

SPECIFICATION FOR:

**USED HYDRAULIC EXCAVATOR
KOMATSU PC 210LC-10 OR EQUAL**

INTENT

It is the intent of these specifications to provide for the purchase of one (1) used diesel powered, crawler mounted hydraulic excavator, Komatsu PC210LC-10 or equal.

The successful bidder will be the one whose project is judged shall best serve the interests of the Town when price, product, safety, quality and delivery are considered. The Town reserves the right to reject any or all bids or any part thereof and to waive any minor technicalities. A contract will be awarded to the bidder submitting the lowest responsible bid meeting the requirements. Any bidder bidding an alternate manufacturer must submit specifications with their bid. The excavator shall be the manufacturer's current production model and shall be built no earlier than the 2012 model year. It shall have no more than 975 original hours of use. Bidders must provide proof of the number of hours on the equipment.

ENGINE

The excavator shall be equipped with six (6) cylinder, four (4) cycle, water cooled, direct injection, turbocharged, diesel engine with an air to air aftercooler. The engine shall have a bore and stroke of not less than 4.02" x 4.72" producing a displacement of not less than 359 cu.in. The engine shall be rated to produce not less than 179 FwHP @ 2050 rpm in conformance with SAE J1349 standards.

The engine shall be equipped with the following:

- Dual element, dry type air cleaner with auto dust evacuator
- All speed electronic governor
- Automatic fuel line de-aeration
- Fuel pre-filter with water separator
- Suction type cooling fan
- Diesel particulate filter

The engine shall be in conformance with EPA Interim Tier IV emission standards.

ELECTRICAL SYSTEM

The excavator shall employ a 24 Volt electrical / starting system which shall employ the following:

- 24 Volt / 5.5 kW Starting Motor
- 24 Volt / 60 Ampere Alternator
- 2 x 12 Volt / 170 Amp Hour Batteries

HYDRAULIC SYSTEM

The excavator shall employ a closed center load sensing hydraulic system with an engine mutual control system. The system shall be designed to control and balance engine speed and hydraulic pump output for best engine efficiency and lowest fuel consumption.

The load sensing system shall include the following:

- Automatic Engine Warm-Up System
- Engine Overheat Protection System
- Auto-Deceleration System
- Swift Slow Down System
- Working Mode Selection System

The working mode selection system shall include the following:

- Power Mode
- Economy Mode
- Lifting Mode
- Breaker Mode
- 2 Way Attachment Mode

The hydraulic system shall employ two (2) variable displacement, piston type pumps providing flow to a seven (7) spool control valve operate the boom, arm, implement, swing and travel circuits as well as an additional service circuit. The two (2) pumps shall have a total rated flow of not less than 116 gpm.

Two (2) piston type motors (1 per track) with counter balance valves shall be provided to control travel. One (1) axial piston motor with a single stage relief valve shall control swing.

The following relief valve settings shall be considered the minimum for each circuit:

- Implement5,400 psi
- Swing4,190
- Travel5,400 psi
- Pilot470 psi

The excavator front shall be controlled by four (4) hydraulic cylinders. The following shall be considered the minimum bore, stroke and rod diameter:

- Boom (2)5.1" x 52.5" x 3.5"
- Arm (1)5.3" x 58.7" x 3.7"
- Implement (1)4.5" x 44.1" x 3.2"

Both the boom and arm hydraulic control circuits shall be equipped with a holding valve.

The excavator shall be equipped with wrist controllers, which shall control all boom, arm, attachment and swing functions. The controllers shall employ a PPC system. A pattern control change valve shall be provided.

HYDRAULIC SYSTEM-cont'd

An additional hydraulic circuit shall be supplied to provide bi-directional flow for hydraulically actuated attachments such as a breaker or a thumb. The circuit shall include a control unit and all necessary piping for the boom and arm assemblies.

The control unit shall include the following:

- One (1) Control Valve
- Plumbing- Service Valve to Boom Foot
- PPC Piping- Control Pedal to Service Valve
- Selector Valve
- Safety Valves for Selector & Service Valves
- Return Filter for Breaker Operation

UNDERCARRIAGE

The excavator's undercarriage shall incorporate an "X" center frame. The track frames shall be a long track design with reinforced box section. An under cover for the track frame center shall be provided. Hydraulic track adjusters and track guiding guards shall also be provided.

The width of the car body shall provide the undercarriage with a track gauge of not less than 7'10".

The undercarriage shall include grease sealed track link assemblies with strutted links and hydraulic track adjusters. There shall be not less than 49 shoes per side. The length of track on ground shall be not less than 12'0". The shoes shall be 31.5" wide. They shall be a triple grouser design.

The undercarriage shall employ not less than two (2) carrier rollers and nine (9) track per side.

FINAL DRIVE

The excavator shall employ a fully hydrostatic, three (3) speed drive system with auto shift. The system shall have a separate piston type motor with parking brake for each track. Power shall be transmitted to each track by means of a double reduction, planetary gear type, final drive.

The following minimum operation parameters shall be considered minimums for an excavator of this class:

-Max. Drawbar Pull	.....45,349 lbs.
-Max. Travel Speed:	
High	.....3.4 mph
Low	.....1.9 mph

STEERING

The excavator shall be steered by controlling the speed of the tracks and the direction of track travel. Steering / travel control shall be effected by means of two (2) levers / foot pedals, one (1) set for each track.

BRAKES

The excavator shall employ hydraulic lock type travel brakes. The brakes will automatically lock when the steering / travel control are placed into neutral. Each drive motor shall be equipped with a wet multi-disc parking brake.

SWING SYSTEM

The excavator's swing system shall be powered by a hydraulically driven, piston type motor with a single stage relief valve. Power shall be transmitted by way of planetary reduction gear system. The swing circle shall include a grease bath and wet disc brake and lock.

Swing speed shall be proportional to the swing lever control stroke. The maximum swing speed shall be not less than 12.4 rpm. Maximum swing torque shall be not less than 49,907 ft-lbs.

OPERATOR'S COMPARTMENT

The material handler shall be equipped with a viscous mount, all weather, pressurized cab located on the left side of the superstructure. Entry shall be by means of a full length lockable, round sliding door.

The cab shall be equipped with the following:

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|--|----------------------------------|
| -Sound Suppression | -AM /FM Radio with Antenna |
| -Tinted Safety Glass Windows | -Lockable Door |
| -Pull Up Front Window
w/Locking Device | -Removable Lower Windshield |
| -Suspension Seat
w/3" Retractable Seat Belt | -Floor Mat |
| -Ceiling Hatch | -Air Conditioner (27,383 BTU) |
| -Window Guard | -Heater (20,636 BTU) & Defroster |
| -Auxiliary Input (MP3 Jack) | -Intermittent Windshield Wiper |
| | -Hot/Cold Storage Box |
| | -Two (2) 12V Accessory Outlets |

INSTRUMENTATION

The excavator shall be equipped with an electronic, multi-function monitor control panel, which shall incorporate a large LCD high resolution color monitor / display system as well as controlling working mode selection.

This panel shall incorporate an equipment monitoring system with self-diagnostics. The system shall provide information on operation conditions such as coolant temperature and fuel level. It shall also provide caution lights electronic maintenance reminders and fault code memory storage.

BOOM

The excavator shall be equipped with a single piece boom with a length of not less than 18'8". The boom shall be equipped with the boom & arm cylinders described in the hydraulic section as well as the auxiliary hydraulic circuit piping described.

ARM

The excavator shall be equipped with an arm assembly with a length of not less than 9'7". The arm assembly shall be equipped with the implement cylinder described in the hydraulic section as well as the auxiliary hydraulic circuit piping described. The implement cylinder shall effect movement of the bucket linkage assembly.

BUCKET

The excavator shall be supplied with a 48"/1.57 cu. Yd. excavating bucket with a heavy duty plate lip. The lip thickness shall be not less than 1.5". It shall be equipped with six (6) teeth and a lifting eye.

HYDRAULIC THUMB ATTACHMENT

The excavator shall be supplied with a hydraulically operated thumb. The thumb shall be compatible with the bucket specified.

PAINT

The excavator shall be painted the manufacturer's standard colors.

ADDITIONAL EQUIPMENT

The excavator shall be equipped with the following:

- | | |
|------------------------------------|---------------------------|
| -Revolving Frame Under Cover | -Electric Horn |
| -Handrails for Cab Access | -LH & RH Exterior Mirrors |
| -10,406 lb. Standard Counterweight | -Travel Alarm |

SERVICE CAPACITIES

The following capacities shall be considered minimums for an excavator of this class:

- | | |
|-------------------------|------------------|
| -Fuel Tank | 105.7 gal. |
| -Coolant | 8.1 gal. |
| -Engine | 6.1 gal. |
| -Final Drive (ea. side) | 1.3 gal. |
| -Swing Drive | 1.7 gal. |
| -Hydraulic Tank | 34.9 gal. |
| -Hydraulic System | 61.8 gal. |

DIMENSIONS

The following dimensions shall be considered maximums for the excavator specified:

<u>Undercarriage:</u>		<u>Transport:</u>	
Length of Track	..... 14'7"	Length	..... 31'7"
Track on Ground	..... 12'0"	Width	..... 10'5"
Track Gauge	..... 7'10"	Height	..... 10'3"
Width Over Tracks	..... 10'5"		
Tail Swing Radius	..... 6'0"		

OPERATING PARAMETERS

The excavator shall meet the following criteria:

Max. Digging Height	..... 32'10"
Max. Dumping Height	..... 23'4"
Max. Digging Depth	..... 21'9"
Max. Digging Depth -8' Level Bottom	..... 20'11"
Max. Digging Reach	..... 32'5"
Bucket Digging Reach	..... 29,762#
Arm Crowd Force	..... 23,149#
Operating Weight	..... 52,036#

OPERATING PARAMETERS- cont'd

- Notes:** -Digging reach measured at ground level from center of rotation.
-Bucket & arm forces calculated to SAE Standards with the Excavator in power max mode.

LIFT CAPACITIES

The following lifting capacities shall be considered minimums for the excavator specified:

	<u>Over End</u>	<u>Over Side</u>
@ 10' Below Grade		
@ 10' out	40,850#	33,000#
@ 15' out	28,200#	17,400#
@ 0' Grade		
@10' out	16,500#	16,500#
@ 15' out	28,250#	17,400#
@ 10' Above Grade		
@ 10' out	28,300#	28,300#
@ 15' out	22,850#	19,000#

Note:

- All calculations are based on machine equipped with pin-on excavation bucket. Quick coupler will affect capacities.
- All horizontal distances are measured from center of rotation.
- All calculations based on machine equipped with 31.5" shoes & an 9'7" arm assembly.

REAR VIEW CAMERA

The excavator shall be equipped with a rear view camera mounted on the counterweight. The camera view shall be displayed on the multi-function LCD high resolution monitor in the cab.

REMOTE MONITORING SYSTEM

The excavator shall be equipped with a satellite based, remote wireless monitoring system. The system shall be designed to utilize global positioning satellite technology. The system shall be designed to operate by any Windows based PC operating system using commercially available software.

REMOTE MONITORING SYSTEM- cont'd

The system shall provide the following minimum capacities:

- 1) System shall automatically report the following on a daily basis- operating hours, fuel level, maximum cooling system fluid temperature during cycle, location on a graphic map including latitude and longitude lines.
- 2) System shall allow user to assign a protected geo-fence.
- 3) System shall transmit specific machine, engine and drive train error codes.
- 4) System shall provide monthly and annual summery reports including but not limited to working hours, location, equipment status and load summary ratio charts.
- 5) System shall be capable of notifying designated personnel, via an e-mail or text message, when routine maintenance is due.
- 6) System shall be capable of remotely preventing the excavator from re-starting.
- 7) System shall routinely notify the OEM (original equipment manufacturer) and the authorized distributor upon the occurrence of a fault or abnormality code.

The system shall include "no charge" monitoring, which shall encompass items 1 through 7 as shown above as well as any forward capable software enhancements released in the future by the OEM.

SPARE PARTS

- One (1) Complete Set of All Radiator Hoses with Clamps
- Three (3) Complete Sets of All Filters
- One (1) Complete Set of All Belts
- Two (2) Spare Sets of Keys

Only original equipment manufacturer's genuine replacement parts shall be quotes. Generic parts will not be accepted.

WARRANTY

The excavator specified shall carry a one (1) year full machine warranty covering parts and labor.

MANUALS

The successful bidder must supply the Town with one (1) complete set of parts & operator's manuals.

DELIVERY

Equipment must be delivered within 15 days of order.

VENDOR PARTS & SERVICE REQUIREMENTS

-Vendor submitting bid must be manufacturers' authorized representing dealer for the products being bid, capable of extending all services available including, but not limited to, parts and other support services.

-Vendor shall stock an ample supply (as recommended by manufacturer) of the replacement parts for the specific models to be services. Proof of inventory shall be provided prior to award.

-All replacement parts shall be genuine "O.E.M." as supplied by the equipment manufacturer.

-Manufacturers' parts price books (or price tapes, discs, or CD's if specified) shall be supplied upon award of contract and supplied as updated through term of contract.

-Vendor shall have full repair facilities available for inspection, capable of performing all possible types repairs "on premises" including, but not limited to: engine, transmission and other component overhaul; welding and fabricating; crawler undercarriage overhaul, hydraulic cylinder repair, machining, steam cleaning, painting, etc.

-With exception to smaller sub-components (ie., starters, alternators, injection pumps, injectors), all repair work shall be performed by Vendor and their employees only. Use of O.E.M. rebuilt and components with warranty shall also be available.

-Vendor shall submit to the Office of Purchasing, insurance policies indicating full and complete coverage for all equipment which is in its' possession or control. The insurance included; Theft. Vandalism, fire damage, floods, acts of God, etc. The insurance shall be equal to the replacement purchase price of the equipment. In addition, the insurance shall equipment for similar mishaps as numerated above during the transportation of equipment. In the event of an accident during the transportation of equipment, Vendor shall assume all responsibility including any and all damage to equipment.

-All equipment to be repaired may be inspected. However, should repair or inspection require special facilities, tooling, etc., the equipment can be moved by Vendor.

-Upon inspection, Vendor shall submit a time and cost estimate indicating the approximate number of hours that will be required and the cost of parts and any other charges that will be used to affect repairs.

-Vendor shall be capable of servicing equipment on-site, if required, with the use of properly equipped service vehicles. Typical service vehicles shall be equipped with, at a minimum, the following items: compressed air, hydraulic crane, gas and electric welding equipment, typical hand and pneumatic tooling for repairing heavy equipment and specific diagnostic tools for trouble-shooting, i.e., hydraulic flow meters and gauges, electrical system checkers, temperature measuring equipment, etc.

-Vendor shall be capable of providing transportation via their owned and operated low-bed equipment trailers, flat beds, boom trucks, etc. as required by the type of equipment. Vendor shall not sublet the transportation of equipment.

-Vendor technicians shall have received manufacturer's sponsored training for the equipment to be repaired. Technicians possess all applicable regulatory certifications if specific work requires same.

VENDOR PARTS & SERVICE REQUIREMENTS- cont'd

-Vendor shall maintain, at all servicing facilities, a complete library of manufacturer's parts manuals, service manuals, service bulletins and all other related parts and service publications. In addition to printed media, all these materials shall be available via a live "Extranet" between manufacturer & Vendor providing continuously updated timely information.

-Vendor shall be staffed with Regional Product Support Sales Representatives full time in the field. Their function is to assist equipment users with any parts or service related issues.

-Vendor shall be capable of providing the equipment owner with an Intranet connection to allow access to parts and service information via the World Wide Web. This connection provides latest parts and service information from manufacturer and parts pricing, inventory status and ordering capability from Vendor.

-Periodic maintenance services shall be available on-site via dedicated lube service vehicles. Vehicles shall carry an inventory of lubes, coolant and filters, waste oil recovery and minor parts making it capable of field response to most all models without need for return to shop facility in most instances.

-A manufacturer-sponsored program of lube oil analysis shall be available. Reports from lab are to be provided in triplicate to: equipment owner, Vendor and manufacturer thus providing the additional monitoring for abnormal results assuring proper response.

-A 24-hour Vendor telephone response system shall be available through all locations.

-All field service trucks, low beds and lubes trucks shall be equipped with 2-way communications capability.

-Proof of additional qualifications if required, shall be provided. Proof via statements from manufacturers and previous contracts may also be requested.

The Department of General Services may request additional qualifications and references from any bidder. All information must be submitted to the Department of General Services within five (5) days of request.

COMPLIMENTARY MAINTENANCE PROGRAM

The successful bidder shall perform periodic maintenance on the machine being offered at no charge. It shall include, but not be limited to, the following service at the noted hourly intervals:

DESCRIPTION	INTERVALS			
	500	1000	1500	2000
KOWA SAMPLING (Engine, Hydraulics, Swing Circle, L & R Final Drives)	X	X	X	X
DRAIN SEDIMENT FROM FUEL TANK	X	X	X	X
LUBRICATE MACHINE	X	X	X	X
LUBRICATE SWING CIRCLE	X	X	X	X
CHECK SWING PINION GREASE LEVEL AND ADD, WHEN NECESSARY	X	X	X	X
CHANGE ENGINE OIL	X	X	X	X
REPLACE ENGINE OIL FILTER	X	X	X	X
REPLACE FUEL PRE- FILTER	X	X	X	X
REPLACE AIR CONDITIONER FRESH/RECIRC FILTERS	X	X	X	X
REPLACE HYDRAULIC TANK BREATHER ELEMENT	X	X	X	X
REPLACE ADDITIONAL HYDRAULIC TANK BREATHER ELEMENT*	X	X	X	X
CLEAN AIR CLEANER ELEMENT	X	X	X	X
COMPLETE 50 POINT INSPECTION FORM	X	X	X	X
RESET MONITOR PANEL MAINTENANCE COUNTER FOR APPROPRIATE ITEMS	X	X	X	X
CHECK DAMPER CASE OIL LEVEL, ADD WHEN NECESSARY		X		X
REPLACE FUEL MAIN FILTER		X		X
CHANGE SWING MACHINERY OIL		X		X
CHANGE SWING MACHINERY OIL		X		X
CLEAN HYDRAULIC TANK STRAINER		X		X
REPLACE HYDRAULIC OIL FILTER ELEMENT		X		X
CLEAN HYDRAULIC TANK STRAINER				X
CHANGE FINAL DRIVE OIL				X
REPLACE KCCV FILTER ELEMENT				X
CHANGE COOLANT				X