Section VI. Schedule of Supply
Contents

1.0 List of Goods and Related Services.

Item	Description	Unit	Quantity
1	Tracked Excavator	No.	1
2	Tandem Vibratory Roller	No.	1
3	Skid Steer and Compact Track Loaders	No.	1
4	Wheeled Loading Shovel	No.	2
5	Turbo Backhoe Loader	No	1

2.0 Delivery and Completion Schedule

The delivery period shall start from the date of detailed supply order after signing of contract agreement.

Item No.	Description of Goods or Related Services	Delivery Schedule (Duration)	Location	Required Arrival Date of Goods and Completion Date for Related Services
1	Supply, transportation, local handling, delivery, installation and trial run at site with all accessories of vehicles/ Equipment complete as above.	i). Twelve (12) months Staggered and as per approved delivery Schedule. Wherein the successful bidder shall submit detailed delievery schedule for approval.	Shillong	Within 365 days from the date of work order;

3.0 Technical Specifications

3.1 Preamble

The North Eastern Region Capital Cities Development Investment Program (NERCCDIP), financed by Asian Development Bank (ADB), includes a phased scheme for developing the basic infrastructure facilities in Shillong of Meghalaya state. The program includes Development of Solid Waste Management including development of landfill site and sold waste collection in the city area and laying of sewerage collection system and waste treatment facility, for Shillong. To supplement the solid waste collection system, Government of Meghalaya intends to procure different types of vehicles and equipment under the program for which the present bid document is referring to.

3.2 Scope of Work

The scope of work under this contract package includes:

Design, manufacturing, fabrication, assembling, testing at manufacturing works, delivery, installation, trial run, testing, commissioning and satisfactorily handing over to end user including routine and preventive maintenance for a period of 12 months of equipment of following capacity and quantities, including necessary accessories, local handling, inland transportation, insurance and training of personnel etc complete in all respect.

1. Tracked Excavator
2. Tandem Vibratory Roller-Model
3. Skid Steer and Compact Track Loaders
4. Wheeled Loading Shovel
5. Turbo Backhoe Loader

3.3 Specifications for Vehicles/ Equipment.

3.3.1 Codes and Standards

All requirements of the latest Indian Traffic Rules/Acts and any other statutory rules and regulations in force shall be strictly adhered to.

It shall be responsibility of the bidder to procure the vehicle/equipment fullfilling all the requirement of transportation rule and obtain the insurance as required and compulsory.

It shall be the responsibility of the bidder to obtain necessary approval from the concerned inspecting authority and shall furnish necessary documentation for the same.

It shall be the responsibility of its bidder to obtain vehicle/equipment registration from the entire concern department to operate the vehicle.

Vehicles/ equipment shall be designed and tested to relevant Indian Standard and /or ISO, American, British or equivalent standard and code of practice.

Successful bidder shall submit the technical data and all the other relevant documents for approval of Employer, before procurement.

For all the equipment list of mandatory spare parts shall be provided and shall provide two sets of all the mandatory spare parts.

3.3.2 General Parameters

The intended vehicles/equipment shall be of approved make conforming to the requirements of relevant IS/BS. General requirement are specified in subsequent section.

3.3.3 Tracked Excavator

- 76-HP Engine..
- Excavator bucket capacity 0.32 cum.
- Undercarriage overall length 2830 (approx)
- Tail swing radius 1580mm (approx), overall width of super structure 2220mm (approx).
- Track Gauge 1700mm (approx).
- Standard boom 5465mm (approx).
- Dozer Blade width (Backfill) 2320mm (approx)

The above are the general minimum requirements and the bidder shall give his own design, specifications and other technical details at the time of submission of offer.

Successful bidder shall submit the technical data and all the other relevant documents for approval of Employer, before procurement / fabrication.

3.3.4 Tandem Vibratory Roller

- Equipped with Duel Drum vibration, roof frequencies/ amplitudes
- Front / Rear Drums and open operators platform
- Should be mínimum BS III standards
- 85HP Engine, Duel Drum Drive or Equivalent
- Drum Diameter 1220mm

Engine

- Piston displacement cum : 4399 (approx)
- Performance-DIN6271 KW (hp) : 63 (85)
- Operating Speed rpm : 2200
- Starting device :Electric Motor
- Air Cleaner : Dry Cartridge plus Safety Cartridge
- Fuel Filter : Cartridge

Propulsion

- Hydrostatic with variable displacement pump and fixed displacement motors with direct drive to both drums-double drum drive.

Exciter Drive

- Electrically controlled hydrostatic direct drive on both drums for double vibration or single vibration front or rear.

Exciter

- Single – shaft circular exciter with over turning weights.

Steering System

Servo-assisted maintenance free centre articulation with oscillation facility.

- Operator Seat : Two adjustable seats can rotate at clock and anti-clock wise.
- Roof : Canopy with structure to protect operator from rain and sunlight.
- Lift Pump : Pump for water refilling of front and rear tank.

Service capacity

• Fuel	litres	: 240 (approx)
• Hydraulic Oil	litres	:85 (approx)
• Sprinkler water, front/rear	litres	:535/535 (approx)

Braking System

- Service Brake : Hydrostatic Propulsion System
- Parking Brake : Hydraulically Released brake on both drums (SAHR).

Electrical system

• Voltage	V	:12
• Battery Capacity	Ah	:130
• Alternator (Current carrying capacity)	A	: Max 95.

Indicator and Gauges

- Fuel, Battery Charging Current Sprinkler System, Parking Break, Hour Meter, Engine Oil Pressure, Water in Fuel, Air Filter Condition, Hydraulic Oil Level and Temperature, Hydraulic Oil Filter Condition, Water Level Indicator, Engine Temperature, Driver Lever Neutral Position and Engine RPM.

Standard Equipment

- Vibration isolated, Spacious, ergonomic and comfortable driver stand with two seats, one central drive level and swivelling steering wheel, sunroof, road lights, works lights, backup alarm and vandalism kit.

The above are the general minimum requirements and the bidder shall give his own design, specifications and other technical details at the time of submission of offer.

Successful bidder shall submit the technical data and all the other relevant documents for approval of Employer, before procurement/fabrication.

3.3.5 Skid Steer and Compact Track Loaders

- 0.40 cum loader Bucket
- Power by 4 cylinder, 4 stroke, diesel engine, indirect injection
- 2.2 litres displacement water cooled (approx)
- 50HP engine 35.50 Kw, Gross power @ 2800rpm,
- Payload 700 Kg.

Hydraulic Performance

R.O.C	700 kg
Tipping Load	1400 kg

Hydraulic

In addition to the main hydrostatic pump, there is a dedicated loader and attachment supply pump (auxiliary hydraulic circuit standard on all base models), high flow is optional on all models except the 135.

Pump Flow	:18.5 grm (70lpm) at 2800rpm engine speed
Capacities (approx)	: gal (l)
Hydraulic system (including tank)	: 11.1(42)
Fuel tank	: 25.9(98)
Engine coolant	: 4.0(15)
Engine oil	: 2.6(10)
LH chaincase (wheeled machine only)	: 2.0 (7.6)
RH chaincase (Wheeled machine only)	: 2.0(7.6)
ENGINE	
Fuel	: Diesel
Cooling	: Liquid
Aspiration	: Turbo Charged

Gross Power	: @ 2800rpm
Battery V/Ah	: 12/101
Alternator amps	: 85
Emission Certification	: EPA-T4i (EU-St3B) or equivalent

Transmission

A full servo controlled hydrostatic transmission giving zero to maximum speed, both forward and reverse at full power, independent transmission systems for both left and right side, controlled through servo controls for both precise and easy operation. Transmission power system maintains full engine power availability maximizing loader and attachment control. Creep speed is standard on all machines, for precise control when operating attachments.

TYRES

Suitable for above mentioned load carrying capacity, Standard heavy duty.

Tracks : 12.6 in (320mm) traction lug

ELECTRICALS

12V, negative ground system, 1000 cold cranking amps (CA) battery, : 85 amp alternator

CABIN:

Cab mounted instrument panel withignition, fuel gauge, hour meter and electronic throttle. Also incorporated into the instrument panel, is a warning light duster which also audible alarms for:: Low charge pressure, : Engine water temperature, : Hydraulic oil pressure, : Blocked air filter, Engine oil pressure, Alternator

Two front and one rear work light. Emergency lower valve, Fuel gauge, Hydraulic park brake, standard flow auxiliary hydraulic. Three way joysticks. Rear service access door. Tilting screen guard, Tilting cab, Mechanical suspension seat, Pod storage area, Cup holder, Power socket, Rear view mirror, interior light, Battery isolator, Creep speed.

The above are the general minimum requirements and the bidder shall give his own design, specifications and other technical details at the time of submission of offer.

Successful bidder shall submit the technical data and all the other relevant documents for approval of Employer, before procurement/fabrication.

3.3.6 Wheeled Loading Shovel with grabbing attachment

Max Engine Power	133 hp (98 w) @2200 rpm
STD loader capacity	1.7 cum (Spade Nose bucket)

PERFORMANCE DIMENSIONS

Bucket capacity (SAE heaped)	1.7 m^3
Bucket capacity (struck)	1.5 m^3
Payload	3300 kgs
Inside radius (w.r.t tyres)	2809 mm
Max radius	5741 mm

LOADER

Heavy duty 3 ram geometry (Z bar linkage). Well designed pin, bush and sealing on all pivot pins.

ENGINE

Six cylinder turbo charged

Type	4 stroke, direct injection
Gross power	133 hp @ 2200 rpm (approx)
Max torque	475 Nm @ 1700-1900 rpm (approx)
Emission	BS III conforms to CMVR norms or equivalent

TRANSMISSION

4 Wheel drive, automatic power shift transmission electrically operated selector and gear change incorporating a speed inhibitor and modulation. Single stage integral torque converter

Type	Automatic power shift

AXLES

Heavy duty Planetary hub reduction with immersed multiplate, disc brakes mounted in wheel hubs.

BRAKES

Service Hydraulic power braking on all wheels with accumulator back up. Out board mounted, Oil immersed Multi place disk brakes.

Packing: Mechanical disc type.

STEERING

Hydraulic system with integrated priority valve providing low effort and smooth response.

Adjustable steering column

ELECTRICALS

24 volt negative ground system 55 amp alternator with 2X100 AH low maintenance batteries Ignition key start/ stop

Other electrical equipments shall include 4 front an d2 rear work lights, registration plate light front and rear, parking light, direction indicators, reverse lights and alarm.

Connection IP 67 standard

TYRES

Suitable for above mentioned load carrying capacity, Standard heavy duty.

CABIN

Cab, mounted structure with toughened wind screen having excellent forward and reverse visibility and antislip steps, having monitoring display unit for transmissions functions and speedometer, Audible/visual monitoring includes engine oil pressure transmission oil temperature and pressure. Low air pressure Engine coolant temp, Blocked air filter warning.

HYDRAULICS

Twin gear pumps directly mounted on transmission, twin spool remote mounted valve block with float. Main services are servo actuated from hydraulic remote lever with gear “Kick down Switch” and loader control through accumulator back up hydraulic supply unit.

System pressure (approx)	: 245 bar.
Service capacities (approx)	
Hydraulic system	125 litres
Fuel tank	195 litres
Engine coolant	25 litres
Engine oil	16 litres
Transmission	15 litres
Rear Axle	17 litres
Front Axle	17 litres

The above are the general minimum requirements and the bidder shall give his own design, specifications and other technical details at the time of submission of offer.

Successful bidder shall submit the technical data and all the other relevant documents for approval of Employer, before procurement / fabrication.

3.3.7 Turbo Backhoe Loader

ENGINE

Naturally aspirated, 4 cylinder, water cooled,
Diesel Engine
Displacement: 4:8 litres (approx)
Gross Power: 92 hp (68.9 kw) @ 2200 rpm (approx)

BACK-HOE EXCAVATOR

Bucket Capacity: 0.30 cu.m

FRONT END LOADER

Pay load: 3000 kgs
Bucket Capacity: 1.00 cu.m

TRANSMISSION

The transmission shall provide drive power in all conditions. It shall consist of a 4 speed fully synchromesh, smooth shift gearbox with integral torque convertor and electrically operated reversing shuttle.
Easy to use column mounted electric reversing shuttle switch can change machine direction while allowing operator to keep hands on the steering wheel leading to fast cycle times.
The pedals layout and conventional 4 pattern gear lever with transmission disconnect switch adds to the overall ease of operation. On the move gear changes.

AXLES

Rear: Drive axle rigidly mounted, incorporates torque proportioning differential, driven by short propshaft from gear box.
Front: Steer axle, centrally pivoted

BRAKES

Hydraulically actuated, oil immersed, multi-disc type on the rear axle, well protected from dirt, water etc.. Operated through independent pedals linked together for normal use.
Two independently operatable foot pedals enable machine to maneuver in tight space.
Parking: Hand operated, disc brakes on rear axle.

STEERING

Power track steering rod system provides equal turn steering & quick response with less operating force. Hydraulic supply from pump via priority valve.

ELECTRICALS

130 Ampere hour 12 volts battery system with alternator and fully road lighting.

TYRES

Suitable for above mentioned load carrying capacity, Standard heavy duty.

TURNING CIRCLE (approx)

Inner Wheels braked	
A Outside loader bucket	8.64 m
B Outside wheels	6.20 m
Inner wheels not braked	
A Outside loader bucket	11.42 m
B Outside Wheels	8.94 m

HYDRAULICS

3300 p.s.i (228 Bar) system; pump flow; 110 lpm at 2200 RPM.
Filtration through suction strainer and return line

SERVICE CAPACITY

Hydraulic system	: 130 lt
Fuel tank	: 128 lt
Engine coolant	: 16.5 lt
Engine Oil	: 15 lt
Transmission	: 16 lt
Rear Axle	: 21 lt.

The above are the general minimum requirements and the bidder shall give his own design, specifications and other technical details at the time of submission of offer.

Successful bidder shall submit the technical data and all the other relevant documents for approval of Employer, before procurement/fabrication.

4.0 Operation and Maintenance Manual

The supplier before commissioning of procured vehicles/equipment under this contract shall submit 6 (six) copies of the operation and maintenance manual of each good supplied under the contract in English language, containing descriptions, illustrations, sketches, drawings, sectional drawings, sectional arrangement view and manufacturers' parts numbers to enable the connections, functions, operation and maintenance of all components of the equipment to be easily followed and for all parts to be easily identified to facilitate ordering of the replacement parts. Exploded views where appropriate shall be used for clarity.

The operation manual shall also include the following:

- Technical data of each good and their performance.
- Instructions for servicing and overhauling.
- Particulars of lubricating oil and grease to be used, also alternative indigenous commercial lubricating oils suitable for use.
- List of tools mounted on wall panels.
- List of spares.
- List of the photographs of the equipment as fabricated by the manufacturer.

5.0 Guarantee

The Supplier shall guarantee all goods supplied under the Contract to be suitable for the application for which it is designed, and against defects due to manufacture or poor workmanship for a period of minimum 12 months from the date of commissioning. The Supplier shall be responsible to rectify and replace free of cost the whole equipment or parts thereof which may be found defective during this period, and to ensure the proper working of the equipment during the guarantee period in accordance with Clause 28 of General Conditions of Contract and clarification in Special Conditions of Contract.

6.0 Quality assurance system to be followed at manufacturer's works

Successful Bidder shall furnish detailed Quality Assurance Programme and Quality Plan for all materials and accessories to be supplied and installed under the scope of work. The Quality Plans shall include all tasks /checks as per the relevant Standards and the requirements of this specification.

The Supplier shall ensure that the manufacturer must have a proper setup and independent procedure in quality control with adequate equipment, facilities and personnel for this purpose to ensure quality control from procurement of materials and selection of sub-suppliers to incoming inspection, stage inspection and final inspection.

The Supplier shall further ensure that the equipment ordered are subject to check at any time by purchaser's representative or by representative of inspecting authority deputed by the purchaser. Proper written record of quality assurance system must, therefore, be kept by the manufacturer which would be subject to checking.

6.1 Manufacturer's Test Certificate:

Manufacturer's test certificate including Material test certificates should be submitted by the Supplier to the Employer.

7.0 Testing by Third Party Agency

Any agency among the agencies appointed or authorized by the Employer may undertake independent third party inspections and testing during the manufacture or assembly of the equipment as may be applicable. Prior to commencement of the works the Engineer, in consultation with the Employer, shall inform the supplier of the name of the firm(s) who will be authorized to conduct independent Third Party inspections on the employer's behalf. The Contractor shall be wholly responsible to make his own arrangements with the approved third party inspection agencies for carrying out the required tests. The Contractor shall be responsible to obtain permission for and provide all facilities to such agency for carrying out such inspections or testing as may be required. The Third Party Inspection charges of the agency only will be paid by the employer and all the other costs for such independent inspection and testing shall be borne by the contractor.

A quality assurance plan will be developed which provides for inspection and certification by the third party inspection agency at specified times during the manufacture and fabrication of such items. Third party inspection agency's charges will initially be paid by the contractor which shall be reimbursed by the Employer. Bidder shall make necessary arrangements for third party inspections at manufacturers site and cost (other than inspection agency's fees) towards such arrangements shall be borne by the bidder and will not be reimbursed by the employer.

8.0 Rejection

The Employer or Employer's representative reserves the right to reject any good under this contract if the same does not meet the specifications, requirements, subject to tolerances. The rejected goods under this contract shall be replaced by new goods under this contract complying with the requirements of the specification at the bidder's cost. If the commissioning of the project is likely to be delayed by the rejection good, the Employer's Representative reserves the right to accept the rejected good under this contract until the replacement of new

good under this contract is made available. Transporting the rejected and replacement of good as well as installation and commissioning of both the good shall be at the bidder's cost.

9.0 Trial Run & Maintenance of the Equipment & Training Employer's Personnel

After testing and commissioning of each good supplied under this contract at site, the bidder shall run the equipment for at least 8 hours at full load to demonstrate satisfactory performance to the Engineer in charge prior to taking over by the employer and train the employer's personnel for running independently in the future. The cost towards bidder's engineer and other operating personnel during the said period of trial run, along with cost of fuel, lubrication, tools and spare parts which are required for operation of the equipment during the trial run period, shall be borne by the bidder. In the event that the good supplied under this contract does not satisfactorily achieve the required performance standards during this period, the trial run period shall be extended until such time as the bidder has rectified any deficiencies as may be necessary to satisfy the performance requirements. No additional compensation will be paid to the bidder for such extension.

The contractor has to carry out routine and preventive maintenance as per manufacturer's standards for a period of 12 months from the date of handing over. However, all consumables (fuel / lube oil etc.) and spare parts including filters will be supplied by the department.

10.0 Approval of Drawing

The supplier will prepare and submit the GA and fabrication drawings of all the goods to be supplied under this contract before commencement of fabrication and procurement. The drawings will be reviewed and commented/ approved by the employer. Supplier will fabricate as per approved drawings.

All the technical data specifications of all the goods to be supplied under this contract shall be submitted by the successful Bidder for approval prior to procurement.