

Bihar Urban Infrastructure Development Corporation

(Government of Bihar Enterprises)



Request for Proposal for

EMPANELMENT FOR SUPPLY OF SOLID WASTE MANAGEMENT EQUIPMENT (GOODS) FOR URBAN LOCAL BODIES IN BIHAR

VOLUME-2 of 3

SCHEDULE OF SUPPLY

(Ref. Notification Number: BUIDCO/SIU-01/Yo-27/16-43, Date : - 22.04.16)



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SECTION III - SCHEDULE OF SUPPLY

1 List of Goods and related services

SL.	Equipment/Vehicle	
1	Road Sweeping Machine	
(iv)	Skid Steer Loader with 6 in 1 Bucket, Backhoe Attachment and Sweeper collector attachment	
2	Electronic Loader for Garbage disposal (E Rickshaw)	
3	Auto Tipper With Bin Lifter	
4	Three wheel Auto Tipper	
5	Refuse Compactor 8 CUM BS-III & BS –IV	
7	Refuse Compactor 14 CUM BS-III & BS –IV	
9	Shredder Machine	
10	Ballistic Separator	
(i)	Capacity upto 5 MT	
(iii)	Capacity upto 15 MT	
(iv)	Capacity upto 20 MT	
11	Portable Toilet	
12	Mobile Bio Toilet	
13	Elevated Hydraulic Platform	
16	Walk-behind Brooming Machine	
17	G.I Secondary Storage Bins 1100 Litre	
18	G.I Secondary Storage Bins 660 Litre	
19	G.I Hand Cart - 85 Litre/110Litre/140 Litre/240 Litre	
20	Stainless Steel Single Pole Mounted Bins - 60/80/100 Litre	
21	Plastic Secondary Storage Bins 1100 Litre	
22	Plastic Secondary Storage Bins 660 Litre	
23	Plastic Hand Cart - 85 Litre/110Litre/140 Litre/240 Litre	
24	Tractor - 14 HP/25 HP /39 HP/47.5 HP	

2 Delivery and Completion Schedule

Delivery of Goods and Related Services should be carried out as per provisions of Purchase Order which may be issued by the Purchaser time to time for such quantity as may be required by the concerned Urban Local Bodies in Bihar or any other department in Bihar.

3 Technical Specification - Road Sweeping Machine

1. (iv) - Skid Steer Loader with 6 in 1 Bucket, Backhoe Attachment and Sweeper collector attachment

Technical parameters are required Skid Steer Loader

Tenders are invited from reputed manufacturer or their authorized dealers for Skid Steer Loader Machine, as per following technical specification.

ENGINE: Naturally aspirated Diesel engine, 4 cylinder liquid cooled Engine, and should comply with TIER-3 standards. Engine should be 50HP \pm 2 HP. With low ideal RPM of 1070-1230 ,High RPM of 2850 -3000, Displacement of max 135 in3. Starting aid: automatically activated glow plug, as needed in run position.

DRIVE SYSTEM: Fully hydrostatic, 4 wheel drive.

TRANSMISSION: infinitely variable tandem hydrostatic piston pumps, driving two fully reversing hydrostatic motors.

COONTROLS: Direction and speed controlled by two hand levers. Lift & tilt controlled by separate foot paddles.

BRAKES:

SERVICE BRAKES: Two independent hydrostatic system controlled by two hand operated steering lever.

SECONDARY BRAKE: One of the hydrostatic system.

PARKING BRAKE: Mechanical disc activated by manually operated switch.

HYDRAULIC SYSTEM:

PUMP TYPE: Engine driven gear type, of capacity min 60l/min, system relief pressure 3250 -3400 psi.

HYDRAULIC CYLINDER: 2 LIFT & 2 TILT (BUCKET) cylinder.

CONTROL VALVE: 3-Spool, open center manually operated with spring detent for lift float, electrical controlled auxiliary spool.

RATED OPERATING CAPACITY: Minimum 600Kg.

OPERATING WEIGHT: Minimum 2200 Kg.

COOLING SYSTEM; Dual path cooling system for efficient cooling.

DIIMENSION:

OVER ALL LENGTH: Max 3175mm, **OVER ALL WIDTH OOVER TYRES:** Max 1500mm over tyres.

HEIGHT OF THE MACHINE: Min 1950 mm, Height at Hinge pin: Min. 2750mm, Ground clearance: Min 200mm.

The machine should be equipped with Alternator of 90 Amps. And 12V battery with at least 600 cold cranking appears @ -18' C, Starter should be of 12V gear type. Instrumentation must be Digital, with data display and data f operating hours, engine RPM, speed management setting, maintenance clock, shut down, battery voltage, service codes.

The machine should be ARAI approved, certificate to be attached with the tender.

SPECIFICATION OF ATTACHMENTS FOR SKID STEER LOADER

SWEEPER COLLECTOR

- a) Sweeper width 60" maximum
- b) Sweeper collector capacity of 0.3 – 0.34 m³
- c) Bristles MOC replaceable polypropylene sections
- d) Broom rotation 145 rpm

BUCKET GRAPPLE ATTACHMENT

- a) Width 60" – 62"
- b) Weight 350 – 360 kg
- c) Grapple with two cylinders

BACKHOE ATTACHMENT

- a) Max. Digging depth 9 feet – 9.8 feet
- b) Angle of approach 9⁰
- c) Loading height 2 m – 2.08m
- d) Bucket rotation 200⁰
- e) Swing ARC
- f) Capable of side shifting

COMBINATION BUCKET

- a) Width 60" – 62"
- b) Weight 350 kg approx
- c) Heaped capacity 0.3 – 0.35 m³
- d) Capable of doing **leveling, dozing, digging, grapping, loading & dumping**

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

Bidder should quote the rate of vehicle and each attachment separately.

2. Electronic loader for Garbage disposal (E Rickshaw)

TECHNICAL SPECIFICATION For Garbage Vehicle		
1	Motor	1000 watt (GOVT APPROVED heavy duty Motor)
2	Controller	48v 60 amp as per norms
3	Axle	180 Diameter (Drum)with HYDRAULIC BREAK
4	Gear Ratio	01:12:01 Heavy duty gear to run easily on rough terrain and enhances climbing capacity
5	WIRING	FLRYB DIN 66 Grade (i.e Fire proof, crack proof) with MCBs to prevent short circuit
6	Fire safety	Fuse box with emegency cut off switch
7	Windhild	Govt approved Fornt windshield with wiper motor
8	Coating	Rust proof coating on Chassis./ corrosion resistant chassis.
9	Inside coating	Plastic coating inside Garbage collection box
10	Indicator	Reverse Forward and Parking Indicators.
11	Chassis and body	CRC Pipes Automotive Grade (chassis) for longer life and 1.2 mm sheet metal
12	Break	Hand or Leg with applied auto cut off switch
13	Cut off	While Charging Auto Cut off automatically
14	Seat and Leg Room	Comfort Cushion Seat and larger legroom for driver's comfort.
15	Carring Capacity	380 kg as per Govt Norms
16	Ground Clerance	200 mm
17	Battery	12v 100 ah 4 pec C5 Rating 80 ah (C10 100 ah) (Any top reputed brand with 6+ months warrantee)
18	Charger	48 volt 12 amp 230 to 240 volt input with display
19	Charger Shocket	Heavy Duty German Technology
20	Tyres and	4/00-12 /and 90/9012 Heavy duty tyres for longer life and to bear loads.
21	Paint	High grade automotive paint that retains in all weather conditions.
22	Auto lifting	Provide automatic motorized lifting for rear cargo
23	lights	2 Pec headlight for better visibility with right/left indicator and tail light with no plate light
24	Tool kit	Provide Tool kit and spare wheel

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

3.Auto Tipper With Bin Lifter and Tip Cart: (Read as Auto Tipper With Bin Lifter)

Specifications of Auto Tipper With Bin Lifter

Fabricated on four wheel chassis with factory installed cabin. The covered Hopper should be capable to collect the garbage from the door to door having capacity minimum 1.75 cum. The Hopper should be hinged on two nos. of arm to capable the hi-rised tipping and suitable to unload the garbage directly in to the compactor. Equipment should have bin lifter arrangement for hydraulically lifting of 1.1 cum container and directly loading in its hoper. It should have facility to cover from the top and locking arrangement at the time of tipping. The Hopper having following specifications.

Specifications	Values	Range
Engine HP	HP	50-65
Engine CC	CC	1200-2000
Payload	Kgs	1000-1500
Torque Max.	Nm	120-180
GVW	Kg	2100-2500
Hopper Capacity	CUM	1.8-2.0
Steering type		Power

Hydraulically operated tipping arrangement

- a). Main Frame should be box type, made of pressed steel sections ISMC 75x40 mm mounted on vehicle chassis through rolled steel channel sub-frame.
- b). Main Frame should be box type, made of pressed steel sections ISMC 75x40 mm mounted on vehicle chassis through rolled steel channel sub-frame.
- c). Tipping Ram: Two nos. of single acting type tipping cylinder having capacity of 2.0 tone. The ram to have removable glands easy dismantling and hard chrome plated rods.
- d). Boom Arm Two heavy duty boom, having centers match the hopper body size, for maximum workability of boom arm. These boom should be of box type construction made of 4 mm thick MS Sheet
- e). Bin Lifter: The lifter should be reliable system with proven technology. Optimum system should be there for the collection of various types of refuse within one collection point and its low rave rail should permit the hand loading of bulk refuse items as well as the easy emptying of wheel bins. Tipping of 1.1 in' container directly in the hopper. This should be done without any damages to the container

The lifter should be able to unload Garbage from bin of size 1100 Litres.Should be light weight for high legal payloads

A safety valve should be provided in the system to avoid sudden descent of bin lifter in a case of failure in hydraulic system

Stabilizers: Two no. number of independent Controlled stabilizers should be provided to keep the vehicle leveled even on the un-even terrain and to balance the vehicle during /unloading of

garbage into the compactor

Control Valve:

Three Spool type Direction valve is to be provided for all operation with levers easily for easy & comfortable operation. Spools should be self centering type. A pressure relief valve is to be provided to safeguard the hydraulic circuit and to prevent excess loading. Provision for safety when loading and unloading of the garbage collection container

Hydraulic pump should be coupled with the vehicle PTO /vehicle engines capable to lift the 2.0 ton Garbage.

To protect the Hopper from rust and water **rubber coating** paint to be applied.

All members of the hydraulically operated mechanism should be first cleaned either by appropriate method, or given a two coat of primer, and finally two or more coats of synthetic enamel paint of approved colour and make, as per Purchaser.

Accessories: Provision should be made for Bell.

GAD should be submitted by the bidder should get approved before manufacturing.

Special condition for purchase order above 50

- a. Training centre for driver cum operator
- b. There should be 1 year minimum guarantee and 4 years AMC
vehicle will repaired within 24 hrs for any nos of vehicle/amt.

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

Bidder should quote the rate of Tipper and Bin Lifter separately.

4.Three Wheel Auto Tipper:

Tipper With Bin Lifter and Tip Cart Three Wheel Auto Tipper:

Capacity : Hopper carrying capacity: - 1.0 CUMT
Base structure : Heavy duty "C" channel Frame size 75x30 mm
Container Box : Fabricated with strong tubular structure and 1.00 mm thick sheet
Dumping height : 1.6 m

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

5.Refuse Compactor 8 CUM BS-III

Technical Specification of Refuse Compactor 8 CUM BS-III (for 1.1 cum containers)

General Specification:: The Refuse Compactor Vehicle (RCV) should be a universal type and suitable for changing fields of operation. It should be easy to handle and should allow the loading personnel to operate the vehicle with minimum physical effort and maximum safety. Hand lever arrangement for operation of Compaction Cycle should be provided along with the electronic push button operating system.

The vehicle should be capable of automatically unloading garbage from closed containers of 1100 Litres capacity within 15 sec, with facility for automatic opening of Bin Lid / Cover when in fully lifted condition in compactor hopper, with inbuilt link arrangement of Bins.

The Loading Height should not be more than 1.2 Mtr from the ground level.

The body should consist of Front bearings, ejection plate, Tailgate with hopper, slide plate, packer plate and Bin lifter.

The bidder will have to specify the make of important component along with technical specifications. Regarding quality of steel and other material relevant Code (if any) should be followed.

Bearing of the Refuse Collection Body:

The bearing of the refuse collection body should consist at its front, one support structure each (right and left) for the rubber hollow spring bearing to connect the body frame with the chassis frame. In the backward area, the continuous body frame should be directly screwed to the chassis frame by means of sliding brackets.

Refuse Collection Body:

The refuse collection body should be in torsion-free steel construction of capacity 8

m3. The bottom group, the sidewalls and the top must form a box-type design. The sidewalls as well as the top should be in reinforced frame steel construction. The tailgate bearing and automatic tailgate locking should be integrated into the rear frame of the body. At its front, a traversing bar should be welded to the bottom and top, which serves as a bearing for the telescopic ejection cylinder.

Roof panelling thickness	minimum 3 mm
Side panelling thickness	minimum 3 mm
Flooring thickness	minimum 4 mm
Rear cross bar thickness	minimum 6 mm
Superstructure Member thickness	Box section minimum 4 mm
Base Frame Member thickness	minimum 6 mm

Ejection Plate:

The ejection plate should run on a synthetic guide block within the lateral longitudinal guides of the boat-type bottom group of the refuse collection body and must be operated by a telescopic hydraulic ram. It must serve during loading as a resistance for the refuse compaction process.

The ejection plate should be of steel plate of minimum 4 mm thickness and of suitable grade to meet the operational requirements. A hydraulic control unit should regulate the withdrawal of the ejection panel during the loading process, so that the compaction is optimised.

The mechanism should consist of a profile-reinforced, wear-resisting plate of great sturdiness and the guide frame with the guide blocks.

Alignment of ejection plate should be proper during forward & reverse movement.

Tailgate:

The tailgate should form the main part of the refuse collection vehicle. The Tailgate should be made of by three main groups:

Tailgate with Hopper: The tailgate with hopper should form the basic structure to which the functional parts, slide plate and packer plate should be attached. The tailgate shall unlock automatically and raise, to permit ejection of refuse from RCV hopper when hydraulic valve is actuated. It should be equipped with Automatic-locking system between tailgate and RCV Hopper body through long hole and hooks. This locking- system should be completely liquid-proofed between tailgate and body by using double lips rubber seal.

The hopper should be able to take the refuse from the garbage bins of 1100 liters capacity. The hopper should have a capacity of minimum 1.10 M3. At its top, it should be fixed to the refuse collection body by means of two slotted hinges and should be supported by two hydraulic rams and two locking hooks mounted to the rear frame of the body. These bearing points and the locking hook should take up the compression forces. The profile-reinforced side walls of the frame should constitute the bearing for the two hydraulic rams which automatically release the locking mechanism and then lift the loading system for refuse discharge up to the final stop.

The hopper used to take in the refuse should be permanently welded in between the side walls and should consist of highly solid fine-grained constructional steel made of High resistance steel.

The carriage plate should be robust profile reinforced steel construction supplied with a wear-resistant cover plate made of high resistant Steel. The thickness of side plate should be of suitable grade material. It should be actuated by two hydraulic cylinders, and must run on suitable number of sliding blocks. At the bottom end of the slide plate a moveable packer plate should be Embedded.

The packer plate should consist of highly solid steel and the strongly Reinforced lateral bearing arms for the attachment of the hydraulic rams. It should clear the hopper and initiate the primary compaction within the hopper. On completion of the swivel movement the compaction of the refuse and its transportation into the refuse collection body should begin. The packer plate should be made of special High resistance steel of suitable grade and should be actuated by 2 hydraulic cylinders.

Side panelling thickness: minimum 3 mm

Rear side of hopper plate thickness: minimum 6 mm Hopper bottom plate thickness: minimum 6 mm Superstructure Member thickness: minimum 6 mm

Lifter System:

The Lifter System should be capable of lifting and unloading garbage from 1100 ltrs. capacity bins. It should be light weight for high legal payloads. It should be reliable system with proven technology. There should be optimum system for the collection of various types of refuse within one collection point and its low raved rail should permit the hand loading of bulk refuse items as well as the easy emptying of wheel bins. Tipping of

1.1 m³ container and simultaneously working of the compacting mechanism must be possible without moving back the lifter. This should be done without any damages to the container.

During compaction operation, loading / unloading of bins and travel of Truck should be able to operate continuously to continue to save operation time.

The Tailgate lifting and closing as well as the compaction operation will be controlled

with Hydraulic Lever System placed on rear side of the vehicles.

The lifter system shall be provided with four cylinders i.e. two cylinders for levelling and lifting of Bin, and two cylinders for tipping operation.

Mounting:

The lifter should be integrated at the rear end of the tailgate.

Chassis:

Make	TATA/ Ashok Leyland/Eicher or equivalent
Payload	Minimum 7500 Kg
Gross Vehicle Weight	Minimum 11000 Kg

Minimum 110 HP, BS-III model Transmission	5 speed synchromesh gear box Steering: Power steering
speed synchromesh gear box Steering	Power Steering
Tyres	10.00 x 20 - 16 PR, Front-2, rear-4, Spare-1(Lockable)
Dumping Operation:	Tailgate opening and closing for dumping should be controlled from driver's cabin Optional hand lever for manual operation
Tailgate Operation:	The tailgate hydraulic valves should be electro-hydraulic/ electro-pneumatic for rugged operation

Ejector Plate operation:

- This operation should be controlled from driver's cabin
- Optional hand lever for manual operation
- The ejector plate hydraulic valve should be electro-hydraulic/ electro-pneumatic.

Actuation:

Hydraulic actuation via hydraulic pump driven by the P.T.O. of the vehicle chassis.

Pump:

The hydraulic system should be driven through a dual-pump, Large circuit for the compaction and Small circuit for ejection plate and lifter.

The large pump circuit should feed the hydraulic rams of the compaction unit. The small pump circuit should feed the lifting rams of the tailgate (the lifting rams should also be used for the locking mechanism), the telescopic ram of the ejection panels and the lifting device of the system.

Rams/ Cylinders:

1 Hydraulic Cylinders shall be installed covering following operation

1 three-stage telescopic ram, double-acting for the ejection panel.

2 hydraulic rams, double-acting for the slide plate

Double acting Slide-cylinders (for compacting) shall be located outside of the sidewalls. The cylinders are mounted in pushing position.

2 hydraulic rams, double-acting for the packer plate

2 hydraulic rams, double-acting for the tailgate (lifting/lowering and automatic locking). The lifter shall be integrated in the tailgate and have 2 levelling and lifting cylinders

2 Tipping cylinders

All Cylinders shall be of reputed make from ISO certified organization. Cylinders should be equipped with lubricating bearing.

Control blocks:

- 1 control block for the compaction system
- 1 control block for lifting/lowering the tailgate and refuse ejection

Tank:

The Hydraulic oil tank shall be of minimum 140 Liters capacity equipped with a suction strainer, a return line filter with steel cartridge and a level indicator. First fill of hydraulic oil and other consumables to be provided in the equipment by the supplier.

Electric:

- Automatic operation (continuous cycle) by pushing electric operated push-button, compacting mechanism should be running till you switch off through the push button. Optional Manual operation by hand lever facility to be provided.
- The automatic cycles should be controlled with 4 proximity switches together with the hydraulic integrated control-group. Further 2 emergency stop switches should be provided.
- The control system should be only operated by hydraulic and electric.
- Optionally one should be also able to operate the whole compactor with a hand-lever, which comes out directly from the main-control-block
- Emergency electric stops to be provided.
- Signal-system to the driver's cab to be provided
- On each side there should also be 1 switch for the signal system to the driver's cab.
- The system should encompass all installations relevant for the functioning of the entire bodywork and the distribution voltage should be tapped from the electrical system of the chassis vehicle.
- Lights: Double light-system at the rear are provided: Working light
- Rotation Beacon light. Parking Light
- Stop Light Back light Direction Indicator
- Number Plate Light

Selector switch:

- Single/continuous-cycle (right hand) - One
- Main Switch – One
- Working Light (Cab) – One
- Finishing [Rotating Light] (Cab) – One

Push button:

- Engine Accelerator – One
- Emergency Stop (Right Hand) – One

Safety Features:

Hose burst valve shall be fitted to the system to prevent the tailgate descending in the event of the hydraulic failure. There shall be a body prop provided on the tailgate to hold the tailgate in the open position for safety of workshop personnel when entering the body for maintenance or repair.

Painting

The entire unit shall be painted with two coats of superior quality anti-corrosive primer with two coats of approved quality paint to ensure long lasting, resistance to rust, weathering and breakage. The color shade should be purchaser's choice.

Drawing: G.A. drawing should be submitted by the supplier.

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

6. Refuse Compactor 8 CUM BS-IV : Same as above 5

7. Refuse Compactor 14 CUM BS-III & BS-IV

Technical Specification:: Compactor 14 CUM BS-III & BS-IV(for 1.1 cum container

General:

The Refuse Compactor Vehicle shall be of universal type and suitable for changing fields of operation. It should be easy to handle and should allow the operating personnel to operate the vehicle with minimum physical effort and maximum safety.

The vehicle should be capable of automatically unloading garbage from closed containers of 1100 Litres capacity within 15 secs, with facility for automatic opening of Bin Lid / Cover when in fully lifted condition in compactor hopper, with inbuilt link arrangement of Bins.

The Loading Height should not be more than 1.05 Mtrs from the ground level.

The body should consist of: Front bearings, ejection panel, Tailgate with hopper, slide plate, packer plate and Bin lifter.

Refuse Collection Body:

The refuse collection body should be in torsion-free steel construction of capacity 14 cum. The bottom, the sidewalls and the top must form a box-type design. The sidewalls as well as the top should be in reinforced frame steel construction. The tailgate bearing and automatic tailgate locking should be integrated into the rear frame of the body. At its front, a traversing bar should be welded to the bottom and top,

which serves as a bearing for the telescopic ejection cylinder.

Particulars	Requirement
<i>Roof panelling thickness</i>	<i>minimum 2 mm</i>
<i>Side panelling thickness</i>	<i>minimum 3 mm</i>
<i>Flooring thickness:</i>	<i>minimum 4 mm Rear</i>
<i>cross bar thickness</i>	<i>minimum 6 mm</i>
<i>Superstructure Member thickness</i>	<i>Box section minimum 4 mm</i>
<i>Base Frame Member thickness</i>	<i>minimum 6 mm</i>

Ejection Panel:

The ejection panel shall run on a synthetic guide block within the lateral longitudinal guides of the boat-type bottom group of the refuse collection body and must be operated by a telescopic hydraulic ram. It must act during loading as a resistance for the refuse compaction process.

The ejection plate shall be wear resistant steel plate of minimum 4 mm thickness of suitable grade with adequate strength to meet the operational requirements. The withdrawal of the ejection panel during the loading process shall be through hydraulic control to ensure optimum compaction.

Tailgate:

The tailgate should form the main part of the refuse collection vehicle. The Tailgate should be comprise of three main groups:

Tailgate with Hopper: The tailgate with hopper should form the basic structure to which the functional parts, slide plate and packer plate are attached. It should be equipped with Automatic-locking system through long hole and hooks. This locking-system should be completely liquid-proof between tailgate and body by using double lip rubber seal.

The hopper should be able to take the refuse from the garbage bins. The hopper should have a capacity of minimum 1.80 cum. At its top, it should be fixed to the refuse collection body by means of two slotted hinges and should be supported by two hydraulic rams and two locking hooks mounted to the rear frame of the body. These bearing points and the locking hook should take up the compression forces. The profile- reinforced side walls of the frame should constitute the bearing for the two hydraulic rams which automatically release the locking mechanism and then lift the loading system for refuse discharge up to the final stop.

The hopper should be permanently welded in between the side walls and should consist of highly solid fine-grained constructional steel made of High resistance steel.

The carriage plate should be of robust profile reinforced steel construction supplied

with a wear-resistant cover plate made of high resistant Steel. The thickness of side plate should be of suitable grade material. It should be actuated by two hydraulic rams, and must run on suitable number of sliding blocks. At the bottom end of the slide plate a moveable packer plate should be Embedded.

The packer plate should consist of solid steel and the strongly Reinforced lateral bearing arms for the attachment of the hydraulic rams. It should clear the hopper and initiate the primary compaction within the hopper. On completion of the swivel movement the compaction of the refuse and its transportation into the refuse collection body should begin. The packer plate should be made of special steel of suitable grade.

Side panelling thickness	minimum 3 mm
Rear side of hopper plate thickness	minimum 6 mm
Hopper bottom plate thickness	minimum 6 mm
Superstructure Member thickness	minimum 6 mm

Lifter System:

The lifter should be reliable with proven technology. There should be optimum system for the collection of various types of refuse within one collection point and its low raved rail should permit the hand loading of bulk refuse items as well as the easy emptying of wheel bins. Tipping of 1.1 m³ container and simultaneously operation of the compacting mechanism must be possible without moving back the lifter. It should be possible to undertake simultaneous operation of compaction and loading/unloading or compaction and movement of truck to save operational time. The lifter should be able to unload Garbage from bin of 1100 Litre capacity. The bin lifter shall be suitable to lift the standard containers (HDPE Bins/ Metal Bins) of size 120 liter, 240 liter, 660 liter and 1100 liters.

A safety valve shall be provided in the system to avoid sudden descent of bin lifter in case of failure in hydraulic system or failure of automatic system.

Chassis:

Make	TATA/ Ashok Leyland
Payload	Minimum 12000 Kg
GVW	Minimum 16000 Kg
Wheel Base	minimum 4200 mm Engine
Minimum 120 HP, BS-IV model Transmission	5
speed synchromesh gear box Steering	Power steering
Tyres	10.00 x 20- 16 PR, Front-2, rear-4, Spare-1 (Lockable)

Dumping Operation:

Tailgate Operation:

- Tailgate opening and closing for dumping should be controlled from driver's cabin
- Optional hand lever for manual operation.
- The tailgate hydraulic valves should be electro-hydraulic/ electro-pneumatic for rugged operation
- Ejector Plate operation:
- This operation should be controlled from driver's cabin
- Optional hand lever for manual operation
- The ejector plate hydraulic valve should be electro-hydraulic/ electro-pneumatic.

Actuation:

Hydraulic actuation via hydraulic pump driven by the P.T.O. of the vehicle chassis

Hydraulic Pump:

The hydraulic system should be driven through a dual-pump, Large circuit for the compaction and Small circuit for ejection plate and lifter.

The large pump circuit should feed the hydraulic rams of the compaction unit. The small pump circuit should feed the lifting rams of the tailgate (the lifting rams should also be used for the locking mechanism), the telescopic ram of the ejection panels and the lifting device of the system.

Electrical System:

All required electrical and fully integrated logical system and printed circuit board shall conform IP66 weatherproof norms and located on the body.

Rams/ Cylinders:

1 three-stage telescopic ram, double-acting for the ejection panel.

2 hydraulic rams, double-acting for the slide plate

Double acting Slide-cylinders (for compacting) should be located outside of the sidewalls. The cylinders are mounted in pulling position/ pushing position.

2 hydraulic rams, double-acting for the packer plate.

2 hydraulic rams, double-acting for the tailgate (lifting/lowering and automatic locking).

The lifter should be integrated in the tailgate and have 2 lifting / tipping cylinders.

All cylinders should be of reputed make.

Control blocks:

1 control block for the compaction system

1 control block for lifting/lowering the tailgate and refuse ejection

Tank:

Hydraulic fluid tank of adequate capacity equipped with a suction strainer, a return line filter and a level indicator.

Filters:

Return line filter with steel cartridge. Filter for hydraulic tank.

Electric:

- Automatic operation (continuous cycle) by pushing electric operated push-button, compacting mechanism should be running till you switch off through the push button.
- Optional Manual operation by hand lever facility to be provided.
- The automatic cycles should be controlled with 4 proximity switches together with the hydraulic integrated control-group. Further 2 emergency stop switches should be provided.
- The control system should be only operated by hydraulic and electric systems.
- Optionally one should be also able to operate the whole compactor with a hand-lever, which comes out directly from the main-control-block
- Emergency electric stops to be provided.
- Signal-system to the driver's cab to be provided
 - ✓ It shall be provided with electro-pneumatic throttle control system, which maintains engine speed automatically, when hydraulic power consumption increases.
 - ✓ It shall be provided with Electro – pneumatic operated spool valves to control all system functions separately, with inbuilt dump valve for retraction process.
 - ✓ It shall be provided with automatically adjusted high and low pressure system to give efficient and smooth working of the system and protect the system from over stress and to obtain better fuel efficiency.
- Sweeping cylinder with spherical bearings shall be provided in such a way that it protect the piston rod from direct contact of acidic waste/garbage.

Selector switch:

- Single/continuous-cycle (right hand) - One
- Main Switch – One
- Working Light (Cab) – One
- Finishing [Rotating Light] (Cab) – One

Push button:

- Engine Accelerator – One

- Emergency Stop (Right Hand) – One

Drawing:

The compactor shall meet with all statutory requirements of Motor vehicles act and MSW rules 2000. The supplier shall submit G.A. drawing of complete unit for approval of purchaser.

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

8. Same as sl no - 07

9. Shredder Machine

Technical Specification of Shredder Machine	
	<p>INTRODUCTION</p> <p>Shredder is designed and built to process and cut to size the daily municipal solid waste. Including house hold waste or industrial waste. The processed material RDF can be used as fuel.</p> <p>The two cutting rotors on R 200 dual shaft shredders are spaced apart from each other and cut against a fixed counter knife positioned in the bed of the cutting chamber and in between the two rotors. Once shredded material then passes through bar screens or is pulled back into the cutting chamber and re-cut until it passes through the screen bars. The interaction between the rotors and the counter knife, combined with the bar screens produces a homogeneous, consistently sized particle output.</p> <p>MSW dual-shaft shredders can also be used as pre-shredders or re-shredders depending the application. Applications include wood and other biomass as municipal solid waste, industrial waste and types of commercial waste.</p> <p>Capacity : 10- 15 ton /hour Power : 2 electric motor 100HP Shredding Size : 2-5 inches</p> <p>Features:</p> <ul style="list-style-type: none"> • Application : - Shredding of Municipal Waste and industrial waste. • Design : - Double Shaft, twin gear drive system.

- Feeding : - Top feeding by conveyor through hopper.
- Control : - Integrated electrical control panel with star delta system for protection of motors.
- Operator control panel: - For easy drive and control of shredder for different types of materials

RIPPER SYSTEM

- Ripper teeth that can be used twice
- Stator teeth that can be used once

The ripper and stator teeth can be welded on the outside of the machine after the end of the service life.

CUTTING CONCEPTS

Depending on the material and fraction size two different cutting concepts are available:

The ripper system, as well as the cutter system with internal pusher. The rotors are protected from wear by welded-on Hard ox plates.

With both cutting systems, fraction sizes of 400 mm to 50 mm are possible. Depending on the material property and screen diameter, the throughput performance is between 10t/h and 20 t/h.

Technical Data

Drive power	kw	45 X 2
Rotor Diameter	mm	460
Rotor Speed	rpm	105
Weight	t	4.5 (approx.)
Throughput	t/hr.	15

Sample image



GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

10. Ballistic Separator :

Technical Specification of Ballistic Separator



(i):Capacity up to 5 MT

INTRODUCTION

The ballistic separator is Suitable for sorting Municipal Waste .Machine is designed for sorting of Bio-degradable and non bio-degradable Solid of Waste. Which are sorted to RDF, Soil and Raw material for Manure

Design Features

Paddles are fabricated from steel for long service Life of the Minimal Wear System design creates a consistent Sort, Quality Over the life of the machine. Economic Crank shaft with rugged Easily Replaceable Bearings makes design easy to service & maintain. Low overall height with a nominal operating angle of 12 to 15 degrees.

CAPACITY UP TO 3-5 TPH

Higher Throughputs design with Multiple Machine Sdegrees.

Throughput and sort- Quality minimally affected by wet material or cold weather. Effective Separation of Baled single stream material .paddles designed to cut open Closed the Poly Bags

The Ballistic Separator angle can be adjusted to improve material, Separation and allow for changes in the input material. The Ballistic Separator works on the principal that the flat cardboard, Paper and plastic film will carry over the top of the paddles to the front of the machine. Rigid and three dimensioned plastic and metal containers will roll down the peddles and exit at the back of the machine.

The third fraction sorted by the Ballistic Separator will fall through the sieve mesh of the paddles. This material is nominally soil sand.

Mesh Sizes : Seive Size 1st stage = 50X50 mm

Mesh Sizes : Seive Size 2nd Stage = 35X35 mm

HT Model:

Suitable for Sorting solid waste Cardboard paper plastics and light weight packaging under 5% glass content. The HT Ballistics separator is ideal for the separation of card board. Paper and plastic film from plastic and metal containers. The third sorted fraction of glass and small material can be adjusted with sieve mesh sizing form 1 to 3 inches.

Drive Motor:- 3 phase 15 H.P Motor for each stage with heavy duty speed reduction gears.

Control Panel:-

Independent control panel for each stage with over load protection system.

Feed Conveyer:-

Heavy duty rubber belt with 5 HP. Gear Motor

Controls:-

All controls of conveyers On/Off, System On/Off, Load Meters, all light indicators-MCV's & Emergency switches are provided on one panel centralized manners

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

(ii):Capacity up to 10 MT

INTRODUCTION

N/A

(iii):Capacity up to 15 MT

INTRODUCTION

Three Fractions for a Single Machine with Over 90% Sort Quality

The ballistic separator is Suitable for sorting Municipal Waste .Machine is designed for sorting of Bio-degradable and non bio-degradable Solid of Waste. Which are sorted to RDF, Soil and Raw material for Manure

Design Features

Paddles are fabricated from steel for long service Life of the Minimal Wear System design creates a consistent Sort, Quality Over the life of the machine. Economic Crank shaft with rugged Easily Replaceable Bearings makes design easy to service & maintain. Low overall height with a nominal operating angle of 13 to 15 degrees.

CAPACITY UP TO 10-15 TPH

Low Maintenance and operating costs

Throughput and sort- Quality minimally affected by wet material or cold weather. Effective Separation of Baled single stream material paddles designed to cut open Closed the Poly Bags.

Ballistics Separator Principles of Operation

The Ballistic Separator angle can be adjusted to improve material, Separation and allow for changes in the input material.

The Ballistic Separator works on the principal that the flat cardboard, Paper and plastic film will carry over the top of the paddles to the front of the machine. Rigid and three dimensioned plastic and metal containers will roll down the peddles and exit at the back of the machine.

The third fraction sorted by the Ballistic Separator will fall through the sieve mesh of the paddles. This material is nominally soil sand and minus 2 inch sizing to ensure normal loss of recyclables. (Other sieve mesh sizes available)

HT Model: Suitable for Sorting solid waste Cardboard paper plastics and light weight packaging under 5% glass content. The HT Ballistics separator is ideal for the separation of card board. Paper and plastic film from plastic and metal containers. The third sorted fraction of glass and small material can be adjusted with sieve mesh sizing form 1 to 3 inches.

Drive Motor:- 3 phase 15 H.P Motor for each stage with heavy duty speed reduction gears.

Control Panel:- Independent control panel for each stage with over load protection system.

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

(iv):Capacity up to 20 MT

INTRODUCTION

Three Fractions for a Single Machine with Over 90% Sort Quality

The ballistic separator is Suitable for sorting Municipal Waste .Machine is designed for

sorting of Bio-degradable and non bio-degradable Solid of Waste. Which are sorted to RDF, Soil and Raw material for Manure

Design Features

Paddles are fabricated from steel for long service Life of the Minimal Wear System design creates a consistent Sort, Quality Over the life of the machine. Economic Crank shaft with rugged Easily Replaceable Bearings makes design easy to service & maintain. Low overall height with a nominal operating angle of 12 to 15 degrees.

CAPACITY UP TO 20TPH

Higher Throughputs design with Multiple Machine

Low Maintenance and operating costs..

Throughput and sort- Quality minimally affected by wet material or cold weather. Effective Separation of Baled single stream material .paddles designed to cut open Closed the Poly Bags

Ballistics Separator Principles of Operation

The Ballistic Separator angle can be adjusted to improve material, Separation and allow for changes in the input material. The Ballistic Separator works on the principal that the flat cardboard, Paper and plastic film will carry over the top of the paddles to the front of the machine. Rigid and three dimensioned plastic and metal containers will roll down the peddles and exit at the back of the machine.

The third fraction sorted by the Ballistic Separator will fall through the sieve mesh of the paddles. This material is nominally soil sand and minus 2 inch sizing to ensure normal loss of recyclables. (Other sieve mesh sizes available)

Model Descriptions

HT Model:

Suitable for Sorting solid waste Cardboard paper plastics and light weight packaging under 5% glass content. The HT Ballistics separator is ideal for the separation of card board. Paper and plastic film from plastic and metal containers. The third sorted fraction of glass and small material can be adjusted with sieve mesh sizing form 1 to 3 inches.

Drive Motor:- 3 phase 15 H.P Motor for each stage with heavy duty speed reduction gears.

Control Panel:-

Independent control panel for each stage with over load protection system.

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

11. Portable Toilet:

a. Technical Specification of Portable Toilet:

Portable Bio toilet

(i) Four Pan Bio Toilet

Supply of 40mm thick sandwich puf panel cladded with PPGI sheet both side for 4 Pan Bio Toilet shelter and puf density $40\pm 2\text{kg/m}^3$. (With Flashings, Doors, Rivets, Self Tapping Screws) The components should be fabricated and assembled at factory. Wall Panels & Ceiling Panels – 40 MM Partition Panels – 40 MM Floor Panel – 60 MM Colour- Both Side Off White Toilet Size- (1810mm x 1810mm x 2040/2290mm) Door Size – 705 MM x 1850 MM.

1. Size: - 5000 Liters
2. Dimension: - L=2140 mm, B=1740 mm, H=1000 mm
3. Thickness: - 6 mm
4. Material : - FRP
5. Inlet pipe size: - OD = 110mm dia.
6. Outlet pipe size: - OD = 75mm dia.
7. Immobilization Matrix = Material PVC

(C) Accessories:

1. Toilet Sheet: - 04 No. (FRP)
2. Wash Basin: - 04 No. (SS)
3. Pipe line for water supply
4. Push cocks: - 04 Nos.
5. Solar panel (2watt): 4 No.
6. LED light: - 04No.
7. Water mug: - 04 No.
8. Water Tank (300 Liters): - 04 No.
9. M.S. Base for Cabin shelter: - 01 No.
10. Exhaust fan (6")/Wire Mesh: - 04 No.
11. Connection pipe for Sludge to Digester Tank: - 01 No.
12. Anaerobic Microbial In oculum (AMI) = 2000 Liters

(ii) Two Pan Bio Toilet

Supply of 40mm thick sandwich puf panel cladded with PPGI sheet both side for 2 Pan Bio Toilet shelter and puf density $40\pm 2\text{kg/m}^3$. (With Flashings, Doors, Rivets, Self Tapping Screws) Wall Panels & Ceiling Panels – 40 MM Partition Panels – 40 MM Floor Panel – 60 MM Colour- Both Side Off White Toilet Size- (1810mm x 950mm x 2040/2290mm) Door Size – 705 MM x 1850 MM .

(A) Bio-Digester Tank

1. Size: - 2000 Liters
 5. Dimension: - L=1450 mm, B=1450 mm, H=1000 mm
 6. Thickness: - 5 mm
 7. Material : - FRP
- Inlet pipe size: - OD = 110mm

(B) Accessories:

1. Toilet Sheet: - 02 No. (FRP)
2. Wash Basin: - 02 No. (SS)
3. Pipe line for water supply
4. Push cocks: - 02 Nos.
5. Solar panel (2watt): 2 No.

6. LED light: - 02 No.
7. Water mug: - 02 No.
8. Water Tank (300 Liters): - 02 Nos.
9. M.S. Base for Cabin shelter: - 01 Nos.
10. Exhaust fan (6")/Wire Mesh: - 02 No.
11. Connection pipe for Sludge to Digester Tank: - 01 No.
12. Anaerobic Microbial Inoculum (AMI) = 800 Liters

(iii) Single Pan Bio Toilet

Supply of 40mm thick sandwich puf panel cladded with PPGI sheet both side for Single Pan Bio Toilet shelter and puf density $40\pm 2\text{kg/m}^3$. (With Flashings, Doors, Rivets, Self Tapping Screws) Wall Panels & Ceiling Panels – 40 MM Partition Panels – 40 MM Floor Panel – 60 MM Colour- Both Side Off White Toilet Size- (1200mm x 1200mm x 2040/2290mm) Door Size – 900 MM x 1850 MM .

(B) Bio-Digester Tank

1. Size: - 1000 Liters
2. Dimension: - L=1000 mm, B=1000 mm, H=1000 mm
3. Thickness: - 5 mm
4. Material : - FRP
5. Inlet pipe size: - OD = 110mm dia.
6. Outlet pipe size: - OD = 75mm dia.
7. Immobilization Matrix = Material PVC

(C) Accessories:

1. Toilet Sheet: - 01 No. (FRP)
2. Wash Basin: - 01 No. (SS)
3. Pipe line for water supply
4. Push cocks: - 01 Nos.
5. Solar panel (2watt): 1 No.
6. LED light: - 01No.
7. Water mug: - 01 No.
8. Water Tank (300 Liters): - 01 No.
9. M.S. Base for Cabin shelter: - 01 No.
10. Exhaust fan (6")/Wire Mesh: - 01 No.
11. Connection pipe for Sludge to Digester Tank: - 01 No.
12. Anaerobic Microbial Inoculum (AMI) = 400 Liters

(ii) Ten Pan Bio Toilet

Supply of 40mm thick sandwich puf panel cladded with PPGI sheet both side for 10 Pan Bio Toilet shelter and puf density $40\pm 2\text{kg/m}^3$. (With Flashings, Door, Rivets, Self Tapping Screws) Wall Panels & Ceiling Panels – 40 MM Partition Panels – 40 MM Floor Panel – 60 MM Colour- Both Side Off White Toilet Size- (4440mm x 1800mm x 2040/2290mm) Door Size – 705 MM x 1850 MM

(B) Bio-Digester Tank

1. Size: - 12000 Liters
2. Dimension: - L=3000 mm, B=2000 mm, H=1650 mm
3. Thickness: - 10 mm
4. Material : - FRP
5. Inlet pipe size: - OD = 110mm dia.
6. Outlet pipe size: - OD = 75mm dia.
7. Immobilization Matrix = Material PVC
8. Accessories:
9. Toilet Sheet: - 10 Nos. (FRP)
10. Wash Basin: - 10 Nos. (SS)
11. Pipe line for water supply
12. Push cocks: - 10 Nos.
13. Solar panel (2watt): 10 Nos.

14. LED light: - 10 Nos.
15. Water mug: - 10 Nos.
16. Water Tank (300 Liters): - 10 Nos.
17. M.S. Base for Cabin shelter: - 10 Nos.
18. Exhaust fan (6")/Wire Mesh: - 10 Nos.
19. Connection pipe for Sludge to Digester Tank: - 10 Nos.
20. Anaerobic Microbial Inoculum (AMI) = 4000 Liters

Portable toilet

Description:

Prefabricated Portable toilet should be suitable for mounting on readymade platform / plain ground. The structure should be manufactured by using roto-molded process for superstructure and base, as per the detailed specifications given herein.

Overall Size:

910 mm (w) x 1075 mm (D) x 2060 mm (H)

Floor / Base : The double wall constructed readymade base should be made out with HDPE material by roto- molded process. The PUF should be filled in cavity between two wall for extra load bearing. The base should be single piece molded with required outlets. Special handle should be provided on two side of toilet block for easily shifting, loading and un-loading the whole block.

Wall / Roof (Superstructure) : The superstructure of toilet should be One piece molded HDPE walls and roof with single wall construction by Roto-molded process. The superstructure should be fixed on Base with suitable fasteners. The air ventilator should be provided in three side walls for cross air circulation. A special top cap should also fixed on top of toilet for natural light and air vent. The superstructure has many nos. of embossed ribs for better strength.

Door:

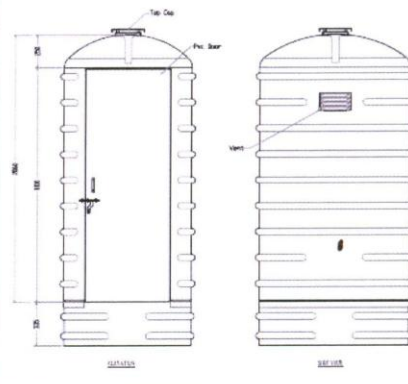
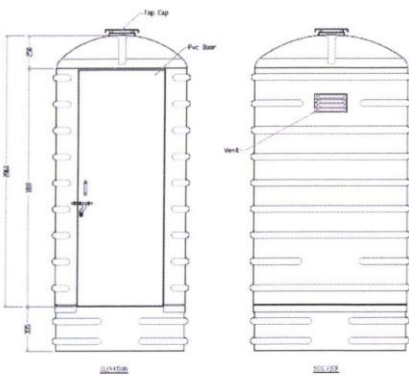
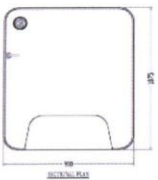
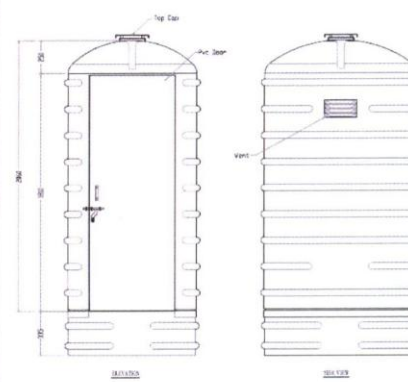
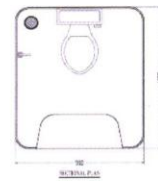
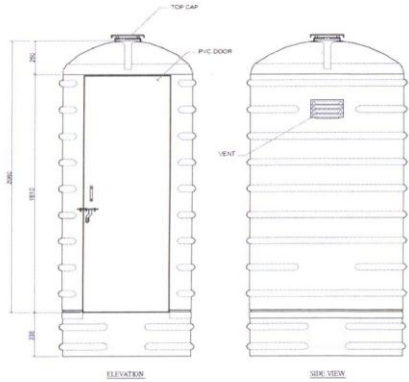
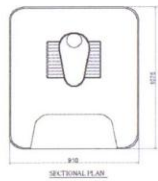
Single leaf shutter should be made out with made extruded PVC Section. The thickness of shutter should be minimum 20mm. Overall size of door should be 600 x 1800 mm. The door shutter should be fixed with the superstructure unit with pivot type hinges. The door shutter should be provided with 1 No. aldrops at out side ft 1 No. tower bolt in side for locking, and 100mm long handles should also provided on both the sides.

Drainage
line:

1 Rmt Long PVC pipe with 100 mm dia. Should be provided for drainage line, main line connection are not in our scope.

Plumbing work:

1 no. Tap connection should be provided in each unit. Main line connection are not in our scope.



GAD & QAP

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12. MOBILE BIO TOILET:

A . Technical Specification of Portable Toilet:

Portable Bio toilet

(i) Trailer mounted mobile Bio-Toilet should become complete with the perfect combination of body-shell with bio-digester tank, sturdy trailer with pathways on both side, squatting pans on 6No cabins (3 cabins for Ladies & 3 cabins for Gents), fresh water tank, hand wash facility, solar light facility, towing facility, stairs with side railing etc... facilities for the effective use.

Length (l) = 3.0 to 3.9m Width (w) = 3-4m Height from ground level (h) = 2.5 m to 4m

CHASSIS:-

The chassis made from M.S. 125mm x 65mm ISMC with necessary cross members.

Or

Made from 25 x 25x 16 Gauge M.S. Sq. Pipe and M.S Angle

CABIN STRUCTURE:

Cabin Structure should be fabricated by using M.S. angle or M.S. Sq. Pipe:-

- (i) 40mm x40mm x 4 or 5 mm.
- or (ii) Made from 25 x 25x 16 Gauge

CABIN PANELS:-

Cabin panels preferred made up of 40mm thick PUF panel sandwiched with 0.45 mm PPGI sheet. Or Panelling 20 Gauge Aluminium Sheet

PAINT:- All parts of Trailer Mounted Mobile Bio-Toilet should be painted appropriately.

Discharge Valve – 100 mm Heavy Duty Butterfly Valve at Rear Bottom of Sludge

Tank. Mirror – 02 Nos

S.S Washbasins – 02 Nos

Foldable Ladder – 02 Nos

	<p>Push – Pull Type Taps To all Toilet Compartments and At Washbasins</p> <p>Mud Guard on Wheels</p> <p><u>FLOORING:-</u> Floor panel should be integrated with squatting pan (there should be no joints) footrest and skirting should be FRP moulded. The squatting pan should be provided in such a way that it could be cleaned quickly. The squatting pans connected with tank with the help of pipe, the connection pipe should be in slopy form, one end of the pipe should be connected with the squatting pan outlet & 2nd side of the pipe should be dipped inside the tank maximum 4” below the bacterial level.</p> <p><u>GAD & QAP</u> The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution</p>

13. Elevated Hydraulic platform:

a. Technical Specification of Portable Toilet:	
	<p style="text-align: center;">TECHNICAL SPECIFICATIONS OF SKY LIFT OF 9.0 METERS WORKING HEIGHT ON MAHINDRA BOLERO MAXI TRUCK / TATA ACE</p> <p>EQUIPMENT:- The equipment should be two boom design.</p> <p>CHASSIS Make – Mahindra /TATA Model – Bolero Maxi Truck/ACE Engine Power – 62 H.P. (46.3 K.W.)</p> <p><i>POWER SUPPLY</i> Power for operating platform should be provided through D.C. Power Pack which takes supply from Chassis Battery or thru v- belt from vehicle engine .</p> <p>Hydraulic reservoir should be incorporated in the main frame and hydraulic circuit should be fully protected by efficient filters.</p> <p><i>HYDRAULIC HOSES</i> The hydraulic hoses should be located so that they don't interfere with the movement of the platform, booms etc. Make of the hoses should be Aeroquip / Gates or equivalent.</p> <p><i>STRUCTURE</i> The booms should be made from M.S. structural steel of good quality. Articulated boom section should be rigid, reinforced tubular section. All fabricated sections should be rust inhibited from the inside while the exterior should be pretreated and finished for a</p>

glossy look.

STABLIZERS

Four nos. stabilizers will be provided at the four side of the platform. Each of the stabilizers will be manually operated, independently, to allow leveling on an uneven ground. When stowed, no part of the stabilizers should protrude beyond the chassis body.

HYDRAULIC CYLINDERS

All the cylinders should be double acting and of proven design. Cylinder tubes should be Imported honed precisely and the rods should be hard-crome plated for corrosion resistance.

SLEWING

The platform should be designed for continuous slewing by a high torque, low speed motor, through a reduction gear box up to 360 degrees in either direction continuous, unlimited. Slewing speed should be precisely controlled by using fine restrictors in the circuit.

The Slew should be mounted on the chassis through a full length sub-frame , between the two axels of the chassis for proper weight distribution.

CAGE LEVELLING

The cage should be level in all positions, achieved through a mechanical leveling system.

PERSONNEL CAGE

A special designed reinforced fiber-glass basket of suitable size as per norms should be provided. All attachment points should be bonded to withstand most arduous use. The non slip floor with drain holes should be provided to give the operator safe working conditions. The basket should be insulated to withstand 600 volts. The basket should be designed to carry a safe working load of 100 kgs. The hydraulic platform design should be such that entry and exit into/from cage should be easy.

PLATFORM CONTROL

The hydraulic controls for all functions (except stabilizers) should be duplicated at the cage as well as the base. All controls levers should be self centering and hooded for protection against accidental operations. A hand pump permitting lowering of boom should be provided at the base in case of vehicle engine/ electrical system failure. The stabilizers controls should be provided only at the base, on the rear of the vehicle.

SAFETY DEVICES

Pilot operated lock valves should be incorporated in the stabilizers & Boom hydraulics, to prevent sinking of the cylinders while in operation.

1. Chassis
Bolero Maxi Truck
2. Vehicle Pay Load
1000 Kgs.
3. Maximum Height of the cage from the ground
7.5 Mtrs.

4. Maximum Working Height 9.0 Mtrs.	
5. Safe Load 100 Kgs.	
6. No of Boom 2 Boom	
7. Maximum Out Reach mtr	3
8. Outriggers nos.	4
9. Leveling of Cage Positive	
10. Lock valves to be provided on all cylinders	
11. Slew 360 Degree Continuous	
12. Cage Insulation 600 Volts	
13. Bucket Size 0.663*0.750*0.850 Meter	
<u>GAD & QAP</u>	
The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution	

14 NA

15NA

16 Walk Behind Booming Machine.

Technical Specification of Booming Machine	
	

General Description:

Machine is suitable for industrial use and is capable of sweeping dust, loose material like leaves, papers and stones from any kind of floor

Main Features:

- **Type** : Walk behind self drive power sweeper machine
- **Drive System** : Single Phase electrical motor 220 VAC 2 H.P.
For driving machine and brushes
- **Sweeping Path** : 32 inch with roller brush and side rotary brush.
- **Sweeping capacity** : 3000 Sq. Mt. / h Minimum
- **Transmission** : Mechanical clutch with variable speed system
- **Speed** : variable speed 1 to 8 Km/h
- **Hopper capacity** : 80 Ltrs.
- **Main brush length** : 25 inch , side brush diameter : 16 Inch
- **Dust control system** : Vacuum fan with dust controlling filter element
- **Filter cleaning system:** Electric Vibrator

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

17: G.I Secondary Storage Bins 1100 Litre

Technical Specification of G.I Secondary Storage Bins 1100 Litre

General Specifications:

Community Bins are elegantly designed Integrated community bins of 1.1 M capacity fabricated out of G.I Sheet duly reinforced with supports for strength, compatible with Refuse Collector provided with 4 Heavy Duty Wheels fabricated on bottom M.S. support and unique fully openable pilfer proof GI cover in Silver (Grey) colour by state of the art manufacturing process. The Integrated Community Bins are provided with two number of metal lifting trunions. Community bins are also provided with 2 window , one on length and the other on width side for manual emptying or cleaning work. Both the window must be with sliding doors.

Basic Qualities

Compatible with any Refuse Collector
Pilfer proof Lid Design

Ideal replacement of Skids
 Easily accessible as Compact design
 Easy to use, handle & transport



Detail Specifications:

Application : For storage, handling and transfer of Solid waste at Secondary point

Capacity : 1.1 M (+/- 5%)

Special Feature :

The Galvanized bins should be fabricated from GI sheets with suitable forming for proper strength to the container.

2. The G.I sheets should be approximate 2 mm thickness (Subject to usual tolerance)
3. Reinforcement should be done at all corners and on internal sides of the bin for better strength.
4. The bin should have lifting trunnion made of metal compatible for being lifted by bin lifters of EN / DIN standard and handles for easy transportation. The trunnion areas should be strong enough to prevent wear & tear.
5. The bins should be designed to be lifted by compactors having universal bin lifters of DIN standards.
6. The details specification of material as below.

Bill of Material

Sr. No.	DESCRIPTION	QTY	MATERIAL	SPECIFICATION
1.	Bin Top Frame	4	2mm GI	50x40x15 MM
2.	Turnnion Pin	2	GI PIPE "C" Class	40 MM OD

3.	Trunnion Braket	2	2mm GI	190x120 MM
4.	Stopper Washer	2	4mm M S	60 MM
5.	Bin side sheet & Bottom sheet	5	2mm GI	1170mm length 950 mm width 1050 mm Height (without wheel)
6.	Swivel caster wheel assembly	4	10 mm Bracket	200 x 50 MM HMHDPE swivel wheel
7.	Wheel mounting bracket	4	4 mm MS	115x115x10mm
8.	Handle	4	8mm Dia MS	130 x55 Flexible

Wheels :

Type : 04 Nos. Swivel type Heavy Duty Wheels fabricated at bottom of MS structure as per below mentioned dimensional details.

Dia : 200 mm (+/- 5 mm)

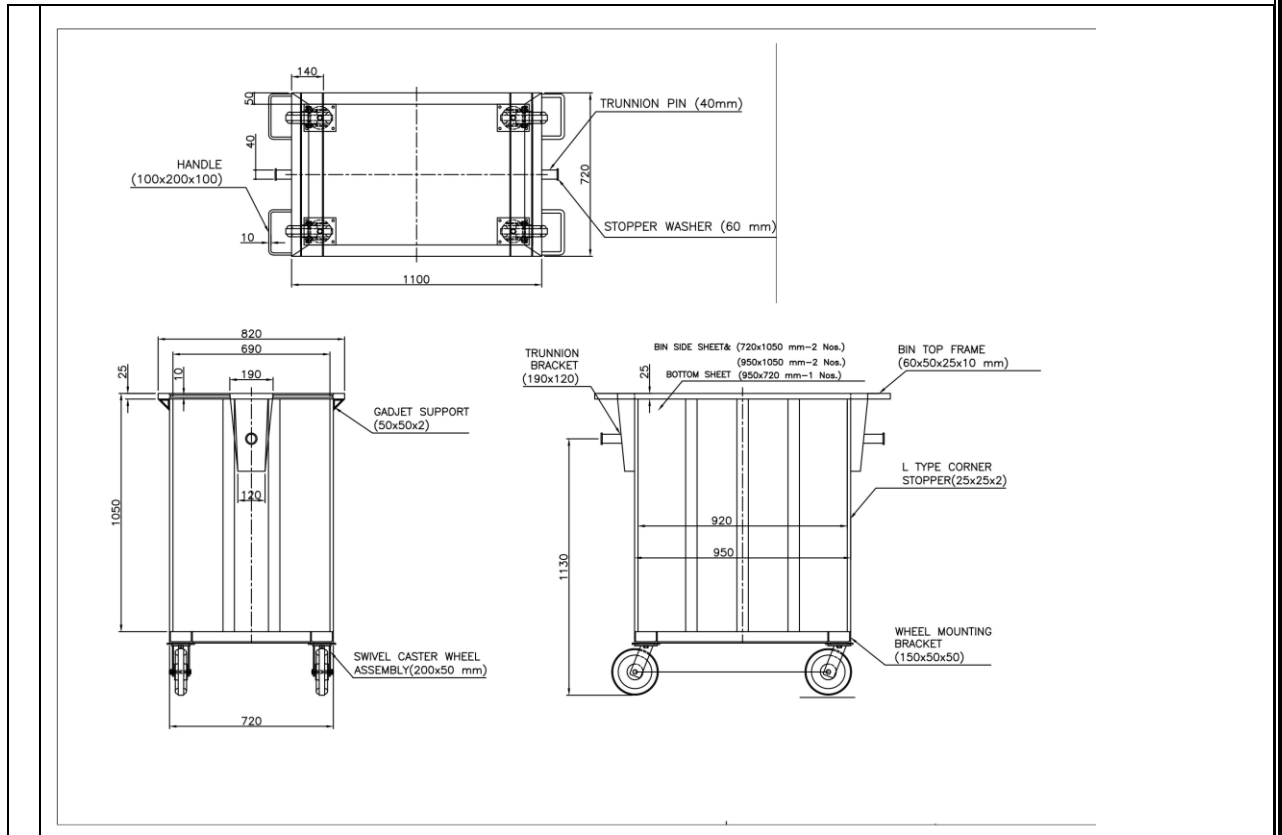
Width : 50 mm (+/- 5 mm)

Material : HMHDPE

Drawing : Enclosed herewith

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution



18. G.I Secondary Storage Bins 660 Litre

Technical Specification of G.I Secondary Storage Bins 660 Litre

General Specifications:

Community Bins are elegantly designed Integrated community bins of 0.66 MQ capacity fabricated out of G.I Sheet duly reinforced with supports for strength, compatible with Refuse Collector provided with 4 Heavy Duty Wheels fabricated on bottom M.S. support and unique fully openable pilfer proof GI cover in Silver (Grey) colour by state of the art manufacturing process. The Integrated Community Bins are provided with two number of metal lifting trunions. Community bins are also provided with 2 window, one on length and the other on width side for manual emptying or cleaning work. Both the window must be with sliding doors.

Basic Qualities

- Compatible with any Refuse Collector
- Pilfer proof Lid Design
- Ideal replacement of Skids
- Easily accessible as Compact design
- Easy to use, handle & transport



Detail Specifications:

Application : For storage, handling and transfer of Solid waste at Secondary point

Capacity : 0.66 M3 (+/- 5%)

Special Feature :

The Galvanized bins should be fabricated from GI sheets with suitable forming for proper strength to the container.

2. The G.I sheets should be approximate 2 mm thickness (Subject to usual tolerance)
3. Reinforcement should be done at all corners and on internal sides of the bin for better strength.
4. The bin should have lifting trunnion made of metal compatible for being lifted by bin lifters of EN / DIN standard and handles for easy transportation. The trunnion areas should be strong enough to prevent wear & tear.
5. The bins should be designed to be lifted by compactors having universal bin lifters of DIN standards.
6. The details specification of material as below.

Wheels :

Type : 04 Nos. Swivel type Heavy Duty Wheels fabricated at bottom of MS structure as per below mentioned dimensional details.

Dia : 200 mm (+/- 5 mm)
 Width : 50 mm (+/- 5 mm)
 Material : HMHDPE
 Drawing : Enclosed herewith

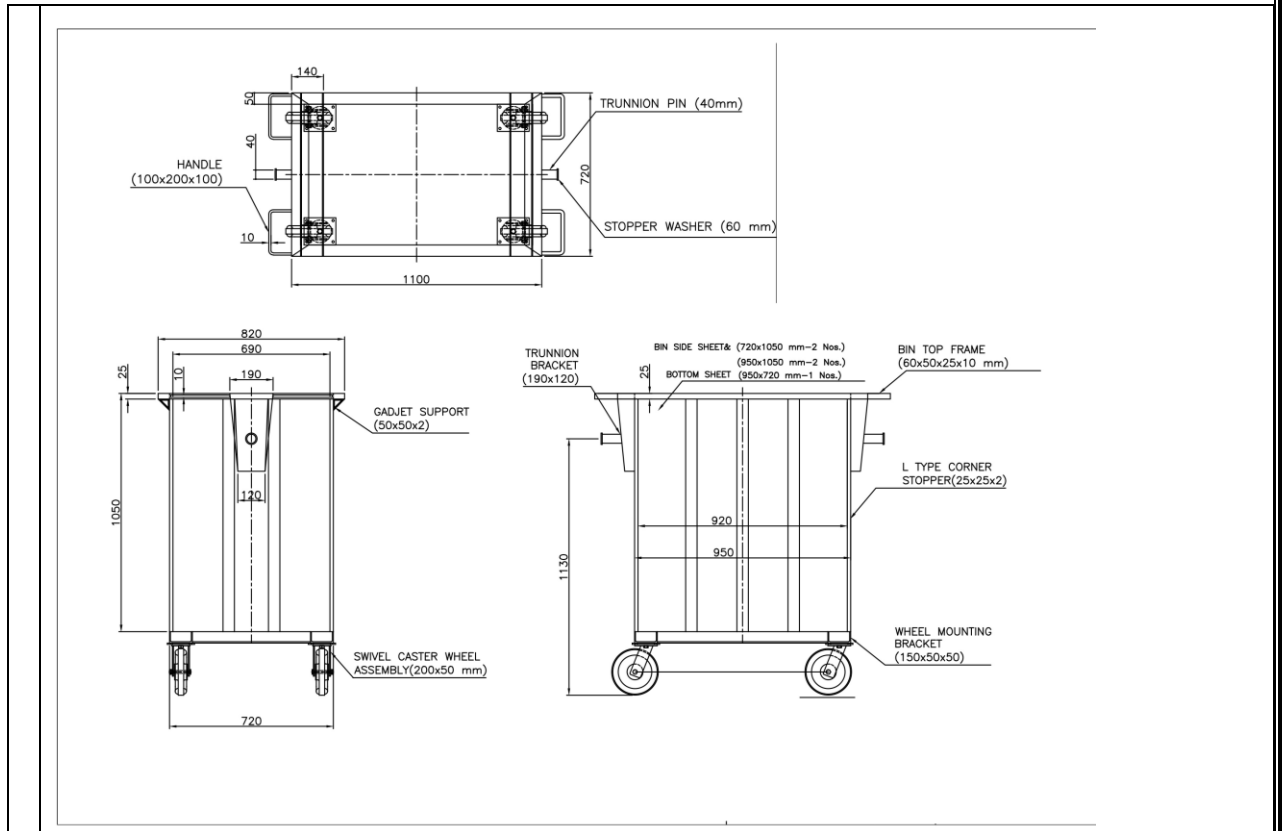
Material			
DESCRIPTION	QTY	MATERIAL	SPECIFICATION
Turnnion Pin	2	GI PIPE "C" Class	40 MM OD
Trunnion Braket	2	2mm GI	190x120 MM
Stopper Washer	2	4mm M S	60 MM
Bin side sheet & Bottom sheet	5	2mm GI	920mm length 720 mm width 1050 mm Height (without wheel)
Swivel caster wheel assembly	4	10 mm Bracket	200 x 50 MM HMHDPE swivel wheel
Wheel mounting bracket	4	4 mm MS	115x115x10mm
Handle	4	8mm Dia MS	130 x55 Flexible

Type : 04 Nos. Swivel type Heavy Duty Wheels fabricated at bottom of MS structure as per below mentioned dimensional details.

Dia : 200 mm (+/- 5 mm)
 Width : 50 mm (+/- 5 mm)
 Material : HMHDPE
 Drawing : Enclosed herewith

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution



19. GI HAND CART

Technical Specification of G.I Hand Cart

Technical Specifications for G.I Hand Cart/Wheel Borrow CAP. 85 Ltrs

Capacity :- Capacity of hand cart will be 85 ltrs .

Material- Material of construction should be as follows.

Steel sheet- Body sheet thickness will be 16 gauge G.I.

Construction of Body - The body will be constructed from a galvanized sheet of 16 Gauge, the joints properly secured through welding. M.S. angle of 35x35x5 will be run on the top face and M.S. angle 25x25x3 on curved face . The body will be fixed to the frame by welding. The body will be designed so that the centre of gravity aids the forward motion of the hand cart when in use, filled to its full capacity, with norm, inclination to the horizontal without causing spillage.

Chassis - The chassis frame will be made from ms angle of 35x35x5mm & 25x25x3 mm. It will have the provision of handles for lifting by rolling the same handles into round form and providing covers over it for safety. The chassis will also have 2 nos stand of adequate strength and length so that it can take load while the cart is standing and do not create problem while use.

Wheel:- Caster Rubber Wheels dia 10"x2" will be fitted with provision of having two bearing for smooth operation

Axel : - 1" round properly machined on both end for fitting of bearings.

Painting: - Body sheet will be painted in silver color and handle & supporting stand will be in

color black painted

Technical Specifications for G.I Hand Cart/Wheel Borrow CAP. 110 Ltrs

Capacity :- Capacity of hand cart will be 110 ltrs .

Material- Material of construction should be as follows.

Steel sheet- Body sheet thickness will be 16 gauge G.I.

Construction of Body - The body will be constructed from a galvanized sheet of 16 Gauge, the joints properly

secured through welding. M.S. angle of 35x35x5 will be run on the top face and M.S. angle 25x25x3 on curved

face . The body will be fixed to the frame by welding. The body will be designed so that the centre of gravity

aids the forward motion of the hand cart when in use, filled to its full capacity, with norm, inclination to the

horizontal without causing spillage.

Chassis -The chassis frame will be made from M.S.angle of 35x35x5mm & 25x25x3 mm. It will have the

provision of handles for lifting by rolling the same handles into round form and providing covers over it for

safety. The chassis will also have 2 nos stand of adequate strength and length so that it can take load while

the cart is standing and do not create problem while use.

Wheel:- Caster Rubber Wheels dia 10"x2" will be fitted with provision of having two bearing for smooth

operation

Axel : - 1" round properly machined on both end for fitting of bearings.

Painting: - Body sheet will be painted in silver color and handle & supporting stand will be in color black

painted

Technical Specifications for G.I Hand Cart/Wheel Borrow CAP. 140 Ltrs

Capacity :- Capacity of hand cart will be 140 ltrs .

Material- Material of construction should be as follows.

Steel sheet- Body sheet thickness will be 16 gauge G.I

Construction of Body - The body will be constructed from a galvanized sheet of 16 Gauge, the joints properly

secured through welding. M.S. angle of 35x35x5 will be run on the top face and M.S. angle 25x25x3 on curved

face . The body will be fixed to the frame by welding. The body will be designed so that the centre of gravity

aids the forward motion of the hand cart when in use, filled to its full capacity, with norm, inclination to the

horizontal without causing spillage.

Chassis -The chassis frame will be made from M.S. angle of 35x35x5mm & 25x25x3 mm. It will have the

provision of handles for lifting by rolling the same handles into round form and providing covers over it for

safety. The chassis will also have 2 nos stand of adequate strength and length so that it can take load while

the cart is standing and do not create problem while use.

Wheel:- Caster Rubber Wheels dia 12"x2" will be fitted with provision of having two bearing for smooth

operation

Axel : - 1" round properly machined on both end for fitting of bearings.

Painting: - Body sheet will be painted in silver color and handle & supporting stand will be in color black painted

Technical Specifications for Hand Cart/Wheel Borrow CAP. 240 Ltrs G.I

Capacity :- Capacity of hand cart will be 240 ltrs .

Material- Material of construction should be as follows.

Steel sheet- Body sheet thickness will be 16 gauge G.I.

Construction of Body - The body will be constructed from a galvanized sheet of 16 Gauge, the joints properly secured through welding. M.S. angle of 35x35x5 will be run on the top face and M.S. angle 25x25x3 on curved face . The body will be fixed to the frame by welding. The body will be designed so that the centre of gravity aids the forward motion of the hand cart when in use, filled to its full capacity, with norm, inclination to the horizontal without causing spillage.

Chassis -The chassis frame will be made from M.S. angle of 35x35x5mm & 25x25x3 mm. It will have the provision of handles for lifting by rolling the same handles into round form and providing covers over it for safety. The chassis will also have 2 nos stand of adequate strength and length so that it can take load while the cart is standing and do not create problem while use.

Wheel:- Rubber Wheels dia 20"x2" will be fitted with provision of having two bearing for smooth operation

Axel : - 1" round properly machined on both end for fitting of bearings. Painting: - Body sheet will be painted in silver color and handle & supporting stand will be in color black painted

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

20. Stainless Steel Single Pole Mounted Bins - 60/80/100 Litre

Technical Specification of Steel Single Pole Mounted Bins - 60 Litres.

General Specifications

Stainless Steel Single Pole Mounted Bins are elegantly designed Litter collecting bins, fabricated in Stainless Steel, hardening grades, possesses good corrosion resistance, toughness, high hardness and strength, smooth and sanitary, provided with fully openable Lid with flap arrangement. Must be fabricated with heavy duty stainless steel Permanent Structure having no resale value; which is fabricated with plate at Bottom which is to be grouted in the ground ; ideal for Road Side collection and Storage of Raw Garbage to satisfy critical needs of Solid Waste Management.

Basic Qualities

Fabricated from Stainless Steel.

100 % Rust Free and Maintenance free.

Safe in handling as No corrosion, cracking, blistering etc. Elegant.

Easy to handle.

Hygienic and Easy to clean

Strong and Durable

Detail Specifications :

- Application : For Litter collection at Road sides / Community areas. Capacity : 60 Litres.
- Material : fabricated in Stainless Steel, hardening grades, possesses good corrosion resistance, toughness, high hardness and strength, smooth and sanitary,
- Dimensions : (Litter Bin)
: Top : Should not less than 335 x 335 mm Bottom : Should not less than 240 x 240 mm Height : Should not less than 800.
(+/- 5 %)
- Dimensions : (Stainless Steel Structure)
: Width : Should not less than 450 mm
Height : Should not less than 1270 mm Bottom Plate : Should not less than 100 x 100 mm
fabricated at bottom
- Section : Section must be square in shape and moulded from heavy duty Stainless Steel Materials
Square : Should not less than 30 MM O.D.
(Tolerance + / - 5 %)
- Design : Oscillating arrangement for easy unloading of Garbage.
Specially moulded projections for extra strength
Rough & Tough.
User friendly design without sharp corners or welds.
- Lid : Fully openable lid with flap arrangement, open from either side for easy garbage drop.
- Colour : Military Green
- Durability : Reusable, Washable, absolutely smooth and sanitary to satisfy the critical needs of SWM
- Printing : Shall be printed as per client's requirement. Drawing : Enclosed herewith.

GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

Technical Specifications of Steel Single Pole Mounted Bins Single Pole Mounted Bin 80 Litres.

General Specifications:

Stainless Steel Single Pole Mounted Bins are elegantly designed Litter collecting bins, fabricated in Stainless Steel, hardening grades, possesses good corrosion resistance, toughness, high hardness and strength, smooth and sanitary, provided with fully openable Lid with flap arrangement. Must be fabricated with heavy duty stainless steel Permanent Structure having no resale value; which is fabricated with plate at Bottom which is to be grouted in the ground ; ideal for Road Side collection and Storage of Raw Garbage to satisfy critical needs of Solid Waste Management

Basic Qualities

Fabricated from Stainless Steel.

100 % Rust Free and Maintenance free.

Safe in handling as No corrosion, cracking, blistering etc. Elegant.

Easy to handle.

Hygienic and Easy to clean

Strong and Durable

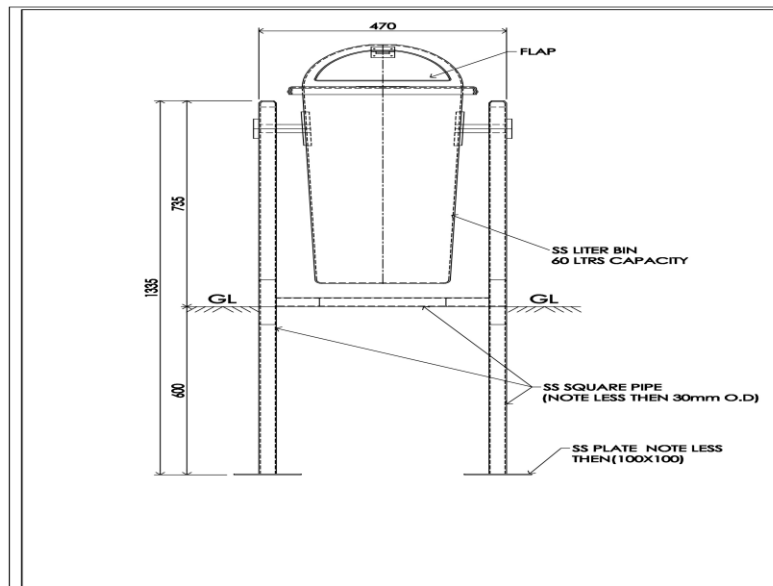
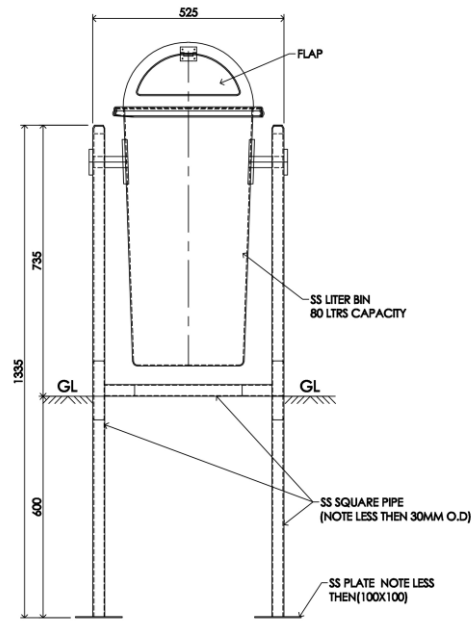
Detail Specifications :

Application : For Litter collection at Road sides / Community areas.
Capacity : 80 Litres.

Material : fabricated in Stainless Steel, hardening grades, possesses good corrosion resistance, toughness, high hardness and strength, smooth and sanitary,

Dimensions : (Litter Bin)
: Top : Should not less than 380 x 380 mm
: Bottom : Should not less than 285 x 285 mm
Height : Should not less than 830.

Dimensions : (Stainless Steel Structure)
: Width : Should not less than 500 mm Height : Should not less than 1270 mm
Bottom Plate : Should not less than 100 x 100mm fabricated at bottom



Technical Specifications of SS Single Pole Mounted Bin – 100 Litre

General Specifications:

Stainless Steel Single Pole Mounted Bins are elegantly designed Litter collecting bins, fabricated in Stainless Steel, hardening grades, possesses good corrosion resistance, toughness, high hardness and strength, smooth and sanitary, provided with fully openable Lid with flap arrangement. Must be fabricated with heavy duty stainless steel Permanent Structure having no resale value; which is fabricated with plate at Bottom which is to be grouted in the ground ; ideal for Road Side collection and Storage of Raw Garbage to satisfy critical needs of Solid Waste Management.

Basic Qualities

Fabricated from Stainless Steel.

100 % Rust Free and Maintenance free.

Safe in handling as No corrosion, cracking, blistering etc. Elegant.

Easy to handle.,Hygienic and Easy to clean, Strong and Durable

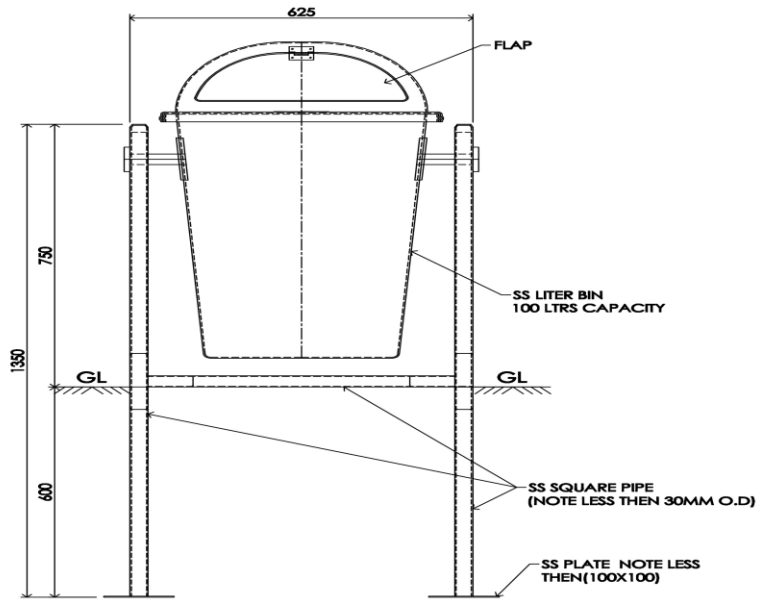
Detail Specifications :

Application : For Litter collection at Road sides / Community areas.
Capacity : 100 Litres.

Material : fabricated in Stainless Steel, hardening grades, possesses good corrosion resistance, toughness, high hardness and strength, smooth and sanitary,

Dimensions : (Litter Bin)
: Top : Should not less than 475 x 475 mm
: Bottom : Should not less than 335 x 335 mm
: Height : Should not less than 850.
(+/- 5 %)

Dimensions : (Stainless Steel Structure)
: Width : Should not less than 600 mm
: Height : Should not less than 1285 mm
Bottom Plate : Should not less than 100 x 100 mm
fabricated at bottom
(+/- 5 %)



21. Plastic Secondary Storage Bins 1100 Litre

Technical Specifications :Plastic Secondary Storage Bins 1100 Litre

General Specifications: Plastic Secondary Storage Bins 1100 Litre

– Community Bins are elegantly designed, one piece moulded Integrated community bins of 1100 Litres capacity manufactured from special grades of Polyethylene material compatible with Refuse Collector provided with 4 Heavy Duty Wheels and unique fully open able pilfer proof Twin Cover in green & blue colours by state of the art Rotational Moulding process for strength and corrosion free life; they are provided with Reflectors on four sides.

Basic Qualities :The bins should have following features:

- Compatible with any Refuse Collector
- Pilfer proof Twin Lid Design
- Ideal replacement of Skids
- Easily accessible as Compact design
- 100% hygienic & easy to clean
- Easy to use, handle & transport
- Virtually maintenance free
- One piece moulded and strong

Detail Specifications :

Application : For storage, handling and transfer Solid waste at Secondary point. Capacity : 1100 Litres

Dimensions: (Container)

Overall Dimensions (MM)		
Top	Bottom	Height
1450 x 1020	1330 x	950 mm (Without Wheels)
		(+/- 5 %)

Dimensions: (Lid)

Overall Dimensions (MM) (+/- 5 %)		
Length	Width	Height
703	995	115
475	370	770

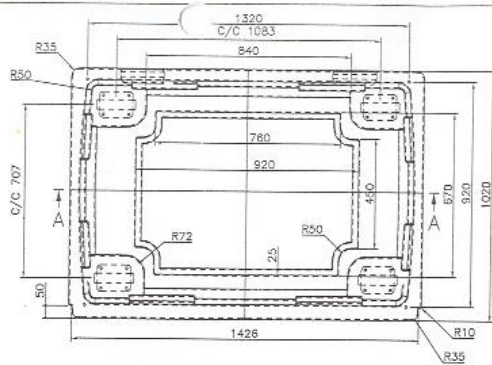
Special Feature : Both parts of Lid are fully open able

Container & Lid :

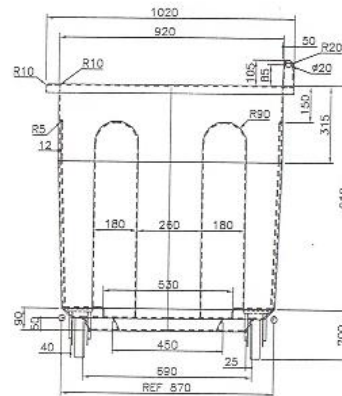
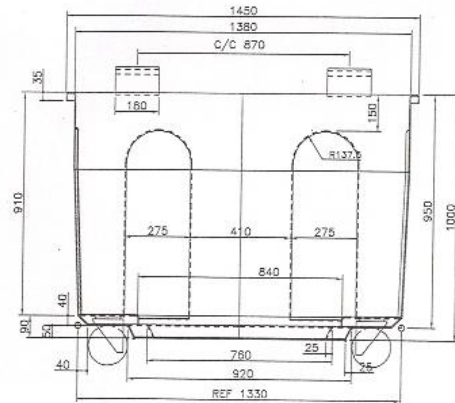
- Thickness : Overall Average 6 mm (+/- 1 mm)
- Weight : Approx. 46 Kgs (+/- 1 Kg)
- Colour : Green for Bio Degradable Waste
Blue for Non Bio Degradable Waste
- Colour : Green for Bio Degradable Waste
Blue for Non Bio Degradable Waste

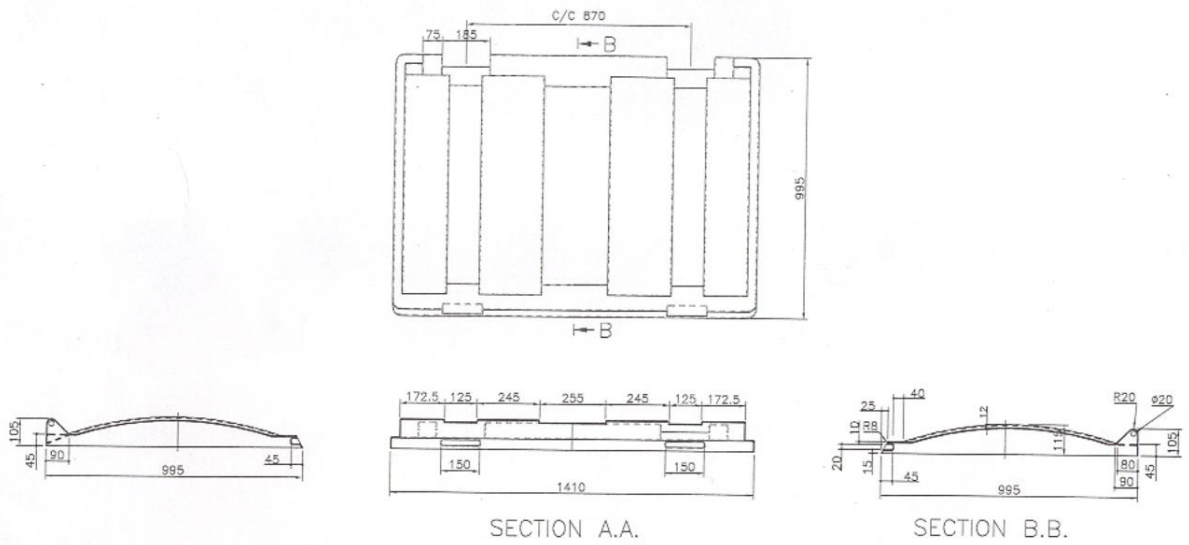
Material Specifications :

- Name : Special Grade of Polyethylene material, absolutely Non-toxic, free from any contamination, chemical resistant and UV stabilized as below
- Density : 0.932 to 0.943 Gms. / CC as per guidelines of IS 7328 – 1992 (For Bin Container only; Not for Raw Material)
- Melt Flow : 2 to 6 Gms / 10 Mins as per IS 2530 - 1963Rate
- Colour : As per guidelines of IS 2454 : 1985



Plastic Secondary Storage Bins 1100 Litre
DRAWING





GAD & QAP

The bidder should provide GAD & QAP of the good /equipment proposed with the bid and the selected bidder would be required to submit the GAD& QAP for approval of the purchaser at the time of contact execution

22. Plastic Secondary Storage Bins 660 Litre

Technical Specifications :Plastic Secondary Storage Bins 660 Litre

General Specifications: Plastic Secondary Storage Bins 660 Litre

Community Bins are elegantly designed, one piece moulded Integrated community bins of 1100 Litres capacity manufactured from special grades of Polyethylene material compatible with Refuse Collector provided with 4 Heavy Duty Wheels and unique fully open able pilfer proof Twin Cover in green & blue colours by state of the art Rotational Moulding process for strength and corrosion free life; they are provided with Reflectors on four sides.

Basic Qualities :The bins should have following features:

- Compatible with any Refuse Collector
- Pilfer proof Twin Lid Design
- Ideal replacement of Skids
- Easily accessible as Compact design
- 100% hygienic & easy to clean
- Easy to use, handle & transport
- Virtually maintenance free
- One piece moulded and strong

Detail Specifications :

Application : For storage, handling and transfer Solid waste at Secondary point. Capacity : 630 Litres

Dimensions: (Container)

Dimensions: (Lid)

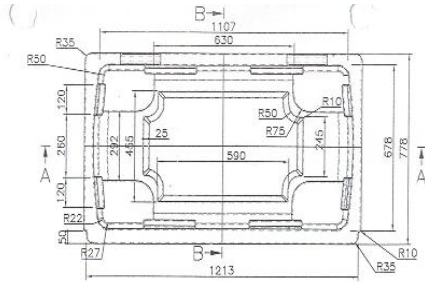
Overall Dimensions (MM)		
Top	Bottom	Height
1237 x 778	1117 x	870 mm (Without Wheels)

Special Feature : Both parts of Lid are fully open able

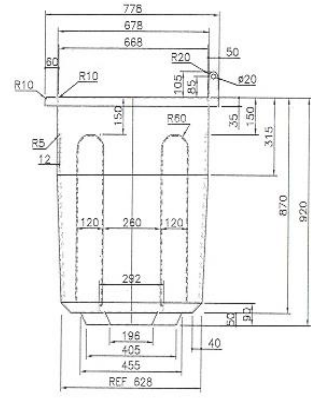
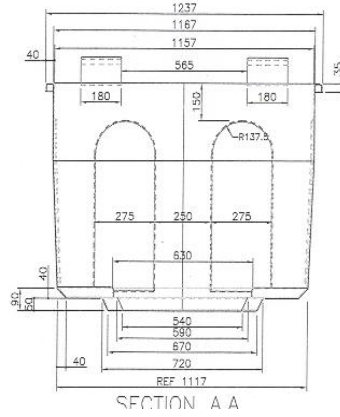
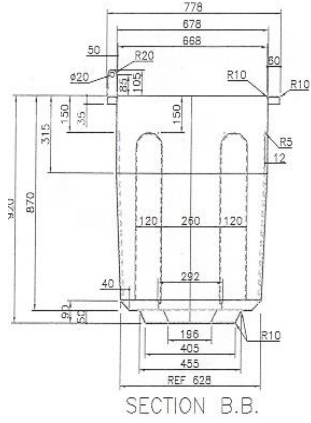
Colour : Blue / Green for Container and Lid

Locking : Locking arrangements can be optionally provided. Printing : Shall be provided as per the requirement

Drawing : Enclosed herewith



SAMPLE DRAWING 660I



23. Plastic Hand Cart – 85 Ltr./110 Ltr./140 Ltr./240 Ltr.

General Specifications For Plastic Hand Cart – 85 Ltr.

Heavy Duty Wheel Barrows are moulded in one tough piece by state of the art Rotational Moulding process manufactured from Virgin Grade of Polyethylene material confirming to the requirement of IS 10146 – 1982; Non toxic, free from any contamination, chemical resistant, blended with stabilizers, Anti Corrosive and Anti Acidic, absolutely smooth and sanitary, chemical resistant, blended with stabilizers and free from joints, welds or rims, with Heavy duty M.S. Jacket (Structure) fabricated from M.S. Angles and Flats duly coated with proper Anti Corrosive powder coating; provided with two ergonomic handles and two Heavy Duty Rubber Wheels; designed specially for Semi Urban and Rural areas to store and handle Raw Garbage to satisfy critical needs of Solid Waste Management.

Basic Qualities:

Moulded from special UV Stabilized grades of Polyethylene
100% Rust free and maintenance free.

Safe in handling as No Corrosion, cracking, blistering
etc. Colourful and Elegant.

Light weight and easy to
handle. Hygienic and Easy to
clean. Strong and Durable.

Photograph:



Detail Specifications:

Application : Door to Door collection and transportation of segregated garbage from house holds / offices / shops etc.

Capacity : Water capacity should not less than 85 ltrs.

Material : Virgin grade of Polyethylene material, absolutely non-toxic, free from any contamination, chemical resistant confirming to the requirement of IS 10146 – 1982.

Dimensions:

Top : Should not be less than 750x750 mm. (Outside)
Bottom : Should not be less than 600x600 mm. (Outside)
Height : Should not be less than 600 mm up to wheels
(Tolerance +/- 5 %)

Design : Specially Moulded Ribs on all sides for Strength
Moulded rounded projections on sides
User friendly design without sharp corners or welds.
Ergonomic Handles

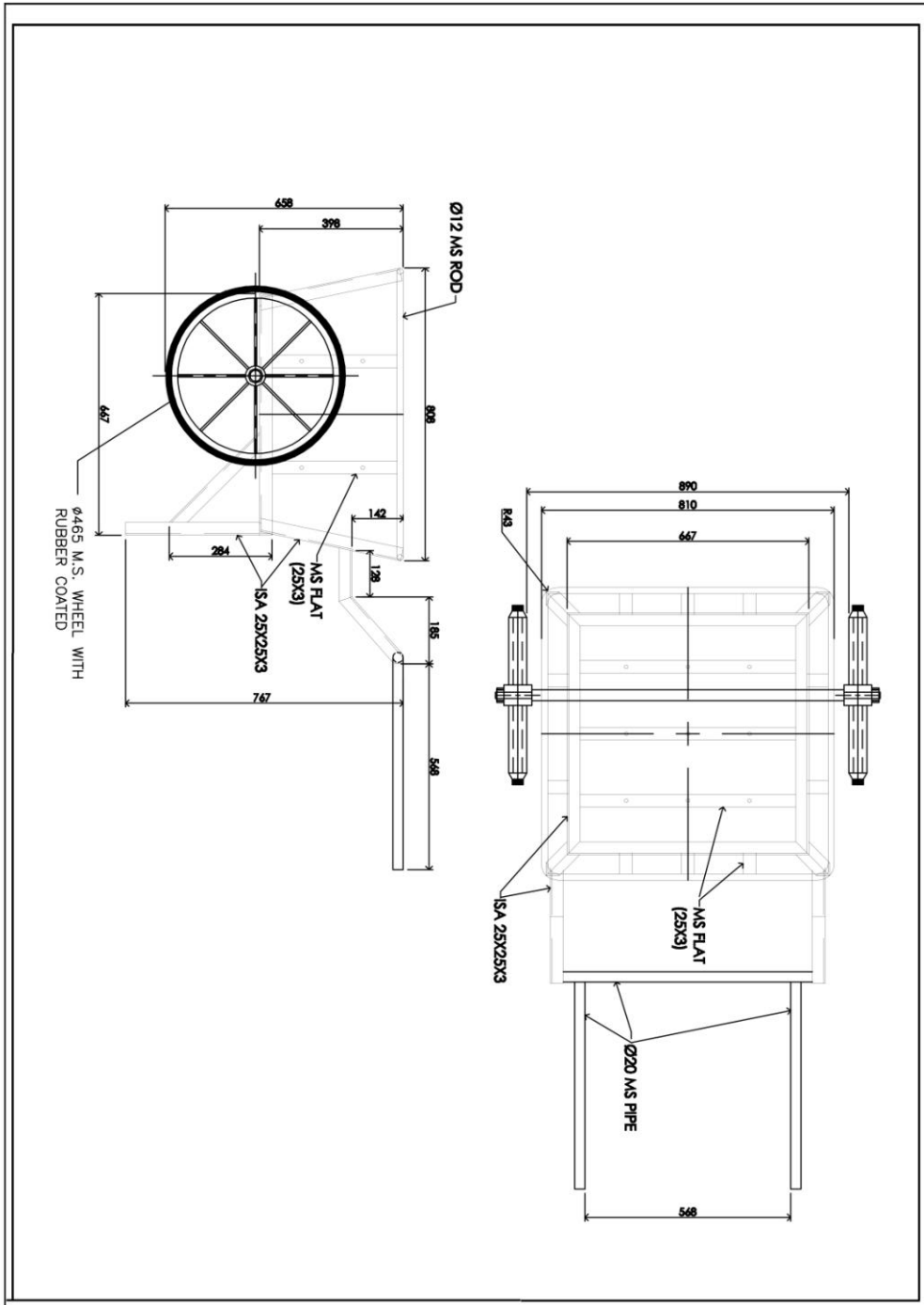
Wheels : Two No. of Strong & Sturdy MS Wheels to resist heavy impact loads and move smooth on patchy Roads of approx. 465 mm Dia fabricated out of MS with Rubber quoted (+/- 5%) Tolerance.

Colour : Blue / Green

Durability : Reusable, Washable, absolutely smooth and sanitary to satisfy the critical needs of SWM

Printing : Shall be printed as per client's requirement.

Drawing : Enclosed herewith.



General Specifications For Plastic Hand Cart - 140 Ltr.

Heavy Duty Wheel Barrows are moulded in one tough piece by state of the art Rotational Moulding process manufactured from Virgin Grade of Polyethylene material confirming to the requirement of IS 10146 - 1982; Non toxic, free from any contamination, chemical resistant, blended with stabilizers, Anti Corrosive and Anti Acidic, absolutely smooth and sanitary, chemical resistant, blended with stabilizers and free from joints, welds or rims, with Heavy duty M.S. Jacket (Structure) fabricated from M.S. Angles and Flats duly coated with proper Anti Corrosive powder coating; provided with two ergonomic handles and two Heavy Duty Rubber Wheels; designed specially for Semi Urban and Rural areas to store and handle Raw Garbage to satisfy critical needs of Solid Waste Management.

Basic Qualities:

Moulded from special UV Stabilized grades of Polyethylene
100% Rust free and maintenance free.

Safe in handling as No Corrosion, cracking, blistering
etc. Colourful and Elegant.

Light weight and easy to
handle. Hygienic and Easy to
clean. Strong and Durable.

Photograph:



Detail Specifications:

- Application : Door to Door collection and transportation of segregated garbage from house holds / offices / shops etc.
- Capacity : Waste Containers can carry minimum of 75 to 90 Kgs. of Garbage.
- Material : Virgin grade of Polyethylene material, absolutely non-toxic, free from any contamination, chemical resistant confirming to the requirement of IS 10146 - 1982.

Dimensions:

Top : Should not be less than 800x500 mm. (Outside)
Bottom : Should not be less than 600x300 mm. (Outside)
Height : Should not be less than 400 mm.
(Tolerance +/- 5 %)

Design : Specially Moulded Ribs on all sides for Strength
Moulded rounded projections on sides
User friendly design without sharp corners or welds.
Ergonomic Handles

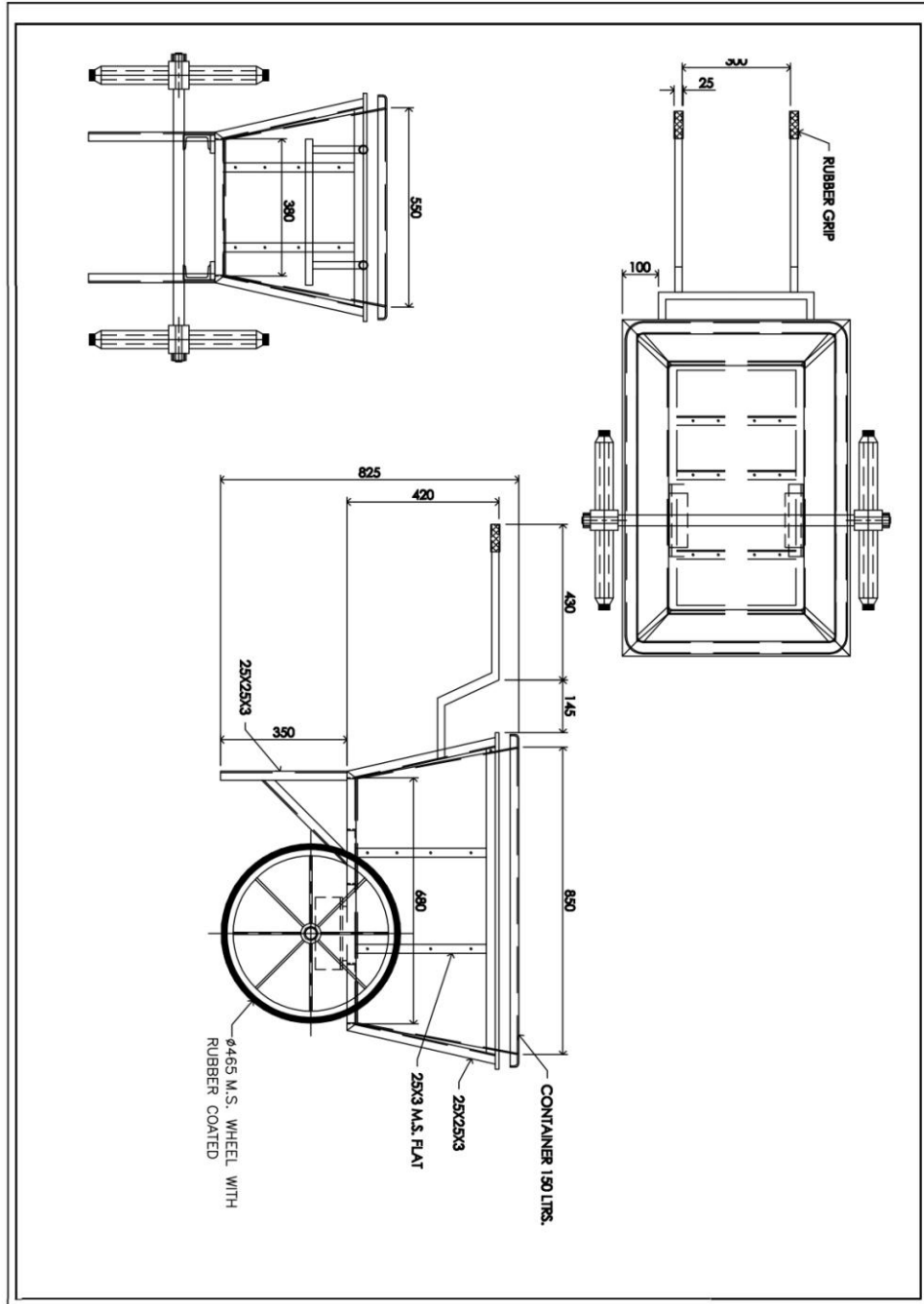
Wheels : Two No. of Strong & Sturdy MS Wheels to resist heavy impact loads and move smooth on patchy Roads of approx. 465 mm Dia fabricated out of MS with Rubber quoted (+/- 5%) Tolerance.

Colour : Blue / Green

Durability : Reusable, Washable, absolutely smooth and sanitary to satisfy the critical needs of SWM

Printing : Shall be printed as per client's requirement.

Drawing : Enclosed herewith.



General Specifications For Plastic Hand Cart - 240 Ltr.

Heavy Duty Wheel Barrows are moulded in one tough piece by state of the art Rotational Moulding process manufactured from Virgin Grade of Polyethylene material confirming to the requirement of IS 10146 - 1982; Non toxic, free from any contamination, chemical resistant, blended with stabilizers, Anti Corrosive and Anti Acidic, absolutely smooth and sanitary, chemical resistant, blended with stabilizers and free from joints, welds or rims, with Heavy duty M.S. Jacket (Structure) fabricated from M.S. Angles and Flats duly coated with proper Anti Corrosive powder coating; provided with two ergonomic handles and two Heavy Duty Rubber Wheels; designed specially for Semi Urban and Rural areas to store and handle Raw Garbage to satisfy critical needs of Solid Waste Management.

Basic Qualities:

Moulded from special UV Stabilized grades of Polyethylene
100% Rust free and maintenance free.

Safe in handling as No Corrosion, cracking, blistering
etc. Colourful and Elegant.

Light weight and easy to
handle. Hygienic and Easy to
clean. Strong and Durable.

Photograph:



Detail Specifications:

Application : Door to Door collection and transportation of segregated garbage from house holds / offices / shops etc.

Capacity : Water capacity should not less than 240 ltrs.

Material : Virgin grade of Polyethylene material, absolutely non-toxic, free from any contamination, chemical resistant confirming to the requirement of IS 10146 - 1982.

Dimensions:

Top : Should not be less than 1100x800 mm. (Outside)
Bottom : Should not be less than 700x400 mm. (Outside)
Height : Should not be less than 650 mm up to wheels
(Tolerance +/- 5 %)

Design : Specially Moulded Ribs on all sides for Strength
Moulded rounded projections on sides
User friendly design without sharp corners or welds.
Ergonomic Handles

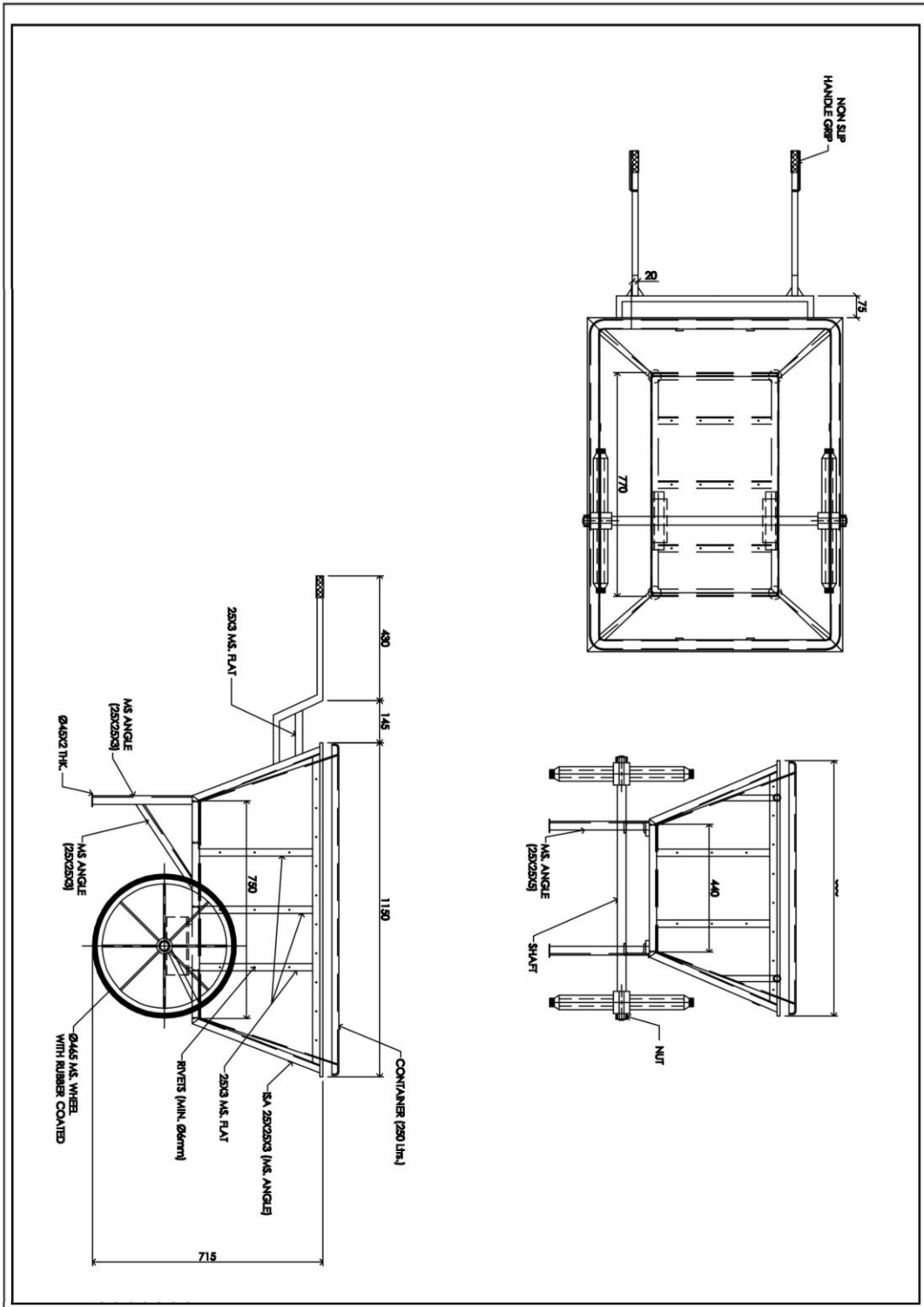
Wheels : Two No. of Strong & Sturdy MS Wheels to resist heavy impact loads and move smooth on patchy Roads of approx. 465 mm Dia fabricated out of MS with Rubber quoted (+/- 5%) Tolerance.

Colour : Blue / Green

Durability : Reusable, Washable, absolutely smooth and sanitary to satisfy the critical needs of SWM

Printing : Shall be printed as per client's requirement.

Drawing : Enclosed herewith.



24. Tractor (14 HP/25 HP /39 HP/47.5 HP)

Technical Specifications

The technical specifications of the equipment required by the purchaser are indicated in preceding paragraph. The Bidders shall complete the technical specifications for the Goods offered in their entirety so as to demonstrate their compliance with the requirements of the bidding documents

General:

Tractor, trolley and water tankers shall be used for day to day multi activities by the municipal authority.

Tractor

General:

The Tractor should be rugged and durable, and designed for ease of manoeuvrability and proper distribution of tractor, and axle induced stresses. The frame/chassis should be either fully welded or rigidly bolted to achieve this, in accordance with the manufacturer's standard procedures. It should be suitable for working under adverse site conditions, and the power train should be designed for this purpose.

Basic Specification:

- a) Type: tractor complete with trolley attachment provision.
- b) Structure: Rugged, fully welded, durable and designed for durability and proper distribution of induced stresses.
- c) Engine: Minimum Euro 2, fuel efficient, Turbo charged, 4 stroke OHV direct injection diesel engine. Minimum Gross Horsepower Rating : at manufacturer's rated RPM.
- d) Cylinder: Minimum three cylinders vertical in line – 3 Cylinder DI Engine with Integral cylinder head.
- e) Fuel Injection: In line fuel injection pump with variable speed mechanical governor.-
Mechanical.
- f) Fuel System : Gravity and forced feed, Fuel tank capacity not less than 30 liters and fuel filtration should be dual stage.
- g) Air Cleaner: should be of oil bath type with cyclone type transparent pre-cleaner.
- h) Lubrication: Forced feed and splash type with full flow filter paper element
- i) Cooling: Impeller type water pump, fan and radiator, forced feed water circulation.
- j) Compression Ratio: More than
- k) Transmission : 8 forward and 2 reverse gears
- l) Clutch: Single/Double plate dry friction type
- m) Gear: 4 forward and 1 reverse

- m) Steering: Worm and nut type with re-circulating balls
- n) Brakes : Shoe/Disk Type, Emergency brakes: hand brake with parking latch
- o) Electric System : Voltage: 12 volts, Battery capacity: 12 volts, 60 Amps/hr @ 5 hr rating, Alternator capacity: minimum 12 volts 13 Amp, Head lights: 2 nos. 12 V -36 W, Brake light: 2, nos. 12 V-21, Rear light: (Plough lamp) -01
- p) Instrument Panel: it should have tachometer and hour meter, water temperature gauge, oil pressure gauge, ampere meter, fuel gauge, high beam indicator, left and right turn indicators, hazard warning switch, hand and foot accelerator etc.
- q) Seat: longitudinal adjustable with back rest and hydraulic shock absorber.
- r) Wheel and Tyres: No. of wheels: Front: 2, Rear: 2.
- s) Hydraulics: Hydraulic system with ADDC, single acting cylinder position and mixed Control, provision for external circuit for double acting cylinders.
- t) Painting: Paint process and paint should be superior quality to ensure long lasting structure resistant to rust, weathering and breakage. The bidder should get the colouring paint/ name & slogan writing approved from the purchaser.
- u) After Sales Support:
- Free service in the first year with a warranty for the machine for 1 year from the date of Commissioning.
 - To demonstrate capabilities of giving proper service and spaces after the expiry of warranty period.
 - Should be capable of proposing maintenance contract for subsequent years at respective ULBs.

The Manufacturer/Supplier should provide following with each vehicle:

- (a) Manufacturer's standard tools for maintenance with lockable security box.
- (b) Operator's manual
- (c) Workshop and service manual
- (d) Spare parts catalogue
- (e) Technical details, drawing and operation manual
- (f) Warranty card for one year
- (i) Battery warranty card for 1 year.

Warning System and Essential Accessories:

- (a) Digital Hour mete
- (c) Fuel gauge
- (d) water temperature gauge
- (e) Engine oil pressure gauge with warning light
- (f) Ammeter supported with warning light
- (g) Horn- 2 pieces

- (h) External rear view mirrors
- (l) Radiator protection grill
- (j) Head and tail lights, cabin lights, reversing light and traffic indicator
- (k) Spare wheel with tyre and inner tube
- (l) Jack and wheel wrench
- (m) Anti-theft steering lock
- (p) Speedometer

The following genuine obligatory spares to be supplied along with each equipment:

- Oil Filter - 3 no.
- Diesel Filter Primary - 3 no.
- Diesel Filter Secondary - 3 no.
- Hub, Packing - 4 no.
- Rear Wheel Oil seal - 4 no.
- Split Pin - 4 no.
- Fuse - 3 no.
- Bulb - 2 no.
- Wheel Nut - 4 no.
- Tapper covers packing -2 no.
- Air cleaner rubber - 2 no.
- F.I.P. packing - 1no.
- Air Breather - 1no.
- Gaskit elbow -1no.

Specification	11-14 HP	25-27 HP	37-40 HP	47-50HP
Engine Cylinders	1 Cylinder	2 Cylinder	3 Cylinder	4 Cylinder
Clutch	Single	Single	Single	Dual
Brake	Dry Disc	Dry Disc	Dry Disc	Dry Disc
Steering	Mechanical	Mechanical	Mechanical	Power Steering
No. of Gears	8 Front, 2 Revers	8 Front, 2 Revers	8 Front, 2 Revers	8 Front, 2 Revers
Front Tyre	5.20x14	6.00x16	6.00x16	7.50x16
Rear Tyre	8.00x18	12.4x28	13.6x28	16.9x28
Hyd. Lift Capacity	500 Kg	1200 Kg	1200 Kg	1600 Kg

Drawings:

The bidder should provide drawings of the Goods/Equipment proposed with the bid and the selected bidder should submit the working drawing for approval of the Purchaser during Contract execution.

