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SPECIFICATIONS
A-48-DB-C-AT

057700, 057900

CONV. CAB TANDEM TRUCK CHASSIS WITH OIL DISTRIBUTOR BODY

TRUCK, OIL DIST., 3K, CONV. CAB, ARC, AUTOMATIC (057700)

TRUCK, OIL DIST., 3K, CONV. CAB, ARC, MANUAL (057900)

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October 5, 2021 GAW

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I. GENERAL TRUCK SPECIFICATIONS:

A. INTENT STATEMENT:

The purpose of these specifications is to describe a bituminous distributor for use by the Department to service road construction with bituminous materials. The vehicle shall consist of a cab, chassis, dual rear wheels and tandem rear-axle-drive and be equipped with a tank and dispensing equipment as described.

Functions:

The distributor shall perform the following functions:

1. Fill tank by distributor pump from outside source.
2. Circulate material in tank.
3. Circulate material in spray bar.
4. Spray at a constant desired application rate, regardless of variance in truck speed and bar length.
5. Return material in spray bar to tank by pump suction.
6. Hand spray
7. Return material in hand spray to tank by pump suction.
8. Transfer from an outside source to another source without having material enter distributor tank.
9. Pump material back to supply source.
10. Heat material to proper temperature.

Pennsylvania Department of General Services, PCID No. 1075, "*General Requirements for Bidding PENNDOT Vehicles/Equipment*", most current version effective at the time and date of bid opening, is included as a part of this specification. PCID No. 1075 may be reviewed and downloaded from the Department of General Services website, <http://www.dgs.state.pa.us>.

Delivery as required per Department of General Service PCID NO. 1075 Section "G". All units must be delivered within **270** days after receipt of the purchase order by the successful bidder.

Awarded OEM vendor shall be responsible for contacting the Specification Section of the Fleet Management Division at (717) 787-1567 to set up a pre-build meeting for all chassis and body mounting component locations prior to chassis build. Any deviations to the specification must be granted in writing by the Chief of the Specification Section, previous acceptance will not be considered pre-approved. It shall be understood that any discrepancies/deviations between the specification and the completed unit(s), chassis or body up-fitter related, must be addressed and corrected prior to the delivery deadline and the Departments acceptances.

Unit shall be delivered clean, washed, with current PA state Inspection and a full tank of fuel.

All component manuals and weight distribution sheets shall be completed and supplied with the delivery of each unit.

Department representatives will review the final design of the unit before work begins on the pilot model. The successful bidder will provide detailed drawings of the various systems, i.e. heating, electrical, hydraulic, etc.

The Department reserves the right to have its representative(s) periodically inspect each unit during assembly at the successful bidder's assembly point.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION:

Engineering-certified weight distribution charts shall be provided with the pilot model for the equipment supplied.

It is understood that the components specified are minimum and if the truck manufacturer's Engineering Department recommends or deems necessary, due to their particular weight distribution, a larger component or a larger GAWR totally, the burden of responsibility is hereby placed upon the Manufacturer's Engineering Department to supply a unit that is totally engineered.

1. Frame
2. Axle
3. Tires
4. Steering unit of components
5. Rims
6. Suspension
7. Brakes
8. Any other items as required

The dynamic and static loads created by the unit, plus operational stresses, must be reviewed to ensure the Commonwealth of a properly designed/engineered unit.

Engineering Concurrence:

This specification and all specified components must be reviewed and approved by the successful manufacturer. The installation of the specified components must be approved by the successful manufacturer's Engineering Department.

The distribution shall be made relative to the following information:

1. Payload of approximately 3,000 GAL minimum, of emulsion as permitted to provide a unit with the largest tank capacity best utilizing available GAWR's without exceeding maximum Pennsylvania GVWR.
2. Chassis fuel tank(s) and all other fluid tanks full.
3. 200 LB operator.

The vehicle shall be certified for 62,000 LB Gross Vehicle Weight Rating (GVWR). The GVWR shall be identified in the cab or on the door as the final complete certification label (minimum rating)

Actual Truck Weight

Slip requirements to be presented with the pilot model:

Chassis only	_____ <u>LB</u> Front Axle
	_____ <u>LB</u> Rear Axle
	_____ <u>LB</u> Total

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

"Chassis with body", if applicable, shall be split-weighed and total-weighed by a certified weight master and signed and presented with pilot model.

_____ LB Front Axle

_____ LB Rear Axle

_____ LB Total

Chassis with body and payload:

_____ LB Front Axle

_____ LB Rear Axle

_____ LB Total

Truck GAWR's as Built (LB)

Front GAWR

Rear GAWR

Axle _____

Tires _____

Truck GAWR's as Built (LB)

Springs _____

Rims _____

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C. POWER TRAIN OVERVIEW:

LUBRICANTS FOR FRONT AXLE HUBS AND DIFFERENTIALS, AUTOMATIC TRANSMISSION, TRANSFER CASES AND ALL REAR DIFFERENTIALS SHALL MEET OR EXCEED ALL APPROPRIATE MIL AND SAE SPECIFICATIONS FOR SYNTHETIC LUBRICANTS AND SHALL HAVE ALL PLUGS IDENTIFIED AS SYNTHETIC OR PAINTED RED.

The OEM shall provide written exemption if synthetic oil is not installed.

ENGINE DIESEL:

MIN. 12.4 LITER (actual engine liters), MINIMUM 425 HP AT GOVERNED RPM, and MINIMUM 1540 LB FT TORQUE.

MANUAL TRANSMISSION: 057900

EATON RTO – 16908LL

EATON RTO – 14908LL

AUTOMATIC TRANSMISSION: 057700

AUTOMATIC ALLISION 4500 RDS 6 SPEED

REAR AXLE:

DANA DS463P

Meritor RT46-164-P

MACK S462

Transmission gear (Manual or Automatic), and drive axle gear ratio selection shall be made to ensure an obtainable ground speed in the lowest useable gear of 3-5 MPH at 1300 RPM's for spraying applications. If a suitable ratio cannot be obtained, then an Eaton 1202 auxiliary transmission shall be used.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

1. AXLE-FRONT:

20,000 LB capacity "I"-beam type, minimum. Manufactures standard wheel seal

10,000 LB capacity at ground, each front spring, minimum.

The front axle shall be rated at 20,000 LB minimum capacity. The front axle drag links and tie rods shall have grease zerks installed. Kingpin or bushings shall be grooved to permit grease flow.

Sufficient tire clearance at maximum turning angles. Complete oil seal assembly, including hub, plug type window, and seal. Each unit shall receive a front-end alignment prior to delivery.

2. AXLE-REAR, TANDEM:

DANA DS463P

Meritor RT46-164-P

MACK S462

23,000 LB capacity at ground each rear spring.

Suspension tailored to axle loads and adequate to sustain maximum GVW without overload or permanent set.

Aluminum or lightweight housing is unacceptable. Only heaviest duty housing will be accepted.

All rear axles must provide axle shafts with a minimum diameter of 2.19 inch at the spline. All rear axle(s) shall have an extended breather tube to prevent debris buildup from entering axle housing. There shall be a torque-proportioning traction-assist device, which is full locking within the differential housing. The device shall provide maximum traction to the rear wheels when actuated and shall be a self-relieving designed to prevent gear damage and/or axle shaft breakage under extreme service conditions. The traction-assist device shall be driver actuated by a dash mounted traction control switch.

Lubricants for all rear axles shall meet or exceed all appropriate MIL and SAE specifications for synthetic lubricants and shall have all fill plugs identified as synthetic oil, or painted red.

Stemco guardian or SKF Scotseal, Chicago Rawhide rear wheel seals, or approved equal. All axles shall have magnetic drain plugs.

This information shall be presented at the pre-build meeting.

Cruise control shall be enabled at speeds below 25MPH (5mph-25mph).

Rear axle selection shall be made after the award and may be a mix of ratios as required. The successful vendor/manufacturer shall present three (3) computer runs showing the three most likely ratios for consideration for a top speed range of 65 MPH max. Gear selections shall include probable gear selection to maintain a 5-8 mph speed during the seal coating operation.

3. BRAKES:

Braking System: Full air antilock in compliance with the most current FMVSS requirements.

The ABS shall incorporate a diagnostic fault switch that is capable of illuminating a fault light for diagnostic purposes. The switch shall be easily accessible and can be either dash or under-dash mounted. A dash-mounted display that will show all SAE message descriptions for the ABS is an acceptable means of diagnostics in lieu of the fault switch.

Rear brakes: 16.5-inch x 7 inch "S" cam with quick-change type single or double pin. (No substitute - standardization).

Drum brakes shall have automatic slack adjusters, clearance sensing with adjustment on application of the brake (no substitute).

Steer axle brake: 16.5-inch x 6 inch "S" cam or a power front disc brake system providing equal performance. Quick-change type single or double anchor pin if drum type brakes are furnished.

Backing plates on all drum brakes.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

3. BRAKES: (Continued)

Air compressor: Per truck manufacturer's recommendation. Buzzer-type, low air pressure indicator. Compressor shall be fitted with a safety valve to prevent mechanical failure.

Low air pressure indicator: Buzzer-type and dash light. Must meet current Federal DOT guideline requirements. Air gauge shall display in 5lb. increments. Digital numerical readout is acceptable. Air gauge and low air warning buzzer shall operate with key switch **on** and engine **off**. Function shall not have capabilities of being deactivated by the operator.

Parking brake: Rear wheels, spring-type, MGM E 30/30 or ANCHORLOCK 30/30 gold seal chambers (no substitute). Parking brake shall provide modulated emergency braking via the foot valve in the event of a rear service system failure.

Air tank: Automatic drain valve, with heater on wet (first) tank. Each of the remaining air tanks shall have a manual drain valve.

Air dryer: With heater, mounted away from road splashing and a minimum of 20 inches above road surface. Dryer shall be compatible with the body company clearance requirements for sub-frame, valve body, etc. Per: Haldex DRYest or Bendix AD-IP installation made in concurrence with the air compressor manufacturer's recommendations.

Air dryer shall be placed to accommodate the changing of filter cartridges without disconnecting any hoses or removing dryer base from its mounting location. Final mounting location shall be determined at pre-Build meeting. All electrical connectors for drain valve and air dryer shall be covered with heat-shrink material or have sealed connections.

System shall be equipped with anti-compounding to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

4. CAB:

Aluminum or galvanized steel cab.

Conventional cab.

Exterior windshield sunshade (visor), color coordinated to the cab.

Fenders: Front fenders shall have a formed extension. Not to exceed 102-inch truck width.

Air Conditioning: Manufacturer's standard highest output.

AM/FM radio with weather band and wireless hands-free cell phone connection.

Cruise Control

Halogen headlights, all other cab lighting shall be L.E.D.

Seats: Driver's seat shall be BOSTROM Air 915 Series with lumbar support, or National 2000 Series with lumbar or DuraForm Air Command Series (fabri form cushions with lumbar support), with body cloth and retractable seat belt. **(Seatbelt shall be High Visibility Orange)**. A bellow-type or protective skirt shall cover the seat suspension mechanism. **(No substitute, standardization)**. Color coordinated to cab interior

Passenger seat: With three-point retractable seat belt **(Seatbelt shall be High Visibility Orange)**, manufacturer's standard non-suspension (static) high-back type. Color coordinated.

If due to cab configuration a Bostrom 915 seat cannot be used, a Bostrom 910 may be substituted. All other requirements must be met.

Deluxe fresh air hot water heater and defroster manufacturer's highest output.

Windshield: One (1) or two (2) piece construction, tinted. Safety glass throughout.

Dual inside sun visors.

Dual windshield wipers: Arctic wipers and heaviest, motor, arms and linkages available. Wiper blades, maximum length, shall follow windshield contours. They shall be minimum two (2) speed intermittent. Washer system shall be electric. Washer tank shall be a minimum capacity of two (2) quarts of washer fluid. It shall be filled with an anti-freeze type solvent. Washer fill point shall be located to be accessed from ground level, without overhead reaching. With unobstructed and unrestricted flow from a one-gallon jug.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

4. CAB: (Continued)

Drivers and passenger side windows shall be power.

Mirrors: Drivers and passengers side power mirrors, west coast style minimum 7-inch X 14-inch manufacturers standard heavy-duty breakaway arms.

Mirrors shall be heated with a lighted toggle switch mounted within accessible reach of the operator, automatic on/off is acceptable. The wires shall be fitted in such a way that the mirror glass/element can be changed by unplugging the two-wire lead. There shall be a heated convex mirror both sides, minimum 6-inch X 7 inch or 8-inch diameter.

A heated blind-spot elimination mirror shall be mounted on the right front fender and it shall be minimum 7-inch X 7 inch or 8-inch diameter, stainless steel or aluminum head with mirror. Mirror shall be a conventional convex mirror and shall not be of the half-round cross view type. All arm/s and hardware shall also be stainless steel. Fender type washers stainless, or aluminum, with rubber pads to be placed on both sides of the fender shall be included. Pedestal system shall be single, double or triple mounting assemblies (stainless steel or aluminum). Mirror shall be mounted in rubber or vinyl. Ref: Grote (800-628-0809).

Steps: Drivers and passenger entrance steps: Shall be aluminum, serrated. **The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable).** Step design material must be the same, both left and right side. Ref: Bustin.

Top of the first step shall be approximately 21 inch above the ground.

Step design material must be the same both left and right side.

Grab handles shall be supplied on all cab entry locations. Three points of contact shall be achievable at all cab entry locations. Handrails shall be coated with non-skid paint (non-skid tape is unacceptable) or have OEM anti-slip rubber inserts, both non-skid paint or rubber inserts must extend the full length of the grab handle.

Exterior grab handles shall be supplied if available from OEM.

There shall be a permanent decal, 2-inch-high red letters on white background affixed by the driver side door handle stating the overall maximum travel height of the completed and unloaded unit.

(Example) HT-__' __" Ref. EQN-552

There shall be a permanent decal, "Three Point Contact" located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1. Exact location to be determined at prebuild meeting.

Driver armrest. Seat shall have a fold-up armrest on the right side of the driver's seat.

Air horn(s): With protective cover(s).

All controls and knobs shall be properly identified.

Brake, throttle, and clutch pedal shall be suspended if available from the factory.

Cab floor covering shall be heavy-duty rubber with closed cell rubber or heavy felt backing.

Covering shall seal against all mating and adjoining surfaces sealing dirt and liquid on the surface keeping it from penetrating or accessing the metal cab flooring causing corrosion from inside the cab.

Cabs shall have air suspension.

Steering wheel diameter shall be 18-inch (approx.) Manufacturer's standard.

Steering Column: Steering wheel and column shall be tilt and telescopic, infinitely adjustable to multiple positions.

Wiring Pass Through: All wiring entering the cab shall be made through a rubber boot assembly and be weather tight. There shall be no connectors in the wiring at the pass-through point. Wiring shall be protected against sharp edges and from rubbing / chaffing. Boot design shall be pre-approved.

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I. GENERAL TRUCK SPECIFICATION: (Continued)

D. VEHICLE COMPONENTS: (Continued)

5. CHASSIS:

66,000 LB GVWR minimum, manufacturer's rating.

Cab Axle (CA) dimension: Wheelbase (WB) and CA dimension to be determined and adjusted by the manufacturer to provide the optimum legal weight distributions with maximum payload.

Front Bumper: Heavy duty, mounted flush. To accommodate an 8-inch-wide flat sign.

Front mounted tow hooks or eyes: Two (2) front or one (1) severe duty centered.

License plate bracket rear securely mounted.

6. DRIVE LINE:

Main driveline: Spicer Life HDXL or Meritor MXL Series. "**Factory balanced**" greaseable, (one zerk minimum). Heavy-duty driveline shall be engineered and be compatible to engine, drive train and transmission torque. Heavy-duty center bearing, if required, with due consideration to drive shaft angles, length, location, proper bolting based upon engine and transmission selection. Inter-axle driveline: Spicer Life XL or Meritor MXL Series.

7. ELECTRICAL:

All copper system, negative ground.

Battery location to be determined at the pre-build meeting.

Batteries: Three (3), 12-volt, maintenance-free, BCI Group Size 31, with stud-type posts and anti-corrosion treatment on each terminal. 2500 total cold cranking amperes (CCA) min.

Battery Mounting: It shall include the following:

a.) 0.25-inch-thick rubber shock pad under the battery.

b.) Box with cover. Cover shall be constructed of fiberglass, poly, or aluminum (if aluminum, there shall be an insulating liner).

c.) Mounting bolts grade-8 with self-locking nuts.

Mounting of accessories within the battery box is unacceptable. All fuses and circuit breaker shall be labeled.

All OEM connections within the battery box shall have attached non-metallic embossed labels/tags. Labels/tags applied with self-adhesives or stickers will not be accepted.

Mounting of accessories within the battery box is prohibited. Any connections that are essential in the battery box must be pre-approved by the Chief of the Specification unit at the Fleet Management Division in writing (717) 787-1567. Any circuit deemed necessary for connection in the battery box by the body up fitter or component manufacturer shall have attached non-metallic embossed labels/tags. Labels/tags applied with self-adhesives or stickers will not be accepted.

All circuits shall be individually permanently labeled.

Cables shall conform to RCC Practice 105 with "sealed" terminal ends for stud-type battery posts.

Electrical system: Circuit-breaker-equipped, in easily accessible location, weatherproof. Fuses acceptable in circuit so identified by manufacturer as safety factor. Any fuse or circuit breaker liable to be damaged during truck operation shall have an easily removable protective cover. All connections shall be made using sealed connections and dielectric grease.

Alternator: Delco 36SI (No substitute, Standardization) 160 A minimum, high performance, solid state (brushless).

Starter motor: Delco 39 MT (No Substitute, Standardization) with thermal over-crank protection and high torque capacity. Suitable for the diesel engines offered as per starter manufacturer's recommendation. Starter shall have (OCP) either built in or controlled by the Vehicle's control system, (if required)

Battery cable from battery negative terminal to the truck frame and from the battery or frame to the starter motor.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

7. ELECTRICAL: (Continued)

Alternator and starter mounting bolts: Grade 8.

Power supply for CB: Quantity (1). Dash mounted. Both male/female ends shall be supplied.

Flasher: (All) heavy-duty electrical, Ref: Tridon Model EL 12 or OEM Heavy Duty Electronic Flasher.

If an audible alarm is supplied for the 4-way and turn signal circuit, it shall have on/off capability.

Lights: All lights shall meet all Federal and State regulations. The head Lights shall be Halogen with (DRL's) daytime running lights. Body lights shall have their own dedicated complete circuit. The chassis manufacturer shall route the dedicated body circuit/harness to the rear center portion of cab, with 4' of extra wire coiled on floor between seats. All pass-through points shall be properly sealed and protected with pass through boot. This shall be the access/connection point for the Whelen Model PN# PADOTSY8. Pass-through point and/or routing location determined at Pre-build Meeting.

Radio Antenna: There shall be an antenna base, PCTEL Maxrad NMO-52-360-XX-N and a VHF StiCO Roof-FT-NITI-M whip shall be cut to 18.0 inches per manufactures cut sheet. Assembly shall be mounted to the stationary beacon light bracket, (to the street side, of the light bar) with the antenna cable routed (within protective conduit) to the floor area between the seats. There shall be a minimum of 4 feet of antenna cable coiled at the base of the floor to allow for connection of radio on spreader control pedestal. Antenna shall be prewired with a UHF MALE connection. **(No substitute, standardization)**. Antenna shall be mounted to not interfere with cab shield.

Power Distribution Center: There shall be a 4-way power/ground distribution center located near the console for connection of 800 MHz state radio. The lugs shall be labeled and configured in the following manner: (1) lug shall be a 30-ampere constant hot circuit, (1) lug shall be a 10-ampere ignition-controlled circuit. (2) lugs shall be chassis ground. All connections shall be enclosed in a weatherproof enclosure: EQN-120Q

Each circuit shall be supplied individually, labeled, properly sized, protected from weather and sealed to be watertight.

Electrical wiring: Chassis wiring harness protected at areas prone to cause chafing by installing convoluted plastic conduit and clamped using steel band clamps with rubber inserts.

All pass-through points shall be properly sealed and protected within pass through boot.

8. ENGINE:

Automatic idle shutdown shall be set to five (5) minutes. An audible warning alarm shall be provided to alert operator prior to engine shutting down. Automatic idle shutdown shall be programmed to be overridden when the PTO Mode is engaged.

ECM shall be set to a maximum of sixty-five (65) miles per hour.

Governor: Set at manufacturer's recommended maximum rpm.

Replaceable heavy-duty full flow type fuel filter(s) and oil filter(s) as recommended by the engine manufacturer. **And bearing a legible OEM part number.**

Diesel Fuel Filter: There shall be a DAVCO 382 or 487 filtration unit installed and mounted Higher than fuel tank per manufactures recommendations in a location to accommodate filter replacements, yet be protected from road debris **(No substitute, standardization)**. Mounting location to be determined at pre-build meeting.

Davco 382 Unit shall be equipped with engine coolant heat and 120-volt heater circuit. The 120-volt circuit and engine block heater shall be powered via the same electrical connection. **(No substitute, standardization)**

Davco 487 shall be equipped with a 12 volt and 120-volt heater circuit. 12-volt heater circuit will activate with the ignition key switch, the 120-volt heater circuit and engine block heater shall be powered via the same electrical connection. **(No substitute, standardization)**.

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I. GENEAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

8. ENGINE: (Continued)

Cooling system: The largest factory available capacity compatible with engines and transmissions referenced and for continuous high engine output under extreme temperatures and/or operations conditions due to prolonged slow ground speeds while applying the asphalt material. Shall be fitted with provisions for visually monitoring coolant without necessitating removal of the cap from the radiator or expansion tank (e.g., sight glass, transparent expansion tank). The antifreeze solution shall meet all applicable EPA requirements. A non-charged spin-on coolant filter shall be installed if required by engine manufacturer.

Cooler guard: Mounted in front of radiator, full width and length to protect from stones and road debris. System to be approved by engine and truck manufactures.

Radiator core and shell: Shall be manufacturer's heaviest construction grade radiator available.

The oil dipstick must have tubing and dipstick with sufficient length to provide reasonable access for checking the oil level.

Engine Heater: Immersion in-block type, for cooling system, with waterproof plug, flush-mounted in an accessible location at the front/side of the vehicle, outside the cab/hood, 110 volt, 3-prong plug. The electrical cable from the heater to plug shall be one piece and waterproof. Location to be determined at the pre-build meeting.

Air Cleaner: Air filter shall be manufacturer's heaviest duty air cleaner that meets all the requirements of the extended engine warranty.

The air intake system shall be fitted with inside/outside air.

Fan: Thermostatically controlled viscous type or manufacturer's recommended automatic fan.

Screening system: Mounted in front of radiator that protects radiator full width and full length from stones and road debris. System to be approved by engine and truck manufacturer(s).

Engine Vibration Dampener.

Hoses: The air induction system and large radiator cooling system hoses shall be clamped with 0.500-inch-wide, 150-inch LB stainless steel, constant torque, spring-loaded worm clamps. Ref: Wittek Manufacturing (Tel: (312) 492-9400) or Breeze Clamp Co, Constant Torque clamps with liner for silicone hoses. Cooling system hoses under 1 inch OD may use factory standard hose clamps, as a minimum acceptable standard.

Air intake hoses shall be 0.250-inch minimum thickness, molded hoses. Ref: Gates, Goodyear or equal. Silicone or premium rubber, radiator and heater hoses. Hoses shall not be painted.

Lubricating Oil Lines: High quality flexible wire-braid type, "Aeroquip" or approved equal system, minimum standard if hoses are used.

Drive Belts: Cog belts or serpentine.

Engine Brake: Engine shall be equipped with a minimum 2 stage, full engine compression brake.

Brake lights shall activate when engine brake is activated Ref: Jacobs.

9. EXHAUST:

DPF (diesel particulate filter) and exhaust system shall meet the latest EPA emission requirements.

Vertical tailpipe with elbow and muffler system or approved horizontal muffler and vertical tail pipe with elbow.

The muffler, DPF and tail pipe shall be shielded or insulated to protect personnel from burns when entering or exiting the cab. The shield shall be 180 degrees to 360 degrees and shall be of non-rustable material such as stainless steel or aluminum. Any fluid tank or hoses shall not be routed close to any part of the exhaust system.

All exhaust/DEF components shall be properly shielded to protect personnel from contact, at ground level to the side and rear of cab and normal entrance and exit into cab. Exhaust components below and to the inside of the frame rails do not need shielding. Awarded OEM Model will be discussed at pre-build.

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I. GENEAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

10. FAST LUBE OIL CHANGE SYSTEM (FLOCS):

This FLOCS system shall be installed with all fittings, brackets, clamps, and hoses. Hose from oil pan to FLOCS fitting shall be hydraulic hose with a 100R2 rating and properly secured. The system shall be compatible with all fittings presently used by the Department. The final placement of the male half of the snap coupler, on the equipment, shall be determined at the pre-build meeting. Ref: EQN-351A.

11. FRAME:

Resisting Bending Moment (RBM): Minimum of 2,800,000-inch LB per rail at high-stress areas and 2,086,000-inch LB at non-high-stress areas, for the entire length of the frame, and any frame reinforcements. Minimum frame RBM shall be approved by manufacturer's Engineering Department.

Frame material: Heat treated carbon steel, at least 110,000 psi yield strength.

Main frame and any required liners: Either straight channel or offset channel, full length. Drop frames are not acceptable. Minimum 96-inch-deep section.

Frame AF extension: An integral and continuous extension of the main-frame side rail section modulus.

Bolt on or welded extensions are acceptable. Length sufficient to properly mount body and equipment.

12. INSTRUMENTATION:

All instruments and gauges shall be illuminated and dash-mounted, except where specified otherwise. All standard instruments shall be supplied, including, but not limited to the following:

Oil pressure gauge with warning light or audible alarm.

Air pressure gauge(s) for dual circuit, dual indicator with low-pressure audible alarm and warning light.

Coolant temperature with warning light or audible alarm.

Transmission oil temperature gauge with warning light or audible alarm.

Fuel gauge.

Hour meter that records only when the engine is running. In – dash, integral with instrument panel and readable from the operator's seat.

DEF level gauge.

Speedometer with odometer and a dual speedometer lead to interface with the ground speed spreader control system.

Low air pressure indicator: Buzzer-type and dash light. Must meet current Federal DOT guideline requirements. Air gauge shall display in 5lb. increments. Digital numerical readout is acceptable.

Air gauge and low air warning buzzer shall operate with key switch **on** and engine **off**. Function shall not have capabilities of being deactivated by the operator.

Tachometer.

Voltmeter.

Parking brake indicator light.

Hydraulic fluid level gauge shall be installed within the dash face, exterior installation will not be accepted.

Air Restriction Gauge: Vehicle OEM equipped electronic dash that incorporates an air restriction gauge or indicator light, shall be required.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENEAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

13. LIGHTING & WARNING:

All lights provided on tank shall meet Pennsylvania Motor Vehicle Code. All lights shall be sealed, shock mounted. Wiring shall conform in gauge and color with ATA Standard for asphalt transports.

There shall be no connections made outside of a weatherproof box. Body lights shall have their own dedicated complete circuit. All lights including the body shall be LED.

Whelen Light Kit Part # PADOTSY8, Kit contains the following lighting.

- 1) 01-0687181A1PA (R10PADOT) Light Bar to be pedestal mounted on the top driver's side, front of body. In no case shall the light bar be mounted on the roof of the vehicle.
- 2) 01-066A797-A1H (M6AD) Amber warning lights with brush guard mounted to the rear of body
- 2) 01-066B1866R1J (M6BTDD) Stop, Tail, Turn lights with brush guard
- 2) 01-066B160112G (M6BUD) Back-up lights with brush guards
- 4) 01-066D363310D (IONAD) Amber warning lights, grommet mounted, flush mounted 1 to each side (middle/center) of bed and 2 flush grommet mounted and equally spaced in the front grill per EQN – 120Q.

All amber warning lights (rear amber, ION and light bar) are to be wired in conjunction on the same illuminated and permanently labeled switch.

- 4) 01-046D378-00B (IONGROM) Grommet Kits
- 10) 01-0416467-410 (W441D) Harness side mating Deutsch connectors.

The above lights are supplied with male and female Deutsch connectors that shall be utilized to connect the vendor supplied harness to each light source.

There shall be a Truck-Lite Model# 36140C LED license plate light with light bracket PN# 36710 (Installed). Body builder to supply remaining marker and ICC lighting, they shall be protected against damage and shall also be shock mounted. Connections shall be watertight.

The Warning lights / Light bar shall have a lighted, permanently labeled toggle switch located in the dash. Body wiring shall be Grote, Trucklite, or Prior Approved Equal.

There shall be no splices outside of a sealed box or fixture.

A color-coded electrical wiring chart and schematic shall accompany each body.

14. PAINT:

Cab shall be painted with OEM manufactures standard painting process PENNDOT yellow Ref: DuPont F9885, PPG 85246, Sherwin Williams 73266, Sikkens 4017 and NAPA 73266 for shade only.

Entire cab except for glass, rubber and those metallic accessories or fixtures constructed of rust-resistant (Aluminum and Stainless Steel) or plated material not normally painted. Base coat and clear coat. Ref: Axalita Imron for durability

OEM frame manufactures standard procedures shall be acceptable, all underside and attached components shall be ground to eliminate weld splatter, scale, sharp edges, rust and oils prior to a rust preventive primer and topcoat of black paint. Powder coating is acceptable. Rims shall be painted as specified in the tire and wheel section of this specification.

Body up fitter prior to painting **all** body and upfit attachments shall be ground to eliminate splatter, scale, and sharp edges. All metal surfaces shall be cleaned to eliminate rust and oils prior to primer and final painting. All surfaces to be primed and painted, except for glass, rubber and those metallic accessories or fixtures constructed of rust-resistant (Aluminum and Stainless Steel) or plated material not normally painted shall be coated with one (1) coat of a rust preventive etching primer, (1) coat of epoxy primer and two (2) coats of the body up fitters lead free Acrylic urethane black paint to match frame. Aerosol can touch up paint and primer will not be accepted and will be rejected at the time of delivery inspection.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

15. SAFETY:

Cab shall have reflective enhancement per EQN-127A.

Anti-slip paint is required on all handholds, for the entire length, (tape is unacceptable). All handrails, ladders, and step configurations shall be built for three points of contact.

There shall be a permanent decal, 2-inch-high red letters on white background affixed by the driver side door handle stating the overall maximum travel height of the completed and unloaded unit. (Example) HT-__' __" Ref. EQN-552.

There shall be a permanent decal, "Three Point Contact" located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1. Exact location to be determined at prebuild meeting.

Steps: Shall be serrated. The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable). Step design material must be the same, both left and right side. Ref: Bustin.

There shall be two-wheel chocks per truck Ref: buyers WC1467 or equal with a rope. Mounting location will be determined at pre-build meeting.

All corners shall be angled or rounded for safety.

There shall be a triangle warning kit mounted in the cab.

Fire extinguishers 3A:40BC 5lb. rechargeable with vehicle mount. Mounted in the cab for easy and quick access. Ref: EQN-66A, EQN-82.

16. STEERING:

Power steering: Dual-integral or single-integral type hydraulic

Steering system (e.g., flow, pressure, relief valve etc.) shall be selected considering the full front axle loading. Ref. ROSS, SHEPPARD or TRW gear assembly.

Hydraulic supply pump: Vane type or roller type, with sufficient oil flow to permit one (1) steering wheel revolution per second with front axle loaded to capacity, in a "park" condition. Ref.: VICKERS V-20, EATON or BORG WARNER. The pump shall not be the integral filter type unit.

Power Steering Reservoir: "Remote-mounted", and factory-mounted, minimum two (2) quart capacity, incorporating a filter, which is easy to remove and replace.

Steering wheel diameter shall be 18 inch (approx). Manufactures' Standard.

Glidecoat steering shaft, Bendix wedge lock lube-for-life shaft or ZF type steering shaft.

17. TANK - FUEL:

Safety - type fuel tank as per the requirements of FMVSS. **Dual tanks are unacceptable.**

One (1) 100-GAL minimum total capacity, frame mounted. (Mounted drivers' side)

Cylindrical. Aluminum or stainless steel, unpainted.

Heavy-duty mounting 2-inch-wide stainless-steel straps with rubber shims/liners.

Tank mounting hardware and brackets shall be for "severe duty" applications.

Accessible fill pipe, (located at either end of tank to avoid interference with steps).

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

18. WHEELS/TIRES:

The truck shall be equipped with hub piloted steel disc wheels for tubeless tires. The wheel end shall be equipped with outboard cast brake drums, and 15-degree tubeless steel wheels, hub piloted, 10 hole - 285.75mm bolt circle with 22mm two-piece flange nuts.

Front: Wheels: 22.5 x 12.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 10,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 29807 or 29807. **(No substitute, standardization).**

Rear: Wheels: 22.5 x 8.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 7,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 28828 or 29169. **(No substitute, standardization).**

Wheel-Guard Separators: The wheel ends shall be equipped with the Accuride part number 5903 Wheel Guard Separator as follows:

Front axle - between the wheel and the brake drum.

Rear axle - between the inner dual and the brake drum and between the inner and outer duals.

Paint: The wheels shall be topcoat painted with TGIC Polyester Powder Paint MLD-82008 High Gloss Gray or equal applied over Cathodic Electro-Disposition Gray Primer.

Tires: All tires shall be radials.

Front Tires: 425/65R22.5 (Load Range L).

Rear Tires: 12R22.5 (Load Range H).

MANUFACTURER

Goodyear

Michelin

Bridgestone

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

19. TRANSMISSION:

AUTOMATIC:

ALLISON 4500 RDS 6 SPEED

If an automatic transmission is used the truck shall be equipped with an Eaton 1202 auxiliary transmission kit.

Transmission gear (Manual or Automatic), and drive axle gear ratio selection shall be made to ensure an obtainable ground speed in the lowest useable gear of 3-5 MPH at 1300 RPM's for spraying applications.

If a suitable ratio cannot be obtained, then an Eaton 1202 auxiliary transmission shall be used.

Automatic transmission cooler lines shall be stainless steel.

All vehicles shall have a transmission (auto) operated safety starting switch that will avoid engine starting with drivetrain in gear.

Unit shall be programmed to require a service brake application for transmission to shift into any gear from neutral.

Dash mounted console with push button shift selector or steering column mounted stalk style selector.

An external, Allison approved cooling system shall be installed regardless of whether a full engine compression brake is incorporated in the system or not. The oil cooler for transmission is required due to prolonged transmission torque converter operation in low gears. Cooler shall be sized to keep the transmission fluid at an acceptable operating temperature under these prolonged conditions (Water to oil type cooler). Automatic transmission cooler lines shall be stainless steel, Braided hoses will not be accepted, and all hoses shall be routed to prevent rub-through with hanging brackets and P-style clamps.

All transmission modules shall be routed and installed in the cab

MANUAL TRANSMISSION:

EATON RTO – 16908LL

EATON RTO – 14908LL

Transmission cooler lines shall be stainless steel, and all hoses shall be hydraulic hose with a 100R2 rating. Lines and hoses shall be routed to prevent rub-through with hanging brackets and P-style clamps. Braided hoses will not be accepted,

All vehicles with manual transmissions shall have a clutch-operated or transmission-operated safety starting switch.

Clutch: A Solo Clutch will not be accepted.

Externally lubricated with an extended lube hose if applicable, Eaton/Fuller EZ pedal or Meritor with torque limiting clutch brake. Clutch shall be nine (9) spring, six (6) paddle design. Clutch adjustment shall be set to specifications prior to delivery to the Department. There shall be a neutral safety device to ensure that the vehicle cannot be started in gear. Geared for PTO application, right and left side or right side and bottom. Magnetic drain plug. Input transmission shaft: Minimum 2.00 inch., 12 to 1, minimum 1st gear and reverse ratio.

20. ON BOARD GREASE SYSTEM

There shall be a centralized-on board chassis lubrication system installed, manufactured by SKF Lincoln Industrial Model# 94012 (**No Substitute, standardization**) Ref: EQN-501.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR:

The design of the tank and its equipment shall meet regulations of the United States Department of Transportation, Hazardous Substances Transportation Board, for asphaltic materials having a flash point of 100 degrees F or higher and shall comply with the Federal Motor Carrier Safety Regulations title no. 49, as applicable.

1. TANK - BODY - INSTALLATION:

It shall be the responsibility of the successful vendor to have this tank mounted on the specified chassis. The installation shall be engineered and approved by the vehicle manufacturer

Tank Mounting: The tank mounting shall be as low as possible

Tank Gauge: Float type with dial calibrated in 50-GAL increments, located in ground positioned to allow unobstructed visibility.

Measuring Stick: Steel or aluminum, calibrated in 50-GAL increments. Designed and calibrated to read tank contents.

Any tank-mounted accessory required shall be mounted on a pad which is welded to the tank in lieu of welding the accessory directly to the tank. E.g., steps, catwalk, etc.

All mounting brackets attached to the truck body shall be stainless steel and shock mounted.

2. CABINET, TOOLBOX:

Stainless steel hinges.

Drip edge over top of doors, plus 3-inch overhang on both sides of door.

Watertight doors-gaskets required.

Key-locked, with matching keys.

Installation on frame rail, or supported by skirting and tank shell, size as permitted.

Corrugated rubber matting to facilitate full shelf size

3. CALIBRATION CONTROL CONSOLE:

The truck cab-mounted console shall provide the following functions and controls properly identified:

- a. Spray-bar on-and-off switch with controls in cab and at rear operator platform, or only in the cab.
- b. Electronic sensing device (no substitute, mechanical unacceptable).
- c. High- and low-level bitumen indicator light and an alarm audible from the front or rear of unit.
- d. High temperature hydraulic oil warning light.
- e. Variable-displacement hydrostatic pump control.
- f. Control to increase pump speed for loading and unloading.
- g. Front and or rear suction devices, air or electric over air operated.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

4. AUTOMATIC RATE CONTROL SYSTEM:

This system will be capable of the following as a minimum.

- a. Fully cab controlled.
- b. Wing lift and lower (also rear control).
- c. Bar lift and lower (also rear control).
- d. Bar side shift, 26 inch overall, 13-inch from center. Also, rear control.
- e. Spray width controlled in increments of minimum 12 inch maximum 24 inch on Main Bar and 12-inch on wings.
- f. Solvent injection system to clean bar and outside of unit. (Front or rear control).
- g. Fully self-adjusting mechanism to control application rate regardless of spray bar width and ground speed (if specified as automatic rate control).
- h. System will be capable of loading and unloading with full pump capacity and still retain preset rate selection (if specified as automatic rate control).
- i. All digital readout gauges, gallons per mm and feet per minute.

5. AIR CONTROLS:

Distributor shall be equipped with driver-operated air controls. Air for the controls shall be obtained from the air system on the truck chassis. The distributor air system shall include its own air reservoir (using truck chassis reservoir not acceptable) with check valve set at 80 PSI to prevent loss of air on truck chassis brakes in case lines are ruptured. Truck manufacturer's engineering concurrence required. Relief valve on tank air system shall be set at 80 PSI. System shall have its own air line oiling device.

6. CIRCULATION SYSTEM:

Quick-connecting coupler for attaching loading hose to distributor fill and discharge lines shall be provided.

Strainer in filling line.

Filling line shall be above the intake valve.

Pump discharge or suction strainer shall be provided to keep foreign matter from plugging nozzles, easily removed for cleaning.

Internal fill line with anti-siphoning dome or closing valve to prevent material from flowing into pump when tank is full.

The circulating system to spray bar shall be constructed using steel piping and/or ball joints and/or flexible lines using high pressure rubber or steel hose for flexibility and "optimum safety" due to potential high temperature material.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

6. CIRCULATION SYSTEM: (Continued)

a. Spray Bar:

- i. Type: Full-circulating, shut-off at nozzle, 16 feet minimum in length, hinged or retractable for traveling. Length of bar in folded position not to exceed 8 feet. Bar shall be air operated or hydraulic operated to shift bar 26 inches and raise for traveling.
- ii. Spray bar valves: There shall be an individual valve and quick disconnect for each individual valve.
- iii. Nozzles: Spaced on 4-inch centers on spray bar. A complete set of brass slotted non-clogging nozzles to be provided on the machine as defined below.
- iv. Relieving leak-proof sections on each side of spray bar shall allow bar ends to bend backward or forward if an obstruction is hit.
- v. Cutoff switch on wing that prevents accidental spraying when wings are raised.

Each unit shall be fitted with one complete set of emulsion nozzles AC-20 and two (2) end nozzles. The spray bar shall consist of 16 ft of spray bar.

b. Hand Spray Unit:

Each unit shall be furnished with a steel reinforced rubber hand spray hose, 25 feet x 1 inch (ID) with a steel or aluminum hand spray gun with cold handle and 2 spray nozzles. A on and off control valve shall be provided.

A means must be provided to clean out the handgun and hose assembly, and to suck back the material left in the hose assembly and handgun.

7. DECALS AND SIGNS (TANK):

The tank shall have all necessary appropriate material warning decals on all sides mounted in unobstructed view to alert near-by personnel of tank contents and operational hazards as required by Federal and State Standards.

Appropriate placards shall be provided as per 49CFR.

There shall be a permanent decal, "Three Point Contact" located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1. Exact location to be determined at prebuild meeting.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

8. FENDERS (TANK):

Bolted fenders or catwalk/fender, removable type.

Tank fenders shall be full, flanged type using 0.080-inch aluminum or mild steel construction, or catwalk and integral steel fender assembly.

Mud flaps front and rear of rear wheel, fenders to meet Motor Vehicles Code. Rear mud flaps, 6 inch off-deck.

If skirting incorporates the fenders design, disregard these fender requirements.

There shall be full width back-flap/mg fabricated from black 0.2500-inch rubber. (Final location shall be made at the pre-build meeting.)

9. FILTER SYSTEM:

The tank pump shall be protected by means of strainer to eliminate foreign material entry. The strainer shall be easily accessible for cleaning.

10. FIRE EXTINGUISHERS:

Shall comply with NFPA Standard No. 385, and General Regulations governing the Highway Transportation of Hazardous Substance and Federal Motor Carrier Safety Regulations, Title 49.

Two (2) rechargeable 10 LB dry chemical 2OBC-rated fire extinguishers with charge condition indicator and red waterproof snap-on covers. One (1) extinguisher mounted at right front side of the tank and one (1) mounted at the front of the tank on the driver's side near the cab.

11. FLASHING:

The tank shall have gutter type flashing for hose support including brackets on the right or left side to store the fill hose.

12. HEATING SYSTEM:

a. FLUE:

One (1) 0.172-inch (8 gauge) to 0.125-inch (11 gauge) U-type minimum 6 inch steel flue, located below center of tank for fast heating of load and heating of small amounts of material. Flue welded to flanged openings in tank rear head and supported by sleeves in surge plates to prevent wear and allow for expansion. Stainless steel external exhaust stack with hinged cover and 'stainless steel hinge pin to prevent heat loss, or a system approved by manufacturer's engineering department. Flue exhaust opening on right or left side of tank away from operator. The inlet and exhaust opening of the flue shall be in the same horizontal plane, allowing heating with a minimum of material in the tank. Flue shall run the full length of the tank. Exhaust shall not be directed at any component.

b. BURNER:

One (1), minimum, oil-fired atomizing-type with minimum capacity of 935,000 Btu per hour burner with pressure regulator, valves, piping, blower, flue liner, fuel pump, with solid state electronic ignition.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

13. HYDROSTATIC DRIVE:

Automatic transmission driven PTO.

Manual transmission engine driven PTO.

- a. Variable displacement hydraulic pump.
- b. Hydrostatic motor.
- c. Type: Hydrostatic transmission.

Hydraulic oil may reach temperatures up to 200 degrees F without damage to the unit.

Unit shall have internal valving and shall be fitted with relief valve and high oil temperature signal in cab.

- d. Flywheel Type full time live power.
- e. Hydraulic Lines:
 - i. High-pressure hose with swaged type split flange "O" ring fittings as per SAE standards.
 - ii. Low-pressure hose installation shall be made according to transmission manufacturer's recommendation. Only top-quality fittings, tubing and hoses to be used.
- f. Controls: Micro-control of hydrostatic transmission for setting asphalt pump discharge rate shall be located in truck cab. Control to permit stopping the variable pump discharge without disconnecting the drive and be equipped with an override of the micro-control which shall allow increases in asphalt pump output for filling, sucking back, etc., without affecting application rate setting. (Only applicable if automatic rate control specified).

14. IDENTIFICATION, ASPHALT TANK:

The gallon capacity shall be shown as:

- a. Maximum capacity - gallons/liters
- b. Legal capacity - pounds of payload

A heavy metal tag, minimum 0.063-inch (16 gauge) steel or aluminum identifying the above information shall be attached.

15. INSULATION, TANK:

The thermal insulation between the inner shell and outer jacket, including bulkhead, shall be a minimum of 2-inch fiberglass or mineral wool with a density of 1 LB per cubic foot. The insulation shall be installed and bound to prevent shifting or sagging. (Vendor shall verify insulation compliance's). Spacers shall be furnished to prevent insulation compression and collapse.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

16. INSTRUMENTS AND ACCESSORIES:

a. Thermometers:

- i. A 2-inch minimum dial size, dial type, 50 degrees F to 500 degrees F. REF: WEISS or equal.
- ii. A steel-armored and engraved pencil type thermometer shall be located next to the dial thermometer in a blind well.

b. Loading Hose:

Each unit shall be furnished with a 3-inch x 15 feet steel flexible loading hose with male threaded ends and vendor's quick couplers.

c. Hydraulic Hose Clamping:

Ref: EQN 94. HYCON or equal clamps, as required.

17. LADDER, TANK:

Rear bumper access shall provide "Three Points of Contact".

Full length ladder, 1-inch minimum OD tubular handrails. Ladder reinforcements shall be dual and sturdy in design. 12-inch step increments and 16-inch wide. Steps shall be serrated; the outer step edge must be serrated in lieu of plain. (Overlay is not acceptable). All edges must be banded on the outer perimeter.

Step design material must be the same, throughout. Ref: Bustin.

First step shall be a breakaway swing step Ref. Sauber MFG. CO. Safety Swing Step, shall be mounted with first step approximately 21-inch above ground level. Safety step shall provide the same clearance as the ICC bumper in the "swing" unlocked position.

Landing/s and or catwalks shall be furnished using plain non-serrated safety grating, manufacturer's standard according to tank configuration.

There shall be a permanent decal, "Three Point Contact" located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1.

18. MANHOLES, TANK & STRAINER:

a. Manholes:

18-inch to 20-inch minimum, non-relieving type manholes, in accordance with the most current Federal guidelines. Cover shall be furnished with woven wire impregnated composition gaskets. Cover shall be hinged and quick-opening type.

b. Strainer:

Strainer removable type designed to fit inside the above manhole.

c. Spillage Collar:

Circular or rectangular collar around manhole with 3-inch internal drain with expansion joint to catch any excessive material overflow while loading and shall drain excess material onto the ground.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTION: (Continued)

19. TANK-PAINT, BODY:

Anti-slip paint is required on all handholds, for the entire length, (tape is unacceptable).

All handrails, ladders, and step configurations shall be built for three points of contact.

All non-aluminum parts shall be primed and painted black.

The tank body shall have conspicuity tape on left and right side, full length Ref: EQN-127A.

Under no circumstances shall the aluminum skin be painted.

20. TANK, PIPING:

The tank plumbing shall incorporate a Department-approved sampling valve.

21. PLATFORMS:

a. Tank Top:

A minimum of 54-inch x 54-inch square manhole platform, or 32-inch x 32-inch spill-box assembly (total overall).

b. Operator Station:

Operator platform to provide access to all rear distributor controls, if required.

Adequate handrails for operator safety and proper entry and exit locations.

All sensor wiring shall be protected by piping and easily removable for service.

If all controls are accessible from ground level, additional platform is not necessary.

22. TANK, POWER-TAKE-OFF:

Extending the bumper forward to accommodate a pump that is placed forward of the bonnet (hood) is unacceptable.

23. PUMP, ASPHALT CIRCULATOR SYSTEM:

Pump: Positive displacement type, minimum capacity 400 GPM. Located to provide a constant head pressure in order to eliminate pump cavitation.

Tank: With front and rear suction devices.

Connection to hydraulic motor: Pump to be connected to the hydraulic motor by a double universal coupling or a thermoid coupling or direct coupled 3:1 gear box. Coupling shall be fitted to provide proper flexibility and reliability due to minor misalignment of hydraulic motor and pump shafts.

To prevent the contamination collected in the discharge strainer from re-entering the pump and tank, the clean-out system shall be filtered or so designed as to prevent this from occurring. Units with filter system shall incorporate a clean-out sump. All vendors must provide adequate plumbing to provide this option to eliminate the potential of abrasive materials being continually passed through the pump.

Recirculating cleanout system: Unit shall be equipped a with recirculating cleanout system, this system shall consist of a separate solvent holding tank mounted on the distributor with necessary valves and piping to circulate solvent through the spray-bar, asphalt pump and piping for cleaning, and then return the solvent to the holding tank. The system is to allow for the use of clean fuel from the diesel burner supply tank as solvent and also allow reusing solvent from the holding tank.

24. PUMP FLUSHING LINE:

A pump flushing line, completed with valve, shall be supplied at a minimum.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

25. SUMP (if applicable):

Designed and manufactured to allow all material in tank to flow by gravity into pump or sump.

26. TANK INNER SHELL:

The tank capacity shall be approximately 3,000 GAL LPM "MINIMUM" relative to maximum utilization of each GAWR of the truck chassis.

The tank shall be constructed of 0.141 inch (10 gauge) thick steel.

The tank heads shall be a minimum 10 gauge thick, dished and flanged or 8 gauge flat, and shall be fully welded inside and out, continuous electric welding.

The inner tank shall incorporate two (2) "full cross section" material surge baffles 0.141 in (10 gauge) thick. The baffle shall have crawl spaces (staggered) for a man. The baffle shall provide for material drainage and air circulation and shall be welded continually.

Overflow: A minimum of 3-inch diameter, extending a minimum of 6 inch above the tank to prevent loss of material due to material surging while transporting. This overflow pipe shall be located near the tank center. The overflow shall provide proper drainage through the bottom of the tank in a location to clear all truck accessories and equipment.

27. TANK OUTER SHELL:

The tank outer jacket shall be from 0.040-inch-thick aluminum of grade 5052-H38, or 0.050-inch-thick aluminum of grade 3003-H14.

The outer shell shall be fabricated with sufficient overlap to prevent rain and water entry into the insulation area and constructed in such a manner as to allow for expansion and contraction.

28. WEIGHT DISTRIBUTION, TANK:

The tank body and cabinets shall be designed to provide proper weight distribution for the chassis cab-to-axle dimension proposed. The weight of the tank assembly less chassis weight is required at the pilot model inspection.

29. WIRING AND LIGHTING, TANK:

All lights provided on tank shall meet Pennsylvania Motor Vehicle Code. All lights shall be sealed, shock mounted. Wiring shall conform in gauge and color with ATA Standard for asphalt transports.

There shall be no connections made outside of a weatherproof box. Body lights shall have their own dedicated complete circuit. All lights including the body shall be LED.

Whelen Light Kit Part # PADOTSY8, Kit contains the following lighting.

- 1) 01-0687181A1PA (R10PADOT) Light Bar to be pedestal mounted on the top driver's side, front of body. In no case shall the light bar be mounted on the roof of the vehicle.
- 2) 01-066A797-A1H (M6AD) Amber warning lights with brush guard mounted to the rear of body
- 2) 01-066B1866R1J (M6BTDD) Stop, Tail, Turn lights with brush guard
- 4) 01-066D363310D (IONAD) Amber warning lights, grommet mounted, flush mounted 1 to each side (middle/center) of bed and 2 flush grommet mounted and equally spaced in the front grill per EQN - 120Q.

All amber warning lights (rear amber, ION and light bar) are to be wired in conjunction on the same illuminated and permanently labeled switch.

4) 01-046D378-00B (IONGROM) Grommet Kits

10) 01-0416467-410 (W441D) Harness side mating Deutsch connectors.

The above lights are supplied with male and female Deutsch connectors that shall be utilized to connect the vendor supplied harness to each light source.

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SPECIFICATIONS
A-48-DB-C-AT

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. OIL DISTRIBUTOR: (Continued)

29. WIRING AND LIGHTING, TANK: (Continued)

There shall be a Truck-Lite Model# 36140C LED license plate light with light bracket PN# 36710 (Installed). Body builder to supply remaining marker and ICC lighting, they shall be protected against damage and shall also be shock mounted. Connections shall be watertight.

The Warning lights / Light bar shall have a lighted, permanently labeled toggle switch located in the dash. Body wiring shall be Grote, Trucklite, or Prior Approved Equal.

There shall be no splices outside of a sealed box or fixture.

A color-coded electrical wiring chart and schematic shall accompany each body.

30. PUMP HEAT CHASE:

The unit shall be equipped with a heat chase from the truck engine cooling system installed. This system consists of two ball valves necessary piping and a jacketed material pump that will allow engine coolant to circulate and heat the material pump.

31. SAFETY:

Alarm Backup: Ecco Model 450, shock grommet mounted **(No substitute - standardization)**.

Body shall have reflective enhancement per EQN-127A.

Anti-slip paint is required on all handholds, for the entire length, (tape is unacceptable). All handrails, ladders, and step configurations shall be built for three points of contact.

There shall be a permanent decal, 2-inch-high red letters on white background affixed by the driver side door handle stating the overall maximum travel height of the completed and unloaded unit. (Example) HT-__' __" Ref. EQN-552.

There shall be a permanent decal, "Three Point Contact" located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1. Exact location to be determined at prebuild meeting.

Steps: Shall be serrated. **The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable)**. Step design material must be the same, throughout. Ref: Bustin.

Rear bumper access shall provide "Three Points of Contact". First step shall be a breakaway swing step Ref. Sauber MFG. CO. Safety Swing Step, shall be mounted with first step approximately 21-inch above ground level.

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SPECIFICATIONS
A-48-DB-C-AT

II. DRAWINGS:

EQN-66	dated	Rev.	07-20-09	2 sheets	SPLASH GUARDS-RUBBER
EQN-66A	dated	Rev.	07-13-17	1 sheet	TRIANGLE STORAGE BOX
EQN-78	dated	Rev.	10-27-06	1 sheet	CB RADIO CONNECTIONS
EQN-82D	dated	Rev.	07-22-15	1 sheet	CHOCK AND HOLDER
EQN-94	dated	Rev.	07-26-18	sheet 1 of 5	HOSES AND COUPLERS
EQN-120Q	dated	Rev.	01-28-20	sheet 1	TRUCK LIGHTING UNIVERSAL
EQN-127A	dated	Rev.	01-02-09	1 sheet	REFLECTIVITY ENHANCEMENT
EQN-351A	dated	Rev.	06-19-13	2 sheets	FAST LUBE OIL CHANGE SYSTEM
EQN-501	dated	Rev.	06-08-09	2 sheets	CENTRALIZED LUBE SYSTEM
EQN-552	dated	Rev.	07-25-18	1 sheet	MAX. TRAVEL HEIGHT
EQN-552-1	dated	Rev.	07-24-18	1 sheet	THREE POINTS OF CONTACT STICKER
EQN-562	dated	Rev.	01-08-14	1 sheet	POWER DISTRIBUTION STATE RADIO

The above referenced drawings shall become part of these specifications.

These drawings reflect the intent of the Department and any discrepancies shall be resolved at the line setting ticket meeting between the vendor and the Equipment Chief, or the pre-production inspection of the truck.

DRAWINGS APPEAR AT THE END OF THE SPECIFICATIONS.

III. MANUALS:

The successful vendor shall furnish all applicable manuals per unit:

- 1 Operator's
- 1 Parts
- 1 Service
- 1 Engine
- 1 Transmission (Automatic or Manual)
- 1 Body and Sub-frame (Parts and Service)
- 1 Complete set of manuals for any additional items/equipment added to a piece of equipment.

The manuals listed shall be official O.E.M. publications supplemented with technical manuals for all components as published by sub-vendors/manufacturers.

Parts Manual presented must be a relative to "all" items utilized to build these units, with appropriate part numbers.

All manuals shall be supplied on thumb drive in PDF format that can be loaded to a dedicated website. Paper manuals may be supplied if available from manufacture. Paper manuals do not relieve the requirement for the thumb drives.

Delivery of manuals shall be completed with the delivery of each unit.

IV. TRAINING:

Mechanic:

The successful vendor shall provide services of qualified factory trained technicians for not more than 1 training sessions of not more than 7.5 hours at 1 PENNDOT locations to train personnel for in-depth preventive maintenance, overhaul and review of the proper usage of parts and service manuals, as well as component/system adjustments that need to be monitored at specified service intervals.

Operator:

The successful vendor shall provide services of qualified factory trained technicians for not more than 3 training sessions of not more than 22.5 hours at 1 PENNDOT locations to train personnel in the proper operation, safety and servicing of the equipment.

The successful vendor shall submit a training plan to the Fleet Management Division for approval within 45 days after receipt of the Purchase Order. The training plan shall consist of course outline and class schedule.

All training must be completed within 60 days after the dates established in the approved training plan unless an extension is mutually agreed to in writing by the Chief of the Fleet Management Division.

All training shall be coordinated with the District Equipment Managers, with the exception of Asphalt related training, which must be coordinated with the Statewide Training Coordinator (717) 787-4836, Fax (717) 783-4438.

V. WARRANTY: Per PCID No. 1075.

Per PCID 1075: E.1. Construction Equipment - 2 years or 4000 hours whichever first occurs.
1 year starting from the Department's in-service date.

The warranty start-up date shall be defined as the date of transfer from the PennDOT Fleet Management Division to the designated county location. This will be considered the date of delivery to the county and NOT the date of delivery by the successful bidder to the Department. The PennDOT Fleet Management will supply the actual start-up date, equipment number, and serial number of the machine, via email, to the successful bidder. It is the responsibility of the successful bidder to ensure that the equipment manufacturer recognizes and applies the Department's actual warranty start-up date in their database.

This warranty is in effect as follows, starting from date of acceptance by the Department. Warranty shall not be voided due to Department operation as explained in the Intent Statement. It is understood that the components specified are minimum and if the manufacturer's Engineering Department recommends or deems necessary a more robust component, other than specified, be installed to meet the vehicles intent statement and to not void the warranty, it shall be the bidders/vendors responsibility.

ENGINE WARRANTY:

The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor engine warranty, shall include all engine components internal and external FOR 60 months / 150,000 miles minimum.

The oil pan shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions for 5 years, 100% parts and labor.

EMISSION WARRANTY: The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor warranty for all emission related components to include the diesel particulate filter (DPF) FOR 60 months / 100,000 miles, unlimited engine hours. Shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions.

RADIATOR WARRANTY:

Manufacturer's standard service and warranty policy for radiator minimum shall be for one (1) year, 100% parts and labor.

TRANSMISSION WARRANTY:

Manufacturer's service and warranty policy for automatic shall be three (3) years 100% parts and labor. This warranty shall include all internal and external components related to the automatic transmission.

BODY ELECTRICAL/LIGHTING:

Wiring harness shall be 5 years 100% parts. First year shall include 100% labor.

All LED lights shall be 5 years 100% parts.

WARRANTY REPAIRS SHALL BE COMPLETED AT THE MANUFACTURER'S LOCATION OR IN-HOUSE FIELD REPAIR COMPLETED BY PENNDOT. IT SHALL BE THE DEPARTMENTS DISCRETION TO REPAIR INTERNALLY OR TRANSPORT THE UNIT TO THE DEALERSHIP. THE MANUFACTURER SHALL REIMBURSE THE DEPARTMENT AT THE MANUFACTURERS STANDARD PUBLISHED IN-HOUSE LABOR RATE. THE LABOR RATE SHALL BE MUTUALLY AGREED UPON BETWEEN THE DEPARTMENT AND VENDOR/BIDDER. ALL IN-HOUSE WARRANTY DOCUMENTATION SHALL BE DELIVERED WITH THE PILOT MODEL. ALL WARRANTY DOCUMENTATION SHALL BE DELIVERED WITH THE PILOT MODEL.