

## ANNEX B: Purchase Description

Document #4605093 – Rev A  
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	<b>NOTICE</b> This documentation has been reviewed by the Technical Authority and does not contain controlled goods.
	<b>AVIS</b> Cette documentation a été révisée par l'Autorité technique et ne contient pas de marchandises contrôlées.

### TRACKED EXCAVATOR

#### 1. SCOPE

1.1 **Scope** - This specification covers the requirements for a tracked excavator.

#### 1.2 Instructions

- (a) Requirements identified by the word “**must**”, **must** be treated as mandatory. Deviations will not be permitted;
- (b) Requirements identified with a “will” define actions to be performed by Canada and require no action/obligation on the Contractor’s part;
- (c) Where “**must**” or “will” are not used, the information provided is for guidance only;
- (d) Where a standard is specified and the Contractor has offered an **Equivalent**, that **Equivalent** standard **must** be supplied by the Contractor;
- (e) Where a technical certification is referred to in this Purchase Description, a copy of the certification or an acceptable Proof of Compliance **must** be supplied, when requested by the **Technical Authority**;
- (f) While the International System of Units (SI) **must** be used as the primary system of measurement to define requirements of this Purchase Description, both the SI system and the standard system for this product may be indicated. Conversion from one system of measurement to the other may not be exact; and
- (g) Dimensions stated as nominal **must** be treated as approximate dimensions. Nominal dimensions reflect a method by which materials or products are generally identified for sale commercially, but that differ from the actual dimensions.

#### 1.3 Definitions

- (a) “**Provided**” means “provided and installed”;
- (b) “**Technical Authority**” **must** mean the official responsible for the technical content of this requirement;
- (c) “**Equivalent**” **must** mean a standard, means, or component type, that the **Technical Authority** has approved for this requirement as meeting the specified requirements for fit, form, function and performance;
- (d) “**Commercially Equipped**” means that the vehicle is provided in its standard commercial configuration with no additional government-specified requirements; and

- (e) **“Bilingual”** means both official languages; English and French.

## 2. APPLICABLE DOCUMENTS

### 2.1 **Government Furnished Documents** - NOT APPLICABLE

2.2 **Other Publications** - The following documents are referenced in this specification. Canada will not be supplying any reference documents. Available information on the organization is provided.

- (a) **Hazardous Products Act**  
Government of Canada / Department of Justice  
<http://laws-lois.justice.gc.ca/eng/acts/H-3/>
- (b) **International Organization for Standardization (ISO)**  
ISO Central Secretariat  
1, ch. de la Voie-Creuse  
CP 56, CH-1211 Geneva 20  
Switzerland  
<http://www.iso.org/iso/home.htm>
- (c) **SAE Standards**  
SAE World Headquarters  
400 Commonwealth Dr.,  
Warrendale, PA, 15096-0001  
<http://www.sae.org>
- (d) **Canadian Standards Association**  
178 Rexdale Boulevard  
Toronto, Ontario, Canada N9W 1R3  
<http://www.csa.ca>

## 3. REQUIREMENTS

### 3.1 **Standard Design**

- (a) The vehicle **must** be the latest model from a manufacturer who has demonstrated acceptability by selling, in North America, this type and size class of vehicle for at least three (3) years;
- (b) The vehicle **must** include all components, equipment and accessories normally supplied for this application, although they may not be specifically described in this Purchase Description;
- (c) The vehicle **must** have engineering certification available for this application from the original manufacturers of major equipment, systems and assemblies;
- (d) The vehicle **must** conform to all applicable laws, regulations and industrial standards in effect in Canada at the time of manufacture. The regulatory areas may include but are not necessarily limited to manufacturing, health and safety, noise levels, environment and emissions; and
- (e) The vehicle and accessories **must** operate in accordance with all original equipment manufacturers' (OEM) rated capacities and performance specifications.

### 3.2 **Operating Conditions**

3.2.1 **Weather** - The vehicle **must** start and operate under the extremes of weather conditions found in Canada in temperatures ranging from -40 to 40°C.

### 3.2.2 **Terrain**

- (a) The vehicle/equipment **must** operate on secondary roads, gravel roads, and off-road (e.g. construction sites, open fields and dirt tracks); and

- (b) Terrain conditions **must** include year round operations on snow, mud, sand and ice.

3.3 **Safety Standards**

- 3.3.1 **Hazardous Materials** – The contractor **must** comply with the Hazardous Products Act of Canada with regards to the use of hazardous materials, ozone depleting substances, polychlorinated biphenyls, asbestos and heavy metals used in the manufacture and assembly of the product supplied.

- 3.4 **Performance** – The vehicle **must** be a tracked excavator.

3.4.1 **Excavator Performance**

(a) **Lift Capacity**

- i The excavator **must** have a lift capacity at ground level through 360 degrees, in accordance with ISO 10567 *Earth-moving Machinery – Hydraulic Excavators – Lift Capacity* of at least 5,900 kg at a 4.5 metre radius;
  - ii The excavator **must** have a lift capacity at ground level through 360 degrees, in accordance with ISO 10567 *Earth-moving Machinery – Hydraulic Excavators – Lift Capacity* of at least 3,800 kg at a 6 metre radius; and
  - iii The excavator **must** have a lift capacity at ground level through 360 degrees, in accordance with ISO 10567 *Earth-moving Machinery – Hydraulic Excavators – Lift Capacity* of at least 2,700 kg at a 7.5 metre radius.
- (b) The excavator **must** have a reach at ground level, in accordance with *ISO 7135 Earth-Moving Machinery – Hydraulic Excavators – Terminology and Commercial Specifications*, of at least 9,100 mm;
- (c) The excavator **must** have a maximum digging depth, in accordance with *ISO 7135 Earth-Moving Machinery – Hydraulic Excavators – Terminology and Commercial Specifications*, of at least 5,900 mm;
- (d) The excavator **must** have a maximum dumping height, in accordance with *ISO 7135 Earth-Moving Machinery – Hydraulic Excavators – Terminology and Commercial Specifications*, of at least 6,400 mm;
- (e) The excavator **must** have an arm cylinder force, in accordance with *ISO 6015 Earth-Moving Machinery – Hydraulic Excavators and Backhoe Loaders – Methods of Determining Tool Forces*, using the standard excavating bucket, of at least 100 kN;
- (f) The excavator **must** have a bucket cylinder force, in accordance with *ISO 6015 Earth-Moving Machinery – Hydraulic Excavators and Backhoe Loaders – Methods of Determining Tool Forces*, using the standard excavating bucket, of at least 125 kN; and
- (g) The excavator **must** have a typical operating weight of no more than 24,000 kg.

3.5 **Equipment and Accessories**

- (a) **Manual Quick Coupler** - A manual quick coupler system for attachments **must** be provided;
- (b) **750mm Excavating Bucket**
- i An excavating bucket matching the quick coupler system **must** be supplied;
  - ii The excavating bucket **must** be provided with bolt-on replaceable teeth; and
  - iii The bucket **must** have a nominal width of 750 mm and a heaped capacity of at least 0.5 m<sup>3</sup>;
- (c) **1500mm Side-Tilt Ditching Bucket**

- i A hydraulic side-tilt ditching bucket matching the quick coupler system **must** be supplied;
  - ii The ditching bucket **must** have a have a bolt-on replaceable cutting edge;
  - iii The ditching bucket **must** have a nominal width of 1500 mm and a heaped capacity of at least 0.75 m<sup>3</sup>; and
  - iv The ditching bucket **must** tilt at least 30 degrees to each side;
- (d) **Hydraulic Hammer**
- i A hydraulic hammer attachment matching the quick coupler system **must** be provided;
  - ii The hydraulic hammer **must** be provided with amoil bit; and
  - iii The hydraulic hammer **must** have an impacting energy of at least 6,000 J;
- (e) **Tie-Down/Transport/Recovery Devices** – **Must** be commercially equipped.
- (f) **Tool Compartment**
- i A tool compartment to hold all tools and loose equipment required for daily maintenance **must** be provided;
  - ii The tool compartment **must** be weatherproof; and
  - iii The tool compartment **must** be lockable.
- (g) **Protection against Vandalism** - The vehicle **must** be provided with vandal protection measures; and
- (h) **License Plate Holder** – The vehicle **must** be provided with front and rear mounted license plate holders.

### 3.6 **Operator Station**

- (a) **ROPS Cab**
- i A ROPS cab incorporating a certified Roll Over Protective Structure (ROPS) **must** be provided;
  - ii The ROPS cab **must** be weatherproof, pressurized and insulated;
  - iii The ROPS cab **must** have a heating system with ventilation and defrosting functions to of keeping windows free from frost and moisture;
  - iv The ROPS cab **must** have the manufacturer's standard safety glass in the windows;
  - v The ROPS cab **must** be provided with electrical power actuated windshield wipers for the front windows with a windshield washer;
  - vi The windshield wipers **must** have 2 speeds; and
  - vii The ROPS cab **must** have two lockable doors, or one door and at least one visibly labelled window as an emergency escape route.
- (b) **Air Conditioning** – The vehicle **must** be provided with an air conditioning system;
- (c) **Suspension Seat**
- i The vehicle **must** be provided with a driver's air suspension seat and backrest in conformance with SAE J899 or in conformance with ISO 11112;
  - ii The driver's seat **must** have seat material being a breathable fabric or a mesh surface;

- iii The driver's seat **must** be provided with seat belts conforming to SAE J386;
  - iv The driver's seat **must** be fore/aft adjustable without having to move from a seated position; and
  - v The driver's seat **must** be heated, with a least two heat settings.
- (d) **Window Guards**
- i The windshield and windows **must** be protected with removable window guards; and
  - ii The guards **must** provide protection to the operator's station from debris.
- (e) **Mirror(s)** - The driver cab **must** be provided with adjustable rear-view mirrors positioned for safe equipment operation;
- (f) **Rear View Camera**
- i A rear view camera **must** be provided;
  - ii The camera image **must** be displayed in the cab of the vehicle; and
  - iii The camera **must** be protected by a guard or mounted in a protected location.
- (g) **Radio**
- i An AM/FM radio **must** be provided.; and
  - ii The radio **must** turn off automatically when the vehicle is turned off.
- (h) **Keys** - **Must** be commercially equipped.
- 3.7 **Chassis** – **Must** be commercially equipped.
- 3.8 **Engine**
- (a) The vehicle **must** be provided with a diesel engine;
  - (b) The diesel engine **must** operate on Jet A-1 fuel, that has up to 3,000 parts per million sulphur content in accordance with *ASTM D1655 Standard Specification for Aviation Turbine Fuels*;
  - (c) The diesel engine **must** be provided with a fuel lubricity filter; and
  - (d) The diesel engine **must** be provided with Original Equipment Manufacturer recommended engine accessories for use with Jet A-1 fuel.
- 3.8.2 **Fuel Tank(s)** – **Must** be commercially equipped.
- 3.8.3 **Engine Cold Weather Aids**
- (a) The engine **must** be provided with cold weather aids to enable the engine (operating with winter grade fuels/oils) to be started at temperatures down to -40° C;
  - (b) The engine **must** be provided with one of the following low temperature engine starting systems: ether injection, glow plug(s), intake air preheat or **Equivalent**;
  - (c) A heated fuel filter/water separator **must** be provided;
  - (d) One or more 110-Volt engine heaters **must** be provided;
  - (e) The engine heaters **must** have a capacity as recommended by the engine manufacturer;
  - (f) The engine **must** be provided with one or more 110-volt battery heaters;
  - (g) The battery heaters **must** have a wattage matched to battery size to prevent battery damage due to overheating; and

- (h) External electrical power for engine and battery heaters **must** be a cover-protected inlet(s) that is accessible without lifting a vehicle panel and includes a means to indicate when power is being supplied to the 110 volt components.
- 3.9 **Transmission** – **Must** be commercially equipped.
- 3.10 **Diagnostic Software and Hardware**
  - (a) The Original Equipment Manufacturer (OEM) recommended diagnostic software and ruggedized hardware required for shop level troubleshooting and adjustments to the engine, transmission and hydraulic system, that may be required by Government of Canada sourced technicians in remote locations, **must** be supplied; and
  - (b) A renewable licence for the diagnostic software, valid for no less than one (1) year after delivery **must** be supplied, if applicable.
- 3.11 **Brake System** – **Must** be commercially equipped.
- 3.12 **Steering** – **Must** be commercially equipped.
- 3.13 **Suspension and Tracks**
  - (a) The vehicle **must** be provided with triple grouser track shoes;
  - (b) The track shoes **must** have a nominal width of 800mm; and
  - (c) The vehicle **must** be provided with rock guards spanning the length of the undercarriage.
- 3.14 **Controls** – The boom and attachment controls **must** be of the joy-stick type.
- 3.15 **Instruments**
  - (a) The instruments **must** include an hour-meter, that displays the accumulated running time up to at least 9,999 hours.
- 3.16 **Electrical System** - **Must** be commercially equipped.
- 3.17 **Lighting** - **Must** be commercially equipped.
  - 3.17.1 **Supplemental Lighting**
    - (a) A supplemental lighting package **must** be provided;
    - (b) The supplemental lighting package **must** have at least two (2) forward facing lights;
    - (c) The supplemental lights **must** be activated by a dashboard switch; and
    - (d) The supplemental lights **must** be LED.
  - 3.17.2 **Amber Coloured Beacon**
    - (a) An amber-coloured omni-directional beacon that operates continuously when the vehicle is running **must** be provided;
    - (b) The beacon **must** be mounted so as to provide vehicle visibility through 360 degrees; and
    - (c) The beacon **must** be LED.
- 3.18 **Hydraulic System** - The hydraulic system **must** be the manufacturer's standard complete with all components required for the operation of the hydraulic equipment specified.
- 3.19 **Lubricants and Hydraulic Fluids**
  - (a) Manufacturer's synthetic non-proprietary lubricants and hydraulic fluids **must** be provided;
  - (b) Lubricants and hydraulic fluids viscosity **must** be in accordance with the manufacturer's specifications for severe cold weather; and

(c) Lubrication fittings **must** conform to SAE J534.

3.20 **Paint** – **Must** be *commercially equipped*.

3.21 **Identification** - The manufacturer's name, model and vehicle serial number **must** be permanently marked in a conspicuous and protected location.

3.22 **Labels** – All written warning and instruction labels **must** be in English and French.

3.23 **Vehicle Delivery Condition**

(a) If the vehicle requires assembly at destination, space for assembly at destination will be provided; and

(b) Fuel tank(s) **must** be half to three quarters full on delivery.

4. **Integrated Logistic Support**

4.1 **Contractor Documentation and Logistic Items**

4.1.1 **Items Supplied to Technical Authority**

(a) **Manuals for Approval**

- i The Contractor **must** supply a set of manuals for each Configuration/model, in digital format, including the operator, parts and maintenance (shop repair) manuals. Manuals may cover more than one (1) configuration/model;
- ii The set of manuals **must** include manuals for all the specified accessories and features for the configuration/model. Accessory manuals may be included as supplements to the vehicle/equipment manuals;
- iii Digital copies **must** be functional without the requirement for a password, an auto-run installation procedure or an Internet connection;
- iv Digital copies **must** be supplied on a CD or DVD;
- v Digital copies **must** be supplied in a searchable PDF format;
- vi The CD or DVD **must** be permanently and legibly labelled with a list of contents;
- vii Manuals will not be returned;
- viii Manual approval, requests for additional documentation and/or requests for amendments will be supplied within 15 working days of receipt;
- ix The Contractor **must** supply the additional documentation and implement the changes as requested by the **Technical Authority**; and
- x Paper copies of manuals delivered under this contract **must** have the same content as the electronic format approved by the **Technical Authority**.

(b) **Photographs and Line Drawings**

- i The Contractor **must** supply two (2) digital colour photographs, one (1) left-front three-quarter view, and one (1) right-rear three-quarter view of each configuration/model;
- ii One (1) digital colour photograph of each attachment taken at the three-quarter view that best illustrates the attachment **must** be supplied;
- iii One (1) front-view and one (1) side-view line drawing showing dimensions of the vehicle/equipment **must** be supplied. Brochure line drawings are acceptable;
- iv Photographs **must** have a plain background;
- v Photographs **must** be in a JPEG (Joint Photographic Experts Group) format; and
- vi Photographs **must** have a resolution of at least eight (8) Mega pixels.

(c) **Data Summary**

- i The Contractor **must** supply a bilingual data summary for each configuration/model, with vehicle/equipment data (including accessories and features) and a vehicle/equipment picture;
- ii The **Technical Authority** will supply a bilingual template of a data summary to the Contractor;
- iii The Contractor **must** supply a digital copy (MS Word) of the completed data summary for approval;
- iv Data summary approval or request for amendments will be supplied within 15 working days of receipt; and
- v The Contractor **must** implement the changes requested by the **Technical Authority**.

(d) **Safety Data Sheets**

- i The Contractor **must** supply a listing, in digital format, of all hazardous materials used on the vehicle/equipment;
- ii If there are no hazardous materials used, this **must** be stated on the listing; and
- iii The Contractor **must** supply safety data sheets, in digital PDF format, for all hazardous materials in the list.

(e) **Warranty Letter**

- i The **Technical Authority** will supply a bilingual warranty letter template to the Contractor;
- ii The Contractor **must** supply a complete description of the warranty with the requested warranty terms and any system or sub system warranty that exceeds the minimum requested;
- iii The warranty letter **must** include the name and contact information of the closest designated warranty provider and other designated warranty providers across Canada;
- iv Designated warranty providers **must** honour the warranty letter; and
- v The contractor **must** supply the original warranty letter in digital format, for each vehicle/equipment delivered, to the **Technical Authority**.

(f) **Initial Parts Kit List**

- i The contractor **must** supply a list of parts needed to perform preventive maintenance on one (1) vehicle/equipment for a period of one (1) year in accordance with the maintenance manual for each configuration/model;
- ii A complete change of all filters and filter elements **must** be included in the list; and
- iii The list **must** include the following elements: part description; Original Equipment Manufacturer (OEM) Part number; suggested quantity and unit cost.

(g) **Training Plan(s)** - The Contractor **must** supply a training plan for approval for each of the training courses listed in paragraph 4.2, to the **Technical Authority**.

4.1.2 **Items Supplied with Each Vehicle/Equipment**

- (a) **Operator's Manuals** - The Contractor **must** supply a **Technical Authority** approved bilingual operator's manual in paper and digital format with each vehicle/equipment delivered.

- (b) **Warranty Letter** - The Contractor **must** supply a copy of the warranty letter with each vehicle/equipment delivered.
- (c) **Safety Data Sheets**
  - i The Contractor **must** supply a set of material safety data sheets; and
  - ii The material safety data sheets **must** be the same as those provided to the **Technical Authority** as per paragraph 4.1.1 (d).
- (d) **Keys** – The contractor **must** supply at least two (2) sets of keys.
- (e) **Initial Parts Kit**
  - i One (1) initial parts kit **must** be supplied; and
  - ii The initial parts kit **must** include a set of parts in the approved initial parts kit list (paragraph 4.1.1 (f)).
- (f) **Paper Maintenance Manual – English**
  - i The Contractor **must** supply the **Technical Authority** approved maintenance (shop repair) manuals in paper format and in English required for the maintenance and repair of the vehicle/equipment, features and accessories; and
  - ii The contractor may supply this deliverable as a bilingual package.
- (g) **Digital Maintenance Manual – English**
  - i The Contractor **must** supply the **Technical Authority** approved maintenance (shop repair) manuals in digital format and in English required for the maintenance and repair of the vehicle/equipment, features and accessories;
  - ii The contractor may supply this deliverable as a bilingual package;
  - iii Digital copies **must** be functional without the requirement for a password, an auto-run installation procedure or an Internet connection;
  - iv Digital copies **must** be supplied on a CD or DVD; and
  - v Digital copies **must** be supplied in a searchable PDF format.
- (h) **Paper Maintenance Manual – French**
  - i The Contractor **must** supply the **Technical Authority** approved maintenance (shop repair) manuals in paper format and in French required for the maintenance and repair of the vehicle/equipment, features and accessories; and
  - ii The contractor may supply this deliverable as a bilingual package.
- (i) **Digital Maintenance Manual – French**
  - i The Contractor **must** supply the **Technical Authority** approved maintenance (shop repair) manuals in digital format and in French required for the maintenance and repair of the vehicle/equipment, features and accessories;
  - ii The contractor may supply this deliverable as a bilingual;
  - iii Digital copies **must** be functional without the requirement for a password, an auto-run installation procedure or an Internet connection;
  - iv Digital copies **must** be supplied on a CD or DVD; and
  - v Digital copies **must** be supplied in a searchable PDF format.
- (j) **Paper Parts Manual**
  - i The Contractor **must** supply the **Technical Authority** approved parts manuals for the vehicle/equipment, features and accessories, in paper format;

- ii The parts manual **must** be supplied in English; and
- iii It is desirable to supply the parts manual in French in addition to the English version.

(k) **Digital Parts Manual**

- i The Contractor **must** supply the **Technical Authority** approved parts manuals for the vehicle/equipment, features and accessories, in digital format;
- ii The parts manual **must** be supplied in English;
- iii It is desirable to supply the parts manual in French in addition to the English version;
- iv Digital copies **must** be functional without the requirement for a password, an auto-run installation procedure or an Internet connection;
- v Digital copies **must** be supplied on a CD or DVD; and
- vi Digital copies **must** be supplied in a searchable PDF format.

4.2 **Training** (Location of instruction will be specified in the contract).

(a) **Training - Operator - English**

- i The contractor **must** supply an operator course in English;
- ii The instructor **must** be an OEM Factory Certified Training Provider;
- iii **Curriculum** - The operator familiarization course **must** include safety precautions to be observed while operating and servicing the vehicle/equipment, vehicle/equipment operating characteristics, pre-operating and pre-shutdown procedures and daily/weekly operator servicing procedures;
- iv The operator course **must** have a minimum duration of two (2) days;
- v The operator course **must** accommodate up to eight (8) operators;
- vi The date for the operator course **must** be arranged with the **Technical Authority**;
- vii After completion of the operator course, the Contractor **must** have the “**PROOF OF OPERATOR TRAINING**” certificate signed by the senior course attendee; and
- viii The **Technical Authority** will supply the “**PROOF OF OPERATOR TRAINING**” document template in a digital format.

(b) **Training - Technician - English**

- i The Contractor **must** supply a technician training in English;
- ii The instructor **must** be an OEM Factory Certified Training Provider;
- iii **Curriculum**
  - 1. The technician training course curriculum **must** include, but is not limited to, operation and maintenance safety precautions, overview of air, hydraulic and electrical systems (as applicable) and preventive maintenance including servicing schedules; and
  - 2. The technician training course **must** include diagnostics, trouble shooting and operation of any diagnostic special tools and test equipment, including the OEM diagnostic equipment provided in accordance with paragraph 3.10, for the vehicle, engine, transmission and hydraulic systems;

- iv The technician course **must** have a minimum duration of three (3) days;
- v The technician course **must** accommodate up to eight (8) personnel;
- vi The date for the technician course **must** be arranged with the **Technical Authority**;
- vii After completion of the technician course, the Contractor **must** have the “**PROOF OF TECHNICIAN TRAINING**” certificate signed by the senior course attendee; and
- viii The *Technical Authority* will supply the “PROOF OF TECHNICIAN TRAINING” document template in a digital format.