



iiná bá, Inc.

ENVIRONMENTAL | ENGINEERING | SURVEYING | CONSTRUCTION | TRANSPORTATION

INVITATION TO BID (ITB)

NAVAJO NATION DIVISION OF COMMUNITY DEVELOPMENT (NND CD)

PURCHASE OF HEAVY EQUIPMENT

April 8, 2024

The NND CD is soliciting bids under this ITB to accomplish the purchase and delivery of heavy equipment for various chapters on the Navajo Indian Reservation as part of the American Rescue Plan ACT (ARPA) funding from the federal government. The specific equipment under this ITB are as follows:

- (7) John Deere Model 772GP motor grader or equivalent with ripper attachment.
- (2) John Deere Model 850L crawler dozer or equivalent with ripper attachment.
- (1) John Deere Model 450LGP crawler dozer or equivalent.
- (2) John Deere 320P backhoe or equivalent with forks
- (1) John Deere 50G mini-excavator

The following are additional requirements to be included in the bid and priced, as applicable, with the aforementioned equipment:

- Standard warranty with terms and conditions.
- Optional warranty with pricing (separately).
- Operator training at time of delivery.
- Anticipated equipment delivery timeframe.
- Length of bid price is valid.

The following are the terms and conditions in force with respect to this ITB:

- Bid preference is given to registered, Priority One vendors and secondly to Navajo Priority Two vendors.
- Vendors claiming Priority status **MUST** clearly label on the outside of their bid package the particular status being requested.
- Revisions to bids can be made up until the time the bids are to be opened and evaluated. No bids will be changed after the bid opening date.
- The bid must be clearly identified and itemized by equipment requested with fully-burdened price clearly marked. Navajo Nation Business Activity Tax (NNBAT) of 6% must be included in the bid price.
- Bid must include the completion of the attached *Bid Specifications Compliance* forms in order for bid to be considered responsive.

Please submit all bids postmarked by April 12, 2024 by 05:00 pm MST to:

iiná bá, Inc.
1812 Schofield Lane
Farmington, NM 87401
or
P. O. Box 2606
Farmington, NM 87499

Any questions can be directed to Mr. John R. Isham, CPG at (505) 327-1072 or via email at jisham@iinaba.com

Maintaining Harmony Between Man and His Environment

iiná bá, Inc. 1812 Schofield Lane, Farmington, NM 87401 PO Box 2606 Farmington, NM 87499

Phone: (505) 327-1072 Fax: (505) 327-1517

www.iinaba.com

Bid specifications for Deere 450 LGP or Equal Crawler Dozer

Compliance Additional supplemental information explaining compliance can be added as an attachment to the bid. Please reference the Compliance Number. Listed below in bold are the attachments that are required to be included with the bid.

Overall Machine

1 yes__ no__ **Made in the U.S.A.**

Engine

- The crawler engine shall meet EPA Final Tier 4/EU Stage IV emissions. It will have a minimum of 71 SAE net hp (53 kW), with four cylinders and be turbocharged.
- 2 yes__ no__ The crawler engine shall have a minimum displacement of 4.0 liters (244 cubic inches)
- 3 yes__ no__ Engine shall have wet-sleeve cylinder liner design for maximum cooling and engine life.
- 4 yes__ no__ The crawler engine shall meet EPA Final Tier 4/EU Stage IV emissions without the use of Diesel Exhaust Fluid (DEF).
- 5 yes__ no__ The pressurized liquid cooling system shall have a water pump driven with an automatically adjusting belt. Radiator shall be filled with manufacturer's approved anti-freeze solution that provides protection to at least -34° F (-37° C).
- 6 yes__ no__ The fuel system shall have a fuel shut-off valve to prevent fuel loss during filter changes. The system shall have a water separator located between the fuel tank outlet and the fuel filters.
- 7 yes__ no__ The exhaust after treatment device shall consist of both a Diesel Oxidation Catalyst (DOC) and a Diesel Oxidation Catalyst (DPF). Both the DOC and DPF shall be serviced independently in the event of a repair or replacement.
- 8 yes__ no__ Diesel Particulate Filter (DPF) shall be rated to last the life of the engine. Please Provide as an attachment the warranty on the exhaust after treatment system.
- 9 yes__ no__ Dozer engine shall have a programmable automatic engine shutdown system
- 10 yes__ no__ Dozer shall have an automatic turbo cool-down system that protects the engine from damage.
- 11 yes__ no__ The primary and secondary fuel filters shall be remote mounted outside of the engine compartment for easy access and a reduced risk of fuel leaks near the engine.
- 12 yes__ no__ Severe duty fuel filter - water separator will be available if required which will include a heating element to prevent freezing of separated water
- 13 yes__ no__ Engine Air Precleaner-Rotary Style
- 14 yes__ no__ The engine lubrication shall be of adequate design to permit operation on slopes up to 45° in any direction.
- 15 yes__ no__ The engine oil and filter change interval shall be 500 hours

Electrical

- Batteries shall have a minimum capacity of 950 CCA, 190-min. rated reserve. Electrical system must be 24 volts
- 16 yes__ no__ Unit shall have cab mounted lights Front Mounted (2), Rear Mounted (2), and 2 rear reflectors
- 17 yes__ no__

Transmission

- 18 yes__ no__ Dual-path hydrostatic drive with infinite speed capability, dynamic braking, full power turns and counter
- 19 yes__ no__ A load sensing system that works to downshift and upshift automatically
- The transmission system shall be sealed and have a reservoir independent of hydraulic system. There shall be adequate filtration and cooling of the hydraulic system to support 4,000 hour oil and filter changes. Oil shall be multi-viscosity engine oil.
- 20 yes__ no__ Transmission shall have the ability for the operator to easily adjust operating parameters such as: FNR shift rate, Steering rate, Steering Modulation, Decel pedal response and Reverse Ratio.
- 21 yes__ no__ Dozer shall have an automatic hill hold feature that automatically applies the parking brake when the transmission is in neutral and motion is detected. Parking must automatically be released upon shifting from neutral.
- 22 yes__ no__ A sight gauge shall be provided for checking the hydrostatic fluid.
- 23 yes__ no__ Transmission filter restriction shall be displayed in the cab
- The single pedal decelerator will allow the operator to choose between slowing travel speed and engine rpm or travel speed only to help maintain traction without affecting engine power and hydraulic response. Fully depressing the pedal applies the brakes.
- 24 yes__ no__
- 25 yes__ no__

Steering

- Hydrostatic drive is preferred for full power turns and counter rotation. Steering shall be fully modulated at all speeds to provide smooth operation. Steering brakes shall be oil-cooled .
- 26 yes__ no__

Final Drive

- 27 yes__ no__ Triple reduction, bull gear final drives must be isolated from the track frames.

Bid specifications for Deere 450 LGP or Equal Crawler Dozer

Tracks and Undercarriage

- 28 yes__ no__ Six track rollers with front and rear track guides and sprocket guards. The dozer shall have one carrier roller on each side. Sealed and life-time lubricated rollers, idlers and track chain.
LGP Track gauge 1651 mm (65 in.). The track length on the ground shall be a minimum 2433 mm (96 in.)
LGP. Track shall be 406 MM(16 in.) grouser track shoes. Ground pressure not to exceed 31.3 kPa (4.5 psi).
- 29 yes__ no__ Minimum ground clearance of 329 mm (13 in.).
Sealed and lubricated with Moderate Service Shoes- With Maximum extended Life Undercarriage. Max Life undercarriage with SC2 Bushings along with larger track links, rollers, and idlers to increase component life
- 30 yes__ no__ before replacement in needed.

Dozer

- The dozer shall be a hydraulically actuated, inside mounted all hydraulic blade (power-angle-tilt PAT). The blade hydraulic system shall provide raise, lower, tilt, angle and float. The blade capacity shall be a minimum
- 31 yes__ no__ 3.1 cu. yd. (2.3 m³) for an LGP machine.
The dozer tilt shall be a minimum of (15.7 in.) for LGP. The minimum blade height 1067 mm 42 in.) for LGP,
- 32 yes__ no__ and minimum blade width of 3150 mm (124 in.) for LGP track frame.
The dozer blade must be equipped with a three-piece replaceable cutting edge. The dozer shall have
- 33 yes__ no__ adjustable blade pitch from 52° cutting edge angle in the back position to 60° in the forward position .

Hydraulic System

- 34 yes__ no__ The system shall have a maximum flow of 16 gpm (60.1 L/min.) flow and provide adequate cooling .
The hydraulic system shall be sealed and have a reservoir independent of transmission system. There shall be adequate filtration and cooling of the hydraulic system to support 4,000 hour oil and filter changes. Oil
- 35 yes__ no__ shall be multi-viscosity engine oil.
- 36 yes__ no__ All hoses shall be of an o-ring seal design to reduce leakage and facilitate repairs.
- 37 yes__ no__ 4 Function Manual Hydraulic controls for the Power-Angle-Tilt (PAT)

Operator's Station

- The enclosed operator's station shall be ROPS (ISO 3471 - 2008) and FOPS (ISO 3449 - 2005) certified. It shall be isolation mounted and include a roof panel. Instrumentation vandal protection shall be included on
- 38 yes__ no__ ROPS canopy unit.
The operator seat shall have adjustments for operator height and weight, and lumbar adjustment in the
- 39 yes__ no__ backrest.
The cab shall include air conditioning with two fresh air filters and a separate recirculation air filter for
- 40 yes__ no__ operator protection .
EH controlled machines shall have touchscreen primary monitor displaying gauges and monitoring system that will include: transmission temperature, engine coolant temperature, engine oil pressure, transmission charge pressure, hydraulic filter restriction, transmission filter restriction, electric voltage, engine RPM,
- 41 yes__ no__ transmission speed range/direction and hour meter.
- 42 yes__ no__ The cab shall have continuous and unobstructed glass from roofline to floor for visibility in tight quarters.
Cab shall have two cup holders. Personal cooler holder/storage compartment for operator's manual, and a
- 43 yes__ no__ rubber floor mat
The operator station shall have an electronic touchscreen monitor system with audible and visual warning for: low alternator voltage; engine oil pressure; engine coolant temperature; indicator; hydraulic oil filter restriction; transmission oil filter restriction; transmission oil temperature; engine air restriction indicator;
- 44 yes__ no__ fasten seat belt and park brake warning.
- 45 yes__ no__ 3" retractable seat belt shall be standard equipment with an operator presence safety system
- 46 yes__ no__ The footrests and full-length armrests shall be adjustable
- 47 yes__ no__ Rear Wiper and Washer for rear cab class.
- 48 yes__ no__ Rear Camera includes touchscreen PDU

Additional Equipment

- 49 yes__ no__ Key-less start with multiple security modes
- 50 yes__ no__ Horn
- 51 yes__ no__ 12 Volt power port
Cold weather Package with ether starting aid, engine block heater (110V), and All season oil good for -40F to
- 52 yes__ no__ 104F
- 53 yes__ no__ Dry-type air cleaner with safety element and restriction indicator
- 54 yes__ no__ Perforated engine side shields

Bid specifications for Deere 450 LGP or Equal Crawler Dozer

- 55 yes__ no__ Reverse warning alarm
56 yes__ no__ Vandal protection providing lockable protection to all openable panels and fuel fill
57 yes__ no__ Heavy-duty bottom guard to include protection to the engine, mid-frame and transmission.
58 yes__ no__ Front idler shaft guards
59 yes__ no__ Front pull hook, bolt on.
Periodic maintenance and lube chart shall be posted for easy reference to ensure that maintenance is
60 yes__ no__ performed according to schedule.
61 yes__ no__ Full-Length Rock Guards
62 yes__ no__ Front Counterweight 240lbs
63 yes__ no__ Heavy-duty Parallelogram ripper with 5-shank Pockets and (3) Shank/teeth.
64 yes__ no__ Fluid sampling ports for engine oil, hydraulic, and hydrostatic systems.
Quick Service Package with ports and plumbing for quick evacuation and fill of hydraulic oil, engine oil, and
65 yes__ no__ engine coolant.
66 yes__ no__ Heavy Duty Front Grille

Additional Equipment

- Weight of the dozer must be minimum of 24,200 lbs. Must include base weight with standard equipment, rollover protections structure (ROPS) full fuel tank, 175lb. Operator plus the dozer blade, ripper and other
67 yes__ no__ optional components.

Safety

- 68 yes__ no__ In Cab mounted 2.5 lb. Fire Extinguisher and Bracket.
69 yes__ no__ Rear Camera includes touchscreen PDU

Warranty and Machine Maintenance Plan

- 70 yes__ no__ Include in the price and list Standard Factory Warranty.
71 yes__ no__ Include in the price 60-Months/3000 Hour Extended Powertrain Plus Hydraulics Warranty.
Include as an attachment the Extended Warranty Options for more years and hours of both powertrain plus hydraulics and Full Machine (Comprehensive). Include what the deduct for the 60/3000 hour Powertrain plus hydraulics warranty quoted in bid would be if another extended warranty option is selected.
72 yes__ no__

- Include in the price a 60-Month/3000 Hour Maintenance Plan with travel included up to 100-Miles. **Please list what is covered under the Maintenance Plan on the quote or as a separate attachment.**
73 yes__ no__

Additional Trailer Bid to Haul Dozer

- 74 yes__ no__ 30,000 lbs. 15-Ton Capacity Pintle Hitch Trailer with Beavertail with Trailer Weight of 8,100 lbs.
75 yes__ no__ Deck width 8'6" with 34" deck height and 21' Length
76 yes__ no__ Deck to have 2" aptong outside with DSS pine Center
77 yes__ no__ two speed jack standard equipment
78 yes__ no__ 20Ton Ramps with Apitong Wood filled Ramps, standard springs.
Frame Mainrails W14'x22 lbs. wide flange I-Beam, one piece cold formed Hi-tensile 50,000 PSI steel
79 yes__ no__ Mainrails from front to drawbar to rear of trailer 8Deg. Tail (safe low loading angel)
80 yes__ no__ Crossmembers 6"x 3.7 lbs. per ft. I-Beam pierced through mainbeam
81 yes__ no__ Headboard 8" High, Full width of trailer with Drawbar Storage Area
Lights sealed L.E.D., 12 volt DOT approved with USA star plus sealed Modular Wiring Harness w/ 7-Way
82 yes__ no__ ATA Plug
83 yes__ no__ Hitch one piece solid cast steel (adjustable) lunette eye and flange mount
84 yes__ no__ Two Safety Chains 1/2" blue-Krome Plated high test, safety hook with Latch
85 yes__ no__ 70,000 lbs. Static/ 40,000 lbs. lift (Heavy Duty 2-Speed screw type)
5-tie downs per side with Roto Rings with 360Deg. Swivel 2-Tie Downs each sid on the beavertail for total of
86 yes__ no__ 7 each side.
87 yes__ no__ Eight 215/75R147.5 (H) Steel belted Radials
88 yes__ no__ Four disc typ hubs, egith 6.75 x17.5, 8-Bolt Hub Piloted disc wheels, oil seals
89 yes__ no__ Hutch H-9700, Three Leaf, capacity 50,000 lbs. tandem
90 yes__ no__ Two Heavy Duty Dexter, 15,000 lbs. each
91 yes__ no__ 12 1/4" x 5" Electric Brakes
92 yes__ no__ Break-away 12 Volt, wet cell battery with integrated battery charging system
93 yes__ no__ Standard Factory Warranty

Bid specifications for Final Tier 4 Compliant Deere 850L or Equal Crawler Dozer

Compliance

Additional supplemental information explaining compliance can be added as an attachment to the bid. Please reference the Compliance Number. Listed below in bold are the attachments that are required to be included with the bid.

Overall Machine

1 yes__ no__ **Made in the U.S.A.**

Engine

2 yes__ no__ Engine meets EPA Final Tier 4/EU Stage IV Emission Standards

3 yes__ no__ Six cylinder engine with variable geometry and fixed turbochargers in series.

4 yes__ no__ Engine shall have a wet-sleeve cylinder liner design for improved cylinder cooling over dry sleeve and cast-in-bore design and for improved cylinder and piston ring durability

5 yes__ no__ Engine SAE net rated power at 1700 RPM shall be no less than 225 hp (168 kW)

6 yes__ no__ The system shall have a water separator located between the fuel tank outlet and the fuel filters.

7 yes__ no__ The engine shall be isolation mounted to reduce vibration and operator fatigue.

8 yes__ no__ The engine lubrication shall be of adequate design to permit operation on slopes up to 45° Fore-Aft, 30° Side Slope.

9 yes__ no__ The engine oil and filter change interval shall be no more than 500 hours to reduce operating costs.

Cooling

10 yes__ no__ Unit shall have a proportionally controlled, hydraulically driven fan with auto reversing function.

11 yes__ no__ To reduce plugging, the radiator, hydrostatic and hydraulic coolers shall all be rated at no more than 7 fins per inch and turbo aftercooler shall be no more than 6.5 fin per inch. All coolers shall be configured in a single plane.

12 yes__ no__ The pressurized liquid cooling system shall have a water pump driven with an automatically adjusting belt. Radiator shall be filled with manufacturer's approved anti-freeze solution that provides protection to at least -34° F (-37° C).

13 yes__ no__ Machine must have a heavy duty grill for protection of cooling fan.

Powertrain/Brakes

14 yes__ no__ Transmission shall have the ability for the operator to easily adjust operating parameters such as: FNR shift rate, Steering rate, Steering Modulation, Decel pedal response and Reverse Ratio.

15 yes__ no__ Dual-path hydrostatic drive with infinite speed capability, dynamic braking, full power turns and counter rotation is preferred. The dozer shall be capable of achieving a speed of 6.8 mph (11.0 km/h) for forward and reverse. Design must permit unrestricted speed and direction changes under full engine rpm and load.

16 yes__ no__ Automatic, dual-path, hydrostatic drive; load-sensing feature automatically adjusts speed and power to match changing load conditions; each individually controlled track is powered by a variable-displacement piston pump and motor combination; ground speed selection buttons on single-lever steering and direction control; independently selectable reverse speed ratio presets of 100% , 115% or 130% of forward ground speed, or independent forward and reverse speeds; decelerator pedal controls ground speed to stop and includes service brake function.

17 yes__ no__ The transmission filter shall be no more than 10 micron rated, vertically mounted, spin-on, for quick no-spill changes. The dozer steering will have a single-lever, direction control and counter rotation with full power turns and infinitely

18 yes__ no__ variable track speeds to provide optimum control and maneuverability.

19 yes__ no__ The single pedal decelerator will allow the operator to choose between slowing travel speed and engine rpm or travel speed only to help maintain traction without affecting engine power and hydraulic response. Fully depressing the pedal applies the service brakes.

20 yes__ no__ Exclusive safety feature engages wet, multiple-disk brakes whenever the park brake button is selected, whenever the engine stops, whenever the decelerator is depressed to the end of travel, or whenever the transmission control switch is placed in the neutral position and motion is detected; machine cannot be driven with brake applied, reducing wear out or need for adjustment; spring-applied, hydraulic release. The operator presence system will only release the park brake after the operator is seated with the seatbelt fastened.

21 yes__ no__ The park brake shall be sufficient capacity to hold weight of crawler on slope.

22 yes__ no__ Diagnostic ports available to check the transmission system

23 yes__ no__ Double-reduction, planetary final drives transfer torque loads over three planet gears; mounted independently of track frames and dozer push frames for isolation from shock loads

24 yes__ no__ Machine must be capable of counter-rotation while in Forward, Neutral, or Reverse.

Hydraulic System

25 yes__ no__ Hydraulic filter shall be spin-on, vertical mounting, no more than 10 micron rated filtration.

26 yes__ no__ The hydraulic system shall be variable displacement piston pump with load-sensing proportional pump flow.

27 yes__ no__ The hydraulic pump flow will be 41 gpm (155L/pm) to deliver precise metering to low-effort pilot controls.

28 yes__ no__ Hydraulic reservoir shall have adequate cooling and filtration to permit 4,000 hour oil drain intervals

29 yes__ no__ The hoses shall use O-ring face seals to provide maximum leak prevention

Electrical

- 30 yes__ no__ Batteries shall have a minimum CCA rating of 950
31 yes__ no__ Alternator shall be sealed with and have a minimum of 130 amps
32 yes__ no__ The dozer shall come with LED work lights (10 LED lights total) 26,000 lumens

Undercarriage

- Eight track rollers on all PAT and OSD configurations with front and rear track guides and sprocket guards. The dozer shall have a minimum of two carrier rollers on each side. Sealed and life-time lubricated rollers, idlers and track chain.
33 yes__ no__
The dozer shall have two carrier rollers on each side, through-hardened, sealed and lubricated for added wear
34 yes__ no__ resistance
24" Extreme Service Shoes and Extended Life Undercarriage for use in highly abrasive material and rocky conditions. Heavy-duty sealed and lubricated rollers, idlers and track chain. Chains must be Sealed and lubricated with SC2
35 yes__ no__ Bushings.
36 yes__ no__ Full Length Rock Guards
37 yes__ no__ Sprocket Segments with Recesses for heavy mud conditions.

Operator Station

- 38 yes__ no__ The enclosed operators station shall be ROPS/FOPS certified.
The operators seat shall have adjustments for operator height and weight and lumbar adjustment in the backrest, heat
39 yes__ no__ and ventilation with heavy-duty air suspension.
40 yes__ no__ Operators station will be mounted using viscous style cab isolators and be equipped with a 3 in (76 mm) seat belt.
41 yes__ no__ Two 12 volt power ports will be provided.
The dozer instrumentation will include dash mounted gauges and/or monitoring system that will include: transmission temperature, engine coolant temperature, engine oil pressure, hydraulic filter restriction, transmission filter restriction,
42 yes__ no__ fuel, DEF, electric voltage, and hour meter.
Machine shall be equipped with Eco Mode that is operator enabled to save fuel with no loss in performance. Eco
43 yes__ no__ Mode can be permanently turned on or off by the owner so the operator can not override Eco Mode status.
The operator station shall have electric, illuminated gauges for engine coolant temperature, engine oil pressure; fuel,
44 yes__ no__ DEF level and hour meter
The cab shall include air conditioning with one fresh air filter and a separate recirculation air filter for operator
45 yes__ no__ protection.
46 yes__ no__ The cab HVAC system shall be equipped with Auto Temperature Control (ATC).
47 yes__ no__ An HVAC powered precleaner for harsh environments.
48 yes__ no__ Machine must have a keyless starting feature with the ability to store up to 10 operator codes.
49 yes__ no__ Machine must have operator presence detection integrated with the seat belt to release the park brake.
50 yes__ no__ Factory integrated rear-view camera that is displayed via the main machine monitor.
Operator's station must be able to be tilted up to 65 degrees to the rear of the machine by use of an integrated jack system to allow full access to the components below the cab. **Please supply operation and procedure to lift Cab**
51 yes__ no__ **as an attachment to the bid.**

General Specifications

- Periodic maintenance and lube chart shall be posted for easy reference to ensure that maintenance is performed
52 yes__ no__ according to schedule.
Unit shall have a vandal protection package that includes a lockable battery compartment, engine access doors, fuel
53 yes__ no__ tank, hydraulic and transmission access door.
The unit will be equipped with all standard equipment and shall include: Keyless ignition switch with safety start, horn, 12 volt power port, engine after treatment device, heavy-duty hinged and lockable engine side shields, reverse
54 yes__ no__ warning alarm, engine fuel filter, mounting steps and safety hand-holds, front idler shields.
The unit shall come with a factory installed Telematics Machine Monitoring System with lifetime Message Service. If life time is not offered please supply longest time period with bid. **Please provide cost of perscriptions and/or fees**
55 yes__ no__ **for this service to be life time as an attachment to the bid.**
56 yes__ no__ Unit shall have a 146" wide PAT blade with cutting edges for finish grading applications.
57 yes__ no__ Unit shall have a Heavy Duty Parallelogram Ripper with 5-Shank Pockets and 5-Shanks/Teeth

Safety Specifications

- 58 yes__ no__ In Cab mounted 2.5 bs. Fire Extinguisher and bracket.
59 yes__ no__ Rear Camera
60 yes__ no__ Beacon Light

Warranty and Machine Maintenance Plan

61 yes__ no__ Include in price and list Standard Factory Warranty

62 yes__ no__ Include a 60-Months/3000 Hour Extended Powertrain Plus Hydraulics Warranty

Include as an attachment the Extended Warranty Options for more years and hours of both powertrain plus hydraulics and Full Machine (Comprehensive). Include what the deduct for the 60/3000 hour Powertrain plus hydraulics warranty quoted in bid would be if another extended warranty option is selected.

63 yes__ no__

64 yes__ no__ Include in price a 60-Month/3000 Hour Maintenance Plan with travel included up to 100-Miles.

65 yes__ no__ **Supply what is covered and what is not covered with the Plan.**

Bid specifications for Deere 320 P or Equal Backhoe Loader

Compliance

Additional supplemental information explaining compliance can be added as an attachment to the bid. Please reference the Compliance Number. Listed below in bold are the attachments that are required to be included with the bid.

Overall Machine

1 yes__ no__ **Made in the U.S.A.**

Engine

- 1 yes__ no__ Four cylinder, turbocharged, isolation mounted diesel engine designed and built by the manufacturer
Engine shall be certified to EPA Final Tier 4/EU Stage IV emissions without requiring the use of a DPF (Diesel Particulate Filter)
- 2 yes__ no__ or EGR (Exhaust Gas Recirculation) aftertreatment components for increased uptime
Engine shall have an individually replaceable, wet-sleeve cylinder liner design to dissipate heat for reduced ring wear and oil
- 3 yes__ no__ breakdown
- 4 yes__ no__ Engine displacement shall be no less than 4.5 liters (276 cu. in.)
- 5 yes__ no__ Engine net peak power (ISO9249) shall be no less than 113 hp (84 kW) @ 1900 rpm
- 6 yes__ no__ Engine shall develop at least a 30% torque rise and should have at least 339 lb-ft (459 Nm) net torque @ 1600 rpm
- 7 yes__ no__ Daily check points shall be accessible from the right side of the engine and shall be done from ground level
- 8 yes__ no__ Engine shall have a serpentine belt with automatic belt tensioner reducing required maintenance
Under-hood engine air cleaner shall be dry type, dual element with evacuator valve, restriction sensor and in-cab restriction
- 9 yes__ no__ warning light
- 10 yes__ no__ The backhoe shall have a one-piece tilt hood for easy engine access without having to remove engine side shields
- 11 yes__ no__ The backhoe shall have an under hood after treatment device (DOC) with curved-end exhaust stack
- 12 yes__ no__ Engine shall have no more than 10-micron rated primary fuel filter with water separator

Cooling

- 13 yes__ no__ Engine coolant shall be rated to -40 degrees (-40 C)
- 14 yes__ no__ The backhoe shall be equipped with an oil-to-water engine oil cooler
- 15 yes__ no__ Unit shall have a coolant recovery tank provided
- 16 yes__ no__ Unit shall have an electronically-controlled, variable rate suction-type fan with fan-guard
The AC condenser will be swing-out for fast radiator clean-out. Remote mounted transmission and hydraulic coolers will offer
- 17 yes__ no__ better air exchange and fewer stacked cores.
The hydraulic circuit is oil-to air system and transmission circuits will be water cooled for fast winter warm-up for increased
- 18 yes__ no__ productivity

Powertrain

- The transmission shall be a hydraulically actuated powershift with Autoshift control and a torque converter with maximum transport speed of 24.9 mph. Clutch-free; fully synchronized five forward (automatically shifts between 2nd and 5th gear when
- 19 yes__ no__ Autoshift is engaged), three reverse speeds
- The sealed axle, with no breather, will be mechanical -front-wheel-drive with traction control limited-slip differential with electric
- 20 yes__ no__ on/off control
The machine will disengage MFWD in 4th gear to allow for longer life of tires and drive train but will engage MFWD when brakes
- 21 yes__ no__ are applied for four wheel braking
- 22 yes__ no__ The axle will be sealed to protect against contamination
- 23 yes__ no__ The driveshaft will be painted for protection, and will have an optional, factory installed, full guard.
- 24 yes__ no__ Full MFWD driveshaft Guard
- 25 yes__ no__ The clutch engaged MFWD can be engaged on the fly during operation.
- 26 yes__ no__ The transmission shall be isolation mounted to the mainframe to minimize shock load stress
- 27 yes__ no__ The rear axle shall be 100% hydraulically locking
The single electric Transmission Control Lever will have gear selection fully integrated in the lever as well as forward, neutral and
- 28 yes__ no__ reverse (FNR power shuttle).
- 29 yes__ no__ Transmission oil cooler shall be provided as standard equipment
- 30 yes__ no__ The backhoe shall have hydrostatic power steering with emergency manual mode
The machine will have a dial throttle that will allow the operator to road the machine on cruise control. Upon engagement of the
- 31 yes__ no__ brake pedal, the engine RPMs return to idle
The final drives shall be heavy-duty outboard planetary distributing loads over three gears sealed in cooling oil bath for long-life
- 32 yes__ no__ and trouble free service.
- 33 yes__ no__ The front axle shall have remote grease bank for front axle for easy access.
- 34 yes__ no__ The rear axle bearings shall be self-lubricating and shall not need to be greased
The service brakes shall be inboard, wet-multiple disk, self-adjusting and self equalizing and hydraulically actuated for a long and
- 35 yes__ no__ trouble-free life, sealed from water, mud and dust contamination
The parking brake shall be independent of service brakes, spring applied, hydraulically released, wet multi-disk, and sealed from
- 36 yes__ no__ water, mud and dust contamination.
- 37 yes__ no__ Tires shall be 19.5-24,12.5/80

Bid specifications for Deere 320 P or Equal Backhoe Loader

Compliance

Additional supplemental information explaining compliance can be added as an attachment to the bid. Please reference the Compliance Number. Listed below in bold are the attachments that are required to be included with the bid.

Hydraulic System

- Hydraulic cooler will have an independent reservoir for continuous running of attachments at high ambient outside air temperatures
- 38 yes__ no__
- 39 yes__ no__ The hydraulic fittings shall have "O"-ring face seal connectors to secure a tight, leak-free seal
- 40 yes__ no__ Machine shall be equipped with Auto Idle to lower rpm when hydraulics are not active to conserve fuel and reduce noise levels. Machine shall be equipped with Economy Mode with dual feature that can be applied to backhoe or loader functions separately or together for improved fuel economy.
- 41 yes__ no__
- 42 yes__ no__ The hydraulic filter shall be no more than 4 micron and will be vertically mounted, spin on design for ease of installation and leak-free replacement.
- 43 yes__ no__ An automatic bucket return-to-dig control will be standard
- 44 yes__ no__ Hydraulic pump shall be 43 gpm (163L/min.) @ 2,200 rpm at 3,625 psi (24 993 kPa) closed center hydraulic pressure compensated load sensing (PSLS), axial piston driven

Electrical

- 45 yes__ no__ The backhoe shall have a 12 volt system with 145 amp alternator
- 46 yes__ no__ Dual maintenance free batteries shall be included, 12 volt, 1900 CCA, 350-min. rated reserve with disconnect and jump posts
- 47 yes__ no__ The machine shall have blade type, multi-fused circuits
- 48 yes__ no__ The starter shall have a bypass start safety cover
- 49 yes__ no__ Cab will be pre-wired for rotating beacon magentic mounted and radio-ready
- 50 yes__ no__ Unit shall be equipped with 10 halogen driving/working lights, (4) front driving/working; (4) rear; (2) side docking lights. The front lights shall be adjustable and the bulbs shall be no less than 32,500 candlepower each.
- 51 yes__ no__ Unit shall be equipped with two front and two rear turn signal/flashing and two rear stop and tail lights and two rear reflectors
- 52 yes__ no__ Machine connectivity to be free from subscriptions or annual renewals that can provide machine data, tack utilization, and review diagnostic alerts remotely. **Please provide cost of subscriptions and/or fees for this service to be life time as an attachment to the bid.**

Operator Station

- 53 yes__ no__ Unit shall be equipped with isolation mounted modular design ROPS/FOPS canopy and molded roof
- 54 yes__ no__ Access to the cab shall be from the right and left side with protected, wide, rigid, slip-resistant steps and ergonomically located hand-holds
- 55 yes__ no__ 3" (76mm) retractable seat belt shall be provided
- 56 yes__ no__ Coat hook, built-in beverage holder, operator manual storage compartment, interior rearview mirror and two 12 volt outlet shall be provided
- 57 yes__ no__ Unit shall be equipped with illuminated electronic gauges with audible warning for: engine coolant temperature, oil temperature and fuel level.
- 58 yes__ no__ The monitor system shall have audible and visual warnings: engine air restriction, low alternator voltage, engine oil pressure, hydraulic filter restriction, hydraulic oil temperature, parking brake on/off, and low brake pressure. The seat belt will have a visual warning.
- 59 yes__ no__ Machine manufacturer will provide a factory installed onboard security system for total machine integration. System will have the ability to accommodate no less than ten operator codes.
- 60 yes__ no__ The keyless start will have an electric fuel shut-off and ability to have auto shutdown setup in monitor
- 61 yes__ no__ The monitor will have a multi-language (English, French and Spanish) digital monitor for diagnostics (including diagnostic messages and fault code readings), calibrations and machine information.
- 62 yes__ no__ Unit will have a machine security electronic protection system provided through the monitor or sealed switch module.
- 63 yes__ no__ Unit will have a sealed switch module for easy location of controls on the right hand console and increased durability.
- 64 yes__ no__ Unit shall have digital display for: engine rpm, engine hours, system voltage, and hydraulic oil temperature.
- 65 yes__ no__ The foot throttle shall be suspended
- 66 yes__ no__ The machine will have a cab and air conditioner available from the factory.
- 67 yes__ no__ Machine shall have 2-Lever Mechanical Controls.
- 68 yes__ no__ The seat shall be air suspension cloth swivel, with fully adjustable armrests and lumbar support.

General Specifications

- 69 yes__ no__ Vandal protection lockable for Cab, Engine hood, toolbox, hydraulic reservoir and fuel filler..
- 70 yes__ no__ The tilt hood shall have two service positions for easy operation
- 71 yes__ no__ An easy to read periodic maintenance and grease chart shall be easily accessible on the machine
- 72 yes__ no__ Fuel tank capacity shall be no less than 34 gallons (128.7 L) and shall be accessible from the ground and lockable. DEF tank to be no less than 3.6 gallons and accessible from ground and lockable.
- 73 yes__ no__ Factory installed fluid sampling valves.
- 74 yes__ no__ Operating weight shall be no more than 15,754 lbs without optional equipment.

Bid specifications for Deere 320 P or Equal Backhoe Loader

Compliance

Additional supplemental information explaining compliance can be added as an attachment to the bid. Please reference the Compliance Number. Listed below in bold are the attachments that are required to be included with the bid.

Frames and Structures

- 75 yes__ no__ The mainframe shall be a one-piece unitized construction for maximum strength
- 76 yes__ no__ Unit shall have four built-in vehicle tie downs, two in front and two in rear for safe transport between jobs
- 77 yes__ no__ The side plate thickness on the loader boom, backhoe boom and mainframe shall be 4.5 mil or greater
- 78 yes__ no__ Machine shall be equipped with an exterior mounted, ground level accessed and lockable storage compartment
- 79 yes__ no__ Optional, replaceable, bolt-on rubber bumpers will be available to protect the grille frame for severe loading applications

Backhoe

- 80 yes__ no__ The backhoe with standard dipperstick digging depth shall be at least 14 ft 3 in (4.34 m)
- 81 yes__ no__ The boom lift capacity at ground level shall be no less than 3283 lb (1489 kg)
- 82 yes__ no__ Maximum SAE dig depth with extendable dipperstick extended shall be no less than 18 ft 2 in (5.53m)
- 83 yes__ no__ The lift capacity at full height with standard dipperstick shall be no less than 7415 lb (3364 kg) with Lift Mode
- 84 yes__ no__ The swing lock pin shall be stored in the operator's station
- 85 yes__ no__ The stabilizers shall have reversible Heavy Duty pads
- 86 yes__ no__ Extendible dipperstick shall extend no less than 3 ft 6 in (1.07 m)
- 87 yes__ no__ The backhoe boom shall be a curved design.
- 88 yes__ no__ The backhoe boom shall be a power curve design, hourglass shape for maximum strength and optimized visibility to the work tool.
- 89 yes__ no__ Digging force with standard backhoe, bucket cylinder shall be at least 12,356 lb (55.0 kN)
The backhoe shall be equipped with a rubber bumper/linkage style boom locks to keep the backhoe from vibrating on the swing frame
- 90 yes__ no__ frame
- 91 yes__ no__ Unit shall be equipped with two lever mechanical (ISO) backhoe controls.
- 92 yes__ no__ The swing casting shall have dual yokes: on top and on the bottom
- 93 yes__ no__ 24" HD Backhoe Bucket
- 94 yes__ no__ Standard Quick Coupler (non-hydraulic)

Loader

- 95 yes__ no__ Lift Capacity with 1.3 cu yd at full height shall be at least 7390 lbs (3352 kg)
- 96 yes__ no__ Dump Clearance @ 45 deg. shall be no less than 8 ft 10 in (2.7 m)
- 97 yes__ no__ Digging depth below ground, bucket level shall be no less than 5.0 in. (128mm)
- 98 yes__ no__ Bucket breakout force shall be no less than 10,541 lb (46.9 kN)
- 99 yes__ no__ Single, greaseless bucket tilt cylinder and bucket level indicator
- 100 yes__ no__ The loader shall have hydraulic self-leveling and bucket-level indicator.
- 101 yes__ no__ The loader shall have divergent loader arms for excellent visibility to the bucket
- 102 yes__ no__ For truck loading, the loader arms will have a curved-knee design for loading into the center of the truck bed
- 103 yes__ no__ The loader control will be single-lever with electric clutch disconnect
- 104 yes__ no__ Factory installed loader coupler will be available that will fit CAT IT, or current Deere attachments.
- 105 yes__ no__ Loader shall have a single cylinder and linkages for tilt and curl on bucket
- 106 yes__ no__ The loader shall have a non-removable, hinged loader boom service lock.
- 107 yes__ no__ 1.3 Cyd. Coupler Bucket with bolt on cutting edge.
- 108 yes__ no__ Coupler 60x60 Set of HD Pallet Forks

Warranty and Machine Maintenance Plan

- 109 yes__ no__ Include in the price and list Standard Factory Warranty.
- 110 yes__ no__ Include in the price a 60-Months/3000 Hour Extended Powertrain Plus Hydraulics Warranty
Include as an attachment the Extended Warranty Options for more years and hours of both powertrain plus hydraulics and Full Machine (Comprehensive). Include what the deduct for the 60/3000 hour Powertrain plus hydraulics warranty
- 111 yes__ no__ **quoted in bid would be if customer chooses to add any of the longer options.**
Include in the price a 60-Month/3000 Hour Maintenance Plan with travel included up to 100-Miles. **Please list what is covered**
- 112 yes__ no__ **under the maintenance plan on the quote or as a separate attachment.**

**Bid specifications for Final Tier 4 compliant Deere Motor Grader
772GP or Equal Grader**

Compliance Additional supplemental information explaining compliance can be added as an attachment to the bid. Please reference the Compliance Number. Listed below in bold are the attachments that are required to be included with the bid.

Overall Machine

1 yes__ no__ **Made in the U.S.A.**

Engine

2 yes__ no__ Engine meets EPA Final Tier 4 and European Union Stage IV standards

3 yes__ no__ The engine shall have dual safety air cleaner elements, radial seal, dry type

4 yes__ no__ Engine shall have a wet-sleeve cylinder liner design for improved cylinder cooling over dry sleeve and cast-in-bore design and for improved cylinder and piston ring durability.

6 yes__ no__ Engine shall be a turbo-charged, direct injection, four stroke, 6-cylinder diesel engine with 4 valves per cylinder designed and built by the manufacturer

7 yes__ no__ Engine displacement for standard engine shall be no less than 9.0 liters (548 cu. in.)

Engine shall reach no less than SAE net horsepower in the gears 1-8:

8 yes__ no__ 1st 210hp, 2nd 225hp, 3rd 240hp, 4th 250hp, 5th 255hp, 6th 265hp, 7th 275hp, 8th 265hp; 6WD is active in gears 1-7 only

9 yes__ no__ Engine will have a minimum torque rise of 55% in all gears

Unit shall be equipped with Engine Power Management System for variable horsepower for up to 265 SAE net and shall meet

11 yes__ no__ FT4 standards

12 yes__ no__ Ether starting aid must automatically meter ether injection to prevent engine damage.

Machine shall be equipped with electronic over-speed protection to prevent the engine and transmission from over speeding, as a standard feature.

13 yes__ no__ Electronic Throttle Control (cruise control) shall be available, and shall be controlled by a switch, located on the right-hand console for resuming and decreasing throttle set.

14 yes__ no__ Unit shall be equipped with engine stall prevention (ESP) as standard equipment

15 yes__ no__ Engine will offer on-the-fly exhaust filter cleaning

16 yes__ no__ Engine will offer automatic de-rating

17 yes__ no__ Engine shall be rubber isolation mounted to reduce noise and vibration

18 yes__ no__ Engine will offer a lifetime viscous crankshaft damper

19 yes__ no__ Adjustable height engine pre-cleaner. Rotary Ejector Precleaner

Cooling

21 yes__ no__ Coolant levels should be easily checked by an overflow tank

22 yes__ no__ Engine coolant shall be Cool Guard™ II Extended Life or equivalent for temperatures to -34 F

23 yes__ no__ The engine shall have an air-to-air after cooling for low engine speed lugging

24 yes__ no__ Unit shall have charged air cooler with restriction sensor and in-cab restriction warning light

Engine fan shall automatically adjust fan speed via a variable displacement hydraulic fan pump to meet engine cooling requirements to minimize power demand from the engine, reduce vehicle noise levels, improve fuel economy, and improve vehicle performance.

25 yes__ no__ Engine power shall automatically compensate for power draw of the fan system to maintain a constant horsepower available to maintain vehicle performance independent of cooling system power draw.

26 yes__ no__ Engine fan shall be able to automatically reverse and allow the operator to choose the time interval for the reversal to occur through the vehicle monitor.

27 yes__ no__ Cooling system shall be isolated from the engine compartment

Pivoting coolers provide access for quick cleanout of dust and debris. **Please provide cleaning procedure of coolers as an attachment named "Coolers and Radiator Cleaning Procedure."**

28 yes__ no__ A rear access fan door shall be provided to provide quick air cleanout of dust and debris for the engine radiator, charge air cooler, transmission cooler, axle cooler, hydraulic oil cooler and fuel cooler. **Please provide cleaning procedure of coolers as an attachment named "Coolers and Radiator Cleaning Procedure."**

29 yes__ no__

Power Train

30 yes__ no__ Direct-Drive Power Auto-Shift Plus Transmission

31 yes__ no__ Machine shall have no drive shafts that cross over the articulation hitch

32 yes__ no__ The transmission shall have eight forward and eight reverse speeds with built-in diagnostics

33 yes__ no__ Transmission shall have 5 working gears between 0-10.2 mph (0-16.4 km/h), for dirt applications

34 yes__ no__ Machine shall be equipped with an electronic inching pedal for improved modulation and machine control

35 yes__ no__ The transmission system shall have an independent oil reservoir, filtration and cooling system with 31 GPM hydraulic gear pump

36 yes__ no__ Transmission shall be event based shifting (EBS) or use load sensing electronic shift modulation with over speed protection
Transmission shall have clutch overheating protection to prevent clutch failures due to excessive and overuse of the inching

37 yes__ no__ pedal

38 yes__ no__ Transmission shall be equipped with built-in self-diagnostic capability

39 yes__ no__ A guard to protect the machine's transmission from debris as standard equipment

40 yes__ no__ 6WD: Automatic dual-path hydrostatic drive with separate left and right systems

41 yes__ no__ 6WD: Operator-selectable 15-position rotary aggressiveness control

42 yes__ no__

**Bid specifications for Final Tier 4 compliant Deere Motor Grader
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- 43 yes__ no__ 6WD: Inching capability down to 0 mph and precision mode (propelled by front wheels only)
6WD: Precision mode is front wheel drive only and allows for seamless shifting from front wheel drive to 6wd on-the-fly without stopping the machine.
- 44 yes__ no__
- 45 yes__ no__ 6WD: Effective Gears 1 - 7 forward and reverse

Axles/Brakes/Tandems

- 47 yes__ no__ The brakes shall be continuously pressurized, filtered, oil cooled
- 48 yes__ no__ The brakes shall be internal self-adjusting maintenance free, wet multi-disk, inboard of tandem pivot
- 49 yes__ no__ The park brake shall have an independent oil reservoir, filtration and cooling system
- 50 yes__ no__ The parking brake shall be automatic, spring-applied, hydraulic released
- 51 yes__ no__ Service brakes shall be multi-disc, oil-cooled and completely sealed
- 52 yes__ no__ Service brakes shall be hydraulically actuated, utilizing dual independent brake circuits
- 53 yes__ no__ Entire braking system shall meet all requirements of ISO 3450
- 54 yes__ no__ Differential Lock/Unlock shall be electro-hydraulically controlled, as a standard feature
Differential Lock/Unlock shall be capable of being engaged or disengaged at any time during vehicle operation without incurring damage to the differential and differential lock system. Engagement shall not be restricted or determined by vehicle speed, vehicle shifts, or tandem tractive conditions (tandems slipping).
- 55 yes__ no__
- 56 yes__ no__ Differential Lock/Unlock shall be a multi-disc design
Unit shall be equipped with system capable of automatically engaging and disengaging differential lock to optimize tractive capability, while at the same time providing the operator with the ability to manually engage differential lock during any vehicle operation
- 57 yes__ no__ Parking brake shall be multi-disc, oil-cooled, spring-applied, hydraulically released, sealed, adjustment-free, and integrated into the transmission
- 58 yes__ no__
- 59 yes__ no__ Parking brake shall be serviceable without removing the transmission
- 60 yes__ no__ Engaged parking brake shall neutralize the transmission
- 61 yes__ no__ The axles shall be planetary single reduction final drive
The rear axle shall have clutch style hydraulic differential lock that can be engaged on the go to achieve maximum traction instantly when required
- 62 yes__ no__ The rear-axle shall be a bolt-on modular design offering easy access to differential components, improving serviceability and contamination control
- 63 yes__ no__
- 64 yes__ no__ Final drive shall be a planetary design
- 65 yes__ no__ Front axle shall be an arched design for maximum ground clearance while maintaining performance
- 66 yes__ no__ Front wheel steering angle shall be no less than 48.5 degrees left or right
- 67 yes__ no__ Front wheel spindle bearings shall be a large diameter taper roller bearing for radial and axial load
Tandems shall be capable of oscillating 15 degrees front tandem up and 15 degrees front tandem down, with full machine articulation and having no interference between tandem wheel and machine structure
- 68 yes__ no__
- 69 yes__ no__ Distance between center of tandem wheels shall be no less than 60.8 in (1540 mm)
- 70 yes__ no__ Maximum front wheel lean shall be no less than 20 degrees left or right
- 71 yes__ no__ Replaceable, sealed bushings shall be used at the axle and wheel pivot points

Hydraulic System

- Motor grader shall have an option of up to six auxiliary control valves and control levers integrated into the main control rack and valve stack, 14 possible control levers on main control rack.
- 72 yes__ no__
- 73 yes__ no__ Left and right blade lifts shall have hydraulic float control.
- 74 yes__ no__ A sight gauge will be provided for checking hydraulic reservoir fluid
The hydraulic tank shall have a baffling system to improve reservoir effectiveness to prevent aeration, contaminant settling, and heat dispersion and dissipation.
- 75 yes__ no__
- 76 yes__ no__ Hydraulic system shall be fully sealed, using O-ring seals to prevent contamination and spillage.
- 77 yes__ no__ Hydraulics system shall be a closed center, load sensing type, with a variable displacement, axial piston-type pump.
The maximum hydraulic system pressure shall be no less than 2,750 psi (18.961 kPa) and the hydraulic system shall have a 56.0 gpm (212 L/m) main hydraulic axial piston pump.
Implement valves shall be proportional priority pressure compensating for consistent response, when multi-functioning any combination of implement controls and independent of engine speed.
- 78 yes__ no__
- 79 yes__ no__
- 80 yes__ no__ Lock valves shall be integrated into the main implement valve to prevent cylinder drift.
- 81 yes__ no__ Steering capabilities shall be ISO 5010
- 82 yes__ no__ The hydraulic system filter shall have a minimum filtration rating of 5 micron rating to protect hydraulic system components

Electrical

- 83 yes__ no__ The electrical system shall be 24 volt with 200 amp alternator.
- 84 yes__ no__ Machine shall have 1400 CCA extra heavy-duty batteries with 440 minute reserve capacity
- 85 yes__ no__ A 24V to 12V converter with 25-amp continuous, 30-amp peak capacity. For use with CB Radios.
- 86 yes__ no__ All core machine systems shall be electronically connected optimizing performance and preventing machine damage
- 87 yes__ no__ LED turn signal, marker and brake lights shall be provided
Unit shall be equipped with LED driving lights, two high and two low beam LED headlights with front and rear turn signals, front and rear marker lights, brake lights and hazard warning lights.
- 88 yes__ no__ Premium LED (high intensity) light grading package. Includes (in addition to those listed above) 14 additional work lights all LED (2 – bottom cab, 2 – mid-frame, 2 – reversing lights on rear grill), 4 – corner cab, 2 front cab and 2 – right side cab roof) Total of 18-LED Lights.
- 89 yes__ no__

**Bid specifications for Final Tier 4 compliant Deere Motor Grader
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- Unit shall have indicator or warning for: high beams, seat belt, turn signals, cruise control, low alternator voltage, engine air filter restriction, engine oil pressure, engine coolant temperature, wait to start (glow plugs), hydraulic filter restriction
- 90 yes__ no__ Machine shall have back-up lights and sounding alarm as standard when reverse gears are selected
- 91 yes__ no__ Unit shall be equipped with a single LCD monitor displaying gauges for: DPF cleanliness level, engine coolant temperature, transmission oil temperature, hydraulic oil temperature, rear steer articulation angle and fuel level with low level visual warning. The LCD monitor should also be capable of displaying vehicle performance data, diagnostic information, and diagnostic trouble codes.
- 92 yes__ no__ Unit shall have digital readout displayed on a single LCD monitor for: engine rpm, odometer, transmission gear indicator, speedometer, hour meter
- 93 yes__ no__ Starting system shall be a 24V direct electric type
- 94 yes__ no__ All light and wiper switches will be solid-state distribution
- 95 yes__ no__ The in-cab switch module shall be sealed to keep out dirt, dust and airborne debris
- 96 yes__ no__ The unit shall have an electric key fuel shut-off switch
- 97 yes__ no__ Electrical system shall have a master disconnect switch with a padlock provision (in addition to the ignition switch), accessible from the ground level
- 98 yes__ no__ Cab shall have two beacons LH and RH side with Flip Down Brackets
- 99 yes__ no__ The unit shall have a LH and RH side engine compartment light
- 100 yes__ no__

Operator Station (GP)

- Grade control ready package is standard from the factory. This package shall include integrated mounting brackets, hydraulic valves, electrical harnesses, circle rotate and slope sensors for quick, easy installation of your preferred grade control system (Topcon, Trimble, Leica). systems.
- 101 yes__ no__ Dual Joystick Controls with steering Wheel included.
- 102 yes__ no__ Available Fingertip armrest-mounted electro-hydraulic controls including steering lever as an option to Joystick Controls.
- 103 yes__ no__ Steering wheel and control console shall be tiltable
- 104 yes__ no__ The ergonomically designed steering wheel with EH Joystick controls or EH Fingertip Controls the steering wheel shall take 6 1/4 turns (lock to lock).
- 105 yes__ no__ Steering wheel included as standard equipment
- 106 yes__ no__ Left and right side cab doors are standard
- 107 yes__ no__ Cab doors shall have a hold-open clasp with a ground-level release and in addition to, a release in the cab
- 108 yes__ no__ Machine shall provide dual exits allowing for emergency egress should one side become obstructed
- 109 yes__ no__ Cab shall have cup holder, personal cooler holder/storage compartment for operator's manual, with a molded floor mat
- 110 yes__ no__ Air vents shall be provided for all front and side tinted windows
- 111 yes__ no__ Cab air pre-cleaner shall be installed to extend filter life by pre-cleaning outside air
- 112 yes__ no__ Three rear view mirrors shall be provided, one interior and two breakaway exterior mounted adjustable heated mirrors.
- 113 yes__ no__ AM/FM/WB Radio with Bluetooth,AUX, two speakers, antenna and wiring.
- 114 yes__ no__ A front window sun visor and a rear window sun shade.
- 115 yes__ no__ The motor grader shall be equipped with low ROPS/FOPS enclosed air conditioned cab, isolation frame mounted for noise and vibration reduction
- 116 yes__ no__ Premium heated, leather/fabric, high wide back, air-suspension seat with armrest, with adjustments for fore-aft position, seat height, seat back angle, thigh support, and lumbar support and 3-inch (76 mm) retractable seat belts,
- 117 yes__ no__ A machine security system shall be available to electronically code keys selected by the user to limit usage by individuals or by time parameters.
- 118 yes__ no__ Left and right side tandem case assemblies shall be covered with punched steel plate to provide an adequate platform for standing and walking.
- 119 yes__ no__ The unit will come standard with front and rear window defrost
- 120 yes__ no__ Decelerator pedal.
- 121 yes__ no__ The upper front and rear windshield washers with intermittent wipers shall be standard
- 122 yes__ no__ Grade Pro cab with Fixed lower front and Side Opening windows, Laminated Glass and Lower front Intermittent Wiper & Washer.
- 123 yes__ no__ Cross-slope simplifies holding a consistent slope by reducing operation to single lever as standard equipment.
- 124 yes__ no__ Return to straight automatically straightens an articulated frame.
- 125 yes__ no__

General Specifications

- 126 yes__ no__ Machine Wheel Base (distance from front axle to mid tandem) shall not be less than 243.0 in (6,172 mm).
- 127 yes__ no__ Machine shall be designed and built by the manufacturer.
- 128 yes__ no__ Transmission shall be designed and built by the machine manufacturer.
- 129 yes__ no__ Machine height to top of the cab shall not exceed 125 in (3,180 mm).
- 130 yes__ no__ Turning radius will be no greater than 284 in (7,214 mm)
- 131 yes__ no__ Max operating weight of the machine shall not be more than 55,000 lbs (21 772 kg). Weight shall be the heaviest possible combination of compatible attachments, also including lubricants, full fuel tank and operator of 175 lbs (79 kg). Typical operating weight of the machine shall be 44,570 lbs (20 217 kg). Weight shall include the base machine weight as well as the front Dozer Blade, rear ripper/scarifier and other equipment
- 132 yes__ no__ Base Machine Weight shall not be less than 38,585 lbs (17,382kg). Weight shall include: standard machine configuration, lubricants, coolants, full fuel tank and operator of 175 lbs (79 kg).
- 133 yes__ no__ Six Cylinder, turbocharged with air-to-air after cooler diesel engine and shall be designed and built by the manufacturer
- 134 yes__ no__

**Bid specifications for Final Tier 4 compliant Deere Motor Grader
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- 135 yes ___ no ___ Hydraulic disconnect (soft start) and transmission valve solenoid guards shall be standard equipment
136 yes ___ no ___ Ground level fueling and filling for diesel and diesel exhaust fluid shall be standard equipment
Standard grey glare-reducing paint shall be used on the front frame and engine enclosure to decrease glare from other
137 yes ___ no ___ equipment lights and reflection from the sun and snow.
138 yes ___ no ___ The frame shall be ready for snow wing attachment as standard equipment.

Frames and Structures

- 139 yes ___ no ___ The angle of articulation shall be no less than 22 degrees
140 yes ___ no ___ The articulation joint shall have mechanical locking device to prevent frame articulation while servicing or transporting machine
141 yes ___ no ___ Unit will be provided with seven-position pin-locking saddle
142 yes ___ no ___ Unit shall be equipped with 5 tie-down locations for ease of transporting

Circle and Mold Board

- Circle shall be a fully sealed bearing style system. **Please provide maintenance and adjustment procedures for circle being quoted.**
143 yes ___ no ___
144 yes ___ no ___ Circle teeth contact surfaces shall be induction-hardened on the front 120 degrees of the circle
145 yes ___ no ___ Circle shall have no circle adjustments or wear inserts
146 yes ___ no ___ The unit shall have a circle drive slip clutch to protect the drive pinion from shock loads
147 yes ___ no ___ Circle shall be rotated by a hydraulic driven motor
Circle maintenance shall have five greaseable points serviced on a 500 hour interval and a 4000 hour gearbox oil change
148 yes ___ no ___ interval. No other adjustments or maintenance needed.
The draft frame pivot connection shall have a double Ball-in-Socket design with a minimum ball diameter of 6.0 in (152.4 mm)
149 yes ___ no ___ and minimum stem diameter of 2.88 in (73 mm)
The standard moldboard shall be at least 14 ft (3657 mm) long, 24 in (610 mm) high and no less than 7/8 in (22 mm) thick with
150 yes ___ no ___ 5/8 in (16 mm) hardware. 8" Cutting Edges
151 yes ___ no ___ Shall have Reversible Overlay End Bits.
152 yes ___ no ___ The mold board shall be pre-stressed during manufacturing for superior strength and durability
153 yes ___ no ___ The mold board will have quick change side shift wear inserts, capable of being replaced using only a 9/16" wrench.
154 yes ___ no ___ Moldboard shall have a bank slope angle capability of at least 90 degrees to both sides.
155 yes ___ no ___ Slide rails shall be hardened, continuously welded, and have replaceable bronze-alloy wear inserts top and bottom.
156 yes ___ no ___ Moldboard slide rails shall be constructed of a heat-treated, high carbon steel.
157 yes ___ no ___ Moldboard shall have a hydraulic tip control through a range of 42 degrees fore and 5 degrees aft.
158 yes ___ no ___ Throat clearance with standard moldboard shall be at least 4.8 in (123 mm)
Blade lift accumulators for added protection of the moldboard and draft frame from impacts with stationary objects shall be apart
159 yes ___ no ___ of machine
Machine shall have Machine Damage Avoidance to prevent the moldboard from contacting the tires, cab and cab steps. In
160 yes ___ no ___ addition prevents the saddle linkage from contacting the top of the draft frame. Operator can override as needed.

Serviceability

- Daily check points shall be accessible from the left side of the engine behind one service door and shall be done from ground
161 yes ___ no ___ level with a light as standard equipment.
162 yes ___ no ___ Access to engine will be open from both sides with hinged engine side shields and full access service doors
163 yes ___ no ___ Engine enclosure and daily service points shall be accessible from ground level, and grouped on the left side of the machine.
Vandal protection package shall include locking for cab doors, engine side shields (4), top tank radiator access door, engine
164 yes ___ no ___ coolant surge tank, hydraulic reservoir cap, fuel tank cap and tool box.
165 yes ___ no ___ The dip stick for checking transmission fluid shall be at ground-level
166 yes ___ no ___ Engine shall have environmentally friendly fuel drain valves
Equipped with quick service fluid ports for engine oil, transmission oil, hydraulic oil, axle oil and coolant with ground level quick
167 yes ___ no ___ connect access.
168 yes ___ no ___ Hydraulic tank capacity shall not be more than 16 gallons (60.6 L).
169 yes ___ no ___ Fuel tank capacity shall not be less than 110 gallons (416 L).
170 yes ___ no ___ Diesel exhaust fluid (DEF) tank capacity shall not be less than 6 gallons (22.5 L)
171 yes ___ no ___ Cooling system capacity shall not be less than 14.5 gallons (55.0 L).
172 yes ___ no ___ Engine oil capacity shall not be less than 7.1 gallons (27.0 L).
173 yes ___ no ___ Tandem housing capacity shall not be less than 19.5 gallons (74.0 L) each.
174 yes ___ no ___ Circle gearbox capacity shall not be less than 1.5 gallons (5.7 L) with an 4000 Hr. Gearbox oil change interval.
175 yes ___ no ___ Engine primary and final fuel filters shall have 500-hour service replacement interval.
Engine shall have primary fuel filter with fuel water separator and electronic sensor; quick release dual stage filter and primer
176 yes ___ no ___ pump
177 yes ___ no ___ Hydraulic, transmission, and differential filters shall be banked and easily assessable through the engine compartment doors.
178 yes ___ no ___ Engine oil filter shall be a 500-hour, vertical spin-on
179 yes ___ no ___ Engine oil shall have a service interval of no less than 500 hours
180 yes ___ no ___ Hydraulic oil filter shall have a service interval of no less than 2000 hours
181 yes ___ no ___ Hydraulic oil change service interval shall be no less than 4000 hours
182 yes ___ no ___ Transmission oil change service interval shall be no less than 2000 hours

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- 183 yes__ no__ Transmission oil filter service replacement interval shall be 2000 hours
184 yes__ no__ Tandem oil shall have a service interval of no less than 4000 hours
185 yes__ no__ Engine coolant shall have a service interval of no less than 6000 hours
186 yes__ no__ Transmission, hydraulic, fuel and axle filter restriction indicator shall be displayed in the cab
187 yes__ no__ The centralized lube bank shall be at the articulation joint to give access to difficult to reach zerks
- 188 yes__ no__ Sampling ports shall be accessible from the tandem level and provide access to the engine, hydraulic, coolant, and fuel ports.
A two-way communication tool shall give service technicians easy access to stored diagnostic data and allow configuration of machine parameters.
- 189 yes__ no__ Unit shall be equipped with OEM provided wireless communication system capable of monitoring and communicating machine location, fuel burn, as well as multiple other vehicle performance data. In addition, the system shall be capable of updating system control software wirelessly. Life Time Service. **Please provide how long service is good for and price out life time if available. Please provide subscription cost with bid as an attachment.**
- 190 yes__ no__ Diesel particulate filter (DPF) ash service interval as needed (can go up to 15,000 hours between diesel particulate filter ash removal) **Please provide DPF warranty statement on this component as an attachment.**
- 191 yes__ no__

Tires / Rims

- 192 yes__ no__ A 14 in (35.6 cm) by 25 in (63.5 cm) size multi-piece tire rim shall be available to provide mounting for 17.5R25 tires.
193 yes__ no__ 17.5 R 25 L2 Single Start Radial Tires w/3pc. Rims
194 yes__ no__ Spare tire and rim mounted but shipped loose.
195 yes__ no__ 1-full set of 4-link tire chains and tighteners.

Safety

- Standard grey glare-reducing paint shall be used on the front frame and engine enclosure to decrease glare from other equipment lights and reflection from the sun and snow.
- 196 yes__ no__ The unit shall have a fan finger guard
- 197 yes__ no__ Machine shall have both a Front and Rear high resolution Cameras with ability to show either front or rear in the main monitor
- 198 yes__ no__ Machine shall come with a mounted 5.0 lbs. multi purpose (ABC) Dry Chemical Fire Extinguisher
- 199 yes__ no__ Machine shall have installed a slow moving sign
- 200 yes__ no__ Machine shall have wheel chocks that can be mounted and stored on the machine
- 201 yes__ no__

Other Equipment

- 202 yes__ no__ A front mounted Dozer Blade 105" x 37.6" shall be part of the machine
- 203 yes__ no__ Rear ripper Combination with rear hitch and pin, shall have five ripper shank holders and 9 scarifier shank holders
- 204 yes__ no__ Rear ripper shall come with five ripper shanks/teeth and 9-scarifier shanks/teeth
Rear ripper shall have a working penetration of maximum 16.8 in (426 mm) and a minimum penetration force of 21,137 lb (9587 kg) at typically equipped operating weight
- 205 yes__ no__ A toolbox shall be provided
- 206 yes__ no__ Machine shall come with Front Fenders
- 207 yes__ no__

Warranty and Machine Maintenance Plan

- 208 yes__ no__ Include in the price and list Standard Factory Warranty.
- 209 yes__ no__ Include in the price a 60-Months/3000 Hour Extended Powertrain Plus Hydraulics Warranty
Include as an attachment the Extended Warranty Options for more years and hours of both powertrain plus hydraulics and Full Machine (Comprehensive). Include what the deduct for the 60/3000 hour Powertrain plus hydraulics warranty quoted in bid would be if another extended warranty option is selected.
- 210 yes__ no__ Include in the price a 60-Month/3000 Hour Maintenance Plan with travel included up to 100-Miles. **Please list what is covered under the maintenance plan on the quote or as a separate attachment.**
- 211 yes__ no__