANCE SYSTEM

1. Airflow shall be provided via a positive displacement blower and shall have a capacity of 4400 CFM and 18" of vacuum.

2. Airflow shall be filtered via TWO individual cyclone separators complete with a clean out chamber located below the cyclone.

3. A final filter chamber shall be located immediately prior to the blower intake and shall include TWO replaceable and/or reusable 10-micron cartridge filter elements. Latch for filter access shall be no more than 24" above the top of the chassis frame rail to allow safe and convenient operator.

4. Latching mechanism for cyclone separator and final filter access shall be no more than 22" above the top of the chassis frame rail to allow safe and convenient operator access.

5. Blower to be driven hydrostatically complete with the ability to vary the air volume from zero to maximum air flow. Blowers driven via belt drive or transfer case shall not be deemed acceptable.

6. Unit shall have the ability to use vacuum system and drive chassis in gear simultaneously.

7. Blower shall be equipped with eight" discharge silencer.

8. The VACUUM airflow system shall be equipped with three (3) VACUUM relief valves, which allow air to enter the system when vacuum exceeds 18" HG.

9. The airflow system shall be equipped with a 6" vacuum relief system.

10. A fan powered vacuum system shall not be deemed acceptable.

11. Chassis must remain in neutral when blower system is in use in stationary applications to assure operator safety.

12. The Vacuum system shall have the capability of being turned on or off at any RPM.

ELECTRICAL SYSTEM

1. The module electrical system shall utilize a 12-volt wiring architecture. Multiplexing, including CANbus, shall not be used for any function, measurement, or monitoring purposes on the sewer cleaning module.

2. The control panel will be located on the hose reel. All controls shall be mounted in a weather tight NEMA 4 control panel.

3. This control panel will include ONLY the following switches for operation of the unit:
   - Work Mode - Road Mode Switch
   - Blower On-Off Switch
   - Water Pump On-Off Switch
   - Chassis Throttle On-Off/Increase-Decrease Switch

4. In- cab controls shall include:
   - Recirculation activation only
   -
5. A wireless remote-control system shall be supplied to actuate various functions on the unit. Said unit shall conform to the following parameters:
   - The wireless remote RF unit will use a microprocessor controlled PLL synthesizer with up to eighty-five different channels.
   - The wireless remote will operate in the frequency range of 902 – 928 MHz.
   - The wireless remote will have a range of three hundred' with an obstructed view and one thousand' with an unobstructed view.
   - The wireless remote will have an automatic shutdown feature if the base unit loses remote's signal.
   - The wireless remote will have an operating time of 130 hours of continuous use.
   - The wireless remote will include a battery charger utilizing a 12-volt source.
   - The wireless remote shall have a temperature range of -20º to 160º F.
   - Remote functions will include hose reel payout/retrieve, blower on/off, boom control left/right, extend/retract, up/down, vacuum relief, water pump on/off, throttle up/down, and kill switch.
   - Should the remote need to be replaced, operating parameters shall be stored in wireless receiver, allowing in the field pairing with "off the shelf" replacement remote.

6. An enhanced visibility camera system shall be supplied. This system shall utilize a split screen monitor located in the cab complete with camera heads mounted on the front and rear of the unit.

HYDRAULIC SYSTEM

1. System power shall be provided by twin hydrostatic transmissions, one to supply power to the water pump drive and the second to provide power to the blower drive.

2. All functions controlled hydraulically shall utilize Deutsch DT 2 pin electrical connections and have their respective switches located in the units control panel.

3. Shut-off valves will be installed on the suction lines to facilitate servicing of the hydraulic pump without the need of draining.

4. All hydraulic functions shall be powered from the chassis engine directly. No power takes off's (PTO'S), chassis drive line transfer cases, auxiliary engines, belt drive/jack shaft power dividers etc. will be allowed.

PAINT

1. Before painting, all metal shall be cleaned and etched with a phosphoric wash to insure permanent bond of primer and paint.

2. All components of the unit whether purchased or manufactured shall be BOTH primed and painted prior to assembly in order to assure maximum resistance to corrosion. Painting after the assembly process is NOT acceptable.

3. The unit shall have the main frame painted black and debris tank assemblies shall be painted Lee County specified color.

ACCESSORIES

1. 6" x 10’ Flat Discharge Tube
2. 8" x 6' Crown Suction Nozzle
3. One each Flushing and Penetrating nozzle
4. Wash down gun.
5. Three (3) 8" x 6' Extension Tubes
6. One (1) 8" x 4' Extension Tube
7. Five (5) Quick clamps
8. Hydrant Wrench
9. 25' Fill Hose
10. Paper Owner’s Manual

SAFETY LIGHTING

1. (6) LED FLUSH MOUNT STROBE LIGHT PACKAGE
2. LIMB GUARD
3. LED ARROW BOARD
4. LED PANEL MOUNTED WORK LIGHT
5. LED MANHOLE AREA WORK LIGHT
6. LED CURBSIDE BODY MOUNTED WORK LIGHT
7. LED BOOM MOUNTED WORK LIGHTS (2) (complete with limb guard)
8. LED REAR MOUNTED WORK LIGHTS (2)