AGREEMENT

This OPERATION AND SERVICES AGREEMENT (Hereinafter called the **"AGREEMENT")** is made and entered into this **3rd day of November, 2011** by and between **M/S LAHORE WASTE MANAGEMENT COMPANY,** a Company duly registered under Section 42 of the Companies Ordinance, 1984 having its registered office at Shaheen Complex, Egerton Road, Lahore. (Hereinafter referred to as the **"CLIENT"**, which expression shall, where the context permits, include its successors-in-interest and permitted assigns),

AND

M/S GUNES AL BAYARK TURIZM SEYEHAT SANAYI VE TICARET A.S having its registered office at ***Cayhane Sokak No. 1 Topkapi - Istanbul/ Turkey*** (Hereinafter referred to as the **"CONTRACTOR"**, which expression shall, where the context permits, include its successors-in-interest and permitted assigns).

WHEREAS, the Client intends to hire the services of Contractor for **Solid Waste Collection and Transportation, Mechanical Sweeping and Manual Sweeping, Mechanical Washing within the Borders of Zone-I of Lahore City** (Hereinafter referred to as **"PROJECT"**) and the Contractor is willing to provide such services subject to and in accordance with the terms and conditions of this Agreement;

NOW, THEREFORE, based upon the principles of mutual benefit, the parties agree, through negotiations, as follows:

NOW, THEREFORE, based upon the principles of mutual benefit, the parties agree, through negotiations, as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents after incorporating addenda, if any except those parts relating to Instructions to Contractors shall be deemed to form and be read and construed as part of this Agreement, viz:

   (a) The Letter of Award;
   (b) The Contract Agreement;
   (c) The completed Form of Bid;
   (d) Conditions of Contract;
   (e) The priced Schedule of Prices;
   (f) Completed Appendices to Bid
   (g) Technical Specifications & Appendix 1 to 33


ACCRA METROPOLITAN
DISTRICT GOVERNMENT

IN WITNESS WHEREOF, the Parties have, through their authorized representatives, executed and entered into this Agreement on this 3rd day of November, 2011;

For and on Behalf of Client,
WASEEM AJMAL CH.
MANAGING DIRECTOR
Lahore Waste Management Company

For and on Behalf of Contractor,
BÜNYAMİN KARACA,
GENERAL COORDİNATOR,
Gunes Al Bayark Turizm Seyehat Sanayi Ve Ticaret A.S

WITNESSES:

For and on Behalf of Client,
KHAWAJA AHMAD HASSAN
CHAIRMAN
Lahore Waste Management Company

For and on Behalf of Contractor,
AHMET ALBAYRAK
CHAIRMAN
Gunes Al Bayark Turizm Seyehat Sanayi Ve Ticaret A.S

Dated: 03/11/2011

Lahore Waste Management Company

CLEAN LAHORE

CONTRACT DOCUMENT

For

AGREEMENT FOR SOLID WASTE COLLECTION & TRANSPORTATION, MECHANICAL SWEEPING & MANUAL SWEEPING AND MECHANICAL WASHING WITHIN THE BORDERS OF ZONE-I OF LAHORE CITY

LAHORE WASTE MANAGEMENT COMPANY
Office No. 4-5, 4th Floor, Shaheen Complex,
Egerton Road, Lahore, Pakistan.

This document consist of 31 pages.

Lahore Waste Management Company

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Lahore Waste Management Company

ARTICLE 1 – PARTIES TO THE AGREEMENT

This Agreement is entered into by and between LAHORE WASTE MANAGEMENT COMPANY (hereinafter referred to as "the Client") on one hand and..... (hereinafter referred as "the Contractor") on the other hand, under the following terms and conditions.

ARTICLE 2 – INFORMATION OF PARTIES

2.1. The Client;

a) Name: Lahore Waste Management Company.
b) Address: Office# 4-5, 4th floor, Shaheen Complex, Egerton Road, Lahore, Pakistan
c) Telephone Number: **+92 42 99215158**
d) Fax Number: **+92 42 99215156**
e) Electronic Mail Address (if any): **procurement@lwmc.com.pk, mdlwmc@gmail.com**
f) Website: **www.lwmc.com.pk**

2.2. The Contractor;

a) Full Name:
.....
b) Notification Address:
.....
c) Telephone Number:
.....
d) Notification Fax Number:
.....
e) Notification Electronic Mail Address (if any):
.....

2.3. All notices and other communications (collectively "Notices") required or permitted under this Agreement shall be in writing and given to each party at its address or fax number set forth in clause or at such other address or fax number as hereafter specified in accordnce with this section. Change of address, if any, shall be duly notified by the relavant party. Any notice sent to the most recently notified address shall be deemed sent to the respective party unless it has duly notified the other party of its changed address.

All Notices shall be

(i) Delivered personally, or
(ii) Sent by fax, electronic mail, telegraph, registered or certified mail (return receipt requested and postage prepaid), or

(iii) Sent by a nationally recognized overnight courier service. Notices shall be deemed to have been given:

(A) when transmitted if sent by fax, electronic mail, or telegraph (provided the transmittal is confirmed), or

(B) Upon receipt by the intended recipient if given by any other means.

Notices shall be sent to the addresses mentioned in clause 2.1 & 2.2.

ARTICLE 3 – LANGUAGE OF THE AGREEMENT

This Agreement is issued in English.

ARTICLE 4 – DEFINITION OF THE WORK

4.1. The work required to be performed under this Agreement: Everyday task includes collection of solid waste which is an average 2700 metric tons from Lahore city within borders of Zone-I and its transportation to the disposal sites, mechanical sweeping of approximately 1,200,000 m^2 area with vacuum cleaning vehicles, washing of approximately 13,000 m^2 area along with squares and sidewalks and manual sweeping of the area which is within the borders of the Zone-I and includes other works related to city cleaning. Administration guarantees that the total waste amount for the zone 1 is 6.000.000 tones for 7 years.

The technical specifications and other details of the work are provided in the annexed documents constituting the tender documentation.

ARTICLE 5 – TYPE OF THE AGREEMENT AND THE CONTRACT PRICE

This Agreement is of a unit price contract and made for the price ..... (in figure) ..... (in words), the sum of the amounts are calculated by means of multiplying the amount of each work item as indicated in the list prepared by the Client with the unit price quoted by the Contractor for that work item. The payment for each work performed shall be based on the unit price quoted by the Contractor in the quotation used for the determination of the contract price, and the payment for each work not included in the quotation shall be based on the unit price as determined by the parties.

Item No	Name and short description of the item	Unit	Quantity	Offered Unit Price ($)	Total Price ($)
	Collection of domestic wastes with underground and/or aboveground containers and transferring of them to the approved disposal site by using specifically equipped collection vehicles. *Details of the container collection service are further defined in the Technical Specifications Document (Section 2.2).*	Ton	3.500.000	13.4	46,896,255

	Collection of wastes with other vehicles and methods (Door-to-Door Collection) and transferring of them to the approved disposal site. *Details of "Door-to-Door Collection" service are further defined in the Technical Specifications Document (Section 2.3).*	Ton	3.500.000	15.80	55,302,188
	Sweeping of concrete and any kinds of asphalt and non-asphalt roads with vacuum or band-type mechanic vehicles. *Details of the "Mechanical Sweeping" service are further defined in the Technical Specifications Document (Section 3.3).*	ha *(1ha=10000m2)*	316.000*	43.82	13,847,246
	Washing of concrete and any kinds of asphalt and non-asphalt roads, market places with mechanical vehicles by using pressure water. *Details of the "Mechanical Washing" service are further defined in the Technical Specifications Document (Section 3.4).*	Team.Day	20.000*	294.95	5,898,900
	Sweeping and cleaning, etc. of Squares, Parks, Streets and roads. *Details of the "Manual Sweeping" service are further defined in the Technical Specifications Document (Section 3.2).*	Team.Day	593.000*	25.37	15,041,605
	The management and Client cost of 3886 employees (operators to workers and sweepers) for 84 months	Worker.month	359.000*	25.11	9,015,373
Total Amount (Excluding "Witholding Income Tax")					146,001,567

ARTICLE 6 – EXPENSES INCLUDED IN THE CONTRACT PRICE

6.1. Regarding the performance of the work subject to the tender, any and all insurance expenses related with the fuel, managerial staff, spare parts, maintenance-repair, depreciation, transportation, vehicles and equipments as well as costs of transportation, cleaning supplies (trolleys, bags, sweeper etc.) in connection with the performance of work under the tender, are included in the bid price. Also the management costs of the employees to be employed in the work of the tender, and whose personal rights pertaining to the Client are included in the bid price.

6.2. Pursuant to the laws of Pakistan, all payable taxes required to be paid by the Contractor are included in the bid price except withholding income tax. Amount of taxes will be adjustable subject to the provision of payment.

ARTICLE 7 – ANNEXES TO THE AGREEMENT

7.1. The tender documents as annexed to this Agreement are an integral part of this Agreement, and shall be binding upon the Client and the Contractor. However, in case of any

conflict and discrepancy between the provisions of this Agreement and the documents constituting the tender documentation, the provisions of the tender documentation shall prevail.

7.2. The order of priority among the documents constituting the tender documentation shall be as follows:

1) Administrative Specifications
2) Draft Agreement
3) Technical Specifications

ARTICLE 8 – TERM OF THE AGREEMENT

8.1. The term of the Agreement shall be for a period of **84** months after the commencement date of the work.

8.2. The calculation of the periods used herein shall be based on calendar days.

ARTICLE 9 – PERFORMANCE LOCATION, WORK SITE DELIVERY AND COMMENCEMENT DATE OF THE WORK

9.1. Performance Location: The place of work for the purpose of this document is defined as Zone-I of Lahore City and described in technical specifications document.

9.2. Principals for the Work Site Delivery: Within 30 (thirty) days following the signing of the contract, the site delivery will be conducted and the work shall be started by the Contractor according to related articles of the technical specifications.

9.3. Commencement Date of the work: The work site will be delivered to the Contractor upon the signing of the work site delivery note by and between the authorized persons of the Client and the Contractor.

ARTICLE 10 – PROVISIONS RELATING TO THE PERFORMANCE SECURITY

10.1. Performance Security

10.1.1. Before the signing of a contract, performance bond at the rate of 6% of the 2-year remuneration over the price offered by the Contractor will be taken from the Contractor who is awarded the tender. For the following 5-year period, 5-year remuneration shall be determined over the prices applicable at the end of the 3rd year and a new performance security will be taken at the rate of 6% of this amount. If the Contractor desires, he can give the performance security for the remaining 4 years by making addition to the 3-year performance bond. The security shall be in the form of Bank Guarantee, which shall be valid for 90 days beyond the Term of the Contract. In case of the guarantee is from a foreign bank, it shall be counter guaranteed by a scheduled bank in Pakistan

10.2. Returning the Performance Security

10.2.1. The Performance security shall be returned to the Contractor upon determination that the obligations under this Agreement have been dully fulfilled in accordance with the provisions of this Agreement and the tender documentation, and the Contractor has no liability towards the Client regarding the work thereof.

10.2.2. In case of liabilities of the Contractor to the Client and other public offices under this work, legal tax deductions from the wages and the payments considered as wages failed to be paid by the date of acceptance of the services, the Performance security shall be converted into cash and set off against such liabilitie and the remaining portion, if any, shall be returned to the Contractor without any further notice and judgment.

ARTICLE 11 – PLACE AND TERMS OF PAYMENT

11.1. The contract price including the increases that may occur due to the additional work shall be paid by Lahore Waste Management Company under the following terms and conditions

The monthly performance of the Contractor shall be determined by the Client, a progress payment report shall be issued accordingly. Based on this report an invoice shall be issued by the Contractor and the payment shall be made within 30 days after the submission of that invoice to the Client. In case of any delay in the payment, the Contractor shall be obligated to continue the performance. However, in case the Client fails to pay three (3) progress payments successively, then the Contractor may discontinue the performance and terminate the Agreement.

11.2 The Contractor shall issue the invoice for the progress payment in USD. Seventy percent (70%) of total payment shall be made in Pakistan Rupee over the buying rate of exchange of Pakistan State Bank on the date of invoice and thirty percent (30%) payment shall be made in Pakistan Rupee over the buying rate of exchange of Pakistan State Bank dated November 03, 2011.

11.3. Payments shall be made from the account of the Client in Bank of Punjab. The Contractor shall open an account in a bank which has a branch in Lahore City and submit the account details to the Client. The payment shall be deposited to the account informed by the Contractor.

11.4. The Contractor, without written approval of the Client, may not assign to others its progress payments and receivables in respect of the work performed under this Agreement.

ARTICLE 12 – ADVANCE PAYMENT, TERMS AND AMOUNT

12.1. An amount up to 10% of the contract value shall be granted as an advance in two equal installments, upon request of the Applicant, before starting the work and after signing the Contract. This advance payment shall be deducted, from monthly performance payments of the Applicant in 24 installments, within 36 months period from commencement of work.

Provided that no such deduction shall be made in lieu of Advance Payments in first 12(twelve) months proceeding from commencement of work. The amount of deduction made in each month shall not exceed 30% value of the invoice in any of such months except in 36th month. The Client shall be authorised to deduct all rest of the amounts, liable to be deducted in lieu of Advance Payment, from the invoice of 36th month. The Advance shall only be given at the start of the job and no Advance shall be paid in the following period. The Applicant shall provide an advance payment guarantee letter in response to the advance so given. Definite guarantee letter of unlimited time will be taken from the Contractor.

12.2. Following the signing of contract, contractor may demand advance in the amount up to the 10% of the contract price within 30 days. With reference to the request, following the submission of the advance payment bond to the administration, an advance payment is made to the contractor within 30 days. The second installment shall be released within three months of release of first installment.

12.3. Repayment of advance; Contractor may repay the advance payment bond by issuing single or multiple advance payment bonds the total of which shall meet the advance amount. In this situation, as the advance is set-off, the advance payment bond in the set-off amount shall be returned.

12.4. As the advance deduction is made, the amount deducted shall be calculated and the first advance payment bond submitted may be replaced with a new one after the updating of remaining advance payables.

ARTICLE 13 – PRICE DIFFERENCE

13.1. Formula for Price Adjustment:

$$Pn = A + b\frac{Ln}{Lo} + c\frac{Mn}{Mo}$$

where,

"Pn" is the Price Adjustment factor for the work carried out in the period "n".

"A" is a constant or the Non-Adjustable Portion of the Price Adjustment Factor to be specified, representing the Non-Adjustable Portion of the Contract Price.

"b, c, are Coefficients or weightages of the order of 0.xx (i.e., fractions having two significant digits) for each specified element of adjustment in the Contract. The sum of A, b, c, , etc., shall be one.

"Lo, Mo, are the Base Date Indices for the Labour and Fuel are adjustable elements.

"Ln, Mn, are the Current Date Indices of the Labour, and Fuel are adjustable elements for the period "n".

LAHORE WASTE MANAGEMENT COMPANY CITY DISTRICT GOVERNMENT LTD.

If "P" is the amount payable (prior to adjustment) at the rates entered in the Price Schedule of the work carried out in period "n" then, Adjusted amount payable to the Contractor for the work carried out in the period "n" shall be equal to Pn*P..

Coefficients:

A	= 0.70
b	= 0.10 Labour
c	= 0.20 Fuel

Base and Current Dates Prices

Source of Prices

The prices of elements subject to Price Adjustment shall be to the extent possible as given in the Statistical Bulletins published by the Federal Bureau of Statistics (FBS), Statistical Division Government of Pakistan. Statutory notifications and official price from public sector organizations, where available, may be used at the option of the Employer. The source for prices of High Speed Diesel (HSD) shall be either be Statistical Bulletins or Pakistan State Oil (PSO). However, for a particular adjustable element, the same source shall be used throughout the currency of contract as also stipulated in the tender documents before issuing the tender documents.

Elements for Price Adjustment

Specified Elements are subjected to Price Adjustment.

(i) Labour
(ii) Machinery/Equipments
(iii) Fuel

ARTICLE 14 – INFORMATION AND RESPONSIBILITIES RELATING TO THE SUBCONTRACTORS

14.1. Applicants may execute subcontract for services up to 30% of total services, for each job of solid waste collection and transportation, manual sweeping, mechanical sweeping and mechanical washing services, which are covered under the tender, subject to the approval of the Client. Contractor shall be responsible for the performances displayed and works carried out by the sub-contractor(s).

ARTICLE 15 – PENALTIES AND TERMINATION OF THE AGREEMENT

15.1. Below-mentioned penalties shall be imposed on the Contractor upon finding any discrepancies and having them recorded with a minute during the audits conducted by Client.

through its supervisory organization. The amount of penalty to be imposed during one month shall not, in any case, exceed 3 % of the monthly progress payment.

a) Deficiency in the number of vehicles according to the quantity agreed upon in the service agreement, a penalty in the amount of Rs.....(USD 50/vehicle/day) shall be applied.

b) Deficiency in the number of labor, according to the approved collection, sweeping and washing plans, a penalty in the amount of Rs.....(USD 20/person/day) shall be applied.

c) Deficiency in the management and supervisory staff, according to the Service Agreement, a penalty in the amount of Rs.....(USD 10/person/day) shall be applied.

d) Dumping the garbage and other solid wastes to any place other than the approved disposal site, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

e) Repeat violation of collecting solid wastes in a specific collection route, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

f) Failure to collect domestic wastes from "Door-to-Door" collection areas and not conducting any activity to resolve the problem within 8 hours of detection, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

g) Non-discharge of an underground or aboveground container in a particular frequency or leaving any midden near containers, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

h) Repeat violation of cleaning and street sweeping services in a specific area, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

i) Any domestic waste must be collected even if it is not in a container. Failure to collect domestic wastes left on the roads or streets in 24 hours, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

j) All vehicles must be operated in a safe and neat condition. Non-compliance with the off-load of vehicles and waste at approved disposal sites, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

k) Failure to clean areas in front of the governmental or institutional buildings, prominent public areas and removal of the waste therefrom, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

l) If the Contractor fails to render cleaning services in the periods determined for Itwar Bazaar and greenbelts and such failure is not corrected within 4 hours, the penalty in the amount of Rs..... (USD 50/incident) shall be applied.

m) Failure to remove animal cadavers of whatever kind untill 12 hours, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

n) Failure to provide essential services on official holidays, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

o) Penalty in the amount of .....Rs (USD10/incident) shall be applied on daily basis for the personnel not wearing uniform identifiable by the Client.

p) Failure to operate the equipment, machinery, and vehicles during emergency cases, a penalty in the amount of Rs.....(USD 50/incident) shall be applied.

q) There shall be definitely no leachate from the vehicles upon the working routes or parking lots. If the garbage water leakage is detected, a penalty in the amount of Rs.....(USD 20/vehicle) shall be applied.

r) All vehicles operated shall be washed and cleaned at least twice per week after completion of works. Penalty amounting to .....Rs (USD 50/vehicle) shall be applied for each vehicle that is not washed, but operated every day, except for force majeure conditions.

s) Garbage swept shall be collected at and discharged to the locations indicated by the Client. In case of failure, penalty amounting to .....Rs (USD 50/vehicle) shall be applied.

t) As for vehicles causing dust due to the non-operation of water sprays placed in front of the brushes of vehicles, penalty amount of .....Rs (USD100/vehicle/day) shall be applied.

u) In case where indicators placed at the rear of the vehicle to indicate the direction are not properly operated, penalty amount of .....Rs (USD30/vehicle/day) shall be applied.

v) Wastes collected by sweeping vehicles shall be discharged to the sludge pools to be established within the construction site. Sludge collected in pools shall be delivered to the storage areas regularly by means of leak-proof trucks. In addition, penalty amount of .....Rs (USD500/day) shall be applied for each vehicle in case of discharge of wastes to any other area.

w) If the vehicle exceeds speed limit and violates rules as to endanger the traffic and health during sweeping process, penalty amounting to .....Rs (USD10/vehicle) shall be applied

x) If it is not started to work in every phase stipulated under the technical specification, the penalty in the amount of Rs..... (USD50/day) shall be applied.

in the technical documents, which is liable to be penalised under clause 15.1, the contractor will be warned in writing at first instance and granted a reasonable time period for rectifying the deficiency. If the Contractor fails to comply with the warning he shall be penalized under clause 15.1. The penalty imposed by Administration must be evidenced with photos or other proofs duly signed by authorized officer of Administration.

15.3. If during the term of this Agreement any governmental or regulatory authority or agency assesses any fines or penalties against Contractor or Client arising from Contractor's failure to

operate and maintain the Project in accordance with applicable Laws without Client's prior written consent, such fines and penalties shall be the sole responsibility of Contractor and shall not be deemed a Reimbursable Cost.

15.4. Performance criteria of the works subject to the contract shall be determined by the Client. If the said criteria cannot be met by the Contractor, a penalty shall be applied for the each performance criteria.

15.5 The Client may not apply penalty to Contractor as far as possible with good intention by showing tolerance until the completion of the phase transitions defined in the technical specifications.

15.6 In case of conflict arises between the parties regarding imposition of penalties under clause 15.1, any party can refer the matter before a local commission which will be duly notified by the Administration. The local Commission shall consist of total three members from the local community. The decision of said commsion shall be final and binding upon both the parties.

ARTICLE 16 – TIME EXTENSIONS

16.1. Situations in which that time extensions may be granted because of force majeure are given below:

16.1.1 Force Majeure:

a) Natural disasters,
b) Legal strikes and lockout
c) General epidemics,
d) War, chaos, terror attacks,

16.1.2. For acceptance of above stated situations as force majeure and to provide time extension to the Contractor, such situations should:

a) Not occur due to the failure of the Contractor,
b) Prevent execution of undertaking,
c) Be impossible to be eliminated by the efforts of the Contractor,
d) Be notified to the Client by the Contractor in written form within twenty days as of the occurrence date of the force majeure condition,
e) Be certified by the competent authorities.

16.2. Situations for which time extension shall be provided by the Client are as follows:

16.2.1. In cases where the Client fails to fulfill its obligations regarding performance of the contract and Technical Specification due to any reason including site delivery, approval of projects and work programs, insufficient allowance, etc., causing delays whose responsibility does not belong to the Contractor and it causes delays which prevent fulfillment of the undertakings, further it is impossible to be avoided by the efforts of the Contractor, time shall be extended for delayed time period with respect to the reasons preventing realization of the business and nature of the business

16.2.2 In case quantum of work is increased due to any additional work, time period of the business shall be extended in proportion to the increased work for part or all of the business.

ARTICLE 17 – SUPERVISING AUTHORITY, DUTIES AND AUTHORITIES

17.1. The Client will appoint a Supervising Authority to supervise and examine whether the work is being performed in accordance with the standards, quality and specifications as specified in this Agreement and the annexes hereto. The Contractor shall conform to the instructions of the Supervising Authority.

ARTICLE 18 – RECORDS AND MINUTES RELATING TO THE PERFORMANCE OF THE WORK

18.1. Records and minutes related to the performance of the work shall be kept by the Supervising Authority. The type and form of the records and minutes to be kept shall be determined by the Supervising Authority and notified to the Contractor accordingly. The minutes shall be kept by the authorized person of the Supervising Authority, and also bear the signature of the representative of the Contractor. In case the representative of the Contractor refuse to sign the minutes or does not agree with the statements therein, this shall be stated in the minutes accordingly.

ARTICLE 19 – CONDITIONS FOR THE DELIVERY, INSPECTION AND ACCEPTANCE

19.1. Partial acceptance shall be made on monthly basis.

19.2. Upon completion of the work performed under this Agreement, the Contractor shall submit to the Client an application that contains requests for taking delivery of the work or the relevant part thereof. Whereupon, the Client will take delivery of work or the relevant part thereof, at the cost of the Contractor, in ..... within ..... business days after the receipt of the said application, in accordance with the acceptance procedure. The Contractor shall be responsible for any damages that may incur due to the failure of the Contractor to fulfill its obligations for the delivery of the work in accordance with this Agreement and the annexes hereto

19.3. The procedures for the inspection and acceptance of the work taken delivery in this manner shall be performed and, the final account report shall be issued accordingly within 90 business days after the delivery of the work.

ARTICLE 20 – SAFEGUARDING AND INSURANCE OF THE WORK AND WORK PLACES

20.1 The Contractor shall be responsible to safeguard the work and work places. The Contractor shall take out all insurances required by the pertinent legislations, and submit the policies thereof to the Client. The Contractor shall be responsible for any damages caused by

its personnel or subContractors to the Client, third persons and the environment in respect of the work performed under this Agreement.

20.2. Indemnification by Contractor: Contractor shall indemnify, defend and hold harmless Client, the members thereof, and their respective officers, directors, employees, agents, affiliates and representatives (the " Client Indemnified Parties"), from and against any and all claims (in whatever form and to the fullest extent permitted by law) arising out of or in any way connected with, but only to the extent of, any gross negligence, fraud or willful misconduct of Contractor or anyone acting on Contractor's behalf or under its instructions, in connection with this Agreement and Contractor's obligations thereunder. Any costs or expenses incurred by Contractor pursuant to its indemnity obligations under this Clause shall be the sole responsibility of the Contractor

ARTICLE 21 – AMENDMENT TO THE AGREEMENT

21.1. Any amendment to this Contract or supplemental Contract may be made by means of mutual understanding of both parties. The parties may determine new unit prices during the term of the agreement and may change the current unit prices.

ARTICLE 22 - TERMINATION BY CONTRACTOR

22.1. Subject to the terms of any Project Agreements, Contractor may terminate this Agreement for cause upon thirty (30) days prior written notice to Client in the event of: (i) Client's Bankruptcy; or (ii) Client's failure to perform in a timely manner any of its material obligations under this Agreement and such failure is not cured within thirty (30) days of Client's receipt of a notice from Contractor demanding cure (or, if not curable within thirty (30) days, within such period of time as is reasonably necessary, but in no event more than 90 days, provided that Client diligently commences and continues to pursue such cure).

ARTICLE 23 - TERMINATION BY CLIENT

23.1. Immediate Termination By Client

Subject to the terms of any Project Agreements, Client may terminate this Agreement immediately:

(i) Upon the Bankruptcy of Contractor; or

(ii) Upon the occurrence of a Force Majeure Event that is not remedied within one hundred and twenty (120) days of its initial occurrence. If the Agreement is terminated by Client pursuant to Sub-Clause 23.1(i) or 23.1.(ii), Contractor shall be compensated for all Reimbursable Costs incurred by Contractor to and including the date of termination. In addition, if the Agreement is terminated by Client pursuant to Sub-Clause 23.2(ii), Contractor shall be paid all unpaid Fees including the date of termination.

23.2. Termination Upon Notice By Client

Subject to the terms of any Project Agreements, Client may terminate this Agreement upon ten (30) days prior written notice to Contractor in the event

(i) that Contractor violates, or consents to a violation of, any Laws applicable to the Services or the Project, where the violation has or may have a material adverse effect on the maintenance or operation of the Project or Client's interest, and Contractor does not cure such violation within thirty (30) days (or, if not curable within thirty (30) days, within such period of time as is reasonably necessary, but in no event more than ninety (90) days, provided Contractor diligently commences and pursues such cure and indemnifies Client for all related costs, whatsoever, or

(ii) of a material breach by Contractor in the performance of the Services, if Contractor does not cure such breach within thirty (30) days from the date of Contractor's receipt of notice from Client demanding cure (or, if not curable within thirty (30) days, within such period of time as is reasonably necessary, but in no event more than 90 days, provided Contractor diligently commences and pursues such cure and indemnifies Client for all related costs, whatsoever If the Agreement is terminated by Client pursuant to this Sub-Clause 23.2, Contractor shall be compensated for all Reimbursable Costs incurred by Contractor and all unpaid Fees to and including the date of termination.

23.3. Termination By Client Without Cause

In addition to its rights set forth in thisTermination clause, subject to the terms of any Project Agreements, Client reserves the right to terminate this Agreement without cause upon ninety (90) days written notice to Contractor. If the Agreement is terminated by Client pursuant to this Sub-Clause 23.3, Contractor shall be compensated for all Reimbursable Costs incurred by Contractor and all unpaid Fees to and including the date of such termination under this Sub-Clause 23.3. Such payments, together with the termination payment set forth in Clause 26, shall be Contractor's sole remedy in respect of such termination and shall be made by Client within 30 days of receipt of a final invoice from Contractor. If it is not reached an agreement and the Administration terminates the contract unilaterally without any default of the contractor, the Administration shall pay 10 % of the total remaining contract price to the Contractor as compensation for damages and anticipated profit to the Contractor.

ARTICLE 24 – TERMINATION DUE TO PROHIBITED PRACTICES AND BEHAVIORS PRIOR TO THE AGREEMENT

24.1. If it is determined by a ruling or within 1 year as of the contract date after the execution of the contract that the contractor carries out illegasl practices or actions accordin to the bidding legislation and laws in the bidding process, the performance bond shall be forfeited and the contract shall be terminated, and its account is liquidated according to the general provisions.

ARTICLE 25 – TERMINATION DUE TO FORCE MAJEURE EVENTS

25.1. Either the Client or the Contractor may unilaterally terminate the Agreement due to force majeure events. However, if the Contractor requests for a time extension due to force

majeure events, the Client may not terminate the Agreement unless the work fails to be completed in accordance with this Agreement and the annexes hereto by the end of the extended period. In case of such termination, the account of the Contractor shall be settled, and the Performance security shall be returned.

ARTICLE 26 - TERMINATION PAYMENT

(a) In the event of a termination of this Agreement pursuant to the above Sub-Clauses 23.1 (ii), or 23.3, Contractor shall be entitled, in addition to all other amounts due under this Agreement as of the date of termination, to a demobilization and cancellation payment equal to the total of all relocation and severance costs incurred with respect to Contractor's employees and all costs Contractor is at such time contractually or legally obligated to pay to its employees, or which are incurred with the prior written approval of Client. Severance costs for each of Contractor's employees shall be *as mentioned in Contract* for each year such employee has worked for Contractor at the Project. Subject to Client's right to conduct a subsequent audit and review pursuant to Clause 26 (b), such amounts shall be due and payable by Client within 30 days of Contractor's submission of an invoice.

(b) **Audit**. Notwithstanding payment of any amount pursuant to this Section 26 Client shall remain entitled to conduct a subsequent audit and review of all costs incurred and paid by Client pursuant to this Section 26, together with any supporting documentation requested by Client, for a period of 2 years from and after the date of such payment. If, pursuant to such audit and review, it is determined that any amount previously paid to Contractor did not constitute, in whole or in part, a reimbursable item pursuant to this Sub-Clause 26, Client may recover such amount from Contractor plus interest at the Reference Rate calculated from the date such audit commences, or Client may deduct or cause to be deducted such amount from any payment that may be due to Contractor.

ARTICLE 27 – ADDITIONAL WORK, WORK REDUCTIONS AND WORK SETTLEMENTS

27.1. Client may ask from the Contractor to execute the works that are not included at the offer letter within the scope of the Contract. In such a case the values of the works to be executed shall be oferred to the Client by the Contractor. In case the offered values are accepted by the Client the additional works shall be executed by the Contractor.

27.2 Client may also ask the work to be finalized/eliminated before the contract duration or before the contract value is ended. In such a case, the damages caused due to the elimination of the work, the Contractor shall be paid by mutual agreement . If it is not reached through mutual agreement and the Administration eliminate the work unilaterally by giving a notice to the Contractor, the Administration shall pay 10 % of the total cost of eliminated work to the Contractor as compensation for damages and anticipated profit to the Contractor.

27.3. The Contractor may, with through mutual agreement with the Client add new unit prices to the unit prices set for the new work items to be determined by the Client under the scope of

the waste management, including 20% estimation increase, provided that the budget is not exceeded.

ARTICLE 28 – CONTRACTOR'S LIABILITY FOR INDEMNIFICATION

28.1. The Contractor shall be directly responsible for the choice, supply or use of defective or non-complying materials, any design faults, application mistakes, insufficient supervision, any failure to fulfill its obligations in accordance with provisions of this Agreement and the specifications, and for any other losses and damages that may occur due to similar reasons. The Contractor shall indemnify such losses and damages in accordance with pertinent legislations.

ARTICLE 29 – PROJECT CONDITION AT END OF TERM

29.1. Upon expiration or termination of this Agreement, Contractor shall remove its personnel from the Project. Contractor shall leave the Project in as good condition as it was on the Effective Date, except normal wear and tear and casualty. Contractor shall be paid all unpaid Reimbursable Costs. Properties those belong to the client like all special tools, improvements, vehichles, inventory of supplies, spare parts, safety equipment, Operating Manuals and Procedures Manuals, operating logs, records and documents maintained by Contractor and any other items furnished on a Reimbursable Cost basis under this Agreement will be left at the Project and will become or remain the property of Client without additional charge. Client shall also have the right, in its sole discretion, to assume and become liable for any contracts or obligations that Contractor may have undertaken with third parties in connection with the Services. Contractor shall cooperate in taking all reasonable steps requested by Client required to effect the assumption of the contracts, provided that Client agrees to indemnify and hold harmless Contractor for all liabilities arising out of events and obligations arising from the assumption of contract rights and obligations after the date of any such assumption. Contractor shall use commercially reasonable efforts to cooperate with Client or a succeeding Contractor to assure that the operation, maintenance and management of the Project is not disrupted.

ARTICLE 30 - RESOLUTION OF DISPUTES

30.1 Resolution Through Discussions

If any dispute or difference of any kind (a Dispute") arises between Client and Contractor in connection with, or arising out of, this Agreement, the Client and Contractor within thirty (30) days shall attempt to settle such Dispute in the first instance through discussions. The designated representatives of Client and Contractor shall promptly confer and exert their best efforts in good faith to reach a reasonable and equitable resolution of such Dispute. If the representatives are unable to resolve the Dispute within five (5) calendar days, the Dispute shall be referred within two (2) calendar days of the lapse of the five (5) calendar day period to the responsible senior management of each party for resolution. Neither party shall seek any other means of resolving any Dispute arising in connection with this Agreement until the responsible senior management of Client and Contractor have had at least five (5) Business Days to resolve the Dispute following referral of the Dispute to them. If the parties are unable to resolve the Dispute using the procedure described in this Clause, either party may deliver

notice to the other party of its intent to submit the Dispute to arbitration ("Arbitration Notice"). The Arbitration Notice shall include the specific issues concerning the Dispute which must be resolved by the arbitration.

30.2 Arbitration

Any dispute which is not related with this agreement or not established within the frame of the procedure stipulated in sub-clause 30.1. regardless of the nature of the dispute should be settled finally in accordance with the International Arbitration Law, and therefore the applicable arbitration shall be held in London.

30.3 Continued Performance

During the pendency of any arbitration, Contractor and Client shall continue to perform their obligations under this Agreement.

ARTICLE 31 - CIRCUMSTANCES NOT REGULATED UNDER THIS AGREEMENT

31.1. In cases where no provision is found in this agreement and its annexes, it will be proceeded according to the provisions of relevant laws and legislation applicable in Pakistan.

ARTICLE 32 – CODE OF CONDUCT AND RULE OF ETHICS

32.1 The Contractors that attempt to get secret information, to conclude illegal agreements with the competitors or to affect the Client during the phase of tender inspection, evaluation and comparison shall result in their candidacy or offers being cancelled and this situation shall be penalized administratively.

32.2 The Contractor shall announce that it does not get affected from any potential conflict of interests by participating in the tender and that it does not have any equivalent relationship with the other tender participants or parties participating in the project. In case such a situation evolves during the execution of the Contract, the Contractor shall inform the Client immediately.

32.3 The Contractor shall always act impartially and trustworthily in accordance with the rules of business ethics. It should avoid from making public announcements regarding the projects and services without prior authorization of the Client. It shall not oblige the Client without prior authorization in any way.

32.4 The Contractor and its staff shall be respectful towards basic human rights during the Contract and shall promise not to act against the political, cultural and religious customs of the country.

32.5 The Contractor shall not accept payments other than the ones stated in the Contract. The Contractor and its staff shall not act in an inconsistent way or contrary to their obligations and shall not accept any benefits against the Client. They shall not accept any types of presents, entertainment or similar direct or indirect contributions that may affect their decisions in executing the job.

32.6 The Contractor and its staff are obligated to keep the confidentiality in a professional way during the Contract period and the period afterwards. All of the reports and documents prepared or received by the Contractor are confidential. Such documents and information shall never be shared with thired party without permission of the Client.

32.7 Company assets belonging to the Client within or outside the scope of the work shall not be sold or be utilized by third parties without appropriate documentation and valid permissions in accordance with the Contract. Company assets shall not be used for personal interests or to the company`s disadvantage.

32.8 Usage of all the reports and documents received and submitted by the parties to the Contract during the contract period shall be subject to an agreement. The Contractor is responsible for ensuring behaviors against the public and code of conduct of those workers that it will employ.

32.9. The Contractor is responsible to ensure behaviors against the public and code of conduct of workers employed by it.

32.10. Contractor shall be constructive, not destructive, with public in performance of the work of the tender subject, and not to cause any public complaint by endearing, not disgusting. It shall never forget that it is in service on behalf of a local Client which aims at serving the public.

32.11. It is strictly forbidden for the Contractor to attempt to offer, to give or to promise bribe to the Government Officers in order to execute the job.

32.12 The Contractor shall avoid any such relationship that may put it under any kind of commercial, financial or any other type of pressures that may affect its and its personnel`s technical decisions and endanger its ability to decide independently. In such a situation, the Administration warns the contractor and requires the dismissal of the relevant personnel

32.13 In case, any type of fraud is identified at any phase of the decision process, the Client reserves its right to suspend or to cancel the tender. Bribe, presents, tip or commission offered as an incentive or reward to any person shall be considered as "fraud" under the provision.

ARTICLE 33 – OTHER PROVISIONS

33.1 Assignment

Neither Client nor Contractor party may assign its rights or obligations under this Agreement without the prior written consent of the other party hereto, except that this Agreement may be

assigned by Client without such prior consent to any successor of Client, to a person or entity acquiring all or substantially all of the Project, or any purchaser of the Project upon the exercise of remedies under a Project Agreement.

33.2 Access to Project

(a) Client: Client, and their respective agents and representatives shall have access at all times to the Project documents, materials and records and accounts relating to Project operations for purposes of inspection and review. Upon the request of Client, or their respective agents and representatives, Contractor shall make available to such persons or entities and provide them with access to any operating data and all operating logs.

(b) Cooperation: During any such inspection or review of the Project, each of Client, and their respective agents and representatives shall use its reasonable commercial efforts to cause authorized visitors to comply with Contractor's safety and security procedures and to conduct such inspection and review in a manner which causes minimal interference with Contractor's activities. Contractor agrees to cooperate fully with Client, and their respective agents and representatives in providing requested information and documentation for the support of any financial or legal transactions associated with the Project.

33.3 Amendments

No amendments or modifications of this Agreement shall be valid unless evidenced in writing and signed by duly authorized representatives of both parties.

33.4 No Waiver

It is understood and agreed that any delay, waiver or omission by Client or Contractor with respect to enforcement of required performance by the other under this Agreement shall not be construed to be a waiver by Client or Contractor of any subsequent breach or default of the same or other required performance on the part of Client or Contractor.

33.5 Representations and Warranties

Each party represents and warrants to the other party that:
(a) Such party has the full power and authority to execute, deliver and perform this Agreement and to carry out the transactions contemplated hereby;
(b) To the best of such party's knowledge, the execution, delivery and performance by such party of this Agreement, does not and will not materially conflict with any legal, contractual, or organizational requirement of such party; and
(c) There are no pending or threatened legal, administrative, or other proceedings that if adversely determined, could reasonably be expected to have a material adverse effect on such party's ability to perform its obligations under this Agreement.

33.6 Counterparts

The parties may execute this Agreement in counterparts, which shall, in the aggregate, when signed by both parties constitute one instrument. Thereafter, each counterpart shall be deemed an original instrument as against any party who has signed it.

33.7 Partial Invalidity

If any term, provision, covenant or condition of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the rest of this Agreement shall remain in full force and effect and in no way be affected, impaired or invalidated.

33.8 Captions

Titles or captions of Clauses contained in this Agreement are inserted as a matter of convenience and for reference, and do not affect the scope or meaning of this Agreement or the intent of any provision hereof.

33.9 Amounts

All fiscal amounts in this Contract are denominated in the currency *as* ***United States Dollar*** *USD and Pakistan Rupee.*

33.10 Governing Law

This Agreement is executed and intended to be performed under laws of Islamic Republic of Pakistan and the laws of country shall govern its construction, interpretation and effect.

ARTICLE 34 - LABOR AND LABOR COSTS

34.1.1. The number of personnel required for the scope of the work to be commenced within the boundaries of Zone-I are listed in table provided in the Technical Specifications Document Article 5.1. Personel wages shall not be included to prices to be determined for Waste Collection, Mechanical Sweeping, Mechanical Cleaning, Manual Sweeping and Urban Cleaning services.

34.1.2. Contractor shall employ approximately 3886 workers at its service who are still within personnel cadre of the Client. Wages and other social rights of these workers shall be paid by the Client. Contractor shall pay transportation and food expenses to the workers as determined by the Client by taking it from the Client.

34.1.3. Contractor shall not be liable to meet extra claims except number of workers that it undertakes to hire from the Client.

34.1.4. Contractor shall have the right to retire the staff members who attained the retirement age pursuant to the laws of Pakistan laws and regulations during progression of the said work.

34.1.5. If the Contractor engages other employees other than those affiliated to the Client for the work subject to the tender, the remuneration and personal rights of those employees shall be paid to the Contractor separately by the Client over the coefficient stipulated in the relevant article of the technical specification. Number of those employees shall not be higher than 20% of number of all employees.

34.1.6. Contractor will pay the salaries in accordance with the factors stated in the below table depending on the minimum wage to the employees and will receive the amount to be paid from the Client by submitting the payrolls of his employees.

	SALARY MULTIPLIER
LOADER OPERATOR	4,50
MOTOR VEHICLE INSPECTOR	4,00
TECHNICIAN - REPAIR&MAIN.	3,00
SERGEANT	3,00
SWEEPER OPERATOR	2,00
DRIVER	2,00
WORKER	1,10
HAND SWEEPER	1,10

34.1.7. Contractor shall pay below payroll items to each employee for his employees:

- Net salary (Salary multiplier * base salary)
- Social Security
- EOBI (Employees Oldage Benefits Institution)

34.1.8. The Contractor shall employ the managerial staff, as specified below, within its organization. The personal rights of these personnel shall pertain to the Contractor. The Contractor shall pay salaries and all expenses related with the personal rights of these personnel and shall not demand any additional payment from the Client. These personnel will be out of the scope of 20% personnel employment, which is approved to the Contractor as a right.

	PERSONNEL	No
1	PROJECT COORDINATOR	1
2	PROJECT EXECUTER	1
3	DEPUTY PROJECT EXECUTER	4
5	SHIFT MANAGER	9
6	FOREMAN	34

34.1.9. The lists showing the monthly payrolls and the social security declarations of the Contractor's workers will be submitted, at the beginning of every beginning of the month by the Contractor to the Client.

34.1.10 Contractor may reject some of workers of the Client that it will not anticipate to employ or not satisfied of their performance. Furthermore, in case that staff, made available to Contractor, carries out voluntarily some actions contrary to laws such as strikes, lock outs, slowdown strikes etc Contractor shall have rights such as to penalize the staff and terminate employment contract.

34.1.11 A Disciplinary Committee shall be constituted for the evaluation of behaviour of employees who violate disciplinary rules. It will consisit of 3 authorized persons, 2 persons from the Contractor and 1 person from the Client. Disciplinary procedures will be performed according to the decisions taken by this committee.

34.1.12 The Contractor may cancel the work contract of the personnel transferred from the Client in case he is found not working with the requested performance and he is not obeying the code of conduct and rules of ethics and morality

34.1.13 Health and physical structure of staff to be employed by Contractor shall be as per qualification which will enable them to execute services of tender.

34.1.14 Contractor shall have the right to change location, task etc in order to use available staff in an efficient way.

34.1.15 Contractor shall protect rights and liberty of the staff employed under its responsibility and shall never display false and unfair behavior.

34.1.16 The Contractor shall comply with all employees' weekly and annual holidays. The Client may request for overtime work because of the natural disasters such as flood, fire, etc. if the work schedule set deadlines,.

34.1.17 Contractor shall provide its staff to a regular medical examination during this work. In this context, Contractor shall either employ an occupational doctor or ensure staff's medical examinations to be carried out regularly by making an agreement with a medical institution.

34.1.18 The Contractor shall increase wages of its own staff by taking coefficients mentioned in the specification subject to increase of minimum wage amount by Labour Department of Pakistan.

34.2. Vehicles

34.2.1 The figures stated in the related section of technical specifications document indicate the minimum procurement amounts related with vehicles, equipments and materials which

Contractor is responsible for their procurement. Contractor will maintain vehicles and equipments at specified amounts functional and available and will also maintain back up vehicle and equipments which he considered to do so.

34.2.2 The amounts of the vehicles and equipments stated in the related section are the estimated figures which are obtained based upon the limited data of the Client. At the implementation stage, if Contractor and Client make changes in the implementation, they may also make changes in the amount of necessary vehicles and equipments upon joint agreement.

34.2.3 Contractor will consider the minimum number of vehicles and "TOTAL VOLUME" value specified in the vehicle procurement for "door-to-door collection". Contractor may procure and use the vehicles with different volumes provided that this "TOTAL VOLUME" value is to be maintained. Contractor is obligated to keep backup vehicles readily available at sufficient quantities in order to maintain this "TOTAL VOLUME" value.

34.2.4 The vehicles those shall be provided by the Contractor have to be at least 1 year old.
34.2.5 Prior to purchasing of the vehicles to be supplied by the Contractor for waste collection and cleaning services and shipping the same to Lahore, the conformance of this vehicles shall be approved by the technical committee assigned by the Client.

34.2.6. The Contractor shall provide 10 service cars to the Client for controlling activities in the Zone-I area.

ARTICLE 35 – ENFORCEMENT

35.1. This Agreement shall be entered into force upon the signing hereof by both parties.

ARTICLE 36 – SIGNING OF THE AGREEMENT

36.1. This Agreement composed of 36 articles, after being thoroughly read and understood, is signed in one copy by the Client and the Contractor on …/…/…. The Client, upon request of the Contractor, shall provide the Contractor with a copy of this Agreement certified by the Client as a true copy.

CLIENT **CONTRACTOR**

Lahore Waste Management Company

ANNEX- E

FORM OF PERFORMANCE SECURITY
(Bank Guarantee/ Performance Bond)

Guarantee No._____
Executed on _____
Expiry date **30.06.2015**_____
[Letter by the Guarantor to the Employer]
Name of Guarantor (Bank) with address: _____
(Scheduled Bank in Pakistan)
Name of Principal (Contractor) with address: _____
_____
Penal Sum of Security (express in words and figures) _____
_____
Letter of Acceptance No. _____Dated _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the _____ (hereinafter called the Employer) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Employer, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has accepted the Employer's above said Letter of Acceptance for _____ _____ (Name of Contract) for the _____ _____ (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements, Defects Liability, of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

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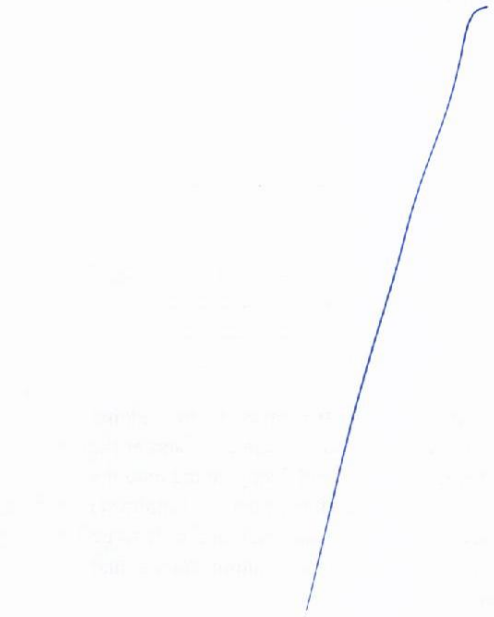


Lahore Waste Management Company

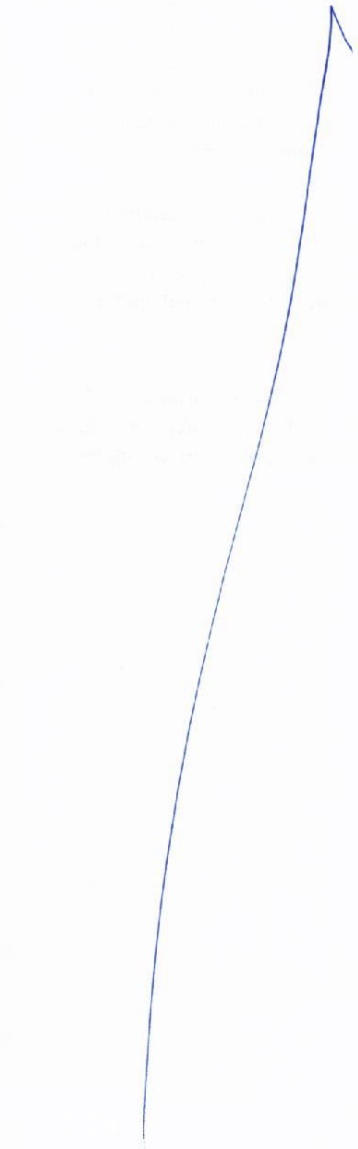
We, _____ (the Guarantor), waiving all objections and defences under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer"s designated Bank & Account Number.

PROVIDED ALSO THAT the Employer shall be the sole and final judge for deciding whether the Principal (Contractor) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Employer forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this Instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____
Guarantor (Bank)
Witness:
1. _____ Signature _____
_____ Name _____
Corporate Secretary (Seal)
Title _____
2. _____
_____ _____

Name, Title & Address Corporate Guarantor (Seal)



Lahore Waste Management Company

ANNEX- F

FORM OF BANK GUARANTEE FOR ADVANCE PAYMENT
(MOBILIZATION ADVANCE GUARANTEE/BOND)

Guarantee No._____ Date _____
WHEREAS _____(hereinafter called the 'Employer') has entered into a Contract for _____
(Particulars of Contract)
with _____ (hereinafter called the "Contractor').

AND WHEREAS, the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Rupees _____ (Rs _____) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS, the Employer has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.

AND WHEREAS, _____
(Scheduled Bank in Pakistan or Insurance Company acceptable to the Employer)
(hereinafter called the "Guarantor") at the request of the Contractor and in consideration of the Employer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, on the part of the Contractor, shall be given by the Employer to the Guarantor, and on such first written demand, payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until _____whichever is earlier.
(Date)

The Guarantor's liability under this Guarantee shall not in any case exceed the sum of Rupees _____(Rs _____).

LAHORE WASTE MANAGEMENT COMPANY GOVERNMENT OF THE PUNJAB

29


LAHORE WASTE MANAGEMENT
CITY DISTRICT GOVERNMENT

This Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

GUARANTOR

1. Signature _____
2. Name _____
3. Title _____

WITNESS

1. _____

_____

Corporate Secretary (Seal)

2. _____ _____

(Name Title & Address) Corporate Guarantor(Seal)


LAHORE WASTE MANAGEMENT
CITY DISTRICT GOVERNMENT

Lahore Waste Management Company

ANNEX-G

(INTEGRITY PACT)

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.

PAYABLE BY THE SUPPLIERS OF MACHINERY & EQUIPMENTS , SERVICES & WORKS IN

CONTRACTS WORTH RS. 10.00 MILLION OR MORE

Contract No._____ Dated _____

Contract Value: _____

Contract Title: _____

..... [name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by GoP through any corrupt business practice.

Without limiting the generality of the foregoing, [name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Lahore Waste Management Company

TECHNICAL SPECIFICATION DOCUMENT

For

Procurement of

Solid Waste Collection and Transportation, Mechanical Sweeping and Manual Sweeping, Mechanical Washing within the borders of Zone-I of Lahore City

LAHORE WASTE MANAGEMENT COMPANY

Office No. 4-5, 4th Floor, Shaheen Complex,

Egerton Road, Lahore, Pakistan.

This document consist of 42 pages.

1. INTRODUCTION

Lahore is the provincial headquarter of the province of the Punjab, having an estimated population of seven millions (estimated as of 2008) with total area 1770 sq km, administratively divided into nine towns. It is located between 31°15′ and 31°42′ North latitude, 74°01′ and74°37′ East longitude. Lahore is the 2nd largest city in the country and is a centre for business, finance and commerce activities of Punjab. City of Lahore is surrounded by Sheikhupura region at the north and west, Wagah region at the east and Kasur region at the south and the River Ravi flows in the north.

The City is administratively governed as a City District Government (CDGL) , divided into nine towns and 150 union councils. Of these 150 union councils, the project area comprises of the urban area consisting of almost 150 Union Councils as depicted below in the MAPs.
The CDGL through M/s. Lahore Waste Management Company is responsible for providing the services of street sweeping, waste collection, temporary storage, transportation and disposal of all the domestic, commercial, industrial and hazardous solid waste generated in the city. City of Lahore generates approximately 5600 metric tons of municipal solid waste every day. A rapid growth in urban population (estimated at 3.2% per annum) resulting in urban sprawl, unplanned growth, deteriorating environment, and continuously declining standards of urban services. Only about 4000 - 4,400 tons/day of the generated waste is collected by the. Remaining 1200 – 1600 tons/day is left on open space uncollected.

- Stated area value is not the coverage area of the work. A map showing the coverage of the work is added in Annex-4.

1.1 PURPOSE

The Technical Specification herein comprises those technical rules pertaining to sweeping the main arterial roads, squares, street and alleys in the area of which the borders are indicated in Annex4, and remain in the Zone 1 of Lahore city, using mechanical tools, washing the same with mechanical tools, cleaning by hand and collecting domestic wastes piling up within the borders of the aforementioned region, and removal of the same to solid waste disposal sites or transfer stations.

The works to be performed in the scope of the specification herein are to be valid till 7 years.

The Contractor acknowledges that the Client is committed to improving the management of waste within the City. The Contractor also acknowledges that The Client is to accommodate certain other contracts that have been awarded to upgrade the waste management system, including contracts to build, own, and operate processing, sorting, treatment and disposal facilities and facilities to manage C&D waste that should become operational before or during the term of this tender. Further, the Contactor understands that The Client desires to further improve the management of waste within the city with an emphasis on:

A. Minimizing waste;

B. Removing hazardous materials from the solid waste stream;

C. Recovering recyclables from the solid waste stream;

D. Treating waste (e.g. by composting, sorting);

E. Minimizing the disposing or landfilling waste residuals.

1.2 SCOPE

In the scope of the works, Contractor is obliged to perform the following services in Zone 1 area which is described ahead:

01. Collection, removal and transportation of solid wastes to the Approved Disposal Site designated by The Client

    a. Collecting domestic solid wastes generated by commercial, residential, governmental entities and public institution through ;

        i. Door to Door collection

        ii. Collection by underground and aboveground containers

    b. Collection and transportation of the following wastes to the designated disposal site;

        i. Slaughterhouse waste

ii. Dead animals

iii. Wastes from known illegal dumping locations in the city

iv. Waste to be generated on special days

02. Mechanical sweeping: Sweeping of main arterial roads, streets and squares as described as well as such places open to public with vacuumed vehicles

03. Mechanical washing

04. Cleaning Services shall include;

a. Sweeping by hand those streets and squares outside main arterial roads

b. Collection of waste from Greenbelts

c. Emptying small garbage bins

d. Cleaning city furnishings

e. Cleaning of underpasses

f. Cleaning of streets on special days

Some housing societies / colonies in the regions in scope of this work may prefer to collect their own wastes through their own contractors, consultants, etc. and to send them to disposal site. Contractor accepts in advance that tonnage values may decrease with separation of wastes of such places from the waste collection work.

1.3 DESCRIPTIONS

The words in the specifications shall mean those indicated and referred to them as followings.

Client: Means LWMC (Lahore Waste Management Company).

Contractor: Means the bidder, who was awarded with the bid and agreement was signed with

Solid Waste: Means any solid material and treatment sludge that needs to be disposed regularly for public welfare and particularly for protecting the environment, and those material of which the producer would like to get rid of.

Domestic Waste: Means solid wastes from dwellings, commercial areas, industry, public institutions, schools and public areas (garden, park, picnic areas) excluding hazardous wastes.

Waste Collection: means all those services set out in Part 2 of the Specification.

Dead Animal: means any dead animal other than any single dead wild bird or rodent.

Street Furniture: Includes benches, picnic tables, sculptures shorter than people and decorative pool structures.

Transition period: It is the 1-year period following land delivery.

Approved Disposal Site: means the existing dumping site commonly known as MehmoodBooti Dumping Site or landfill sites planned in the future.

Litter: means small quantity of Solid Waste, Recyclable Materials, or Compostable Materials, which is not placed in a Container including: paper, cigarette butts, bottle tops, aluminum can tabs, Styrofoam, plastic bags, and any other waste materials. "Waste" and "Litter" are considered one in the same for this contract.

Street Sweeping Waste: means all deposits of dirt, rock, sand, gravel, glass, cans, leaves, sticks paper, litter, organic and inorganic materials or any similar materials within the area to be swept within the terms of this work and of a size which can be practically removed by mechanical sweeping or hand sweeping operations and shall be removed.

Packaging waste: means recyclable valuable wastes from dwellings, commercial areas, industry, public institutions, schools and public areas with expired economic life, used in presentation of products during delivery of them to consumers or to final users, and formed after the use of products.

Medical wastes: Waste generated by health care activities includes a broad range of materials, from used needles and syringes to soiled dressings, body parts, diagnostic samples, blood, chemicals, pharmaceuticals, medical devices and radioactive materials

Industrial wastes: is a type of waste produced by industrial activity.

Hazardous wastes: Explosive, corrosive and reactive materials those even at low dosages are fatal for human beings and animals, having toxic, carcinogenic, mutagen and teratogenic effects, and flammable at low temperatures,

Waste Oils: is defined as any petroleum-based or synthetic oil that, through use or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties.

Construction and Demolition Waste: These are described as wastes forming as result of repair, alterations, renovations, demolishment or as result of a natural disaster of houses, buildings, bridges, roads and such other infra and supra structures.

Underground Container: is a non-compaction special bin that is buried and integrated with the landscape for municipal solid waste collection.

Aboveground Container: is a non-compaction bin that stated above the ground level for municipal solid waste collection.

Landfill sites: are where local authorities can take municipal solid wastes to be buried and compacted with other wastes in a sanitary manner.

Gully: means any drainage outlet in any Street together with its lid, cross Gullies, drop shafts cover, grate or grid;

Hand Cart Support: The work of collecting solid wastes in narrow streets, where waste collection trucks cannot fit in, by making used of wheelie hand cart and leaving them to the closest container or the roadsides deemed proper in this specifications.

Itwar bazaar: Public markets which operates only once a week on every Sunday in various locations within the city.

Greenbelt: Green areas near the highways and roads

Site Delivery Date: The date of delivering workplaces and workshops by the Client to the Contractor

Zone 1 is the area that is the subject of this specification, and the scope of which is described in Annex 4

Zone 1 Phase A: The area, the borders of which are indicated in Annex 5

Zone 1 Phase A+B: The area, the borders of which are indicated in Annex 6

Zone 1 Phase A+B+C: The area, the borders of which are indicated in Annex 7

Zone 1 Phase A+B+C+D: The area, the borders of which are indicated in Annex 8

1.4 GENERAL PRINCIPLES

1.4.1 Contractor shall act all the times impartial and loyal according to code of conduct. It shall avoid making comments to public with respect to the project and services without obtaining approval of Client.

1.4.2 Contractor and its personnel guarantee to be respectful to human rights and not to be in any improper action, during the contract term, against to political, cultural and religious observances of Pakistan, the country that is the owner of the works.

1.4.3 Contractor is obliged to keep professional confidentiality during the contract term and after the expiry of the term in question.

1.4.4 By virtue of the contract, any assets of Client may not be sold or let others use without proper certification and valid permit within or out of the works' scope. Client's assets may not be used for personal benefit or at the expense of Client.

1.4.5 Client may appoint a consultant for itself within the duration covering the tender process or assign an inspection council for checking the works being performed. Contractor is, in either case, obliged to fulfill its obligations.

1.4.6 Contractor is obliged to make available all those facilities, vehicles, machinery and equipment to be necessary for adequate performance of the works in the scope of the tender.

1.4.7 Contractor shall perform the works in the scope of this specification in accordance with both internationally accepted basic standards and Pakistani laws and regulations.

1.4.8 Client controls productivity of vehicles, personnel's outfits, logos on vehicles and personnel's outfits, and compliance of vehicles to the standards by carrying out inspections during the duration of works. Any deficiencies found out during such inspections shall be notified to Contractor and they are asked to be remedied within reasonable period of time given by Client.

1.4.9 During the works to be conducted within the scope of this specification, the public served or the property thereof shall not be damaged in any way whatsoever. Contractor is responsible for any damage that may be incurred by any third party and the property thereof while executing these activities, and in the event of any damage, it shall have to be notified to Client in writing within 24 hours.

1.4.10 Contractor is responsible for ensuring behaviors against to public and code of conduct of those workers it will employ.

1.4.11 Contractor shall be constructive not destructive with public in performing the works of the tender subject, and not to cause any public complaint by endearing not disgusting; it shall never forget that it is in service on behalf of a local Client, the purpose of which is to serve to public.

1.4.12 Contractor shall conduct all activities realized in the scope of this specification under the necessary occupational safety requirements.

1.4.13 It shall be ensured that workers will work without noise, and any annoyance of public by them shall be prevented. While performing cleaning, no cleaning work shall be performed to hinder any traffic.

1.4.14 Contractor shall make available a telephone line to which both Client and citizens may easily reach and shall assign a person for it. Any request and complaints lodged on that telephone line shall be stored in a database. Such data shall be provided to Client in printout document format at periodic intervals. Contractor shall notify Client of any complaints from citizens with respect to the services being the tender subject, and carry out necessary actions in line with the instructions to be given by Client.

1.4.15 All the systems of vehicles shall be in working condition. Vehicles shall always be clean and well kept, passed through technical inspections and with all the documents thereof without any deficiency.

1.4.16 Contractor shall comply with all speed limits according to Pakistani laws during the works of the tender subject. Machinery and vehicles to be used in collection of wastes and town cleaning shall not be used in a way to threaten the lives of, to scare or agitate public.

1.4.17 Including fire, sabotage and all kind of civil commotions, comprehensive insurance coverage and technical inspections of every kind of vehicle to be used within the scope of this contract are obliged to be fulfilled by the contracting firm.

1.4.18 Contractor shall carefully select and give necessary trainings to those drivers of machinery equipment to be used in particularly waste collection and town cleaning.

1.4.19 Contractor shall give routine health screening all personnel (Personnel of Client and Contractor) during the term of this work. For this purpose, Contractor shall either employ an on-site physician or make a contract with a health institution so that it shall ensure of the personnel getting regular health screening.

1.4.20 Contractor shall provide complete first aid materials and firefighting equipment on all the sites and workshops within the scope of this work.

1.4.21 Contractor shall observe, at maximum extent, the occupational safety issues. In this regard, it shall conduct works in compliance with Occupational Health and Safety Standards described in Article 10of the Specification.

1.4.22 Contractor shall record all the works to be performed during the work duration and shall create a statistical database. Such database shall be shared with Client at certain periods.

1.4.23 In case Contractor uses special software regarding to the works it performs, it shall share it with Client as well.

1.4.24 Forms and documents to constitute the base of progress billing and payments shall be prepared in agreement with Client.

1.4.25 All the information and statistical data concerning the works of the tender subject are the property of Client. Such information may not be used, without the approval of Client, in media, scientific articles, etc.

1.4.26 Contractor shall collect below stated wastes with the suitable vehicles in scope of collection and transportation work in the first 12 months.

- Green wastes from parks and gardens,
- Construction and destruction wastes arose due to repairs and renovations,
- Mud and garbage accumulations arising from small drainage canals.
- household waste from health institutions

1.4.27 Contractor is liable to completely carry out the activities of waste collection, mechanical sweeping, manual sweeping and mechanical washing stated in the specifications, in scope of the programs determined. In addition to these four main activities, Contractor is also responsible for collection of green wastes, wastes from drainage canals and construction and destruction wastes throughout the transition period. During this service to be provided throughout the transition period, Client shall establish a database, and form a system for each of them for one year later on this database.

1.4.28 Management system mechanism to be established for each of green wastes, construction and demolition waste and drainage canal wastes may be operated by the Contractor, in case of agreement between the Client and Contractor.

1.4.29 Green wastes from such activities as mowing in gardens and parks and flower removing and packaged and left in the park are collected together with the other wastes and transported to the final disposal site by the Contractor throughout the transition period. Rough wastes arising as a result of tree cutting, root removal, branch works in parks and gardens are not included in this work. Green wastes to be collected during transition period are calculated over the same unit price with the domestic wastes, and progress payment is made.

1.4.30 Throughout the transition period, Contractor is responsible for collection of construction and destruction wastes left around and roadsides and transportation thereof to the final disposition site. Wastes to be collected and transported during this process are calculated over the same unit price with the domestic wastes, and progress payment is made. In the event that the Client desires to have the excavation wastes to be shipped to another site, price may be revised with the agreement with the Contractor.

1.4.31 Throughout the transition period, Contractor is responsible for collection of domestic waste from health institutions.

1.4.32 Throughout the transition period, The Contractor shall collect solid wastes emerged after cleaning of drainages on the roadside of narrow streets generally located in Lahore city center and transport to the Approved Disposal Site. Program of the drainages, which were cleaned by the related Client, shall be notified to the Contractor by the Client at least 3 days before. The solid wastes from the drainages shall be removed from the ground without waiting in the framework of the program. Wastes to be collected and transported during this process shall be calculated over the same unit price with the domestic wastes, and progress payment is made.

1.4.33 Workshops, parking areas, water, sites for establishing transfer station etc are obligation of the Client

1.5 WORK AREA AND PHASES

1.5.1 All waste collection, mechanical sweeping, washing and other cleaning services defined in the relevant articles of the specifications to be carried out within boundaries of Lahore is

divided in two separate zones. These zones are identified as Zone 1 and Zone 2 and separated from each other with Zone Dividing Line. Activities only within Zone 1 boundaries are under the scope of this tender.

1.5.2 Zone Dividing Line - Zone Dividing line is the border between Zone 1 and Zone 2 and described as a border stretches along Lahore Kasur Road, Ferozepur Road, Bahawalpur Road, Lower Mall Road, Data Darbar Road, Ravi Road and The Ravi River.

1.5.3 ZONE 1 – Zone 1 is the boundary of all works in the contractor's responsibility and described as the area of City District Lahore north of Hudiara Canal, west of BRC Canal Road, east of Lahore-Kasur Road, east of Ferozepur Road, North of Bahawalpur Road, east of Lower Mall Road, east of Data Darbar Road, nowth east of Ravi Road including AttokeAwan, TajGarh, NattKalan, Jhandlala, Marl and excluding the Cantonement Area.

1.5.4 The contracting firm awarded with the contract undertakes to carry out the work of waste collection, mechanical sweeping, sweeping by hand, and washing streets and squares in the whole area, the borders of which are designated in Annex 4.

1.5.5 For the purposes of adaptation of Contractor to the area, completion of machinery and equipment, arrangements of sites and workshops, and provision of a better service quality by determining feasible strategies for the area and life styles, Zone 1 has been divided into 4 phases (A, B, C, and D phases) only for waste collection and sweeping by hand. The borders regarding the division of Zone 1 are given in Annex 5,6,7,8. Contractor shall start the hand-sweeping services simultaneously in coordination with waste collecting activity.

1.5.6 Mechanical sweeping and washing works in the borders of Zone 1 area shall be started within three (3) months following upon the site delivery, enabling to serve to the complete area in streets, squares and roads listed in Annex 30,31,32.Half of the equipment and the vehicles to be operated here shall be supplied within this time frame. In case earlier procurement of the vehicles and equipments, Contractor may start mechanical sweeping and washing application by taking into account the places prioritized by the Client. At the end of the 6 months following the site delivery, all machines and equipment relate with mechanical sweeping and flushing shall be made available at the operation site in working order. For the vehicles that do not start operation at the end of this period, the penalty shall be applied pursuant to the relevant articles of the administrative specification.

1.5.7 The Contractor shall supply the vehicles and equipment required for the phase A within first 4 months. However the special vehicles required to be purchased for collection of underground and surface containers shall be made available in a state ready for operation within 6 months following the site delivery. The machines and equipment required during the transition to other phases shall be supplied and made available before the phase transition.

1.5.8 Following the site delivery, the contractor may continue the waste collection activity partially or wholly with a time limit of 6 months in Phase A providing the vehicles without

being bound to the features thereof stipulated in the specification by means of leasing or similar methods with the consent of the Client within the scope of waste collection activity provided that these vehicles are not older than 3 years.

1.5.9 Zone 1 Phase A is the first area that needs to be started in service in the first 6 months after the site delivery. 6. At the end of the month Phase B shall be started to be serviced, and 3 months after this transition, Phase C and subsequently, Phase D shall be started at the end of 3 months. At the end of 15 months in total, in all the areas of Zone 1 shall have been started all the works being the tender subject. The schedule showing the transition periods in Zone 1 is given in Annex 9.

1.5.10 In each phase passed into, spreading to the whole area and being enabled to integrate with any previous phase shall last 2 month at most (except Phase A) Within 2 month following the phase transition, sweeping by hand and waste collection activities shall have been completely established in the whole area.

1.5.11 The contracting firm shall carry out waste collection and sweeping by hand in accordance with the phase duration and order given in the technical specification. The contracting firm shall procure necessary machinery and equipment in the phase durations designated, and shall project and provide Client detailed plans of the next phase.

1.5.12 Contractor is entitled to enter to all the phases or more than one phase in the required order, provided that it fulfills financial and technical qualifications required for all the activities being the subject of the specification and makes a commitment to Client in this regard.

1.5.13 Contractor is to be penalized pursuant to the relevant provisions of the client specification in case of not passing into the next phase within the designated duration.

1.5.14 Contractor is responsible for the phases, the borders of which are drawn, within the duration described in the specification (only Phase A for the first 6 months). Works of waste collection and sweeping by hand in other phases shall continue to be serviced by Client.

2. WASTE COLLECTION

Waste collection activity covers the collection and transfer of all domestic solid waste in the boundaries of Zone 1 indicated in Annex 4 to the Approved Disposal Site in accordance with the time schedule and the designated phases.

2.1 GENERAL REQUIREMENTS OF WASTE COLLECTION

2.1.1 *Types of Wastes* – The contractor's responsibility in the scope of waste collection work includes but not limited to, the following waste types:

- Household waste generated by commercial, residential, governmental entities and public institution activities
- Itwar Bazaar Waste
- Litter
- Dead Animals
- Slaughterhouse waste
- Waste from green belts
- Domestic waste from parks and gardens

2.1.2 General waste collection model in the first phase within the Zone 1 borders is %50 "Container Collection" (10% underground, %40 aboveground) and 50% "Door to door Collection".

2.1.3 In different locations of Phase A,B where Contractor shall start to work firstly, it shall put into practice the applications of both "Container Collection" and "Door to Door Collection", and shall ensure acquaintance, self-awareness and adaptation of public in this respect. At the end of the ninth month, providing to agree with Client, selecting the best suitable system in different pilot areas shall be decided upon by considering both income levels and the physical structures of streets and alleys, and the selected method shall be applied in the other phases(C,D).

2.1.4 By putting into practice the waste collection and town cleaning activities afterwards the contract, it would be possible to have changes in some of customary applications of local Pakistani people concerning waste collection, and the people may resist against to such changes. In order that the system planned not to be hindered, Client shall take all necessary precautions.

2.1.5 Vehicles and mechanical equipment required in the scope of the Tender for waste collection are calculated basing on the existing quantities. In case of increase in needing

machinery and equipment depending upon the increases in population projections for years, Contractor shall integrate into the system new vehicles and equipments.

2.1.6 Contractor shall conduct its activities in line with the general waste collection pattern approved by the Client. However, in case of any revision needed according to the experience gained during the execution, Contractor may make changes in the system if a written request is submitted to and accepted by Client as well.

2.1.7 Contractor shall collect all the garbage with or without carrier bags left either around containers or alongside all streets and alleys in the borders of the area, shall sweep and not let any rubbish around, within the boundaries of Zone 1.

2.1.8 Domestic solid waste shall strictly and completely be collected from where they are left, regardless of any quantity thereof. Within this work scope, all urban solid waste formed shall be collected from all housings, detached houses, complexes, buildings, institutional and commercial establishments.

2.1.9 Any solid waste shall have to be picked up from wherever they are, regardless of its quantity, distance of its whereabouts to road, ground conditions, and accessibility.

2.1.10 Contractor shall prepare a detailed "Waste Collection Schedule" for each phase and submits to the approval of Client as a draft 15 days before beginning of each phase - unless otherwise prescribed by Client. If Contractor request any change in the Waste Collection Schedule during the works, it is required to submit this request to Client's approval in writing. After waste collection and transfer system for an area is established, Contractor shall deliver Client the same in 2 copies together with the revised route plans for that area.

2.1.11 When there are changes made in the work schedule in line with Contractor's request, it is essential that all those citizens to be affected by such changes made will be warned and notified of changes. Such warning and notification works shall be conducted by Contractor provided that form and duration of notification will be with the Client's approval as well.

2.1.12 It is prohibited to sort out wastes during waste collection, sell wastes or dispose the same with any methods that regulations or this specification does not approve.

2.1.13 Contractor shall prepare solution suggestions and share with Client to prevent street collectors to dig in garbage and scattering them around during waste collection practices.

2.1.14 Garbage collection activities within Zone 1 boundaries shall be carried out in 2 shifts. Accordingly, waste collection activities shall be realized;

-Between 06:00 – 14:00 hours for Shift 1,

-Between 17:00 – 01:00 hours for Shift 2.

These hours may be changed with the approval of Client.

2.1.15 It is the Contractor's responsibility to carry out the procurement of all and any vehicle, machinery and equipment, containers and garbage carrier bags to be used in waste collection.

2.1.16 Vehicles and equipment to be used in waste collection are described in Annex 17,18,19of the specification.

2.1.17 All vehicles and equipment shall be well maintained as per the schedule provided by manufacturers thereof, repaired properly, if required, once again as per manufacturers' instructions, and shall be operated in a clean and smooth manner. Particularly for not spilling garbage leachate all required precautions in vehicles shall be taken.

2.1.18 Contractor is obliged to put into service enough number of vehicles everyday in the plan approved by Client in order for waste collection works done much more properly.

2.1.19 In case that one or more of those vehicles operated by Contractor break down while carrying out waste collection activities, Contractor is obliged to substitute those broken-down vehicles in a way not to hinder the waste collection schedule, and shall notify Client.

2.1.20 Contractor shall inform the people in the area concerning collection of wastes from their locations, and shall try to inform all the people with those methods, such as handouts, and announces, etc.

2.1.21 Contractor shall, in every phase entered for waste collection, first remove such small garbage that stand in piles or scattered around and shall clean the location thereof. On such locations cleaned shall be put signs, such as "Do not dump garbage", etc., for information.

2.1.22 All doors, gates and barriers used to reach to waste pickup points shall be closed, locked or placed as was in the first place, afterwards waste collection.

2.1.23 During waste collection activities applied within the schedule approved by Client, when weather conditions or any reasons making difficult or impossible the waste collection services, Contractor may request from Client waste collection works to be stopped or slowed down completely or partially provided that it is limited to the location or the time the reasons occur.

2.1.24 Such waste collected in Lahore generality goes mostly to Metmoot Booti open dump areas presently, several different areas are also used for dumping. Since there is no regular landfill area and waste transfer station in Lahore as of the starting date of the Tender (within the period of time to elapse until such facilities put into commission), the location wastes shall be finally dumped is Metmoot Booti open dump area. Unless otherwise stated by Client, no random dumping shall be made in any area other than this one.

2.1.25 No consideration of making a transfer station within the borders of Zone 1 area is valid presently. However, the contracting firm may build a transfer station for the purposes of

lowering the costs and facilitating the management, in case it reaches to an agreement with Client and that Client designates a location for it. In this respect, cost of investment and operating shall be borne by Contractor.

2.1.26 In case Client grants permission to build a transfer station, Contractor shall get approval of Client for station project. The transfer station to serve during the duration of the Tender, after expiry of the tender duration shall be considered as the property of Client. All the investment made here shall be handover to Client.

2.1.27 In case landfill areas and transfer stations are added to the system in future, (The cost analysis was calculated taking into account Mehmet Booti and Lakoder site.) by reassessing cost analysis Client and Contractor shall reach understanding in the event that transport distances increase or shorten.

2.1.28 Contractor shall give support Client necessary in the works of building environmental awareness and starting collection works at the source, as well.

2.1.29 Contractor is obliged to notify Client in 24 hours the following situations occurred during waste collection activities:

a. Insufficient or damaged containers

b. Wastes not dumped into containers

c. Access to waste collection point is not possible

d. Waste collection points that Contractor think, with reasonable justifications, access if dangerous

e. Any point that is needed to be stopped in the schedule but neglected or not waste collected

f. Any waste dumped at the waste collection points:

   i. Medical wastes

   ii. Hazardous wastes

   iii. Industrial wastes

g. Any situation harming any person, vehicle or property

2.2 CONTAINER COLLECTION

2.2.1 Client plans to maintain a special engineered container collection system with underground and above ground containers and spread that method throughout the city.

2.2.2 The public will likely have access to the containers 24-hours per day, 7 days per week every day of the year.

2.2.3 Contractor will be required to provide all vehicles and machinery necessary for the successful execution of the container collection. Detailed technical specification the vehicles to perform container collection are described in Annex 18.

2.2.4 Contractor shall collect all solid waste and other materials from containers whenever the container(s) is full, at least once per day.

2.2.5 Contractor shall maintain all containers in a safe, clean, aesthetically pleasing, and sanitary condition at all times during the term of this tender.

2.2.6 Client basically plans to use two types of containers: 5m3 underground containers and 3m3 aboveground containers. Technical details of these containers are at Annex 24-25

2.2.7 For container collection, there shall be 1 driver in the vehicle and 1 worker if necessary.

2.2.8 The number of underground containers planned to be used in the generality if Zone 1 is 153, and their specifications are described in Annex 24

2.2.9 The number of aboveground containers planned to be used in the generality if Zone 1 is 1012, and their specifications are described in Annex 25

2.2.10 Contractor shall procure those containers in the specified numbers and nature as part of the waste collection system, and shall place the same at certain distances from each other in suitable places, where public intensively uses, by also obtaining the opinion of Client. In case containers are not sufficient, number of containers shall be increased in mutual agreement with client.

2.2.11 Containers shall be placed at the central points which are easily accessible by "Hand Cart Support" teams and nearby of business centers and square heavily occupied by the public. Contract will design a positioning plan relevant to distribution of containers, submit to the approval of Client and realize the positioning works appropriate to the plan approved.

2.2.12 The excavation of the place of underground containers is to be assumed by Contractor and necessary permission for places to be excavated is to be carried out by Client. The contractor will not responsible for delays about permission for places.

2.2.13 The Contractor shall keep and maintain underground containers not to leak and check for any leakage under the ground. if any leakage is found, the Contractor shall clean the leakage with appropriate equipments before odor arising from the leachate occurs.

2.2.14 Due care shall be taken so that any leachate formed in waste containers shall not be spilled around during waste collection, and if does, it shall be immediately cleaned so that waste pickup point shall be left clean.

2.2.15 In case of any public resistance and reaction that may occur when placing containers, the works of establishing a system shall continue by obtaining the support and suggestions of Client.

2.2.16 It is essential that whether or not in a container, all the garbage at any location visited as a waste collection point shall be collected without any residue behind.

2.2.17 Those containers placed at different locations of the town shall be periodically washed and cleaned by Contractor at least 4 times a year.

2.2.18 The contractor shall provide any necessary vehicles and/or equipments for cleaning of the containers based on the (container) producer's cleaning specifications.

2.2.19 Maintenance, repairs and cleaning of those containers placed within the Zone 1 borders shall be on Contractor. Contractor is obliged to repair and replace it on its place any faulty or damaged container in three days. Those containers in non-repairable conditions shall be replaced with a new one by reaching an understanding between Client and Contractor.

2.3 DOOR TO DOOR COLLECTION

2.3.1 In the areas approved by the client, domestic waste shall be collected via method of "door-to-door collection". With this application, the contractor shall collect domestic wastes, which will be put in a garbage bag and left by local public on the road sides, which is easily accessible by garbage collecting vehicle with compactor in front of houses, residences and other buildings at defined days and hours. Garbage vehicle will proceed by collecting these garbage bags from the road sides.

2.3.2 The Contractor shall distribute garbage bags to local public. This application is to make public get used to this method in bringing into life the door-to-door collecting implementation for shall be limited with the start of the application in order. Contract will distribute garbage bags which will be 3 units per week for each garbage generating household during first 5 months for each phase initiated of the application. Contractor is responsible for procuring the garbage bags of which details in Annex 29.

2.3.3 In application of collecting with bags, the bags to be used will be designed by the contractor and printed and distributed upon the approval of Client

2.3.4 Door-to-door collecting application will be carried out in specific days which must be at least 3 days per week. Contractor prepares a collecting plan related with door-to-door and submit the Client for approval. In the future, a revision may be effected on the collection frequency and plan based on the experience to be gained upon the joint consensus.

2.3.5 The public shall be informed by Contractor's personnel during bag distribution that this application will continue for 5 months and at the end of 5 months no more bag distribution shall be made, and they must take measures themselves in this regard.

2.3.6 Contractor shall inform and give handouts during carrier bag distribution to owners of establishments and household regarding waste collection system and hours.

2.3.7 When there is an opinion of Client and Contractor that the habit of collecting with carrier bag is established, at the end of 5 month for each phase Contractor shall stop bag distribution. Instead, collection shall continue in such bags the people has in their own hands. However, in those areas where the system is not established properly, Contractor shall continue to distribute bags or find reasonable solution suggestions and ensure that garbage is removed out of city.

2.3.8 For Door-to-Door collection, there shall be 1 driver in the vehicle and 2 workers behind for taking garbage bags from ground and putting into the vehicle.

2.3.9 There shall be an announcement system in door to door collection system vehicles with a music not disturbing the public and approved by Client

2.4 HAND CART SUPPORT

2.4.1 Contractor will collect waste from the narrow street and neighborhoods which cannot be accessed by garbage vehicles through workers using "wheelie hand cart" and empty them in the nearby garbage containers or on the road-sides to be collected by garbage collecting vehicle. It is essential to decrease impact of roadside waste on the environment. Therefore, Contractor will pay attention to collect the said garbage left on the road sides in the shortest time.

2.4.2 The technical specifications of wheelie handcart to be used by workers are specified in Annex-26.

2.4.3 No waste shall be piled up in open spaces. Piling may be done only with Client's approval only for a short time while collection activity is continuing. Any waste pile formed in case of piling for realizing collection process shall have to be removed within 2 hours at most. Contractor is responsible for all adverse impact and harms of any waste pile to environment and people in case of making piling. In any event Contractor shall not place any waste in such a manner as to cause obstruction to pedestrians or any vehicle and Contractor shall be liable for all claims for damage and injury arising from such obstructions.

2.4.4 Contractor may try different type of tools and make pilot scaled applications in the first 6 months in those areas where hand cart support collection is required. The most suitable system for hand cart support collection in practice can be determined and submitted to Client's approval, and the same shall be continued applying in the other phases.

2.4.5 When selecting the type of vehicle other than "wheelie hand cart" for waste collection, the maximum load capacity of a worker shall be considered and Contractor shall comply with OH&S requirements.

2.5 WASTE COLLECTION SERVICES TO BE CONDUCTED ON SPECIAL DAYS

2.5.1 Contractor shall conduct waste collection services in a special schedule on the following special days and nights.

2.5.2 Contractor shall reach to an understanding by submitting to Client 15 days beforehand the schedule to be prepared for special days.

2.5.3 Below are listed those special days that must be under the Contractor's follow up.

I. New Year's Eve and night (31 December)
II. Ramadan Holiday (changing every year)
III. Eid-ul-Adha Holiday (changing every year)
IV. Pakistani Day (23 March)
V. Independence Day (14 August)
VI. Defense Day (6 September)
VII. Iqbal (Ikbal) Day (9 November)
VIII. Kashmir Day (5 February)Eid-Milad-Un Nabi (changing every year)
IX. Local Holidays (2)
X. Moharram (7, 9 and 10)
XI. After Election (Variable)

2.6 ZONE 1AND PHASES

2.6.1 WASTE COLLECTION IMPLEMENTATION

2.6.1.1 Waste collection Works stated in these specifications will be implemented phase by phase in Zone 1. In each phase progress, Contractor is responsible for the procurement of necessary vehicles and equipments.

2.6.1.2 The figures stated in this section indicate the minimum requirement of vehicles, equipments and materials which contractor is responsible to procure. Contractor will maintain specified number of vehicles and equipments and keep them functional and available besides maintaining back up vehicle and equipments in numbers to ensure uninterrupted work as per schedule. .

2.6.1.3 The number of the vehicles and equipments stated in this section are estimated figures which are obtained based upon the limited data of the client. At the implementation phase, if contractor and Client make changes in the implementation, they may also make changes in the number of necessary vehicles and equipments after mutual

agreement. If the number of vehicles increases or decreases with a mutual agreement, then the unit price is revised.

2.6.1.4 The vehicles used in the waste collection application may be changed with the consent of the Client by taking into account the valid grounds, using the change table provided below.

ZONE 1 VEHICLE CONVERSION TABLE - FACTORS

		BASE VEHICLE TYPES		
		20 m3 Two Crane 3 Axle	10 m3 One Crane 2 Axle	7 m3 Door-to-Door
NEW VEHICLE TYPE	20 m3 Two Crane 3 Axle	1,000	0,562	0,129
	10 m3 One Crane 2 Axle	1,778	1,000	0,229
	7 m3 Door-to-Door	7,751	4,359	1,000

2.6.1.5 Underground and above ground containers to be used in waste collection may be changed with the consent of the Client by taking into account the ground reasons in practice and paying attention to the change ratio below.

The Contractor and the Client may change the number of necessary containers with an agreement between each other. Number of containers shall change according to the volumes. For example supplying 25 unit 3m3 aboveground containers instead of 15 unit 5m3 underground containers. (15 x [5/3] = 25)

2.6.1.6 Contractor will consider the minimum number of vehicles and "TOTAL VOLUME" value specified in the vehicle procurement for "door-to-door collection". Contractor may procure and use the vehicles with different volumes provided that this "TOTAL VOLUME" value is to be maintained. Contractor is obliged to keep backup vehicles readily available at sufficient quantities in order to maintain this "TOTAL VOLUME" value.

2.6.2 ZONE 1 PHASE A

2.6.2.1 The contractor shall commence the waste collection from Phase A the boundaries of which are shown in Annex 5

2.6.2.2 The general information about Phase A is provided below:

Space: 16 km^2

Population: 465.433 **(2012)**

The Quantity of Waste Formed: approximately 318 **tons**

UC within the boundaries: **8 Union Councils (72, 73, 74, 75, 77, 78, 79, 94)**

2.6.2.3 The machines and equipments required for the waste collection to be commenced within the boundaries of Phase A are listed below:

	Capacity in m^3	Unit	Quantity	TOTAL VOLUME m^3
Compression Garbage Truck With 2-Cranes 2-Axle (20 m^3)	20	m^3	2	40
Compression Garbage Truck With 1 Crane 1-Axle (10 m^3)	10	m^3	1	10
Compression Garbage Truck for Door-to-Door Collection	7	m^3	15	105
Mini damper	2	m^3	2	6
Container Underground	5	m^3	18	90
Container Aboveground	3	m^3	118	354
Wheelie Hand Cart	0.12	m^3	60	7.2
Loader	-	Piece	2	
Hauler Dumper	-	Piece	3	

2.6.3 ZONE 1 PHASE B

2.6.3.1 The contractor needs to proceed to Phase B at the end of the 6th month as of the commencement day of the work.

2.6.3.2 The general information about Phase B is provided below:

Space: 31 km^2

Population: 771.899 **(2012)**

The Quantity of Waste Formed: approximately 527 tons (2012)

UC within the boundaries: **14 Union Councils (31,32,33,46,47,48,54,55,76,95,96, 97, 98, 99)**

2.6.3.3 The machines and equipments required for the waste collection to be carried out within the boundaries of Phase B are listed below:

	Capacity in m^3	Unit	Quantity	TOTAL VOLUME m^3
Compression Garbage Truck With 2-Cranes 2-Axle (20 m^3)	20	m^3	3	60
Compression Garbage Truck With 1 Crane 1-	10	m^3	1	10

Axle (10 m^3)				
Compression Garbage Truck for Door-to-Door Collection	7	m^3	23	161
Mini damper	2	m^3	2	6
Container Underground	5	m^3	29	145
Container Aboveground	3	m^3	195	585
Wheelie Hand Cart	0.12	m^3	100	12

2.6.4 ZONE 1 PHASE C

2.6.4.1 The contractor is obliged to pass to the Phase C, 3 months later after proceeding to the Phase B (in other words 9 months later after the commencement date of the work).

2.6.4.2 The general information about Phase C is provided below:

Space: 70 km^2

Population: 1.991.347 **(2012)**

The Quantity of Waste Formed: Approximately 1,360 tons

UC within the boundaries: **35 Union Councils**

(9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,34,35,36,37,38,42, 43,44,45,56,57,58,59)

2.6.4.3 The machines and equipments required for the waste collection to be carried out within the boundaries of Phase C are listed below:

	Capacity in m^3	Unit	Quantity	TOTAL VOLUME m^3
Compression Garbage Truck With 2-Cranes 2-Axle (20 m^3)	20	m^3	6	120
Compression Garbage Truck With 1 Crane 1-Axle (10 m^3)	10	m^3	3	30
Compression Garbage Truck for Door-to-Door Collection	7	m^3	61	427
Mini damper	2	m^3	2	6
Container Underground	5	m^3	76	380
Container Aboveground	3	m^3	504	1512
Wheelie Hand Cart	0.12	m^3	256	30,72

2.6.5 ZONE 1 PHASE D

2.6.5.1 The contractor is obliged to proceed to the Phase D 3 months later after passing to the Phase C (in other words 12 months later after the commencement date of the work).

2.6.5.2 The general information about Phase D is provided below:

Space: **385 km²**

Population: **775.044(2012)**

The Quantity of Waste Formed: Approximately 529 tons

UC within the boundaries: **13 Union Councils (39,40,41,49,52,60,61, 62, 63, 64,136,141,142)**

2.6.5.3 The machines and equipments required for the waste collection to be carried out within the boundaries of Phase D are listed below:

	Capacity in m^3	Unit	Quantity	TOTAL VOLUME m^3
Compression Garbage Truck With 2-Cranes 2-Axle (20 m^3)	20	m^3	2	40
Compression Garbage Truck With 1 Crane 1-Axle (10 m^3)	10	m^3	1	10
Compression Garbage Truck for Door-to-Door Collection	7	m^3	23	161
Mini damper	2	m^3	2	4
Container Underground	5	m^3	29	145
Container Aboveground	3	m^3	195	585
Wheelie Hand Cart	0.12	m^3	99	11,88

3 CITY CLEANING

The Contractor shall render the following services within the scope of city cleaning:

- Rubbish to be cleaned from the streets, roads and walking roads,
- A 24-hour emergency cleaning service to be provided,
- Special cleaning service to be rendered for the special days and commemoration within the boundaries of Zone 1,
- Waste to be collected from the trash cans hung on the poles and carriage of the same to the disposal site ~~as well as cleaning and maintenance of those trash cans,~~
- Streets, roads and walking roads to be cleaned, being washed with appropriate equipments and means and removal of dust,
- Banks, seats and other city furniture located on the streets and roads to be cleaned,

- Undergrounds, tunnels, underpasses, overhead bridges, pedestrian bridges, underground walkways to be cleaned,
- The pavements to be cleaned,
- Sites covered with turf to be cleaned,
- The leaves dropped on the roads to be collected,
- Cleaning of the Greenbelts

3.1 GENERAL TERMS OF CITY CLEANING

3.1.1 The Contractor is obliged to clean streets, side streets and squares specified in the technical specifications within borders of Zone 1. Street cleaning service shall be carried out together with waste collection work and shall be realized in specified time intervals.

3.1.2 In order to achieve desired efficiency at the removal of waste from the ground and at the cleaning operations which will commence after that; both operations shall be carried out in coordination and harmony.

3.1.3 The Contractor is obliged to clean roads, squares, road divides, intersections, roundabout and safety islands; also around and underneath of the seats located on the sides of the road in required frequency and standard.

3.1.4 The Contractor is obliged to sweep and wash weekly bazaar.

3.1.5 Contractor shall start all necessary cleaning services to be realized in the bazaar places, after closing of bazaar and at hour found appropriate by Client.

3.1.6 In case of Bazaar places where infrastructure is not available for mechanical sweeping and washing, they shall be cleaned with hand sweeping teams until the improvement of ground structure by the relevant Client.

3.1.7 The Contractor is obliged to clean bus stops and shall realize their cleaning in routine intervals. (once a week)

3.1.8 Painting of pavement stones on the side of the road may be requested by the Client. Financial aspect of this work is carried out by the contractor upon agreeing with the Client

3.1.9 Also, in the case that the Client requires workforce in case of an earthquake, flood etc. disasters throughout Lahore, it can assign 5% of the workers working under the contractor to the disaster zone to work for a minimum period of 1 month without hindering the ongoing works.

3.1.10 The contractor is obliged to remove bills such as announcements, posters etc. posted, fixed with adhesive or placed using wire etc. that are required by the Client on the route which it

is responsible for the cleanliness thereof. Together with sweeping and washing operations which are carried out according to the frequency required by each road, removal and cleaning of such bills shall be carried out. Notification to the artisan and public of the zone according to the legal sanctions regarding materials such as removed announcements etc. is under responsibility of the Client

3.1.11 The Client may request intensive cleaning work due to reasons such are provisional closing of streets. This work shall be considered within scope of sweeping and washing work.

3.1.12 The Contractor is obliged to follow the schedule approved by the Client. Later on, the contractor may revise the program applied depending on the valid grounds with the consent of the Client.

3.1.13 All citizens who will be affected from the changes to be made in work schedule due to the request of the Contractor shall be notified and informed about the change. Notification method and time being subject to the approval of the Client, this notification and information works shall be carried out by the Contractor.

3.1.14 The Contractor shall clean the wastes on the green areas and flying wastes within scope of this service.

3.2 MANUAL SWEEPING

3.2.1 Manual sweeping activity is the work of sweeping squares, parks, streets, channels and side streets which are located within borders of Zone 1 manually, transferring of the wastes collected by this procedure to the sites and then to regular waste storage sites.,

3.2.2 Manual sweeping activity shall progress in phases like in solid waste collection activity. However, upon request of the Contractor, on condition that technical, financial and client qualification is ensured, manual sweeping activity in Zone 1 area borders of which is specified in Annex 4 can be realized in a single phase if the contractor provides justification. Manual sweeping should be started synchronically with the waste collection.

3.2.3 Manual Sweeping shall be carried out according to a schedule confirmed by the Client. Unless otherwise is specified by the Client, the Contractor issues "Manual Sweeping Schedule" and submits it to the approval of the Client 10 days prior to the commencement of work phases. In the case that the Contractor requests a change in Manual Sweeping Schedule during the work it shall submit that to the approval of the Client again in writing.

3.2.4 Manual sweeping work shall be carried out by teams consisting of 1 competent worker and 10 workers. Expert workers shall be personally responsible for follow-up of the work as well as be responsible for the work done by the workers on the team and for any other situation. One sergeant shall be designated for supervising each 10 employees and team and a senior sergeant will be designated for 10 sergeants and a total of 1000 employees.

3.2.5 The duty locations of the teams shall be notified to them by the responsible Chief and Shift supervisors to the teams before they go on shift. The teams are obliged to be at the location of duty when the shift starts. The Works under the control of team leader shall continue.

3.2.6 Manual sweeping work shall be carried out 8 hours in 3 shifts, mainly through daytime working.

3.2.7 Within scope of manual sweeping work, in addition to manual sweeping of streets and squares, all works specified in the beginning of part 3 of the specifications shall be carried out.

3.2.8 Personnel who carry out the sweeping work shall put the sweepings in special type and color bags and leave them on the side of the road upon closing them tight. The Contractor shall collect the bags left on the side of the road within 6 hours at the latest from the road using waste collection vehicles and take them to the closest site area or regular storage area.

3.2.9 After manual sweeping, the bags which have been left on the ground shall be collected by a waste collection vehicle. There shall be 1 driver and 3 laborers in the vehicle.

3.2.10 Workers who carry out manual sweeping shall carry out the sweeping work using materials described in Annex 26of the technical specifications.

3.2.11 All personnel who work in manual sweeping work shall wear protective work suits specified in Annex 27of the specifications.

3.2.12 Contractor shall ensure that all gully grids are cleaned and all material shall be removed from slots. No waste shall be swept into any gully

3.2.13 The Contractor shall inform the Client within 24 hours in the case of the following conditions.

- Failure to carry out the sweeping work within the specified time
- Exceptional sweeping and waste accumulation due to an event or accident

3.2.14 In the case that reasons which render the street sweeping work difficult or impossible such as adverse weather conditions arise during mechanical and manual sweeping activities applied within the schedule approved by the Client; the Contractor may request from the Client to slow down or completely suspend the sweeping works - provided that it is limited with the area and time that the reason occurs -. Client may instruct the Contractor to continue the sweeping work fully or partially anytime. The Contractor is obliged to continue the sweeping works immediately according to the instructions when instruction is given.

3.2.15 Contractor shall remove all waste from grassed areas adjoining the streets which form an integral part of the street. Contractor shall sweep and/or litter pick grassed areas according to the frequencies of manual sweeping.

3.2.16 Machinery and equipment required for manual sweeping and cleaning services to commence within borders of Zone 1 are listed below.

Manuel Sweeping Machinery	Unit	Quantity
Pickup	Unit	25
Minibus	Unit	10

3.3 MECHANICAL SWEEPING

3.3.1 Mechanical sweeping activity is the work of sweeping squares, parks, streets, channels and side streets which are located within borders of Zone 1 as in Annex 30,31 using mechanical vehicles, shipping the sludge collected upon this procedure to the storage fields.

3.3.2 Mechanical sweeping activities shall commence within 3 months following the delivery of area to serve for the entire region without making phasing upon undersigning the agreement. If the contractor provides some of the vehicles in this time period, it shall begin rendering service in the areas prioritized by the Client. Machinery equipments allocated may be operated in two shifts should the Client approves and the traffic burden is found suitable. Half of the vehicles and the equipment to be operated here shall be supplied within this time frame. At the end of the 6 months following the handover, all machines and equipment relate with mechanical sweeping and flushing shall be made available at the operation site in working order. For the vehicles that are not in operation at the end of this period, the penalty shall be applied pursuant to the relevant articles of the administrative specification.

3.3.3 The Contractor shall carry out mechanical sweeping with the vehicles it has purchased according to the Vehicle specifications specified in Annex 10, 11, 12.

3.3.4 Asphalt roads will be swept by vacuum type vehicle provided in Annex 10,11Of the specifications, non-asphalt, earth roads will be swept by vehicles specified in the Annex 12.

3.3.5 Sweeping of main drags and squares shall be carried out at night. Within this scope, mechanical sweeping activity shall be carried out between 00:00 - 08:00. Areas which cannot be swept due to parking and similar problems at night shall be swept by delivering manual sweeping teams. The Contractor may undergo revision on the schedule upon agreeing with the Client according to the experience it has gained in Lahore and by relying on rightful justifications.

3.3.6 Mechanical sweeping work shall be carried out according to the schedule provided in Annex 30,31.

3.3.7 The Client reserves the right to make changes in the areas where sweeping and washing is carried out with vehicles, provided that the quantity specified in the agreement is constant, the Contractor is obliged to follow these changes.

3.3.8 The Client may request sweeping of additional roads, squares or areas in addition to the roads that will be swept mechanically. The Contractor is obliged to meet these requests against cost.

3.3.9 Vehicles, tools and materials required for cleaning main drags, roads and squares shall be provided by the contractor. The Contractor is obliged to ensure that vehicles, tools and equipment are operated correctly and high standard of maintenance is ensured by providing uninterrupted supply of spare parts to keep them in good order.

3.3.10 In order to prevent traffic accidents illuminated arrow signs (conforming to the concerning standard, dimensions, and light intensity etc.) placed at the back of the vehicle shall always be operated during mechanical sweeping. ,

3.3.11 In main arterial road cleaning works made through vacuum street sweeper, a light trailer should be provided for roads indicated by the Client in terms of traffic safety.

3.3.12 The Contractor shall employ 1 driver and 1 unskilled worker for each vehicle.

3.3.13 The Contractor is obliged to follow all traffic and safety rules during work.

3.3.14 Water tanks of vacuum sweeping vehicles shall be filled before departing from the site area and carry out the sweeping process using water. Dusting due to non-operational water jets is a reason for a fine.

3.3.15 In the case that waste storage tank of the vacuum sweeping vehicles are full while carrying out sweeping activity according to the specified program, they are directed to the nearest site area. At that location tank is emptied, and upon filling up the water tank sweeping work shall be resumed.

3.3.16 The Contractor shall construct a reservoir in the site areas to be provided by the Client within scope of this tender where vacuum sweeping vehicles will dump their loads. While the solid wastes collected here are collected in a part, the waste water is discharged to the nearest channel upon resting. Discharge criteria are adjusted pursuant to the laws of Pakistan. Project of the dumping reservoir shall be prepared by the contractor and approved by the Client.

3.3.17 Waste sludge and all kinds of wastes collected at intermediate zones upon sweeping with vehicles and manual sweeping shall be shipped to the landfill site using watertight trucks.

3.3.18 Damages caused by the vehicles and traffic penalties shall be borne by the contractor.

3.3.19 The Contractor shall provide communication devices (radio/phone) as 1 (One) piece per vehicle. The Contractor shall have spare devices in the event that the devices malfunction.

3.3.20 Machinery and equipment required for mechanical sweeping activity to commence within borders of Zone 1 are listed below.

Mechanic Sweeping Vehicles	Capacity in m^3	Unit	Quantity
Vacuum Sweeping Machine	6	m^3	13
Vacuum Sweeping Machine	4	m^3	4
Belt Type Road Sweeping Vehicle	5	m^3	2
Loader			1

3.4 WASHING SQUARES AND WALKWAYS

3.4.1 Washing activity includes washing the areas like squares and walkways within the Zone 1 specified at the Annex 32with mechanical vehicles. Washing service will start within 3 months following the site delivery with necessary machinery and equipment. No staging is considered for the washing activity.

3.4.2 Contractor shall realize the washing activity with the machinery purchased in accordance with the Vehicle specification given at Annex 13

3.4.3 Contractor shall realize the washing activity during night once in a week for each squares in accordance with the program provided at the Annex 32.

3.4.4 Contractor may revise the washing program with the agreement of the Client depending upon the experience gathered at Lahore and reasonable grounds.

3.4.5 Contractor shall also ensure that the places under the non-fixed items like trash-cans, wheeled trash containers, etc. to be washed during the washing process.

3.4.6 Client may also instruct the contractor whenever it is necessary to wash also painted and dirty walls together with the walkways to be washed.

3.4.7 It is obligatory to wash the streets together with the walkways in accordance with a washing program approved by the Client. Contractor shall prepare a "Street Washing Program" including detailed washing program of each street and submit to the approval of the Client 10 days prior the work each phase unless otherwise is stated by the Client. If the Contractor needs any change at the Street Washing Program during the work time this must also be submitted to the approval of the Client in written and a written approval must be received.

3.4.8 There should not be any puddle left on the streets or walkways after washing and remaining excess water shall be swept to the closest water outlet.

3.4.9 Contractor shall provide necessary and enough warning signs in order to prevent any accidents and injuries like slipping and falling during the washing process of the walkways. Besides, the Contractor is also responsible to place these warning signs in appropriate places in order to prevent any incidents.

3.4.10 Client may instruct the Contractor to add disinfecting agents to the washing water. Without getting the written approval of the Client the Contractor shall not add any chemicals to the washing water. Disinfecting agent to be used by the Contractor as a result of the instruction of the Client shall be included to the progress billing at the end of the period.

3.4.11 All of the vehicles to be used at washing process shall be equipped with necessary visual and audio signals in accordance with the legislation.

3.4.12 Water to be used at washing process shall be procured from the construction sites or from the places the Client will identify. Water cost belongs to Client.

3.4.13 The Contractor shall employ 1 driver and 2 unskilled worker for each vehicle.

3.4.14 Machinery and equipment required for mechanical washing services to commence within borders of Zone 1 are listed below.

Mechanic Washing Vehicles	Capacity	Unit	Quantity
Washing Vehicle (Truck)	8000	lt	7
Vacuum Sweeping Machine	4	m^3	2

3.5 EMPTYING LITTERBINS THE SQUARES

3.5.1 This service include emptying, the litterbins open to public use at main arterial roads, streets and squares in accordance with the phases within the area of Zone 1.

3.5.2 The Client may request specially designed containers for the plazas, request that the contractor place the containers or do it themselves. The Contractor is obliged to honor the request of the Client at cost.

3.5.3 If the containers that have been placed on the plazas by the Client or by the contractor at the request of the Client can be emptied by vehicles and equipment of Standard measurements, the contractor shall be included in the waste collection plan. If the container placed on the plazas cannot be emptied with the contractor's existing vehicles then the Client will take necessary precautions themselves.

3.5.4 All of the litterbins shall be emptied before they got full or within 3 hours after it is identified as full.

3.5.5 Contractor is emptied the trash bins in such a matter that they do not exceed 80% capacity between 08:00 and 22:00 at main arterial roads and squares those names are identified at Annex 30,32.

3.5.6 Litterbins at public parks and gardens must be emptied once in a day.

3.5.7 Trash bins with built-in lock mechanism must be closed and locked after emptying process.

3.5.8 Any waste collected from litterbins shall be considered as Domestic Waste.

3.6 CLEANING OF CITY FURNITURE

3.6.1 Within the scope of this service cleaning of the city furniture like benches, seats, pedestrian barriers requested by the Client shall be executed by the Contractor.

3.6.2 Contractor shall prepare "City Furniture Cleaning Schedule" ensuring that every city furniture is cleaned at least 4 (four) times a year and submit to the approval of the Client 10 days before the start of the work unless otherwise is stated by the Client.

3.6.3 Contractor shall only use the detergents that are approved by the Client at cleaning processes of city furniture. Detergents to be used by the Contractor as a result of the instruction of the Client shall be included to the progress billing at the end of the period.

3.6.4 Contractor shall inform the Client about the damages and the necessity of replacements of the city furniture

3.7 CLEANING OF SUBWAYS AND UNDERPASS

3.7.1 Contractor shall sweep and clean the subways according to the specified sweeping intervals.

3.7.2 Cleaning process of the subways must be executed according to a schedule approved by the Client. Contractor shall prepare "Subway and underpass Cleaning Program" and submit to the approval of the Client 10 days before the start of the work unless otherwise is stated by the Client.

3.8 CLEANING OF STREETS AND SQUARES DURING SPECIAL DAYS

3.8.1 This service includes cleaning the streets and collecting the wastes and trash bins during and after the activities like special celebrations to be realized within the borders of Zone 1.

3.8.2 Contractor is obliged to execute necessary street cleanings, waste collection and trash bin emptying at the time the Client finds appropriate according to the state of the activity.

3.8.3 Contractor shall inform the Client about the personnel, materials, vehicles, tolls, etc. utilized during the activity in the following 14 days.

3.8.4 Cost of this service shall be paid to the Contractor in terms of the prices given at the unit price list.

4 PLACES AND EQUIPMENTS TO BE GIVEN TO THE CONTRACTOR BY THE CLIENT

4.1 THE WORKSHOPS & PARKİNG AREAS

4.1.1 The Client will transfer the parking areas and the workshops which work under his authority at the existing time and which are in the borders of the zone 1 to the contractor by the start of the job.

4.1.2 The workshops in the Zone 1 which are owned by client and will be transferred to contractor under this work are provided in below table.

Workshops &Parking Areas	Location	Areas
MehmoodBooti	Wahga Town & Shalimar Town	2960 m^2
Harbanspura	Aziz Batti Town	3285 m^2
BadamiBagh	Rawi Town	3670 m^2

4.1.3 Since the activities of waste collection and sweeping by hand will run in form of staging within the content of the tender in question, the areas where the contractor has ton entered into will be continued to receive the service by the Client. Therefore during the time which runs until the contractor will render service to all the areas of which the borders are given in the Annex 4 the workshops where the repair and the maintenance of the vehicles are performed will be especially will be used together within the frame of a mutual understanding and goodwill.

4.1.4 The Client will not require any rent in cash in the workshops and parking Areas that it will transfer. But against this the contractor will establish all the machinery equipment mechanism in the areas of workshops and work places as mentioned in the article 4.1.10of the technical specifications in a manner which will meet the need of the Client after this job.

4.1.5 The contractor will deliver to the Client the plans and projects of the workshops which he will repair or will construct again.

4.1.6 All the permission periods and procedures that have to be obtained from the related authorities for the changes and repairs will be followed by the Client.

4.1.7 The physical conditions of the repair and maintenance workshops will be firstly improved. For this purpose the earth soil will be covered by concrete with suitable resistance the channel and grill systems will be performed where the accumulated oils and waters could be flowed.

4.1.8 It will be passed to the division and regular shelf system for separately classification of the spare parts and materials in the workshops.

4.1.9 The contractor will form a mechanism related to the waste management in the workshops and for the accumulation of the waste oils, waste tires together.

4.1.10 The minimum machine equipments that are necessary to exist in the workshops for the repair, maintenance and renewing are listed below:

- Vehicle lifting machine of 20 tons
- Hoist with car
- Suspended winch
- Hydraulic hose squeezing machine
- Hydraulic hose cutting machine
- Fixed perforator
- Press of 100 Tons
- Oil filling pump with air
- Compressor
- Grease pump
- Vehicle washing machine
- Standard workshop switch sets
- Welding sets
- Protecting materials suitable to İSG

4.1.11 The maintenance and calibration of these tools which will be bought to the workshops will be made periodically.

4.1.12 The periodical maintenance plans will be formed in order that the repairs and maintenances of the defective vehicles have to be performed in regular basis.

4.1.13 The most attention will be showed to the work health and security issues in the workshops which will be established.

4.1.14 The instruction for use of the equipments working in the workshops will be prepared.

4.2 THE TRANSFER CENTER AND THE CONTAINERS

4.2.1 In case of the demand of the contractor, the Client may give to rent to the contractor against their price the small solid waste centers which remain in the borders of the zone 1 that are used for the transfer of the collected waste as they are, the phase rank being taken into consideration. (In case the area belongs to itself).

4.2.2 The contractor will be able to use these areas in the transfer of the wastes as well as in the Clientand management of the workers. The routine repair and maintenance of these areas will be performed.

4.2.3 Especially in case when they are used with the purpose of temporary storage of the wastes, the waste could be only waited for 6 hours in these points. In the periods when the temperatures are high and intense this period will not exceed 4 hours.

4.2.4 In case when the waste has waited more than the authorized period and caused the object of a claim by the people living around, he is punished by the related resolutions of the client specification.

4.3 THE VEHICLES

4.3.1 The Client, by the request of the contractor, will be able to give to rent the trucks with open dump box which exist in its hand and which are not older than 3years old and the other vehicles against their prices to the contractor during the period of the job, The contractor will be responsible repair, maintenance of the vehicles which he has rented.

4.3.2 The Contractor shall provide 10 service cars to the Client for controlling activities in the Zone 1 area. The Contractor Is responsible of all cost of these vehicles other than fuel consumptions. The Client will provide fuel consumption of these cars.

4.4 THE WATER

4.4.1 All the water need that the contractor will use with purpose of washing and sweeping will be covered by the Client. For this purpose, the water pits, etc. similar buildings in the areas of work places if any, will be easily used by the contractor.

4.4.2 If there is no any water building which can meet the need in the work place areas, the Client will give all the necessary support to the contractor on the bureaucratic processes which are necessary for the opening of a water pit or similar water supply building.

4.5 THE GENERATOR AND ELECTRICAL INSTALLATIONS

4.5.1 The contractor will be able to use from the electrical components of which there use are necessary in the work place areas also by obtaining the approval of the Client by paying their prices.

4.5.2 In case that he can not meet his necessity from the work place areas that he will rent from the Client the contractor establishes himself the electrical installations which are necessary such as generator, etc.

5 THE PERSONNEL TO BE EMPLOYED AND THE EMPLOYMENT PRINCIPLES

5.1 The number of required personnel for the works under this tender, which will be performed within the boundaries of Zone 1, is outlined in the table below. The Project Coordinator, Project Executer, Deputy Project Executer, Shift Manager, Foreman, which are listed in the table, are recognized as managerial staff and the salaries and personal rights of these personnel shall lay with the contractor.

	ZONE 1					TOTAL ZONE 1
PERSONNEL	SOLID WASTE COLLECTION	MECHANICAL SWEEPING	MECHANICAL WASHING	HAND SWEEPING	CLIENT	
PROJECT COORDINATOR					1	1
PROJECT EXECUTER					1	1
DEPUTY PROJECT EXECUTER	1	1	1	1		4
SHIFT MANAGER	4	2		3		9
FOREMAN	8	3	2	21		34
LOADER OPERATOR	2	2				4
MOTOR VEHICLE INSPECTOR	1	1	1	1		4
TECHNICIAN - REPAIR&MAIN.	29	6	2	4		41
SERGEANT	83	4	1	211		299
SWEEPER OPERATOR		34	7			41
DRIVER	211		2	24		237
WORKER	1121	31	21			1173
HAND SWEEPER				2087		2087
TOTAL	1460	84	37	2352	2	**3935**

5.2 All other personnel mentioned in the table other than managerial staff (3886) shall be employed in the operational field being firstly provided from the Client.However, contractor may employ %20 of this number of the employees by himself.

5.3 Contract has right to select the personnel to be designated in the activities to be performed under the Tender to be transferred from the client.

5.4 Contractor is free to select the personnel to be employed by himself from the free market in order to establish the core team according to own selection criteria.

5.5 Contractor shall not make any payment to the personnel of client, only pay the salaries of the employees employed under its own body.

5.6 Personal benefits shall remain with the client, however, contractor is responsible for keeping the tally sheet of the personnel to managed under the contractor and assessment of their periodical performance.

5.7 Client personnel to be given to the management of contractor shall be designated in the relevant work areas at phases in accordance with the work scope as stated in the relevant articles of the specifications.

5.8 Contractoris free for designating the personnel, may appoint according to work nature and personnel qualification.

5.9 Contractor will pay the salaries in accordance with the factors stated in the below table depending on the minimum wage to the employees and will receive the amount to be paid from the Client by submitting the payrolls of his employees.

PERSONNEL	SALARY FACTOR
LOADER OPERATOR	4,50
MOTOR VEHICLE INSPECTOR	4,00
TECHNICIAN - REPAIR&MAIN.	3,00
SERGEANT	3,00
SWEEPER OPERATOR	2,00
DRIVER	2,00
WORKER	1,10
HAND SWEEPER	1,10

5.10 Contractor shall pay below payroll items to each employee for his employees:

- Net salary (Salary multiplier * base salary)
- Social Security
- EOBI (Employees Oldage Benefits Institution)

5.11 Contractor shall make a payment of 20% of "minimum wages" for meal, 20% of "minimum wages" for the transportation for each personnel. These amounts shall be determined by the client and contractor is obliged to make payments both own personnel and Client personnel (3886). He will receive the payable amount from the Client by submitting the allowances of all employees.

5.12 The prices to be determined for Garbage Collection, Mechanical Sweeping, Mechanical Washing, Hand-Sweeping and City Cleaning services is exclusive of the personnel salaries(except administrative personnel mentioned 5.1).

5.13 The contractor has the right to retire the personnel of whom their retirement age has arrived as per the laws and regulations of Pakistan during the advancement of the job in question.

5.14 The lists showing the monthly payrolls and the social security declarations of the Contractor's workers will be submitted every beginning of the month by the contractor to the Client.

5.15 The operators who will be used incase of necessity will be selected carefully and the approval of the Client will also be obtained.

5.16 In case when the personnel transferred by the Client to the staff of the contractor perform actions such as the strike, lock-out, work restriction, etc, the contractor has the right to punish the personnel and to cancel their work contract.

5.17 The contractor may cancel the work contract of the personnel of whom he has realized his transfer from the Client in case he is not working with the requested performance and he is not obeying the ethic and moral rules.

5.18 The contractor has the right to change the place or the position of the employee, etc. for using in effective way the personnel given under his conduction.

5.19 Contractor will establish a general disciplinary committee for all the personnel to be employed.

5.20 The contractor must change the worker who has been determined that he did not obey the job moral and rules and therefore that the Client wants that he will not be employed in a manner which is suitable to the work legislation.

5.21 The tools, equipments and the protector materials that the employees will use during the job will be supplied by the contractor in conformity with the standards that the Client will determine.

5.22 It is necessary that the health, physical structure of the personnel who will be employed by the contractor have to be in conformity with the qualification to perform the service which is the issue of the tender.

5.23 The personnel will be employed during the work in conformity with the related legal legislation and worker health and work rules and the educational and training meetings will be organized on these issues.

5.24 The contractor will protect the rights and freedoms of the personnel who are employed under his conduction and he will never exhibit comportment in an unfair manner which is not equitable.

5.25 He will respect the weekly and annual vacations of the employees he will pay for the over time and performance.

5.26 The contractor may not make any increase of salary to his employees below the increase proportion that the Pakistan State will announce annually.

5.27 The contractor will construct as much as possible social areas which will provide the motivation of the personnel in the work place areas where the workers are administrated and managed (Table tennis, bibliotheca, volleyball area, etc.)

5.28 The contractor will explain the job in a correct way to the personnel working under his conduction and will evaluate the performance in direction of the measurable criterions.

5.29 The contractor will pass the personnel working under his conduction from the routine health controls. Within this extent the contractor either will employ a doctor in his structure or will provide the personnel to pass from the regular health control by a health institution. At least those tests shall be conducted by the Contractor once a year for each personnel: Respiratory Function Test, Chest x-ray, Hemogram, urinalysis, HBsAG

5.30 The contractor will inform the Client in case a contagious disease will be found on any of all personnel. He will take all the necessary measures to prevent the contamination of the contagious diseases to the other personnel or to the public.

5.31 The contractor will make regularly the vaccine of tetanus, hepatitis to the personnel that he is employed.

5.32 The contractor will archive absolutely the health reports of the personnel who is employed and will submit 1 copy to the Client in case of request.

6 THE TRAININGS WHICH WILL BE GIVEN TO THE EMPLOYEES

6.1 The contractor will describe the job description to the personnel working under his conduction; he will explain exactly what his expectation from them is.

6.2 The contractor will give trainings with periodical intervals related to the area where the personnel are on duty.

6.3 The personnel will be awarded if they will show a performance over than the one expected from them related to the job they are performing. Whereas the personnel will be punished if they will not respect the ethic job rules as regard of moral as well as job performance.

6.4 At least once a training seminar during the service on the issue of job moral, public relations and moral motivation will be given to the personnel employed in the area during the period of contract.

6.5 The night personnel have to be passed from the trainings which will give teach them the principles and procedures of working during the night time.

6.6 All operators will be passed from the psycho techniques tests in case of possibility.

7 THE DRESSING PRINCIPLES

7.1 The Contractor shall distribute four uniforms for each personnel, two for summer and two for winter seasons.

7.2 The contractor will distribute same type of dresses to the personnel doing the same job (job dress, gloves, caps, boots and raincoats) and each employee will have identity cards mentioning the name, surname and the title of the contractor attached to their collar.

7.3 The design of the job dresses belongs to the contractor the selection right of color and model will be to the Client.

7.4 The protector dresses which will be distributed by the contractor to the working employees are given in the Annex 27

7.5 It will be paid attention that all the job dresses of all the personnel will be continuously clean also it will be controlled if they have been shaved, they are taken care or not.

7.6 The dresses will be distributed after the sample will be approved by the Client.

8 THE USE OF LOGO

8.1 No signs like name, brand, recognizer sign, publicity and logo, etc. can be placed on the protector dresses and job dresses of the employees and on the cleaning vehicles without the prior written permission of the Client.

8.2 The pictures, writings and logos that the Client will approve will be placed on the vehicles.

8.3 The contractor may suspend the visual materials such as plates, placards, etc. to the places like workshops, workplaces, etc. by the approval of the Client.

9 THE STATISTICAL DATA

9.1 The contractor is responsible to keep all the necessary information and documents related to the area from where he is responsible and the k-job that he has undersigned and to share them with the Client.

9.2 The contractor is responsible to prepare a smooth registration program with electronic base related with the jobs that he has performed.

9.3 The contractor has to enter especially the waste quantity registrations collected on the basis of county and quarter, for the statistical data registration and for to be a light to the next coming years regarding the job of waste collection

9.4 The working periods, their performance and their health data of the working personnel will be kept under registration.

9.5 The contractor may not share the data that he has obtained regarding the jobs that he has performed on the field where he was responsible with the 3rd people without the approval of the Client.

10 THE WORK HEALTH AND SECURITY CONDITIONS TO BE RESPECTED

10.1 All the necessary precautions measures will be taken in a manner which will be in conformity with the quality of the job during the period of 7 years related to the tender in question. No any job will be permitted to be started without taking the precaution measures.

10.2 The contractor will take all the necessary measures in order to prevent the professional risks, the health and security protection, the elimination of the risk and accident factors.

10.3 The contractor will give as much as possible ISG trainings to the employees and will form a conscious level with the purpose to provide the healthy working conditions.

10.4 The responsibilities of the employees on the issue of work health security are not eliminating the responsibilities of the contractor. The contractor is obliged to take the protector and preventive measures.

10.5 The contractor is responsible to render the job which is the issue of the activity to be suitable to the personnel, especially the design of the work places areas, to care to the selection of the job equipments and working methods, to increase the risk of the dangerous areas, to provide harmony with the technical developments.

10.6 The contractor will form a team which will be constituted of at least 3 people within the context of the work health and security works. This team apart its principal duties will take mission on the formation of the conscious and on carrying it to a certain level. Within this

extent it will especially make training on the issue of works regarding the first aid and combat with fire and a small sized application work will be performed.

10.7 The contractor is obliged to provide protector materials for his personnel related to the job issue f the activity. For this purpose dust masks with ventilation especially for the teams of sweeping with hand, gloves, glass with complete protection, ear protector for the drivers in vehicles in which the noise level is high, to keep hard hat in sufficient quantity are obliged.

ANNEXES

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Annex-3	Zone 1 Border Map
Annex-4	Zone 1 Phases and Out of Sevice Areas
Annex-5	Zone 1 Phase A Border Map
Annex-6	Zone 1 Phase A+ B Border Map
Annex-7	Zone 1 Phase A+B+C Border Map
Annex-8	Zone 1 Phase A+B+C +D Border Map
Annex-9	Phases Chart for Zone 1
Annex-10	Technical Specification for 6 m3 Vacuumed-Typed Sweeping Vehicle
Annex-11	Technical Specifications of 4 m3 Vehicles to be used in Squares and Narrow Streets
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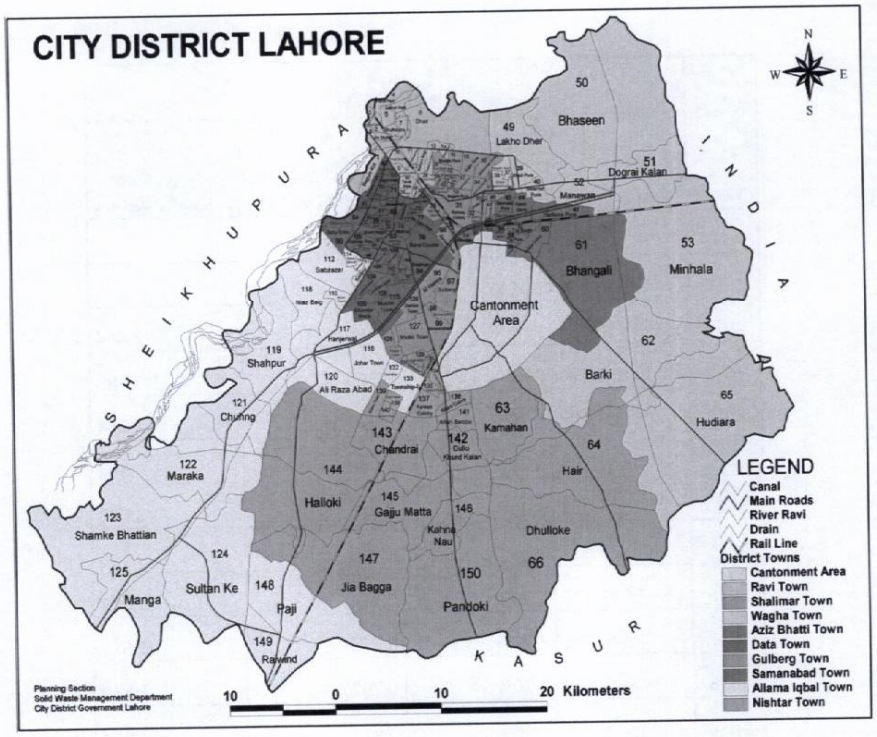
Annex-33	Greenbelts List

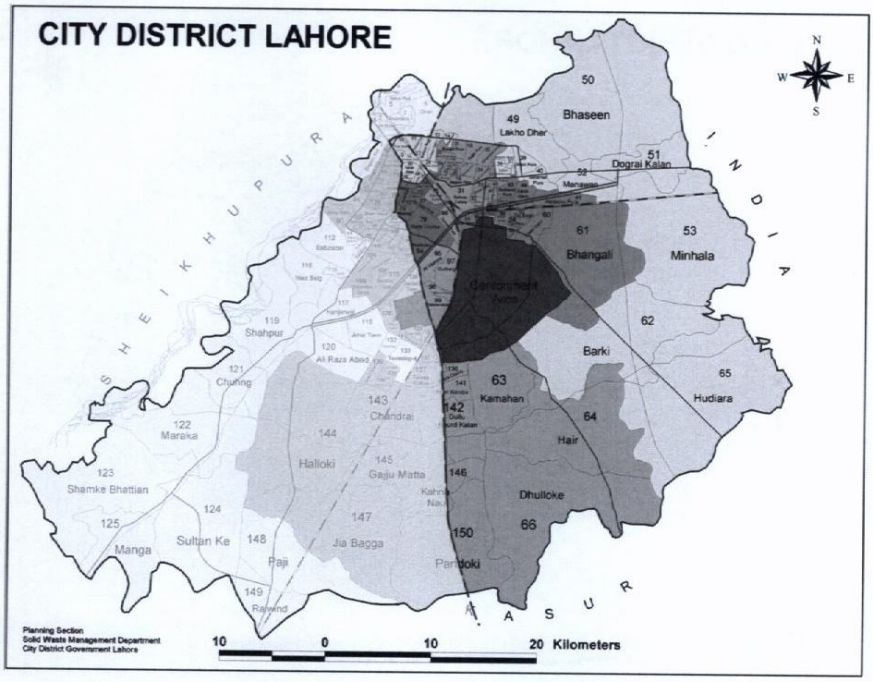
Annex-1 Estimated Population of Lahore and Waste Generation

YEAR	ZONE 1			
	Population	Population Rate	Solid Waste Per Capita Per Day	Generated Solid Waste
2008	3.520.892			
2009	3.633.558	3,20%		
2010	3.759.280	3,46%	0,650	2.444
2011	3.879.576	3,20%	0,666	2.585
2012	4.003.723	3,20%	0,683	2.734
2013	4.131.838	3,20%	0,700	2.892
2014	4.264.057	3,20%	0,717	3.059
2015	4.400.507	3,20%	0,735	3.236
2016	4.541.326	3,20%	0,754	3.423
2017	4.686.651	3,20%	0,773	3.621
2018	4.836.626	3,20%	0,792	3.830
2019	4.991.396	3,20%	0,812	4.052

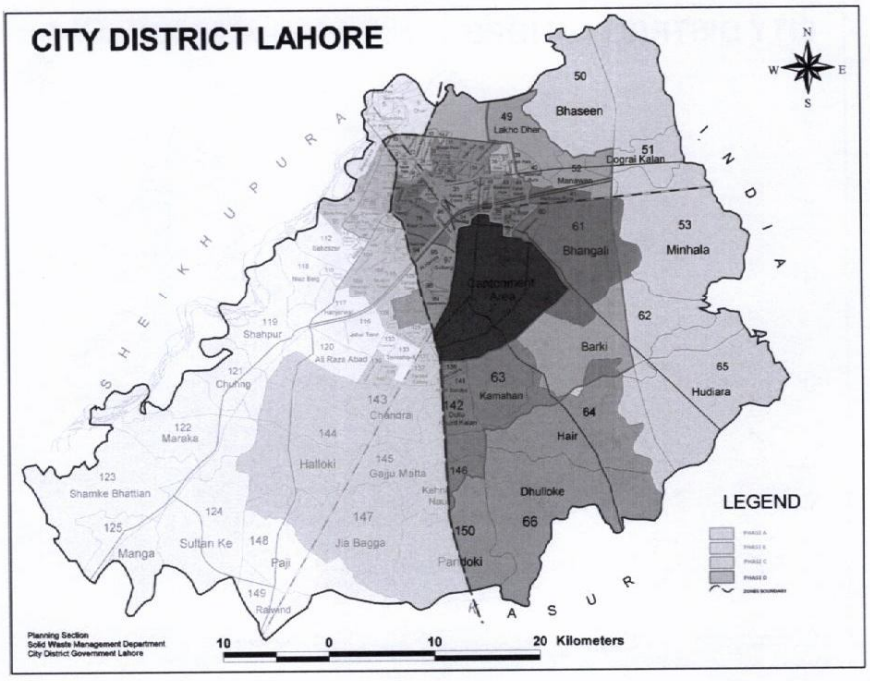
Annex-2 **Lahore General Map**



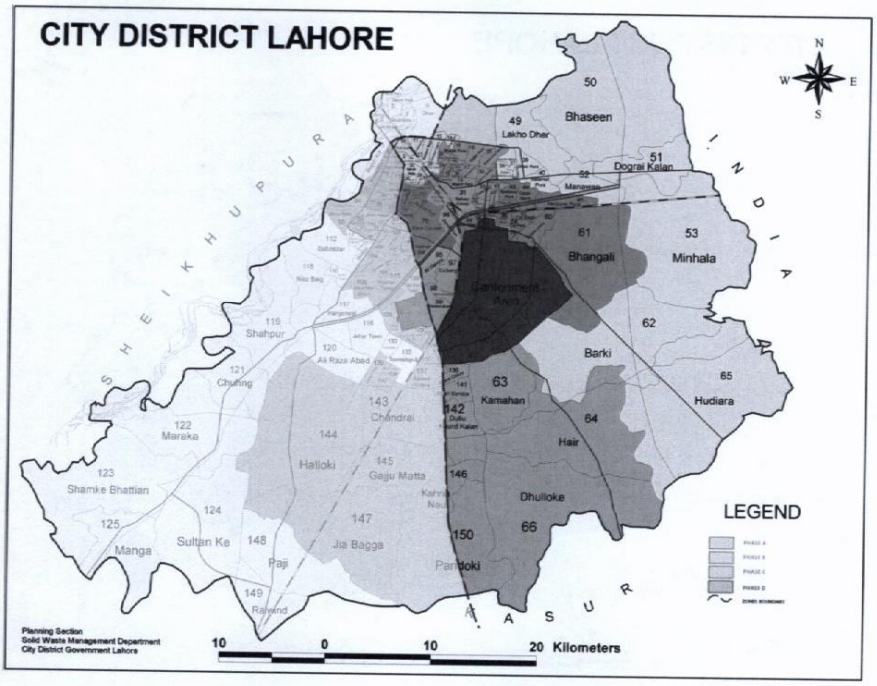
Annex-3 **ZONE 1 Border Map**



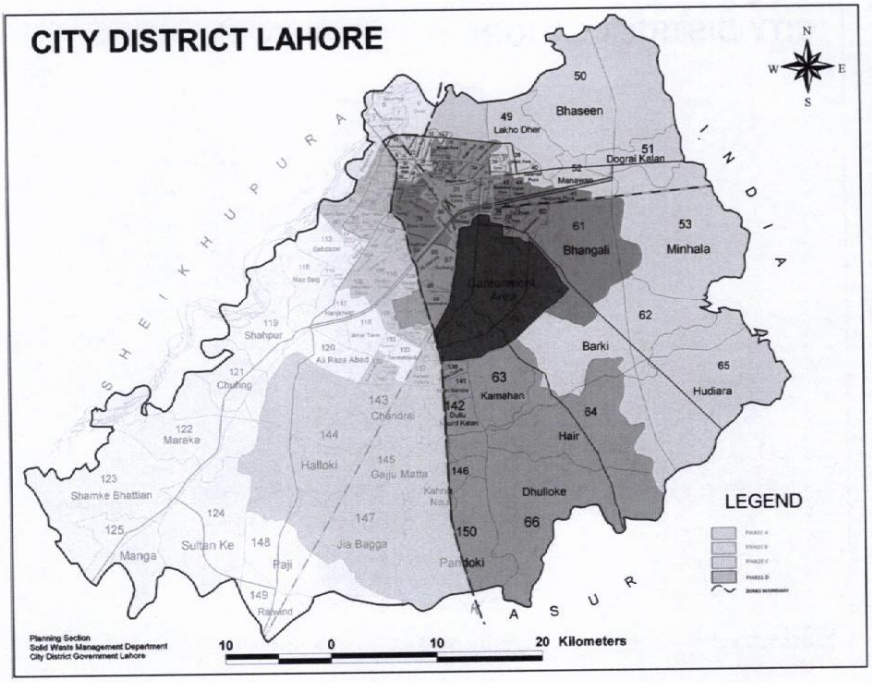
Annex-4 Zone 1 Phases and Out of Service Areas



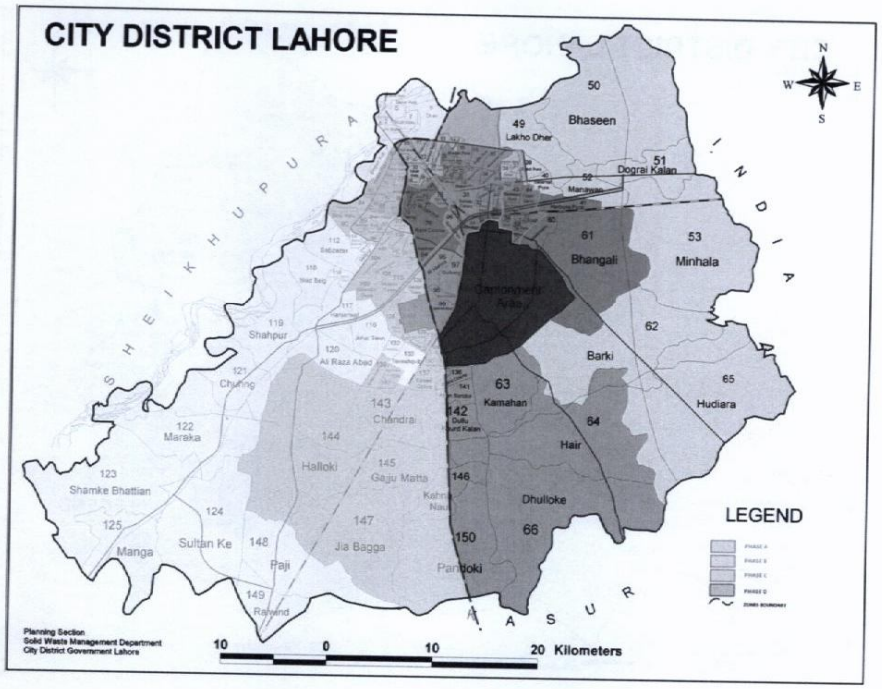
Annex-5 **Zone 1 Phase A Border Map**



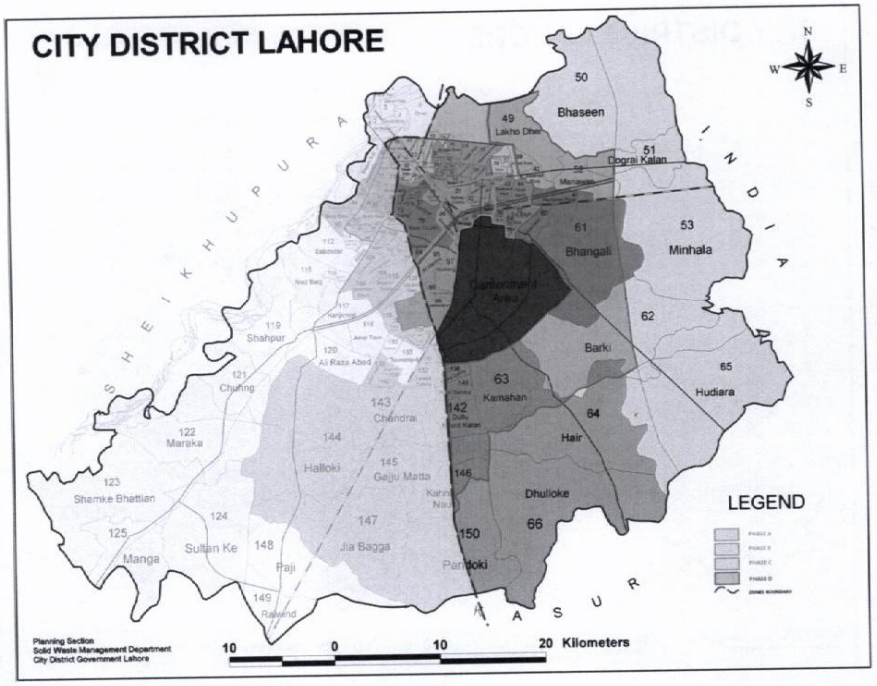
Annex-6 Zone 1 Phase A+ B Border Map



Annex-7 **Zone 1 Phase A+ B +C Border Map**



Annex-8 Zone 1 Phase A+ B +C +D Border Map



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Annex-9 Phases Chart of Zone 1

This table describes Phases and transitions of waste collection and hand sweeping activities. Specifications related to transitions are described in the relevant articles of the tender documents (2.6).

Mechanical sweeping and mechanical washing activities shall be started in any time possible within 3 months following site delivery date without any phases, stages or transitions.

PHASES	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	MONTH 6	MONTH 7	MONTH 8	MONTH 9	MONTH 10	MONTH 11	MONTH 12	MONTH 13	MONTH 14	MONTH 15
PHASE A															
PHASE A + B															
PHASE A + B+ C															
PHASE A + B+ C+ D															

Annex-10 Technical Specification for 6 m3 Vacuumed-Typed Sweeping Vehicle

A. Engine

- Engine shall be of at least Euro 1 norm, 4-cylinder in-line type, diesel, (turbo) charge air, direct spraying, with thermostat and water cooling.
- The cooling system shall keep the engine operatable up to 55°C outdoor temperatures.
- Engine shall be at least 2.200 rpm (175-200 HP).
- Engine cylinder capacity shall be at least 4.200 cm^3.
- Torque shall be at least 1.200-1.600 rpm 675 Nm.

B. Clutch

- Clutch shall be single disk, dry-type, hydraulic.

C. Transmission box, Differential Gear and Axles

- Transmission shall be at least 9 forward and 1 backward gears, with synchromesh.
- Vehicle shall be 4 x 2 driven.
- Front axle shall be with parabolic truss and at least 5.300 kg capacity.
- Rear axle shall be with air suspension and at least 1.000 kg capacity.
- Front and rear axles shall have stabilizers.
- Maximum speed of vehicle shall be at least 85 km/h.
- In order to reach to an efficient sweeping at low speeds, rear axle ratio shall be at least i=5.

D. Brakes

- Vehicle shall have anti-aquaplaning brake system (ABS) and anti-slip regulation (ASR) system.
- Vehicle shall have anti-load (anti-lock) brake (ALB) system.
- Service brake shall be of two-circuit and air type.
- Front and rear axles shall be with disk brakes.
- Park brake shall be of spring setting active on rear axle.
- It shall have pressurized air drier with heating.

E. Tyres

- Vehicle shall be with 7 tyres including spare one. Rear axle shall be with double-tyres.
- Tyres shall be at least 10R 22.5 in sizes.
- Wheel rims shall be at least 1.50 x 22.5 in sizes.
- A spare tyre with wheel rims shall be provided. Spare tyre shall be provided externally.

F. Steering Wheel

- Vehicles shall have hydraulic steering wheels.
- Steering wheel shall be located on the left side. Steering wheel shall be on the left side as fabricated and originally and be under the warranty of manufacturing company.

- Maneuverability of vehicles shall be with a turning radius of at least 15 meters.

G. Electrical system

- Electrical equipment shall be 24 V.
- Accumulators shall have capacity of at least 2 x 12 V / 115 Ah.
- Starter motor shall have capacity of at least 4 kW / 24 V.
- Alternator shall be of capacity of at least 28 V / 80 A.
- In vehicles, there shall be headlights, turning signal lamps, brake lamps, stop lamps, xenon headlights and fog lamps, headlight protection grills in accordance with international standards.

H. Driver Compartment

- Vehicle compartment shall be forward, bedless, forward-tilt enabled, and with steel construction.
- Front and side windows shall be placed in a way enabling wide field of view and be made of secure auto glass.
- There shall be integrated air conditioner in the compartment.
- Rear mirrors on the driver and assistant sides shall be electrically adjustable. In addition, there shall be distant view mirrors and curb mirrors both on right and left sides. Distant view mirrors and assistant-side rear view mirrors shall be of heated.
- Compartment shall house at least one more person other than driver, and driver seat shall be manufactured as to be air suspended and adjustable. There shall be an assistant seat.
- There shall be glass in the back of compartment.
- In the compartment, there shall heating and ventilation system.
- Compartment shall be insulated against for hot and cold weather conditions.
- There shall be windshield wipers and water sprinkler system on the windshield.
- Doors shall be lockable.
- There shall be horn in vehicles.
- There shall be backward-maneuvering audio warning in vehicles.
- There shall be a tachograph in vehicles (1 day/2 persons).
- Compartment shall be painted with cataphoresis dipping technique against oxidation.

I. Instrument Panel

- There shall be speed, revolution, fuel, oil and temperature indicators in vehicles. Revolution indicator shall be separately for bottom and top engines.
- There shall be daily and cumulative km odometers.

J. Chassis and Dimensions

- Chassis shall have been made reinforced as not to be deformed under any and all working conditions with maximum weight loaded.

- Fuel tank shall have at least a capacity of 125 liters, and chassis and top structure engine shall be fed from the same tank.
- Fuel tank shall have been mounted in an appropriate manner, by also obtaining approval of Client, and been protected properly and securely from any and all impacts from outside.
- Axle distance of vehicles shall be minimum 3.200 mm and maximum 3.300 mm.
- Overall dimension of vehicles shall be maximum 6.100 mm.
- Overall clearance of front wheels shall be maximum 2.400 mm.
- Overall clearance of rear wheels shall be maximum 2.450 mm.
- Maximum gross weight of vehicles shall be at least 15.000 kg.
- There shall be guarding plates on front and rear axle spaces of vehicles for safe approach.
- **Contractor is free to choose any vehicle that is able to handle this system provided that super structure requirements to be installed on vehicles will remain the same.**

K. Super Structure Requirements

- Waste collection process shall be automatically carried out and suction shall be done with vacuum through suction nozzles on both sides.
- All functions (all commands, etc., pertaining to supra structure) shall be controlled via a control panel in the compartment. Control panel shall be compatible with compartment's instrument panel and shall have an esthetic and easy to use and accessible design. And the final design shall be approved by Client's authorized officers or if any, consulting firm's officers. No pressurized hydraulic hose, etc., shall be placed in compartments.
- Waste tank capacity shall be gross 6 ^{3} (±0.5 m^3).
- Side walls of waste tank shall be manufactured out of stainless steel sheets (AISI 304) at least 4 mm thick.
- Bottom of waste tank shall be manufactured out of stainless steel sheets (AISI 304) at least 3 mm thick.
- Front wall of waste tank (back of the compartment) shall be manufactured out of stainless steel sheets (AISI 304) at least 3 mm thick.
- Top and waste emptying closure of waste tank shall be manufactured out of stainless steel sheet.
- All other surfaces not mentioned in the specifications and in direct contact with waste, water and humid air shall be manufactured out of stainless steel sheet at least 4 mm thick (AISI 304).
- Noise dampening in the engine compartment and fan tank of supra structure shall have been ensured at maximum level. Insulation material shall be flame retardant. Technical details and relevant documents pertaining to those insulation materials used shall be submitted.

- There shall be drainage system for bleeder outlet of foul water. Through such drainage system, with an at least 3" spherical valve and 2 m hose connected to it, foul water shall be drained.
- There shall be a water filter preventing clogging during draining foul water.
- There will be air circulation in the waste tank. In order for filtering the waste gathered in the tank, there shall be a filter that may be opened hydraulically or pneumatically. This filter shall be made out of stainless steel material and have at least 1 square meter surface area.
- Discharge angle shall be at least 50°. Closure lid of waste tank shall be opened with at least 90°.
- Lifting and lowering waste tank shall be provided with telescopic cylinders over hydraulic pumps. Hydraulic pump shall be driven with a direct connection to supra structure engine.
- Lifting and lowering waste tank, opening and closing safety bar shall be controlled from driver compartment; opening discharge lid shall be both from compartment and by a button or cabled remote control on the right side of vehicle, and closing the same lid by a button or cabled remote control on the right side of vehicle.
- When dumper (waste tank) is lifted, the safety bar shall be automatically activated itself, and during lowering it shall be opened pneumatically. Waste discharge lid shall have a safety system that opens and closes by a hydraulic or pneumatic system.
- There shall be two rotating warning beacon lamps, one on each side, right and left on the cup and one beacon lamp on top center back part of the dumper.
- On the back closure lid of waste tank, there shall be a illuminated arrow panel manufactured with LED technology, in order for warning oncoming traffic from behind while sweeping is in progress. It shall give warning to the left when sweeping the right side, and to the right when sweeping the left side. When sweeping started the warning shall automatically be activated. Panel dimensions shall be approximately 700 mm x 700 mm overall unless otherwise stated. Before manufacturing the illuminated arrow warning panel the opinion and approval of Client shall be absolutely obtained.
- There shall be a discharge lid on the back of waste tank and an observation window on its right side.
- Leak-tightness of observation window shall be ensured.
- There shall be a leak-tightness rubber seal on the discharge lid.
- In the event that the capacity of waste tank exceeds the axle load capacity, there shall be a warning system for operator by a warning light flashing on the control panel in compartment. Otherwise, that is, also in the event that capacity of waste tank does not exceed axle load capacity but waste tank is full (in case of bulky material with lower specific weight), there shall be a warning system for operator by a warning light flashing on the control panel in compartment.

L. Engine and Fan

- Driving of supra structure components shall be realized by an auxiliary engine. Engine shall have been mounted in machinery section in front of waste tank as not to be affected by weather conditions.
- Vehicle chassis engine and auxiliary engine shall be of the same brand (made) for maintenance and service facility and in order for minimizing the spare part stock costs.
- Supra structure engine shall be of at least Euromot 1A norm, at least 4 cylinders, diesel, charge air (turbo), at least 75 kW in optimum revolution (2.200-2.300 rpm), with water cooling and thermostat. There shall be a system protecting the engine by turning it off automatically in the event of excess temperature and low oil pressure. For working area is in Lahore and the fuel available in this region is only for at least Euro 1 engines. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost on Client.
- The cooling system shall keep the engine operatable up to 55°C outdoor temperatures.
- In order for engine to be longer economic life and durable, no automotive type shall be used but industrial type heavy duty service engines shall be used.
- Engine shall be adequately insulated for noise and vibration; noise level shall be lowered to the minimum level. When vehicle working by sweeping and vacuuming, the noise level in compartment shall be not more than 85 dbA in accordance with the noise control regulation.
- Engine revolution adjustment shall be made by controls in driver compartment.
- Fan shall be manufactured out of stainless steel material durable against wearing out and corrosion in order for obtaining longer economic life. Fan jacket shall have been made of stainless steel material at least 5 mm thick, and noise level shall have been minimized by ensuring all necessary noise insulations. For this, the jacket shall have been covered with such materials as rubber, etc.
- When auxiliary engine is running at 1200 rpm, the fan shall provide air flow of at least 10.000 m^3 per hour.

M. Water Tank

- Water tank volume shall be at least 1.200 liters.
- Water tank shall be made of stainless steel material. The material used shall be chosen from a material resistant to breaks and punctures. The documents indicating the technical details related to the material shall be submitted.
- Water pump shall be working without water or there shall be a safety system to secure the system and the pump when there is no water in the tank.
- It shall be used a water pump of membrane type with at least 35 l/minute of flow rate and 3 bar sprinkle pressure.
- There shall be a water filling facility with 2" inflow pass. A stainless steel cleanable filter shall be used at the entrance of filling opening.
- There shall be discharge equipment for water tank with valve and at least 3/4" opening.
- There shall be light indicator in compartment showing water level, and an audio and light warning system to warn operator when there is no water left.

N. Sweeping Equipments

- There shall be suction nozzles on the right and left sides of vehicle. On the suction nozzles, there shall be track wheel and height of suction nozzle shall be adjusted manually.
- Dimensions of suction nozzle shall be in 150-200 mm range in width in to in, and in 500-550 mm range in length.
- Suction nozzle shall be made of materials resistant to wearing out, and in order for lengthening economic life of material and obtaining noise insulation, abrasion-resistant rubber material shall be applied inside of suction nozzles.
- In order for picking up any bulky materials on roads, there shall be a pneumatic system moving the front of vacuum nozzle bucket slightly up and down, and this system shall be activated by a button in compartment.
- Diameter of suction nozzle shall be at least 250 mm.
- Controlling of suction nozzle shall be pneumatic. Safety system shall be provided pneumatically.
- In order for giving operator a comfortable and safe driving and working, control of vacuum system shall have been mounted on the left hand side door.
- Sweeping component shall have a disk brush. Disk brush shall be pneumatically lifted and lowered.
- The pressure that disk brushes apply to the ground and angle of touching to ground, when working, shall be adjustable hydraulically or pneumatically.
- When disk brush is in lifted position, it shall be automatically locked. For cruise safety, it shall have a safety controlled pneumatically.
- Vacuum nozzle and system shall be enabled to work independently of disk brush system on demand. However, brush system shall not be run independently of vacuum nozzle.
- Disk brush shall be with steel wires and at least 700 mm in diameter.
- Disk brush shall be driven hydraulically, and the hydraulic system shall be empowered by the auxiliary engine (vehicle top engine). Revolution of hydro engines shall be adjustable variably from slow to fast.
- For sweeping equipment, there shall be working lights.
- Mounted behind the front axle of vehicle, there shall be a cylinder (middle) brush made of polypropylene (PP) material.
- Middle brush shall be driven hydraulically, and the hydraulic system shall be empowered by the auxiliary engine (vehicle top engine).
- Middle brush shall be at least 1.250 mm in length and at least 400 mm in diameter.
- Middle brush shall be able to turn right and left. Hold-down pressure of brush on ground shall be variably adjustable.
- Position of middle brush shall be automatically adjustable depending on the working positions of right and left brushes.
- For wastes not to be scattered, there shall be rubber separators (mops) in sweeping part.

- For preventing any such objects as strings, wires, etc. to damage hydro engines by entangling them during sweeping, there shall be a protective system on brushes.
- When vehicle is put in rear gear, all sweeping equipment shall rise automatically and be secured.
- There shall be water sprinkle nozzles on suction nozzle, side brushes, and middle brush and in front of vacuum nozzle. Watering system shall be designed as to prevent creating dust.

O. Dimensions

- Cleaning width with suction nozzle and disk brush shall be at least 1.100 mm.
- Cleaning width with middle brush shall be at least 2.300 mm.
- Sweeping speed shall be between 2 to 18 km/h, and shall be adjustable on vehicle.

P. Electrical system

- Electrical system shall be 12 or 24 volts.

Q. Supra structure Indicators and Control Panel

- There shall be at least 4 adjusting valve for watering equipment and shall be controlled inside the compartment.
- Inside the compartment; there shall be working clock for supra structure engine, supra structure engine revolution counter, supra structure engine temperature gauge, rear axle load control light, supra structure engine air filter filth indicator, supra structure engine malfunction indicator, warning light and audio warning system when waste tank (dumper) is lifted position.

R. Vacoom Hose

- To be able to reach the areas that cannot be cleaned with normal operation, suction hose with a diameter of at least 150 mm and at the length of 3 m, which is resistant to the vacuum and contains steel spring shall be in place.
- A suspension system that allows the 180o rotation and up-down movement of the hose shall be available.

S. Delivery, Inspection and Acceptance

- Delivery place for vehicles is Lahore.
- During inspection, all the technical documentation and information pertaining to vehicles and other equipments shall be ready.

Annex-11 Technical Specifications of 4 m^3 Vehicles to be used in Squares and Narrow Streets

A. Vehicle

- Vehicle engine shall be industrial type that has minimum Euro 1 (Tier 1) norm, diesel, with water cooling and at least (130-140 HP). For working area is in Lahore and the fuel available in this region is only for at least Euro 1 engines. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost on Client.
- The cooling system shall keep the engine operatable up to 55°C outdoor temperatures.
- Vehicle chassis shall not be in form of modified pickup truck, etc. chassis, but shall be designed and manufactured as road sweeping vehicle in form of forward, compact type and with 4 wheels.
- Chassis shall have been made out of *Korten* steel at least 4 mm thick and resistant to abrasion.
- In driver compartment, there shall be standard devices and indicators, special handles, devices and indicators for sweeping vehicle as well as heating and ventilation systems, double-circuit windshield wipers. For better control of those places to be swept and the brushes, there shall be an observation window in compartment floor.
- In vehicles, there shall be air conditioning system to enable operator working comfortably for long hours during hot weathers.
- In driver compartment, there shall be a driver seat and another one for the assistant. Seats shall have safety belts. As a standard, there shall be a radio-CD player.
- Vehicle shall have hydrostatic advancing system. Fuel tank shall be of minimum 100 liters in capacity.
- Vehicle's service brakes shall be pedal-controlled hydraulic type and enable to stop securely under every weather and road conditions. Moreover, it shall have a hand brake in adequate type and power for parking.
- Steering wheel of vehicle shall be on the left side and of hydraulic or power steering type. When on move, vehicle shall provide the best control of brushes.
- Vehicle shall be able to make point turns (on its axis) or the turning radius of vehicle shall be maximum 2.750 mm from curb to curb, and maximum 3.750 mm from wall to wall.
- Electrical system of vehicle shall be 24 volts.
- Maximum traveling speed of vehicle shall be at least 40 km/h and sweeping speed at least 0-15 km/h.
- Vehicle shall operate quietly and noise level shall be maximum 75 bB (A) 7.5 meter away from vehicle.
- Vibrations coming from suction fan and sweeping system in vehicle shall be kept at minimum level.
- In vehicles, there shall be two rotating warning lamps, one in front and one at back, audio warning system on rear gear, lights for illuminating sweeping area, and standard headlights.
- Existing rear view mirrors on vehicles shall be suitable for best controlling the working positions of brushes and other systems.

B. Hydraulic System

- All sweeping system shall be controlled inside the driver compartment.
- Sweeping system shall be with hydraulic action and control.
- The hydraulic system shall comprise of a pump, oil tank, suction pipe, replaceable oil filter in an adequate sensibility, required hydraulic cylinders, control and safety valves, by-pass circuit, hydraulic tank with sufficient capacity and with level indicator, and other components required by the system.
- Hydraulic system shall be equipped with hydraulic pump, hydraulic motors, hydraulic and pneumatic valves that have the capacity and specification to provide the power required for sweeping systems and advancing system of road sweeping vehicle.
- In the hydraulic system, there shall be a system warning driver in case of hydraulic oil loss, any failure in the hydraulic system or loss of pressure.
- Vehicle shall be able to do full sweeping while going uphill and downhill. There shall be an automatic leveling suspension system working independently, enabling parallelism of vehicle to road as if doing sweeping on a straight road without being affected from the load and inclination when going uphill and downhill.
- In order to protect vacuum nozzles and brushes while passing over speed bumps and going up or down such places as curbs, there shall be a system enabling protection by lifting front of vehicle chassis pneumatically or hydraulically.

C. Vacuum System

- Fan unit in vacuum system shall be resistant to abrasion and oxidation, with multi wings, industrial type and be mounted on the ceiling of garbage tank, and controlling the fan shall be done inside the compartment.
- Fan shall be of hydraulic driving and its speed shall be adjustable from inside driver compartment. There shall never be any belt and pulley system.
- For ensuring safety, fan shall be installed in a jacket independently and fan noise shall be insulated.
- Vacuum capacity provided by fan shall be at least 13.500 m^3/ h.
- Vacuum pipe shall be made of stainless steel material and be of minimum 225 mm in internal diameter. There shall be a control lid accessible from inside the compartment to enable operator to intervene and control.
- There shall be a vacuum nozzle made of steel resistant to wearing out and attuned to running of brushes. Area of vacuum nozzle shall not be less than 750 cm2 and suction shall be operator-controlled from inside the compartment. In addition, adjusting the height of suction nozzle from ground shall be made normal and pneumatically for different materials.
- Vacuum nozzle shall be equipped with wheels or rubber contact shoes for keeping it at certain height from ground, and up and down movement shall be enabled hydraulically or pneumatically; and there shall be an automatic leveling system independently of road's inclination and load as to provide all such adjustments and features.

- The air to be exhausted shall be discharged by blown toward ground after passing through inside of back closure lid of garbage tank. For preventing creation of dust by blowing of this air toward ground, it shall be ensured of its discharge backward by a directing plate.

D. Brushes

- When two disk brushes on right and left sides of vehicle are fully opened, sweeping width to measure one external end of brushes to the other external end shall be at least 2.000 mm.
- There shall be at least 2 disk brushes, one on right and one on left side of vehicle.
- Diameter of disk brushes on right and left sides shall be minimum 750 mm.
- Brush movements shall be hydraulic and independent of movement of vehicle, and shall be controlled from inside the operator compartment.
- Sweeping pressure of brushes shall be adjustable to any pressure on demand, and depending on wearing of brushes; such pressure shall be automatically maintained.
- Rotational speed of brushes shall be adjustable from inside the compartment to any speed between minimum 0 to 165 rpm.
- Brushes shall automatically be adjusted for any pits and humps, depending on road condition, so that such part of roads shall be thoroughly cleaned.
- Brushes and other sweeping equipments shall be lifted and secured hydraulically from inside operator compartment so that sweeping units shall not be damaged while sweeping is not in progress.
- When vehicle on move, (when brushes not in use), brushes shall not hinder vehicle's safe driving.
- There shall be a system automatically protecting brushes when brushes come into contact or hit an obstacle.
- Brush system shall be designed and manufactured so that it will not require any oiling and maintenance.
- For each vehicle, at least 2 (two) disk brushes (excluding those mounted on vehicle) of those on right and left sides shall be provided free of charge.

E. Garbage Tank

- Garbage collection tank shall be at least 5.5 m^3 in volume and at least 4.5 m^3 net capacity, and shall have the capacity to carry materials weighing at least 5.400 kg.
- Garbage tank and closure lid of garbage tank shall be lined with 304 stainless steel sheet at least 2 (two) mm in thickness by special soldering; lid seal shall be water proofed.
- For filling garbage tank completely and enabling to collect maximum garbage, there shall be a system stacking collected garbage forward from the garbage tank closure lid in back.
- Garbage collection tank shall empty garbage via a hydraulic uplifting system as a dumper; garbage container shall make unloading with at least 55° angle.
- Garbage collection tank shall have at least 850 mm dumping height.
- When garbage collection tank is unloaded, it shall be ensured that vehicle shall stay balanced without being overturned.
- Garbage collection tank shall be raised or downed with a manually controlled hydraulic system without engine being started, when needed.
- Into garbage collection tank, garbage may be thrown from outside and garbage tank may be checked through at least 2 (two) closure lids located on the right or on the left of vehicle. On such lids, there shall be a protection system with sensors cutting the vacuuming when lids are open.

- On garbage tank lid, there shall be minimum 5 (five) silencer components minimizing noise. Such components shall be easily washable and cleanable with water.

F. Water System

- Total water storage capacity shall be at least 600 liters.
- Water tank shall be made of *Korten* steel at least 4 mm in thickness as part of chassis.
- For preventing dusting by brushes during sweeping, there shall be water sprinkle system on vacuum nozzle and vacuum pipe that is able to water spray and controlled from compartment.
- Water sprinkle system shall be of the capacity with at least 5 liters per minute.

Washing system with pressurized water:

- In the vehicles, there shall be a spraying gun apparatus with full pressure adjustment and a hose of minimum 10 m for cleaning garbage tank and when needed, for cleaning signposts and such along roads and garbage bins. Pump pressure shall be at least 100 bar and capacity at least 5l/minutes.

G. Manhole Suction Hose

- For cleaning manholes and any area not cleaned during normal works, a complete suction hose of at least 200 mm internal diameter with necessary head and connection component shall be mounted and present in the system in a proper place of garbage tank.

H. Accessories

- Road Sweeping Vehicle shall, even if not specified in this specification herein, be equipped with all standard and required accessories and be dressed with Reflective marking in compliance with ECE R 69-R 70.

I. Paint

- Units and parts thereof shall have been completely cleaned and painted with corrosion-resistant prime paint.
- The last layer of painting shall be made with the color paint of Client's approval
- Contractor shall get written on vehicles all the wordings, pictures and symbols that CLIENT considers suitable, free of charge.

J. Others

- On vehicles and supra structures, there shall be an "automatic oiling system" oiling all moving points where daily oiling must be made.
- All hydraulic and pneumatic pistons, pumps, motors, valves and circuit elements used on vehicles shall be the best quality brands recognized in the market. Any information and documents containing relevant technical details shall be submitted.

- In a way to be visible and perceptible during night works, there shall be reflective warning strips pasted on front panel and back bumper of vehicle and other suitable places where Client will designate. Such reflectors shall not be affected from water and such other external factors and be of long life.
- There shall be placed protective panels on the right side of vehicles, resistant to dust and all kind of weather conditions, for controlling and adjusting critical systems, such as all valves and auxiliary equipments pertaining to pneumatic, hydraulic, water systems of vehicles.

K. General Conditions

- Applicants shall provide, together with the offers thereof, the made and model of the vehicle (chassis vehicle) they undertake to procure, and the responses to technical specification.
- Chassis, engine, compartment parts of vehicles shall be of a model for maximum last 1 year of manufacturing of the factories. All vehicles shall be procured in the same type, made and model, and be in operating state.

L. Delivery, Inspection and Acceptance

- Delivery place for vehicles is Lahore.
- During inspection, all the technical documentation and information pertaining to vehicles and other equipments shall be ready.
- Contractor's vehicles shall be shipped for work after they are approved by the technical committee appointed by the Client.

Annex-12 Technical Specification for Band-Type Vacuumed Sweeping Vehicles

A. Technical Features

Band-type road Sweeping Machinery shall comprise of the following parts:

- Carrying Vehicle shall be forward and single piece (It shall not be mounted a truck).
- Brushes
- Conveyor system
- Garbage Tank
- Water Tank
- Suction hose
- Sweeping units must be with conveyor system.
- Machinery shall have a driving system from 4 wheels.
- On the back of the machinery, there shall be vacuuming system and vacuum hose.

B. Vehicle

- The vehicle to carry Road Sweeping Machinery shall be of 4 x 4, and the total gross vehicle weight shall be at least 12 tons (Absolutely it shall not be mounted on a truck). Machinery shall have mobility from 4 wheels.
- Carrier vehicle shall be single piece, and chassis on truck shall not be used.

C. Vehicle Dimensions

- Total length of vehicle (including front brush) shall be maximum 5950 mm ± 10 mm.
- Width of vehicle (including side brushes) shall be maximum 2400 mm ± 10 mm.
- Total weight of vehicle shall be maximum 12.300 kg ± 100 kg.
- Speed of vehicle shall be minimum 40 km/h.

D. Engine

- Engine shall be EURO 1. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost to the Client.
- Engine shall be diesel, charge air (turbo) and with water cooling.
- Engine power shall be at least 108 kW at adjustable revolution.
- The cooling system shall keep the engine operatable up to 55°C outdoor temperatures.
- It shall have all the required standard accessories.

E. Steering Wheel

D. Steering wheel shall be on the left, hydraulic or hydraulic assisted.

F. Brakes

- It shall have service and parking brake system with adequate capacity.

G. Compartment

- Driver compartment of vehicle shall be forward and with two doors.
- It shall have an adjustable-type driver seat with suspension.
- Compartment shall be insulated against noise from engine and any other source, and noise pressure level in compartment shall not be more than 75 dBA.
- It shall have all the indicators and controls needed for sweeping unit and for controlling and commanding all the required functions of vehicle.
- Commands of sweeping units shall be designed and installed as to be used ergonomically.
- There shall be enough mirrors equipped in order for enabling operator to follow sweeping procedure.

H. Electrical System of Vehicle

- There shall be warning lamps in yellow colored on the top back side of the compartment, and a horizontal type in front.
- Vehicle shall be equipped with all the standard lamps and signaling lights required for traffic safety on highways.

I. Brushes

- Sweeping shall be made with disk brushes on both sides and another one with large surface in the middle.
- Sweeping width shall be at least 2500 mm (with two side brushes).
- There shall be a separate hydraulic commanding system for each brush and the brushes shall be able to be raised to a certain height.
- Side brushes shall have a system for retracting automatically when they hit to any obstacle.
- Speed of brushes shall be adjustable from inside the compartment.
- There shall be a protractible front brush system on the machinery.

J. Conveyor System

- Sweeping shall be enabled with a clutch system with a capacity proper for conveyor system mechanically operating in the centre part of the machinery.
- Conveyor system and its brush must adjust itself for present ground obstacles.
- Collection of swept material shall be made mechanically (with conveyor system) and the revolution of middle brush shall be adjustable using a control button / handle located inside the compartment.
- Machinery must have a vacuum motor for sucking dusts.
- Vacuum motor shall be on the back part of machinery and be protected.

K. Garbage Tank

- Volumetric capacity of garbage tank shall be at least 5 m^3.
- Floor, side walls and back closure lid that are in continuous contact with garbage shall be made out of stainless steel.
- Garbage tank shall be designed in such a way that during unloading it will be able to make at least 55° angle with horizon.
- Garbage unloading shall be enabled to be controlled outside of compartment.
- Vehicle shall have been designed not to be overturned during unloading.
- Inside driver compartment, there shall be a warning system warning driver when garbage tank is full.

L. Water Tank

- Water tank shall be made out of stainless steel material resistant to any fissure, rupture and jerking. Tank capacity shall be at least 400 liter.

M. Accessories

- Road Sweeping Machinery shall, even if not specified in this specification, be equipped with all standard and required accessories. In addition, there shall be reflective markings made in compliance with the standards.
- Such reflectors shall not be affected from water and such other external factors and be of long life.

N. Vacuum Hose

- To be able to reach the areas that cannot be cleaned with normal operation, suction hose with a diameter of at least 150 mm and at the length of 3 m, which is resistant to the vacuum and contains steel spring shall be in place.
- A suspension system that allows the 180o rotation and up-down movement of the hose shall be available.

O. Delivery, Inspection and Acceptance

- Delivery place for vehicles is Lahore.
- During inspection, all the technical documentation and information pertaining to vehicles and other equipments shall be ready.
- Contractor's vehicles shall be shipped for work after they are approved by the technical committee appointed by the Client.

Annex-13 Technical Specification for Washing Vehicle

A. Description of Equipment

- It shall be designed for purposes of washing roads with high pressure. Equipment shall comprise of water tank, high pressure pump with pistons, normal pressured water pump, and water equipment cabinet.
- It shall be enabled filling water from outside, and water pumping from outside to outside and from tank to outside.
- Pumping water to outside shall be designed to be made from collector outlets on the pump, from the emergency interference spool and the monitor located on the equipment.

B. Equipment Type

- Tank capacity: 8.000 liters
- High pressure pump: 1000 RPM, Pressure 100 bars Flow Rate 100-150 l/minute
- Normal pressure pump: 2000 l/minute - Pressure 10 bars

C. Vehicle

- It shall be mounted on a vehicle with at least 200-280 HP and with axle distance of maximum 3.850 mm.
- It shall have a Euro 1 engine. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost to the Client.
- The cooling system shall keep the engine operatable up to 55°C outdoor temperatures.

D. Water Tank

- Water tank shall be made out of 4 mm st 37 black sheet.
- It shall be welded seamlessly (solid) from inside and outside with Mig and Tig method.
- To the chassis of vehicle, it shall be connected with flexible connector on the ideal load centre of vehicle.
- Tank jutties shall be of the same specifications with the sheet used in water tank; it shall have horizontal and vertical divisions inside, and holes in proper sizes for water and man passing.
- Over the tank, there shall be a man-entrance lid made of aluminum, easy to open, approximately 400 mm in diameter, with rubber seal.
- On the tank, there shall be an electronic level gauge visible by any personnel standing over the pump.

- For water filling to water tank from outside, there shall be 2 filling nozzle with coupling sleeve, with 2 1/2'" in diameter, one on each of right and left sides of tank, and the lids shall be connected with chains and with coupling sleeves.
- There shall be a ladder for climbing over the tank.
- There shall be an air exhaust and wafting pipe on the tank.

E. Water pump

- Water pump pressure shall be 10 bars and the flow rate shall be at least 2000 l/minutes.
- Low pressure pump shall be of centrifuge pump-type with single tier, made out of aluminum alloy.
- Activating the pump shall be with an electro-pneumatic system from inside the driver compartment.

Pump equipments shall consist of the following equipments.

- Suction nozzle from outside shall be 4", and *stroz*-type and with blunt coupling.
- There shall be a suction line with butterfly valve enabling suction from water tank.
- There shall be two 2 ½" – b blunt lid and pressure line connection with valve on the pump collector.
- There shall be a pressure line connection with valve.
- There shall be a normal pressure manometer.
- There shall be a water level indicator.
- In the pump section, there shall be a gas release mechanism.
- In the pump section, there shall be sufficient lightening system for night works.
- There shall be two back watering nozzle at the back of vehicle.

High Pressure Road Washing System

- With this equipment shall be enabled cleaning the asphalts on inner and out of city roads from liquid and solid wastes that may occur after accidents.

Specifications of Pump

• Revolution	1000 RPM
• Minimum Pressure	100 bar
• Flow Rate	100-150 l/minute

- Type Piston Pump
- Road washing bus bar 2000 – 2500 mm
- There shall be at least 8 washing nozzles combing washing area, and able to make rotations to right and left.
- At a suitable place on vehicle, a spool shall be mounted, equipped with a reinforced rubber ½" hose of 50 meter long, resistant to 200 bars of working pressure and 400 bars of test pressure.
- There shall be a washing nozzle at the spool hose end.
- Waterworks, water control valves with electro-pneumatic control system with actuators,
- Service pipe resistant to high pressure,
- There shall be a shock-absorber accumulator on the pump.
- There shall be a filter system filtrating solid in the water.

F. Transmission System

- High pressure piston pump and firefighter pump shall be driven with a PTO with double outlet that will be placed between differential and transmission box.
- Transmission members shall be connected to vehicle chassis with proper connectors through present holes as many as possible and in a way that rotating parts will not touch to any place.
- Shaft yokes shall be made out of GS 38 cast steel, and the pipes thereof being in compliance with DIN 2448, sliding shaft to be SAE 1050 material.
- Cross-piece shall be stoned and have oiling nature, and the segments shall be according to din 472.

G. Electrical Equipment

- There shall also be cabinet illuminating lamps.
- All electrical wiring shall be away from moving components, exhaust pipe, oil and fuel equipments, and resistant to water, shocks, vibration, heating and fire.
- Electrical circuits shall be protected with fuses.

H. Water Equipment Cabinet

- A carcass shall be made of box profiles at the back side of vehicle (on a suitable place).
- The cabinet shall be lined with scoured steel plate on top, front and sides.
- There shall be aluminum shutters with proper dimensions on both sides and back of the cabinet.

- Back of cabinet shall be fastened to vehicle chassis with plates of auxiliary chassis independently of water tank.
- Cabinet frame and lining sheets shall be definitely undercoated prior to sheet lining.

I. Paint

- All the components forming the equipment shall be undercoated after cleansed of rust and oils before installation.
- Any parts to become closed boxes shall be undercoated before welding.
- Before mounting the equipment on the vehicle, the bottom shall be painted to the chassis color.
- After installation, all equipment shall be cleansed and undercoated, and shall be painted to a color other than equipment, that Client will decide.
- Total paint thickness shall not be less than 80 microns.

J. Standard Accessories

- 1 nozzle with 2 1/2" in diameter
- 1 water pumping hose of 38 C (85) coupling, 20 m long, and equipped with C-type hose coupling
- 1 water pumping hose of 70 B (110) coupling, 20 m long, and equipped with B-type hose coupling
- 1 coupling wrench for ABC-type hoses
- 1 reduction from 110 to 85

K. Monitor System

- There shall be a monitor made of aluminum alloy and mounted on front cabinet.
- Monitor shall be rotatable around right and left in 360 degrees as well as being tilted upward and downward (-10 downward and +60 upward).
- Monitor shall be designed as to be lifted at least 500 mm up from its position and after used, shall be re-gathered to its previous position.
- Monitor cross diameter shall be 2 ½" and spraying distance shall be 40 m.

L. Response Spool

- There shall be an emergency response spool in vehicle that is connected to normal pressure pump and resistant to high pressure.

- Emergency response spool shall be made out of light aluminum material. Unwinding of hose wound on spool shall be manual and winding shall be electrically controlled.
- There shall be a 1" hose of at least 40 meters wound on spool, made of a material resistant to high pressure.
- There shall be a triggered gun at the end of the hose wound on spool, that is easily removed, connected with couplings, and is able to jets and curtains of water.
- Water equipment shall be placed in the back cabinet as much as possible, in a way to reachable to all valves easily.
- There shall be a line of at least 2½" from the collector to the monitor of body frame.
- Its valve shall be close to monitor command point.
- Patent brackets used in water equipment shall be in compliance with TS 2649/1 – DIN 2605.
- Welding in water equipment shall be with Mag, Mif or Tig methods.
- Rubber seals used between flanges shall have 40-50 shore hardness.
- Couplings and blunt locks used in water equipment shall be in compliance with the following standards:

4"	(110) couplings	DIN 14303
4"	(110) locks	DIN14313
2½"	(85) couplings	DIN 14308
2½"	(85) locks	DIN14312

M. Delivery, Inspection and Acceptance

- Delivery place for vehicles is Lahore.
- During inspection, all the technical documentation and information pertaining to vehicles and other equipments shall be ready.
- Contractor's vehicles shall be shipped for work after they are approved by the technical committee appointed by the Client.

Annex-14 Technical Specification for Tub-Type Dumper Trailer with 22 m3 Capacity

A. General

- Dumper Trailer, all its equipments and the systems thereof shall be in compliance with National and International Manufacturing, Modification and Installation standards.
- Dumper Trailer shall be of the latest and improved model in this category that its manufacturer has manufactured.
- Total gross vehicle weight of Dumper Trailer shall be at least 40.000 kg together with the hauler vehicle (18.000 kg).
- All parts of Dumper Trailer shall be completely in operating state together with all parts, sets and attachments required in this specification as well as all standard parts, sets and attachments used in latest mass manufacturing.

B. Chassis

- Chassis of trailers shall be in a structure and nature to resist to dynamic and static loads.
- Main chassis longitudinal carriers shall be of I-type. Thickness shall be at least 12 mm on bottom and top surfaces; at least 4 mm on center post, and shall be manufactured out of steel material with at least St 52 quality.
- Main carriers shall be connected to each other properly reciprocally.
- Chassis shall be lined with proper protector in a proper method against to corrosion.
- There shall be a king pin at least in 2" length, placed under the chassis, in a suitable place in front.
- There shall be 2 support legs with total 24.000 kg lift capacity, connected to chassis, controlled from one side and of double speed.

C. Brakes

- It shall have service and parking brakes with adequate capacity.
- Brake system shall be of at least double lined and air-type. Air needed for brake system shall be taken from the hauler vehicle.
- All axles shall have drum or disk brakes.
- Brake system shall be ABS.

D. Axles and Suspension

- Dumper Trailer shall be with 3 axles.
- There shall be total 6 wheels on Dumper Trailer, as 1+ 1 on each axle.
- Each axle's technical capacity shall be at least 11.000 kg.
- Distance between each axle shall be 1310±20 mm.
- There shall be 2 air bellows on each axle.
- On at least 1 axle, there shall be a system of lifting the axle from ground completely (axle that may be raised). Such system shall be controlled also from inside the compartment.

E. Tyres

- Tyres shall have "E" approvals indicating compliance with United Nations' ECE R54 directive, and with "E" or "EC's EEC 92/23 directive. The Contructor may use other tires those can be found in domestic market by the approval of the Client.
- Tyres shall be radial duplex type.
- Tyres shall be at least 385 R 22.5 in sizes.

F. Electrical system

- Dumper Trailer electrical system shall be 24 V.
- There shall be a trailer adapter socket of at least 24 Volts, with 15 poles.
- There shall be a trailer adapter socket of at least 2 x 7 poles.
- There shall be turning signaling lights, brake lights, parking lights and reflectors in accordance with the traffic rules.

G. Dumper

- Dumper shall be at least 22 m^3 in volume.
- Its dimensions shall be at least 7600 mm x 2300 mm x 1400mm.
- Body sheeting shall be at least 6 mm thick and in 400 Brinell hardness.
- Front sheeting and back closure sheet shall be at least 6 mm thick and in St 52 quality.
- Back closure lid shall be opened and closed hydraulically.
- Main hydraulic cylinder shall be cold drawing, 5 tiers and 5700 stroke.
- Dumper's back closure lid shall have special seal / flute system for impermeability.

H. Paint

- Dumper Trailer and all other suitable surfaces shall be painted with final layer in any color Client will inform.

I. Others

- Back bumper in proper dimensions
- There shall be 1 tool box made of metal sheet in proper dimensions.
- There shall be 4 half-mudguards mounted over metal sheet pipes.
- There shall be 1 plastic water bin.

Annex-15 Technical Specification for Hauler Vehicle

A. General

- Truck, all its equipments and the systems thereof shall be in compliance with National and International Manufacturing, Modification and Installation Standards.
- Truck shall be of the latest and improved model in this category that its manufacturer has manufactured.
- Total gross vehicle weight of truck shall be at least 18.000 kg.
- Chassis, engine, compartment and all other parts of Truck shall be completely in operating state together with all parts, sets and attachments required in this specification as well as all standard parts, sets and attachments used in latest mass manufacturing.
- In order for supply of spare parts and ensuring service integrity, engine, gear case, front and rear axles, and differential of truck shall be manufactured by the same manufacturer and be the same brand.

B. Engine

- Engine shall be of at least EURO 1 class.
- Engine shall be diesel, charge air (turbo) and with intercooler system.
- Engine's net flywheel power shall be at least 401 Ps, and engine torque shall be at least 2000 Nm at maximum 1100 rpm.
- Engine shall have a system enabling easy start when cold.
- Engine shall be of four-cycle, with thermostat and water cooling.
- There shall be antifreeze agent in the cooling system, suitable to at least -30°.

C. Transmission Box

- Clutch shall be single disk, dry-type and automatic brake-lining wear-out adjusted.
- Transmission shall be at least 16 (sixteen) forward and 1 (one) reverse speed.
- Excluding reverse gear, all gears shall be with synchromesh.
- There shall be 1 power output (PTO) mounted on the transmission box.

D. Steering

- Steering system shall be hydraulic.
- Steering wheel shall be adjustable.
- Steering wheel shall be on the right side of compartment.

E. Brakes

- There shall be service brake with enough power in vehicle.
- It shall have parking brake system with adequate capacity.
- Vehicle shall also be equipped with engine.
- Brake system shall be of at least independent double lined and air-type.

- There shall be humidity trapper / air-dryer system to protect the system against freezing.
- There shall be disk brakes on front and rear axles of vehicle.
- There shall be ABS (Antilock Braking System), ALB (Anti-Lock Brakes) and ASR (Anti Slip Regulation) braking systems in vehicle. Brake pressure shall be at least 10 bars.
- Engine brake shall be with decompression valve.
- Parking brake shall be air-controlled and spring winding.

F. Axles and Suspension

- Truck shall be 4x2 driven.
- There shall be total four wheels on rear axle as 2+2, and total two wheels on front axle as 1+1.
- In truck, there shall be a differential lock, controllable from inside the compartment.
- Rear axle technical capacity shall be at least 11.500 kg.
- Front axle technical capacity shall be at least 7.100 kg.
- The clearance between front and rear axles shall be at least 3.600 mm.
- Truck's climbing capacity shall be at least 56%.
- Front and rear axles shall have stabilizer bar.

G. Tyres

- Tyres shall have "E" approvals indicating compliance with United Nations' ECE R54 directive, and with "E" or "EC's EEC 92/23 directive. The Contructor may use other tires those can be found in domestic market by the approval of the Client.
- A complete spare tyre with wheel rim shall have been placed in a proper place of truck.
- Spare tyre shall be easily mounted and removed to and from its mounting place using a proper mechanism.
- Tyres shall be radial duplex type.
- Tyres shall be at least 295 80R 22.5 in sizes.

H. Chassis

- Chassis of vehicle shall be heavy service type, in a structure and nature to resist to dynamic and static loads.
- Thickness of carriers along the main chassis shall be at least 7 mm, and have been manufactured of at least St 52-quality steel.
- Chassis shall be lined with proper protector in a proper method against to corrosion.
- There shall be a drawbar plate of at least 3.5" and a mounting plate, placed in a proper place on vehicle.

I. Compartment

- Compartment shall be structured to enable a wide angle of view, and of forward type.

- Driver compartment shall be made out of steel sheet, forward type and easily hydraulically forward tilted, as to comply with ECE R 29 Norms.
- Cabin shall be double bed as original fabrication and the bed part shall be behind driver compartment and at least 60 cm in width.
- Windshield shall be single piece. In addition, there shall be windshield wipers with at least 2 speed-tiers and washing system.
- There shall be an adjustable and air suspended deriver seat and at least one adjustable passenger seat. There shall be safety belts for driver and passenger seats.
- Cabin shall be with steel sheet frame.
- There shall be a cabin heater, air conditioner, and defroster and ventilation system.
- At least one on both sides of the compartment, there shall be heated rear view mirrors with wide angle of view, electrically adjustable. There shall be also at least one mirror for climbing uphill and at least front view mirror.
- There shall be adjustable speed stabilizer in vehicles.
- There shall be adjustable type sunshields in vehicles.
- There shall be a mounted radio-CD player and speaker system in vehicles.
- In-compartment lightening and a lighter socket.
- Driver compartment shall have 2 lockable-type doors and have been designed to house 1+1 persons. Doors shall be opened at 90°, and shall be lock from inside and at least one of them from outside.
- Front and side windows shall be placed in a way enabling wide field of view and be made of secure auto glass.
- There shall be a steel top ventilation window, in the compartment, with electrical control.
- On the vehicle, there shall be storage locker that is opened from outside.
- There shall be the following indicators or warnings in compartment.

- Speedometer (km/h)	- Odometer (km)
- Engine hour counter	- Engine water temperature (Temparature)
- Fuel pressure	- Charge
- Engine revolution gauge	- Engine oil pressure
- Brake air system pressure	- any indicator, warning and controls for vehicle's other equipments

J. Electrical system

- Vehicle electrical system shall be 24 V.
- Capacities and specifications of accumulator, starter engine and alternator, and other required equipment shall be suitable working under cold weather conditions.
- There shall be reverse gear audio warning signal.

- There shall be an accumulator with a capacity at least 2x12 Volt / 165 Ah, in vehicle. Accumulators shall be easily removed and installed.
- There shall be an alternator of at least 28 Volts / 80 Ampere in vehicle.
- There shall be a starter motor of at least 6.2 kW / 24 V in vehicle.
- There shall be a trailer adapter socket of at least 24 Volts, with 15 poles in vehicle.
- There shall be a trailer adapter socket of at least 2 x 7 poles in vehicle.
- There shall be halogen fog lights in vehicle.
- There shall be turning headlight, turning signal lights, brake lights, parking lights and reflectors in compliance with international standards.

K. Fuel Tank

- It shall have at least 650-liter capacity and be locked-type.
- There shall be heated water extractor in fuel tank.

L. Paint

- Vehicle compartment and all other suitable surfaces shall be painted with final layer in any color Client will inform.

Annex 16 Technical Specification for Rubber-Wheeled Loader

A. Weight

- Working gross weight of machinery shall be minimum 9.000 Kg (±250 kg) (with original Cabin, dipper and standard wheels).

B. Engine

- Engine shall be of at least EURO 1 class. For working area is in Lahore and the fuel available in this region is only for at least Euro 1 engines. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost on Client.
- The cooling system shall keep the engine operatable up to 55°C outdoor temperatures.
- There shall be a minimum 95 HP (±5 HP) water cooled diesel engine with net flywheel power, in machinery.
- Engine shall be 4-cycle, 4-cylinder and charge aired.
- Diesel engine cylinder capacity shall be maximum 5 liters in total.
- Engine shall be complete together with all standard accessories.
- In the fuel system, there shall be fuel filter and a water extractor unit on the fuel tank exit pipe.
- Fuel tank of machinery shall be at least 160-liters (±10) capacity.
- For compatibility and integrity between the components in machinery and for not encountering any service, parts problems in future, engine shall be the own manufacture of machinery manufacturer.

C. Transmission Box

- Transmission box shall be complete together with single-tier torque convertors.
- It shall be a reason of preference if transmission box is auto-shift type.
- Transmission box shall have forward and reverse gear changing when on move as well as its prompt speed and directional change feature.
- Gears 4 / 5 are forward and 3 / 4 reverse ones, forward moving speed shall be 38 km/h and reverse speed minimum __ km/h.

1. Channel Digger

- It shall a reason of preference if backhoe control in machinery is provided with joystick control handles for operator's easy and comfortable use of backhoe. Such joystick arms shall be placed independently of seat.
- Rear backhoe system shall be of sliding type.
- Channel digger shall have been manufactured together with main machinery and the machinery as backhoe loader.
- Bucket opening width of channel digger shall be at least 610 mm and its capacity shall be at least 0.20 m^3 and at least 4 of digger nails shall be on already installed.

- Maximum digging depth shall be at least 5000 mm as standard.
- Backhoe horizontal access distance shall be at least 5000 mm from machinery's boom connection center.
- Balance feet providing the work balance for operator's comfortable use of backhoe in machinery shall be controlled via pilot hydraulic controls. Such control sticks shall have been placed at the level of seating and next to instrument panels.
- Right and left turning of backhoe shall be of hydraulic piston-type.
- It shall be a reason of preference if backhoe design is of excavator type, due to providing better ease and decreasing the approach distance to truck during loadings.
- Bucket breakout force shall be at least 60 kN (±1) and arm breakout force at least 40 kN (±1) .

E. Clamshell Bucket

- Front clamshell bucket shall be opened from its bottom and be multipurpose type with a capacity of at least SAE 1.00 m^3 (± 1m^3).
- Lifting force shall be at least 3750 kg (± 500 KG) and bucket breakout force shall be 55 kN at the full height.
- The tilt movement of front loader shall have been designed with a parallel system with double piston giving movement to the bucket (lifting up and lowering could be with double piston and bucket tilting with single piston).
- Width of loader bucket shall be at least 2380 (± 100 mm).
- At the maximum height, it shall have at least 40 degrees of unloading angle.
- Breakout force of bucket jaw shall be at least 53 kN.
- There shall be an automatic bucket position giver.
- There shall be a forklift yoke attachment mounted on front bucket.

F. Traction Compartment

- Front and rear axles shall be of planet reduction type.
- There shall be a differential lock on rear axle.
- There shall be traction on each four wheels of machinery.

G. Brakes

- Service brake shall be hydraulic driven oily disk type for each wheel, and of completely closed system.
- Parking brake shall be mechanic and manual type.
- Parking brake shall be independent of service brake.

H. Hydraulic System

- Hydraulic system shall be closed and load sensible.
- Hydraulic pump capacity shall be at least 150 l/minutes (± 15 l/minutes.) at 2200 rpm.
- It shall be a reason of preference if hydraulic pump is with variable flow rate and axial piston type.

- System pressure shall be at least 240 bars (± 10 l/minutes).

I. **Steering Wheel and Chassis**

- Steering wheel shall be in front and hydrostatic type.
- Steering system shall be able to control front wheels of machinery and be a hydraulic-cylindered steering system with single rod and effective to both sides, providing machinery turning to right and left in equal diameters from the axle distance of front wheels.
- Chassis shall be single piece (rigid) type.
- Chassis width of machinery shall be at least 2300 mm.

J. **Operator Compartment**

- There shall be an original ROPS/FOPS standard compartment on machinery.
- Operator compartment shall be closed, made of sheet steel, and with insulated interior against cold and hot weather conditions.
- Doors shall be of type that is lockable when open and closed.
- There shall be a cabin heater with a capacity to warm the compartment in cold weathers and an air conditioner fully able to cool it in hot weathers.
- Instrument panel and warning lights shall have been so arranged that they will easily be visible to operator.
- On the front and rear window panels of compartment there shall be water spraying system and windshield wipers.

K. **Tyres**

- Wheel rims and tyres shall be of heavy service type, and have been manufactured as to work on every type of road.
- Front tyres shall be 12.5/80-18 and rear ones 16.9x28 (or 16/70-R20 – 18/4x26); it shall be a reason of preference if they are radial steel belted types.

L. **Paint**

- Units and their parts shall be thoroughly cleansed, and be painted at least in two layers with undercoat resistant to rusting and the final layers shall be in the original color of machinery.

M. **Crusher**

- Crusher backhoe loader shall be suitable to be mounted of construction machinery.
- Crusher shall be made of single piece body, and there will be no parts, such as side connectors, length connectors and side plates.
- Crusher work weight shall be at least 300 kg and at most 360 kg.
- Together with crusher, 1 prong, which will be the original one of the brand with brand/seal indicated on it, shall be supplied free of charge.

- Crushes shall be able to make minimum 900 strokes per minute.
- Crusher shall be suitable to work at 150 bars, and oil flow rate shall be in the range of 50-80 liter per minute.
- For low noise level, body of crusher shall be closed.
- On top of crusher piston there shall not be squeezed (peak gas) and forward movement of piston shall be fully hydraulic.
- Together with crusher, 1 manual grease pump and 1 grease cartridge shall be supplied free of charge.

Annex-17 Technical Specification for 7 m^3 Hydraulic Compressive Garbage Truck

A. General

- It shall consist of a body fastened on vehicle, a back closure lid having a loading tank and compression mechanism behind it, and an unloading curtain in the body and hydraulic system and command equipment.
- All the parts to be manufactured according to mass manufacturing principles shall be in standards replaceable with each other.
- It shall have a 4x2 driving system.
- It shall have an axle distance of minimum 3300/3500 mm range.
- It shall have a gross vehicle weight of maximum 10 tons.
- It shall be from 120-155 HP.
- It shall have a Euro 1 engine. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost to the Client.
- It shall have a CIRCUIT MODULE.
- Trailer internal heigh (mm) : 1.350
- Trailer internal width (mm) : 1.900
- Back cover Volume(m3) :1
- Floor metal plate(mm) : 3
- Sidewall metal plate(mm): 2-2,5
- System pressure: 150-160
- Compression pressure:135-160

B. Body

- Body shall be manufactured out of ST 52 quality sheet metal, formed with flat floor and esthetically shaped sides with pressing machine.
- By forming a pool under the floor in front of body, waste water discharge shall be made through that.
- Floor, ceiling and side walls shall be reinforced with sufficient profiles of sheet metal in St 52~37 quality.
- There shall be equipment chassis under body and it shall be fastened to vehicle chaiss with flexible/fixed connectors.
- There shall be eyebolts on the body, to be used for dismounting of equipment when needed.

C. Back closure lid

- Back closure lid shall be hinged to body from back top, and shall be opened upwards via hydraulic cylinders. It shall be automatically locked when back lid is closed.

- For ensuring impermeability with the body, there shall be special profiled rubber seal between back lid and body. Seal shall be tied over back lid and shall be protected from damage during unloading garbage.

- There shall be a reinforced loading tank on back closure lid, and garbage loaded therein shall be taken into body by a compressive mechanism driven by hydraulic cylinders.

- Compressive mechanism shall be comprised of a sliding bar with linear movement and a bucket at the tip thereof, sweeping garbage in loading tank by rotating.

- Sliding bar shoes shall be made of special high density material resistant to wearing out, and shall be in such a structure that they may be replaced from outside without dismounting sliding bar. There shall also be shoes made of the same material and providing centering of sliding bar, when operating, by brushing in steel guides.

- There shall be a safety valve on back lid cylinders to prevent it from falling due to hose puncture.

D. Compression and Unloading Curtain

- The curtain shall have bearing with lugs made of special material in high density which is resistant to corrosion and acids and which is connected with bolt.
- The curtain shall be moved with a cylinder having dual effect and it shall stay at the back when the housing is empty. As the garbage is loaded, a special valve shall create an opposite pressure on the curtain and it shall provide the forward movement of the curtain and thereby the compression shall be achieved by packaging the garbage.

- Compression - unloading curtain shall move on the profiles which are placed to the sides of the body in a way to be upwards the base. Thereby the affection of the curtain lugs from the garbage on the base shall be prevented.

E. Hydraulic Equipment

- Hydraulic power shall be provided with the transmission of movement taken from PTO installed in gear box of the vehicle to hydraulic pump.

- First class pump shall be used and PTO shall be controlled from vehicle cabinet.

- There shall be return filter, suction filter, depot cover, oil discharge plug on the oil tank and there shall be valve and level indicator in outlet.

- The movements of back cover and compression-unloading curtain shall be provided by a direction control valve installed in the front part of housing. Movements of slide-bucket shall be provided by direction control valve with both manuel and electropnomatic / electrohydraulic control which is installed on the back cover. Manually controlled port of the said valve shall be used for the control of garbage container unloading system. Control valves shall be first class.

- All pipes used in hydraulic installation shall be of DIN 2391°c quality; all hydraulic pressure pipes shall be of sae 100 r2 quality and suction pipes shall be of sae 100 r4 quality.

F. Garbage Container Unloading System

- There shall be a hydraulically controlled garbage loading system which raises the waste containers and pours them into the reservoir.

G. Standard Accessories

- Garbage Container Raising System
- Mudguard and Dust Tyres
- Back Cover Safety Support
- Back Illumination Lamp for Collecting Garbage at Night
- Driver Warning Whistle
- Beacon Warning Lamp
- Worker Carrying Step
- Cover Metal Sheet on Back Cover Side Walls
- Foldable Bike Rail

H. Control Equipment and Operation

- The garbage filled into the loading reservoir shall be included in the housing by pressing the button on the control box as a result of the operation of slide-bucket system in proper order.
- The movements of slide and bucket shall be provided by limit and pressure switches.
- Logic circuit of system shall be provided with printed card.
- There shall be start, stop, single/permanent, gassing, driver warning whistle and emergency stop buttons on control box. When pressed the emergency button, the movements of compression process on the back cover shall be stopped in initial position by turning back.
- For unloading, back cover shall be opened via present control arms in the front of the housing and unloading curtain shall be moved backward.
- When the back cover is open, slide-bucket system shall be operated via the system on the body. Thereby the remaining garbage in the loading reservoir shall be unloaded.

I. Painting

- After being clearing of rust and grease via sanding/washing method, whole Housing shall be painted with prime paint and last layer paint in desired colour.

J. Warranty

- There shall be warranty for one year against defective material and labour except for usage errors.

K. Technical Certificates and Documents

- Certified Technical Certificate shall be issued for the vehicle. In addition, a set of Manual and Maintenance Handbook shall be given together with vehicle.

Annex-18

18-A Technical Specification for Special Compression Garbage Trucks With Cranes and Hooking 20m3

A. General

- It shall comprise a body connected on the vehicle; a back door and a front hopper which has loading reservoir for garbage dropping and which has garbage compression mechanism; a double side lateral collecting device fully automatic and fully controlled by the driver only directly from inside the cabin, as well as hydraulic equipment and control equipment.
- It shall have mechanical structure composed of: a turret, positioned behind the cabin, and two telescopic arms; on their extremity is fixed a jib with two articulations, it permits to reach closer to the ground and have an higher unloading point.
- It shall have hydraulic engine with related reducer positioned on the vertical axle of the coupling device; it permits to make a rotation of 180°, so that it is possible to collect also the containers that are not perfectly aligned with the longitudinal axle of the vehicle.
- Its equipment shall permit to collect, in automatic way, all the containers with single hooking point, from the above-ground and underground containers.
- It shall have hydraulic engine with related reducer positioned on the vertical axle of the coupling device; it permits to make a rotation of 180°, so that it is possible to collect also the containers that are not perfectly aligned with the longitudinal axle of the vehicle.
- All parts which will be manufactured according to serial production principles shall be in a standard to be interchangeable.
- It shall have a drive system of 6x2
- It shall have an axle distance in range of min 4200 / 4500.
- Its weight shall be maximum 26 tons with load.
- It shall be from 320-330 HP.
- It shall be provided with euro 1 engine. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost to the Client.
- It shall have SPEED MODULE.
- Compactor lenght: 6550 mm
- Compactor width: 2500 mm
- Compactor height: 2600 mm
- Floor metal plate : HARDOX 6 mm
- System pressure: max 230 bar
- Compression pressure ratio: 5/1

B. Body

- The body shall be made of steel plate of st510B 4 mm. quality whose base is level and whose sides are given an aesthetic form in press.
- HARDOX slides for lateral and trasversal efforts.
- Waste collection hopper: 7 m3 (2200x2700mm)

- Movement of the draw compactor: 1850mm.
- There shall be an equipment chassis under the body and it shall be connected to the vehicle chassis with flexible/fixed fixtures.
- There shall be eyebolts on the body to be used for dismounting of the equipment when required.

C. Back Door

- Back door is connected to the body with hinge from back top and it shall open upward with hydraulic cylinders. Back cover shall lock automatically when closed.
- There shall be a rubber gasket with specific profile between back cover and body for ensuring sealing with the body. By being connected on the back cover, the gasket shall be prevented from getting damage while unloading the garbage.
- The compression mechanism shall comprise a draw on guides which compact garbage from front to rear with a compaction ration of at least 5:1.
- On the back door cylinders, there shall safety valve which shall prevent falling due to pipe explosion.

D. Compression and closing of the hopper

- The hopper mast have a special closure, made up of a sliding grid on slides which will prevent leaks of light material during truck's tranfer on road.
- Loading hopper should be at least of 7m3 capacity.
- Compression should be carried out by a compacting draw on guides driven by two straight parallel and fulfill a compation ratio of at least 5:1.

E. Hydraulic Equipment

- Hydraulic power shall be provided with the transmission of movement taken from PTO installed in gear box of the vehicle to hydraulic pump.
- The compactor hydraulic controlled by a Danfoss 3 elements distributor ON/OFF for manual activation in case of emergency from the operator.
- First class pump shall be used and PTO shall be controlled from vehicle cabinet.
- There shall be return filter, suction filter, depot cover, oil discharge plug on the oil tank and there shall be valve and level indicator in outlet.
- The movements of back door and unloading operation shall be provided by a direction control valve installed in the side of the truck. Control valves shall be first class.
- All pipes used in hydraulic installation shall be of din 2391°c quality; all hydraulic pressure pipes shall be of sae 100 r2 quality and suction pipes shall be of sae 100 r4 quality.

F. Garbage Container Unloading System

- There shall be a hydraulically controlled garbage loading system which raises the waste containers and pours them into the reservoir.

G. Standard Accessories

- Fully automatic and one-man controlled double side Garbage Container Raising System
- 5 cameras along the truck and 2 monitor's in the driver's cabin
- PLC controlled consolle in the driver's cabin for the automatic collection cycle
- Mudguard and Dust Tyres
- Double side Illumination Lamp for Collecting Garbage at Night
- Driver Warning Whistle
- Beacon Warning Lamp
- Foldable Bike Rail

H. Control Equipment and Operation

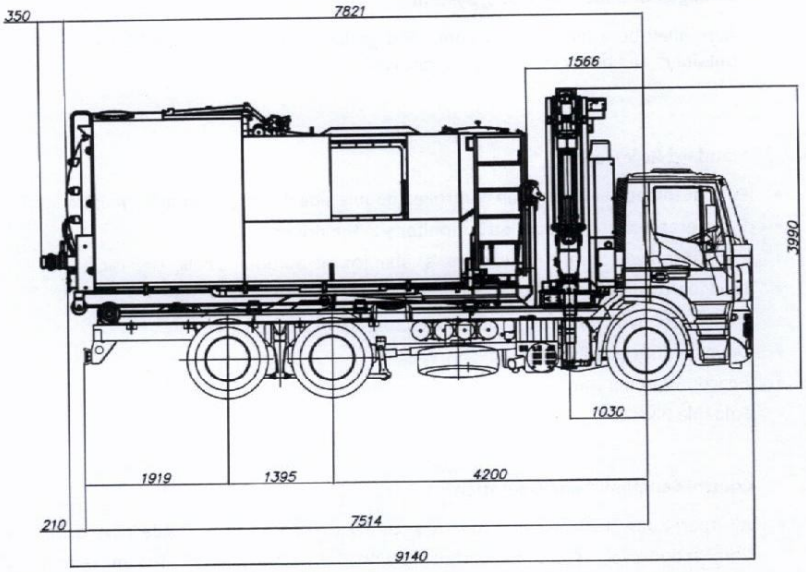
- All operations shall be taken out directly by the driver from inside trhe driver's cabin. Compaction cycle is automatic starting with the PTO activation. The movements of the draw compactor shall be provided by limit and pressure switches.
- When pressed the emergency button, the movements of any moving device shall be stopped.
- For unloading, back door shall be opened via present control arms on the side of the truck.
- When the back door is open, tilting of the compactor body will porvide emptying of all garbage from inside the body.

I. Painting

- Painting cycle with washing, pickling, antioxidant spreading and, finally, a coat of enamel in the colour chosen by the client.

J. Technical Certificates and Documents

- Certified Technical Certificate shall be issued for the vehicle.
- In addition, a set of Manual and Maintenance Handbook shall be given together with vehicle.



Sample image of Special Compression Garbage Truck With 2 Cranes and Hooking 20m3

18 – B Technical Specification for Special Compression Garbage Trucks With Compactor 10 m3

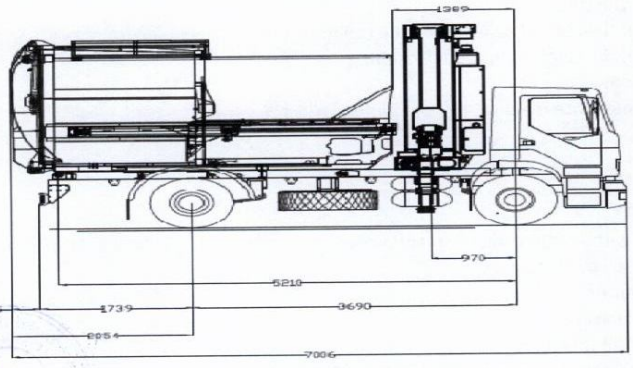
Features:

- Mechanical structure composed of: a turret, positioned behind the cabin, and two telescopic arms; on their extremity is fixed the coupling disposal.
- F-90 automatic coupling disposal composed of:
- N.2 hooks moved by special hydraulic cylinders that permit the coupling and the release of the container.
- N.1 hydraulic cylinder with vertical axle for opening and closing the container bottom.
- N.1 hydraulic engine with related reducer positioned on the vertical axle of the coupling device; it permits to make a rotation of 180°, so that it is possible to collect also the containers that are not perfectly aligned with the longitudinal axle of the vehicle.
- Control elements, like proximity sensors, allow the sequentiality of the cycle, keeping a full security during the working cycle. They show: the presence of the mushroom in the hooking seat, the occurred locking of hooks and cylinder on the mushroom's head, and so on.
- Hydraulic installation composed of:
- Electro-proportional Danfoss elements, externally connected to the chassis for the manual control of the equipment;
- Pipes that join the hydraulic elements (pistons, pomp, etc.) for the structure's movement;
- Oil tank for feeding the esay crane, the roll-off disposal and the compactor;
- Electric/electronic installation composed of:
- PLC (programmable logic controller) with all the electric connections to the data collection elements (sonar, proximity, sensors, encoders, etc.).
- Personalized software for the automatic collection of all kind of container used (above-, underground-containers).
- Video installation composed by 4 external cameras and 2 monitors inside the cabin;
- Control panel inside the cabin provided of joystick, monitors and touch screen.
- Pneumatic safety rod installed on both sides of the vehicle.
- Automatic stabilizing disposal on the ground through two cylinders placed on both sides of the crane in the vehicle gauge;
- Setting up of the easy equipment on the chassis. The setting up foresees:
- The installation of the equipment on the chassis introducing all the necessary reinforcements.
- The application of hydraulic pumps for the functioning of the easy equipment, the roll-off disposal and the compactor.
- Installation of the control panel inside the cabin;
- Installation of the cameras inside the cabin.
- CE certification;
- Use and maintenance manual.

Features:

- Width mm 2300.
- Painting cycle with washing, pickling, antioxidant spreading and, finally, a coat of enamel in the colour chosen by costumers.
- 35 ton lifting power.
- 30 second working cycle.
- 230 Bar maximum pressure.
- Rear door with upward hydraulic opening and safety hydraulic closure.

- Retention device inside the machine.
- Uploading opening:
  - 4 mm-thick Hardox bottom;
  - Pressor at linear suspended movement
  - anti-wear running slides
- Fe 510B container section, thickness ¾ mm.
- Hardox slides for lateral and transversal thrusts.
- Loading hopper volume: 4 m^3.
- Loading hopper dimensions (2300 X 2100 mm).
- Compactor stroke 1500 mm.
- Working through truck oil-pressure line.
- Electronically managed reverse pusher, through magnet sensors by proportional distributors.
- Regenerative automatic device of the compaction cylinders' hydraulic circuit.
- Manostat for about-turn and full compactor signal.
- On/off press control and automatic/manual control through the easy equipment console located in the driver's cab
- Device for the complete closure of the hopper, removes leaks of light materials during the vehicle movement, made up of a sliding grid on rails, moved by an hydraulic cylinder, inductive sensors for movement detection, oil-pressure pipes and quick connection with the frame, electrical wiring and interface connection with the equipment software.
- Unloading dumping system with automatic cycle of the contents of the compactor.



Annex-19 Technical Specification for Minidamper

A. General

- The equipment shall be specifically designed for collecting garbage from narrow streets and places which are close to traffic and for unloading the collected garbage into fixed containers or into large volume hydraulically-compresses garbage housing back loading reservoir which allows backward approaching. The equipment comprises bottom chassis, body, hydraulic and electrical equipment. The equipment shall be in compliance with the vehicle on which it is mounted.
- It shall have an axle distance in range of min 2400 / 2500.
- Its weight shall be maximum 1500 tons with load.
- It shall be from 80-130 HP.
- It shall be provided with euro 1 engine. Contractor may choose any upper type of engine (Euro 1-4) provided that it shall procure its own fuel without bringing any extra cost to the Client.
- It shall be of STANDARD CABINET / TYPE WITHOUT HOUSING.

B. Bottom chassis

- Bottom chassis shall be made of profiles with a thickness of 3 mm and it shall be connected to the vehicle chassis through proper connection points from at least 6 places on the right and left.
- Right and left movement of housing shall be prevented with guiding sheet bars.
- Rotating point of mini damper shall be formed by being raised on bottom chassis and in the said rotating points, there shall be lubricated bronze bearings intertwined into exterior bushings made of steel material of dın 2448 quality.

C. Damper Body

- Body with a capacity of $3m^3$
- Side metal sheets of 2 mm which are specifically formed from metal sheet of min. st 37-2 quality.
- It shall comprise front cover metal sheet and base metal sheet of 3 mm.
- There shall be shelter on the body.
- The damper body shall be connected to bottom chassis with connections on the rotating point and with pin made of steel of sae 1040 quality.

D. Hydraulic Equipment

- If there is PTO in the gear box of the vehicle, the system shall be operated with gear type hydraulic pump which is driven by the movement taken herein.
- If there is no PTO outlet in the vehicle, the hydraulic system shall be operated with one imported power-pack hydraulic power unit which is suitable for electricity installation of vehicle.
- The electricity engine which controls the pump shall have at least 1,5 kw power and the hydraulic pump shall have a flow rate of at least 2 cm^3/cycle.
- There shall be suction filter and check valve in the pump suction line.
- Direction control valves shall be the imported electro hydraulically controlled one.
- There shall be hydraulic cylinder with proper capacity to be used for unloading the garbage in the housing by tilting it in the appropriate angle.
- There shall be two hydraulic balance leg cylinders to be used during raising the housing at the back of the vehicle.
- Flow control valve shall be installed in proper place in the system to prevent the quick landing of the housing.
- In the system, in enough capacity, there will be oil storage tank.
- All hydraulic roller pipes (or tubes) will be in the norm of seamless cold attraction DIN 2391c (its inside surfaces honed, polished steel quality st 52 bk – internal diameter tolerance, ıso h8, inner surface rugosity 0.4 µ, smoothness 1:2000mm, breakaway resistence 60 kg/mm2 yielding point 47 kg / mm2 extension elasticity a5: 15%).
- The pipes used in hydraulic facility will be suitable for seamless cold attraction DIN 2391c standart (steel quality st 35.4, nbk normalized and bonderized, its inside and outside covered by phosphate, breakaway resistence 36/48 kg/mm2, extension resistence 23%).
- In combining the pipes, eo typed import thimbled pipe unions ill be used.
- All of the hydraulic pressure cyclones will be suitable for the sae 100r2 standart (working condition 40c-120c, ground floor that is resistant to hydraulic oil and produced by nitrile rubber, between the floors two floored steel wire netting is supplemented, top floor that is a rubber production and which is resistant to oil and outside factors).

E. System Operation

- In the system there will be imported type electricity control box.
- When the discharge button was pushed, first balance pillars will touch to the ground and then with the movement of the lifting cylinder until the wastes inside the case discharges rolling activity will be completed.

- When the landing button was pushed, first the case will be landed and then balance pillars will be closed. Therefore, for a possible accident situation, front axle's levitation possibility will be prevented.

F. Accessories

- In the right or left side there is stairway.
- There will be splash guard and spray-suppression tires which cover back axle group tires.
- Rotating head lamp.
- A warning call.

G. Electricity Hardware

- The electricity hardware is going to be suitable for Sae standarts and road traffic act and charter.
- Switches are going to be original.

H. Paint

- All the case will be, after purified from oil and rust by being shootblasted, painted by anticorrosive ground coat of which thickness is 40 µ.
- It will be painted with the desired color and final floor painting which is 40 µ and which is in furnace-dried painting system.

İ.Warranty

- Equipment will be guaranteed for one year against all of the bad supplies and bad labour except usage mistakes.

Annex-20 Bi-cabinet Flatbed Truck Technical Contract

- Turbocharger diesel, injection engine
- Piston displacement is at least 2.4 liter, engine power is at least 140 HP
- Shift location cabinet, with the capacity of 5 except the driver
- Hydraulic steering
- Air-conditioned
- Radio-CD player
- Door windows and mirrors are electircally operated
- Remote controlled power door locks
- Wheelbase is 3500 mm (±100 mm)
- The chassis length which is behind the cabinet is 2350 mm (±50 mm)
- Total length is 5600 mm (±100 mm)
- Maximum burdened weight is 3500 kg (±20 kg)
- Empty weight is 2100 kg(±100 kg)
- Without burden total height is 2050 mm (±50 mm)
- Chassis height is 800 mm (±25 mm)
- Open steel safe
- Fuel tank capacity is 80 liters
- Has tow bar which is suitable for pulling trailer

Annex-21 Technical Specification for Minibus (13+1)

- Turbo diesel direct injection engine
- Piston displacement is at least 2.4 liter
- Engine power is at least 120 HP
- Except the driver it has the capacity of carrying 14 people
- Air-conditioned, Radio-CD player
- Raised ceiling
- Fuel tank capacity is at least 75 liters

Annex-22 Passenger Car Technical Specification

A. General

- All cars shll be 2011 model ve 0 (zero) kilometer.
- All cars shall be of the same brand and model. Cars of different brand and models within the same type will not be accepted.
- The physical examinations of the cars shall be executed in the given time, cars involved in urban Works shall be fully equipped with relevant official documents.
- The contractors shall accomplish any writing, pictures, logos and similar procedures requested by the Client onto the cars.
- The contractor shall be responsible for all maintenance and repair casts of the cars, the Client shall be responsible for fuel.
- All cars shall be equipped with belowmentioned tool kits.
- Traffic set (chain, hauling cable, support blocks etc.)
- First aid bag (appropriate with relevant regulations, including all necessary materials)
- Spare tire
- Tyre jack and tyre lever
- Fire extinguisher equipment (1 kg) (Time of filling shall be less than 1 month)
- Plastic flor mat

B. Technical Characteristics

- Diesel motor with turbo charge
- 4 cylinder with min. Cylinder volume of 1.3 liters (at least 1290 cm^3)
- Maximum engine power at least 65 HP
- Direct spray Common Rail injection fuel system
- Average urban fuel consumption maximum 5.7 lt, urban+out-of-town maximum 4 lt/100 km
- Equipped with air condition
- Radio-CD player (command from steering wheel)
- ABS braking system
- Driver and passenger air bag
- Adjustable front seat head restrainers
- Rear seat head restrainers
- Adjustable front safety belt
- Fully equipped indicator panel (engine tachometer, fuel indicator and warning light, heat and speed indicators and other warning lights)
- Remote controlled central locking
- Height adjusted steering
- Electrically operated front door windows
- Tinted glass
- Fuel tank capacity at least 40 - 50 liters

Annex-23 Technical Specification for Escort Trailer

- Max. Length: 3.800 mm
- Max. Width: 3.800 mm
- The height of panel: 2,000 mm.
- The height of open panel: 3.800 mm
- Width: 2200 mm
- Panel shall be mounted to the trailer on single shaft with two wheels. The rim of a wheel is 15C, and the shaft shall be of TSR type.
- In the front, there will be a separate wheel connected to the adjusting mechanism.
- In the front there will be a height adjusting mechanism.
- The surface of the panel dashboards is made of aluminium sheet.
- In the bottom panel, direction arrow shall be placed. It shall be made of aluminium being covered with led light.
- Panel boards shall be covered with adhesive foil.
- In the rear bottom panels there shall be two stop lights.
- In the rear top panel, left-right arrow illuminated with led light is equipped. The dimensions shall be 2200 x 1750mm.
- A panel that belongs to the system mounted in the trailer shall be fastened in the reverse side of the top panel.
- Accumulator with 200 amps shall be fixed in the wooden housing in the trailer.
- It includes cable-plug system that can be installed to the vehicle to which it is connected. It operates at 12w 24w.
- In the front crank there is a gear wheel system that is formed of two parts and allows the up-down crank adjustment.
- There is a housing made of water based wood, where the materials can be stored.
- Two dampers shall be installed to aid the opening of the top panel.
- A lock system shall be in place in order for the top panel not to be opened after it is closed.
- An electrical direction engine that rotates the back arrow shall be installed.
- Two support systems that back up the panel while standing fixedly at the back side.
- The exact measurements shall be taken on-site.

Annex-24 Technical Specifications of Under-ground Containers 5m3

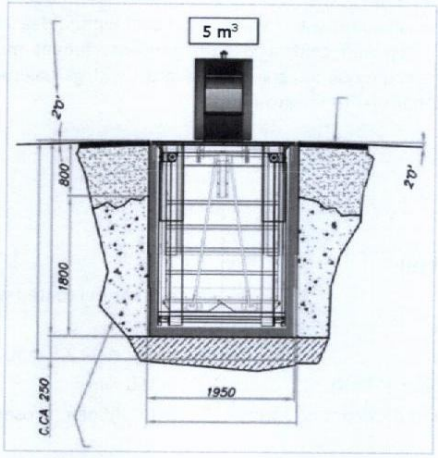
Purchase, Transport and Assembly of the Underground Containers

1. Underground container system will be of the type which can be dumped through opening bottom gates by lifting the type F90 cork attachment with ROBOT CRANE GARBAGE COLLECTING TRUCKS, which is managed by the driver with a joystick without leaving driver's cabin.
2. Concrete outer socket which will be arranged by the contractor of underground container system will be produced as compacted with pneumatics and automatic vibration from ready-mix concrete of C52.5N, its internal dimensions will be minimum 2340 mm height, 1760 mm width and 1760 length. Interior and exterior of the outer socket will be isolated against wearing, tearing and leakage with compatible coating material.
3. The water-tightness of outer socket will be 100%
4. Safety platform will be connected with a lift system which will cover the well-gate so as to prevent fall of living beings into it whenever internal container is removed for dumping or other reasons. Lift system will have at least a lifting capacity of 250 kg and operate with the help of wire-rope and slings.
5. Inner container of the underground container system will be made up of high-resistance galvanized metal sheets with a minimum thickness of 1.5 mm. On the side faces of the inner container, there will be knuckles which will be 5 on both two side-sheets and 4 on the other 2 side-sheets in order to improve the durability of the massive sheet. The volume of inner container will be at least 5 m3 and its height will be minimum 2340 mm. Bottom gates of the inner container will be of deep-dip galvanized sheet with at least 3 mm thickness and 15 cm depth which can be opened and closed from cork attachment and with capacity which can collect the waste water of at least 270 liter without leakage.
6. Above-ground platform of the underground container system will be made up of at least 4 mm hot-dip galvanized riflet sheet, will be so robust that pedestrians can walk on it and will have a hole for funnel on the platform necessary for garbage throwing.
7. Funnel section of the garbage column of the underground container system will be made up of pre-galvanized sheet and its durability against external factors will be increased with 220 degree oven-painting.
8. The door of the garbage column will be made up of 2 mm antirust sheet (INOX), a trap made up of galvanized sheet with 3 mm thickness, working with "counter-weight" system once the door is opened for garbage-throwing will cover the mouth of the well to maintain the safety. This tray will allow the garbage to fall inside the container by opening it only when the door is closed. Door will never remain open and must be self- closed thanks to a damper weight system. Container lifting and dumping attachment will be of cork system, lifting and dumping activities will be commanded at one point with cork attachment to be assembled to the top section of garbage rod.
9. Underground container systems will be transported and installed by contractor to the places which is excavated and of which base concrete is prepared by the Contactor.
10. Excavation area and concrete socket will be as indicated in the annexed drawing.
11. Prior to excavation to be carried out, information will be provided to infrastructure agencies by the Client and the place of excavation will be changed when there is infrastructure facility (such as Telephone, Electricity and Natural Gas lines) in the place of excavation. Any kind of legal and material responsibility arisen due to the damages and losses caused on the infrastructure facilities of such agencies (such as Telephone, Electricity

and Natural Gas Administrations) in the excavations and construction is to be assumed by the Client.

The installation details for underground container system

12. The dimensions of the pits to be opened by the Contractor will be minimum 2.05 m (Width) x 2.05 m (Length) x 2.80 m (Depth). Excavated earth will be carried away by the Contactor.
13. The Contractor will prepare a %100 leveled platform by pouring a reinforced concrete with 20 cm thickness on the base of the pit.
14. Concrete Outer Socket will be placed on the platform.
15. Surrounding of the outer socket will be filled with stone chips and stone chips will be compacted so as to make outer socket immovable.
16. Lift unit and inner container with garbage funnel will be placed on the outer socket correctly and assembly will be finished.
17. Landscaping will be carried out by the Contractor.



Sample Image of 5 m3 underground container

General

18. Debris and waste materials resulted due to excavation will be carried out by the Contractor.
19. Contractor is responsible for any kind of security in the work sites. Contractor is required to take security measurements beforehand and to enclose the work sites with strips, bands etc. materials, to place necessary warning signboards at the head and end of the street on which works are being carried out.
20. Contractor, itself, its representatives and all employees must comply with the oral and written rules of the Client.

Annex-25 Technical Specifications of Above-ground Containers 3m3

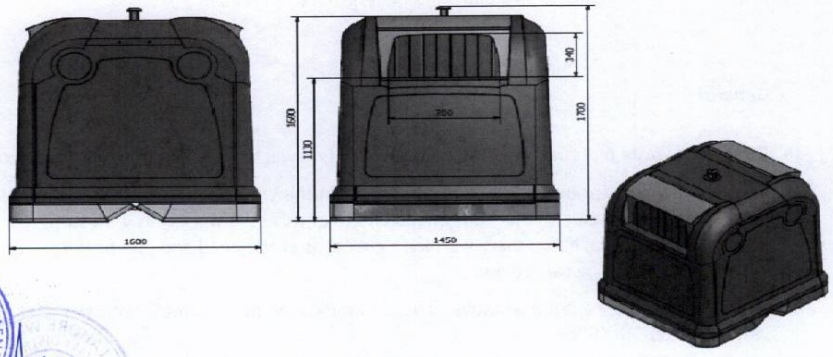
Purchase, Transport and Assembly of the bottom-dumped above-ground container system

1. Above-ground container system will have a dumping feature through opening bottom doors by lifting the cork attachment with the crane which can move on the horizontal and vertical axis commanded by driver without getting out of the driver cabinet with the help of a sonar, camera and joystick.
2. The body of the containers must be made up of pregalvanized sheet with 2 mm thickness and dyed internally and externally with a special oven-dying durable against hot, cold and sunlight so as to increase its durability. Another property of the paint is that it must allow easy cleaning and clearing the graffiti and inscriptions.
3. In the containers, there must not be screws or other mechanicals elements on which garbage can be tangled during the dumping.
4. Containers must be designed such that they will not leak the garbage water. Containers must be bottom-dumped, with hot-dip galvanized bottom-doors, at least 15 cm depth and with a capacity of 250 liter waste water and liquid without leakage, the mechanism which enables doors open and controlled with cork attachment must be under cover with galvanized sheet as they cannot come into contact with garbage and doors must be opened 90 degree perpendicular to the ground.

Features:

Dimensions (WxDxH):	1450x1600x1690 mm
Capacity:	3000 LTS.
Weight (empty):	335 Kgs.
Opening dimensions (WxH):	700x340 mm
Body structure:	pre-galvanized steel coated with anti-graffiti paint
Body structure thikness:	2 mm
Bottom doors structure:	hot galvanized steel 2,5 mm
Bottom doors dimensions (WxDxH):	1445x830x160 mm

Liquid retain capacity of bottom doors: aprox. 400 LTS (total)Color: chosen by the Client.



Annex- 26 Technical Contract About Sweeper, Dustpan and Handcart which will be used by Manual Sweeping Team

A. Sweeper

- Sweeper must be with the plastic end which will function as besom.
- Sweeper mouth must be 35 cm, the height of the sweeper shall be at least 20 cm and sweeper must be at least 100 cm with the sweeper stick. Sweeper with the sweeper stick shall not have the weight of no more than 1.2 kg.
- Shall be resistant for use in hard conditions and its usage period must be long.
- Sweeper must be in the approriate weight and height.
- Sweeper must be designed for the professional usage.
- The plastic equipment which is used in the production of the product shall not give any damages to the environment or health.
- Besoms, which can be obtained locally and have the same quality of working can be used within the scope of this job.

B. Trash Dustpan

- The product shall be produced from the hard plastic that is not broken easily.
- Dustpan with its stick must be at least 100 cm in height, shovel width must be at least 20 cm and shovel height shall be at least 20 cm. Trash dustban's weight must be maximum 1.5 kg.
- The mouth structure of the dustpan must be thin and therefore it can easily collect the dusts.
- The plastic equipment which is used in the production of the product shall not give any damages to the environment or health.

C. Wheelie Handcart (Plastic Bin for Hand Sweeping and Waste Collection)

- 120L Wheelie Handcart (Plastic Garbage Bin With Wheels)
- Material: HDPE
- Body size:780x520x480mm (or equivalent due to the volume)
- Comply with EN840 Norms

- UV resistance and designed solid for outdoor usage
- High stability and durable with thicker surface of body
- Easy and perfect cleaning
- Stay in a stable condition even in rough ground
- Has standard and special (on-demand) color options
- Solid rubber tires (2pcs, diameter : 200mm)
- Lid capable of completely closes for odor and dust control

Annex-27 Technical Specifications About Protective Wearing Apparel

1. This specification covers the protective clothing products to be distributed to the personnel, working at the site, of the contractor who undertakes the waste collection and city cleaning in Pakistan, Lahore.
2. Accredited Laboratory means any laboratory authorized to make laboratory tests by international certification institutions.
3. The Client takes the quality as a basis for the clothing distributed to the personnel as it is an indicator of the corporate identity. So qualities offered by the suppliers are a component of assessment. In this context, contractor shall prepare one sample for the proposed products in order for the qualities of the products to be evaluated, and deliver it to the Client.
4. Contractor may not supply cloth without the cloth approval of the Client. It is not responsible for the damages to be arisen as a result of purchase of the cloth that was not granted approval as for the conformity to the specification by the Client.
5. Contractor shall obtain from the supplier or accredited laboratories, the results of the laboratory tests that show the performance properties of the cloth supplied, which are in compliance with the specification, and submit the same to the Client for the sample approval prior to manufacture. Costs of laboratory tests shall be borne by the contractor. If the Client does not find suitable the reports of the accredited institution, it can ask for re-testing of the performance in an accredited laboratory.
6. The Contractor, who takes approval for the cloth, shall prepare one sample for each body size before manufacturing, and submit the same to the Client. It shall start manufacturing after the Client grants approval for the sample.
7. The Contractor shall determine the body size following the tender or start manufacturing according to the body sizes given by the Client at the responsibility of the Contractor. In case of discrepancy in any size, the change shall be made by the Contractor within 3 days free of charge.
8. In the event that different batch of cloth is used during the manufacturing, laboratory reports for each batch shall be obtained again.
9. The Client may visit the production facilities of the contractor during the manufacturing and perform interlude controls. These controls may be performed by the institutions, person or persons that render consultancy and/or control services to the Client.
10. Elimination of the errors arising out of the product or deficiencies resulting from other reasons or additional productions shall be completed by the Contractor within 10 days following the acceptance of the first batch by the Client.
11. Contractor is responsible for taking any precautions at the sites where the work is performed and teach its personnel the ways of protection from the occupational accidents. The Contractor is obliged to accept any legal liability to be arisen due to the accidents resulting from the employment of unlicensed personnel and other reasons as well as conclusions thereof.
12. The Contractor shall at its own cost take any precautions to protect health of its personnel pursuant to the provisions of Labour Act, Occupational Safety and Health Regulation, and shall not allow employment of workers under dangerous conditions. The Contractor shall be responsible for any damage, loss and harm incurred by the workers and suffered by the 3r^{d} persons during the performance of the work. Any tangible, intangible and legal liability resulting from the performance of the work undertaken shall lay on the Contractor.
13. The Contractor is obliged to pay regularly the insurance premiums of the personnel employed at the sites where the work is performed, all other legal charges and similar deductions to the relevant institutions, and submit the one copy of the legal documents and statements related to the payments to the Client.

14. The term to start the delivery after the signing of the contract is 30 calendar days. Furthermore, in addition to this period, 7 calendar days are granted for the completion of the distribution of renumerations of all personnel completely.

Final Treatments, Packaging, Packing and Delivery

a. It should be paid great attention not to spoil the ironed state of the products during the packaging and transportation.
b. Recyclable cardboard and nylon bag shall be used in the packaging of the products.
c. The Contractor shall place protective clothing materials in separate bags for each personnel. The labels including the following information shall be affixed on the bags:
    i. The name-surname of the personnel who is given protective clothing,
    ii. Department, title and
    iii. Types and quantities of the protective clothing to be given to the personnel.

Witness Sample, Sampling and Acceptance Conditions

a. Out of the goods delivered by the contractor, a sample is drawn by means of drilling by the Inspection and Acceptance Commission, and it is controlled if the conditions mentioned in the specification are met. It is compared with the witness sample delivered to the Client before manufacturing. Furthermore the goods delivered by the Contractor is tested in terms of performance in an accredited laboratory. An acceptance is granted according to the laboratory results. Costs of laboratory tests are borne by the contractor.
b. In the event that the Client determines defects that do not conform to the conditions specified in the specification or do not required to be stated especially in the specification, it may reject whole party. It can require the removal of the errors by granting additional period of 10 days for the recovery of the defective products which are possible to correct.
c. The goods shall be produced according to the witness sample retained in the Client. The goods that are not in compliance with the witness sample shall not be accepted.

QUALITIES OF THE WORKING CLOTHES

15. Cloth Properties

a. Material: The cotton and polyester ratios, thickness and other properties (cleaning, paint to be used etc.) of the cloth shall be determined in accordance with the seasonal conditions with the approval of the Client.
b. A report showing the weight, component, pattern report and yarn no of the cloth shall be notified to the Client by the cloth manufacturer with written approval.
c. Indanthrene paint shall be used (shall not contain hazardous azo colorant). It should be paid attention that the clothes have high sweat and light resistance in conformity with the summer conditions and are especially resistant to the acid in the sweat.

16. Sewing Qualities

Sewing yarn shall be quality polyester and be in compliance with the cloth colour. The type of sewing yarn that will not fade in the washing should be selected.

17. **Accessories**
    a. 1 spare button shall be sewn on the washing instruction.
    b. The front zipper shall be of Type 6 bone bottom. It should be noted that zipper and polyester yarns are not deformed during ironing and final treatment.
18. **Reflector Qualities**
    Reflector shall be resistant to minimum 25 washings and in compliance with the EN 471 standards.

QUALITIES OF THE SHOES

In the evaluations to be made for the acceptance of the shoes, the factors such as use, comfort, liking and external appearance shall be taken into account.

19. The Contractor shall provide 4 (four) sets of Protective Uniforms to any personnel works in the Zone 1 area in the scope of this tender. (Two times summer and two times winter season)
20. The distribution of the Protective Uniforms shall be made according to the following "Protective Wearing Apparel Distribution Table"

Protective Wearing Apparel Distribution Table

WORK	PERSONNEL	HUNTER VEST	SOCKS	SHIRT	WORK SHOES (WITHOUT STEEL TOECAP)	WORK SHOES (WITH STEEL TOECAP)	WORK SHOES (CLASSIC-SAFETY TYPE)	WORKING CLOTHES (COAT AND TROUSERS)	WORKING CLOTHES (OVERALL)	WORKING CLOTHES (TROUSERS)	COAT	SWEATSHIRT	SLIPPER	ANORAK
MECHANICAL SWEEPING TEAM	SHIFT MANAGER	x												
	FOREMAN	x	x	x	x					x	x	x		x
	LOADER OPERATOR	x	x	x	x					x	x	x		x
	SERGEANT	x	x	x	x					x	x	x		x
	MOTOR VEHICLE INSPECTOR	x	x	x	x					x	x	x		x
	DRIVER		x		x			x			x	x		x
	SWEEPER OPERATOR		x		x			x			x	x		x
	WORKER		x			x		x			x	x		x
MANUAL SWEEPING TEAM	SHIFT MANAGER	x												
	FOREMAN	x	x	x	x					x	x	x		x
	LOADER OPERATOR	x	x	x	x					x	x	x		x
	SERGEANT	x	x	x	x					x	x	x		x
	MOTOR VEHICLE INSPECTOR	x	x	x	x					x	x	x		x
	DRIVER		x		x			x			x	x		x
	HAND SWEEPER		x			x		x			x	x		x
WASTE COLLECTION TEAM	SHIFT MANAGER	x												
	FOREMAN	x	x	x	x					x	x	x		x
	LOADER OPERATOR	x	x	x	x					x	x	x		x
	SERGEANT	x	x	x	x					x	x	x		x
	MOTOR VEHICLE INSPECTOR	x	x	x	x					x	x	x		x
	DRIVER		x		x			x			x	x		x
	WORKER		x			x		x			x	x		x
WORKSHOP TECHNICAL MANAGEMENT	TECHNICAL MANAGER	x												
	FOREMAN	x	x	x			x			x	x	x		x
	TECHNICIAN - REPAIR&MAIN.		x				x	x			x	x		x

Annex-28 The Technical Specifications of Garbage Collection Bag(for manuel sweeping and waste collection workers)

- The material of the garbage bags shall be approximate to HDPE.
- The width of the garbage bag shall be 85 cm and length 110 cm (+/- 5cm).
- Blower width of the garbage bag will be 15+15.
- The thickness of the garbage bag will be 46 microns.
- Each packet shall contain 100 bags.
- The bags shall be produced in the colour which the Client will decide on.
- The bottom part of the bags shall have double stitching.
- The words "LAHORE WASTE MANAGEMENT COMPANY CLEANING CREW" shall be written on the bags in black color and large type size of 40X30 dimensions and be equipped with LWMC logo.
- The garbage bags shall be resistant to handling and must be leak proof.
- The bottom part of the garbage bags shall be double welded and it shall not be teared easily.
- Assessment shall be made from a sample, at least 1 roll sample shall be provided.

Annex-29 The Technical Specifications of Garbage Collection Bag to Distribute to the Public (for Door-to-Door Waste Collection Practices)

- The material of the garbage bags shall be approximate to HDPE.
- The width of the garbage bag shall be 65 cm and length 80 cm (+/- 5cm).
- The thickness of the garbage bag shall be 14-15 microns.
- The bags shall be produced in the colour which the Client will decide on.
- The bottom part of the bags shall have double stitching.
- The words "LAHORE WASTE MANAGEMENT COMPANY" shall be written on the bags in black color and large type size of 40X30 dimensions and be equipped with LWMC logo.
- The garbage bags shall be resistant to handling and must be leak proof.
- The bottom part of the garbage bags shall be double welded and it shall not be teared easily.
- Assessment shall be made from a sample, at least 1 roll sample shall be provided.

Annex-30 Mechanic Sweeping Work Program

Annex-31 Daily Sweeping Program

Annex-32 Washing Program

Annex-33 Greenbelts

(ZONE 1) NIGHT

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
1.VEHICLE				Circular Road (Lohori gate/circular road)	4,400.0	44,800	67,200
				Circular Road (Circular road /Mochi gate)	2,800.0		
				Circular Road (Circular road /Akbari gate)	4,000.0		
				Circular Road	6,400.0		
				Circular Road	4,000.0		
				G.T Road	3,200.0		
				G.T Road	5,600.0		
				G.T Road	14,400.0		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
2.VEHICLE				G.T Road-4	48,000	48,000	72,000

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
3.VEHICLE				G.T Road	22,400	41,200	61,800
				G.T Road	9,200		
				G.T Road	5,600		
				Ravi Road	4,000		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
4.VEHICLE				Ravi Road	8,000	37,600	56,400
				Ravi Road	2,800		
				Ravi Road	4,800		
				Ravi Road	2,800		
				Allama Iqbal Road	8,000		
				Allama Iqbal Road	6,800		
				Allama Iqbal Road	4,400		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
5.VEHICLE				Allama Iqbal Road	5,200	40,600	60,900
				Allama Iqbal Road	800		
				Misri Shah Road (Misiri shah road/chah miran road/khawaja saeed)	6,200		
				Misri Shah Road	800		
				Misri Shah Road	2,000		
				Mcload Road	1,600		
				Mcload Road	1,600		
				Mcload Road	1,200		
				Mcload Road	2,600		
				Mcload Road	1,400		
				Queen Marry Road	2,600		
				Queen Marry Road	1,000		
				Queen Marry Road	800		
				Egertan Road	1,400		
				Hall Road	1,000		
				Shalimar Link Road	10,400		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
6.VEHICLE				Railway Road	600	43,000	64,500
				Railway Road	4,000		
				Railway Road	5,200		
				Railway Road	2,000		
				Railway Road	1,400		
				Nicholson Road	2,000		
				Nicholson Road	600		
				Abbit Road	1,200		
				Abbit Road	3,200		
				Canal Road (Wagha Border to The Mall)	22,800		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
7.VEHICLE				Canal Road (Wagha Border to The Mall)	9,400	37,600	56,400
				Canal Road (Wagha Border to The Mall)	28,200		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
8.VEHICLE				Canal Road (Wagha Border to The Mall)	8,400	40,020	60,030
				Canal Road (Wagha Border to The Mall)	13,600		
				Other Roads (Copper road)	800		
				Other Roads (Nolakha Road)	1,580		
				Other Roads (Montgamri Road)	2,840		
				Jail Road	6,000		
				Jail Road	3,600		
				Jail Road	3,200		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
9.VEHICLE				Jail Road (Camp jail road)	4,800	38,400	57,600
				Jail Road	1,000		
				Mall road	4,000		
				Mall road	3,200		
				Mall road	3,200		
				Mall road	2,000		
				The Mall (Shahra -e- Quaid -Azam)	2,000		
				The Mall (Shahra -e- Quaid -Azam)	1,600		
				The Mall (Shahra -e- Quaid -Azam)	1,200		
				The Mall (Shahra -e- Quaid -Azam)	1,200		
				The Mall (Shahra -e- Quaid -Azam)	3,200		
				Mall road (Lower Mall)	800		
				Mall road (Lower Mall)	6,400		
				Mall road (Lower Mall)	1,200		
				Mall road	2,600		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
10.VEHICLE				Mall road	4,800	38,080	57,120
				Mall road (Lower Mall)	1,200		
				Mall road (Lower Mall)	1,200		
				Mall road (Lower Mall)	600		
				Queens Road (Fatima jinnah road)	800		
				Queens Road	800		
				Queens Road	4,400		
				Lawrance Road	2,000		
				Lawrance Road	3,800		
				Awan-e-Tijarat road	1,600		
				Awan-e-Tijarat road (Shahra Awan-e-Tijarat)	3,880		
				Bahawalpur Road	4,400		
				Mazang Road (Fan road (Mazang))	800		
				Mazang Road	2,000		
				Mazang Road	1,000		
				Canal Road (Mall road to Ferozpur Road)	4,800		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
11.VEHICLE				Canal Road (Mall road to Ferozpur Road)	4,440	41,640	62,460
				Lake Road	2,400		
				Lake Road	1,800		
				Lahore Ring Road/Band Road	14,800		
				Lahore Ring Road/Band Road	18,400		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
12.VEHICLE				Canal Road (Mall road to Ferozpur Road)	4,800	40,000	60,000
				Lahore Ring Road/Band Road	12,400		
				Lahore Ring Road/Band Road	6,000		
				Lahore Ring Road/Band Road	16,800		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
13VEHICLE				Lahore Ring Road/Band Road	15,200	42,240	63,360
				Lahore Ring Road/Band Road	6,000		
				Lahore Ring Road/Band Road	10,000		
				Devis Road	1,440		
				Devis Road	960		
				Devis Road	480		
				'Bahawalpur Road	600		
				'Bahawalpur Road	840		
				'Bahawalpur Road	680		
				'Bahawalpur Road	1,200		
				'Bahawalpur Road	1,200		
				'Lytton Road	220		
				'Lytton Road	800		
				'Lytton Road	840		
				'Lytton Road	680		
				'Lytton Road	460		
				'Lytton Road	840		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
14.VEHICLE				Infantry Road	2,960	42,060	63,090
				Temple road	6,000		
				Sundar das road	6,400		
				Hospital road	1,600		
				Hospital road	500		
				Baansan wala bazar	600		
				Saggian Bridge	15,200		
				Saggian Pul to Shahdara distributary	8,800		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
15.VEHICLE				Jaranwala Road	15,920	35,200	52,800
				Shadman Main Boulevard	8,680		
				Shadbagh Road	2,400		
				Shadbagh Road	3,800		
				Shadbagh Road	800		
				Abu Bakr Road	3,600		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
16.VEHICLE				Abu Bakr Road	2,800	34,600	51,900
				Nisbat Road	3,800		
				Zarar Shaheed Road	4,000		
				Zarar Shaheed Road	7,200		
				Bank Road	800		
				Bank Road	800		
				Bank Road	800		
				Bank Road	400		
				Napier Road	3,000		
				Napier Road	3,000		
				Napier Road	3,000		
				Napier Road	3,000		
				Fleeming Road	2,000		

	VEHICLE TYPE	VEHICLE PLATES	SHORT KOD	TASK AREAS	Metre (mt)	TOTAL(mt)	TOTAL (m^2)
17.VEHICLE				Fane Road/Begum road	2,800	34,500	51,750
				Fane Road/Begum road	2,000		
				Sikandar Ali Malhi Road	2,400		
				Zafar Ali Road	4,000		
				Sultan Mehmood Road	5,800		
				Amir Road	2,000		
				Umar Din Road	2,900		
				Hafeez Taib Road	5,800		
				Pilot road	3,800		
				Pilot road	1,000		
				Moulana Ahmed Ali Road	2,400		

GENERAL TOTAL	679,540	1,019,310


LAHORE WASTE MANAGEMENT
CITY DISTRICT GOVERNMENT LAHORE

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ZONE 1 SWEEPING PERIOD

R.No	MAIN ARTERY ROADS AND SQUARES	Length (M)	Single Way	Dual Way	Sweep The Length Of (M)	DAYS													
						Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
						Daytime	Night	Daytime	Night	Daytime	Night	Daytime	Night	Daytime	Night	Daytime	Night	Daytime	Night
1	Circular Road (Lohori gate/circular road)	1,100		4	4,400		X		X		X		X		X		X		X
2	Circular Road (Circular road /Mochi gate)	700		4	2,800		X		X		X		X		X		X		X
3	Circular Road (Circular road /Akbari gate)	1,000		4	4,000		X		X		X		X		X		X		X
4	Circular Road	1,600		4	6,400		X		X		X		X		X		X		X
5	Circular Road	1,000		4	4,000		X		X		X		X		X		X		X
6	G.T Road	800		4	3,200		X		X		X		X		X		X		X
7	G.T Road	1,400		4	5,600		X		X		X		X		X		X		X
8	G.T Road	3,600		4	14,400		X		X		X		X		X		X		X
9	G.T Road	12,000		4	48,000		X		X		X		X		X		X		X
10	G.T Road	5,600		4	22,400		X		X		X		X		X		X		X
11	G.T Road	2,300		4	9,200		X		X		X		X		X		X		X
12	G.T Road	1,400		4	5,600		X		X		X		X		X		X		X
13	Ravi Road	1,000		4	4,000		X		X		X		X		X		X		X
14	Ravi Road	2,000		4	8,000		X		X		X		X		X		X		X
15	Ravi Road	1,400	2		2,800		X		X		X		X		X		X		X
16	Ravi Road	1,200		4	4,800		X		X		X		X		X		X		X
17	Ravi Road	700		4	2,800		X		X		X		X		X		X		X
18	Allama Iqbal Road	2,000		4	8,000		X		X		X		X		X		X		X
19	Allama Iqbal Road	1,700		4	6,800		X		X		X		X		X		X		X
20	Allama Iqbal Road	1,100		4	4,400		X		X		X		X		X		X		X
21	Allama Iqbal Road	1,300		4	5,200		X		X		X		X		X		X		X
22	Allama Iqbal Road	200		4	800		X		X		X		X		X		X		X
23	Misri Shah Road (Misiri shah road/chah miran road/khawaja saeed)	3,100	2		6,200		X		X		X		X		X		X		X
24	Misri Shah Road	400	2		800		X		X		X		X		X		X		X
25	Misri Shah Road	500		4	2,000		X		X		X		X		X		X		X
26	Mcload Road	400		4	1,600		X		X		X		X		X		X		X
27	Mcload Road	400		4	1,600		X		X		X		X		X		X		X
28	Mcload Road	300		4	1,200		X		X		X		X		X		X		X
29	Mcload Road	650		4	2,600		X		X		X		X		X		X		X
30	Mcload Road	350		4	1,400		X		X		X		X		X		X		X
31	Queen Marry Road	650		4	2,600		X		X		X		X		X		X		X
32	Queen Marry Road	250		4	1,000		X		X		X		X		X		X		X
33	Queen Marry Road	200		4	800		X		X		X		X		X		X		X
34	Egertan Road	700	2		1,400		X		X		X		X		X		X		X

35	Hall Road	500	2		1,000		X		X		X		X		X		X
36	Shalimar Link Road	2,600		4	10,400		X		X		X		X		X		X
37	Railway Road	300	2		600		X		X		X		X		X		X
38	Railway Road	1,000		4	4,000		X		X		X		X		X		X
39	Railway Road	1,300		4	5,200		X		X		X		X		X		X
40	Railway Road	500		4	2,000		X		X		X		X		X		X
41	Railway Road	700	2		1,400		X		X		X		X		X		X
42	Nicholson Road	500		4	2,000		X		X		X		X		X		X
43	Nicholson Road	300	2		600		X		X		X		X		X		X
44	Abbit Road	300		4	1,200		X		X		X		X		X		X
45	Abbit Road	800		4	3,200		X		X		X		X		X		X
46	Canal Road (Wagha Border to The Mall)	2,350		4	9,400		X		X		X		X		X		X
47	Canal Road (Wagha Border to The Mall)	5,700		4	22,800		X		X		X		X		X		X
48	Canal Road (Wagha Border to The Mall)	7,050		4	28,200		X		X		X		X		X		X
49	Canal Road (Wagha Border to The Mall)	2,100		4	8,400		X		X		X		X		X		X
50	Canal Road (Wagha Border to The Mall)	3,400		4	13,600		X		X		X		X		X		X
51	Other Roads (Copper road)	400	2		800		X		X		X		X		X		X
52	Other Roads (Nolakha Road)	790	2		1,580		X		X		X		X		X		X
53	Other Roads (Montgamri Road)	710		4	2,840		X		X		X		X		X		X
54	Jail Road	1,500		4	6,000		X		X		X		X		X		X
55	Jail Road	900		4	3,600		X		X		X		X		X		X
56	Jail Road	800		4	3,200		X		X		X		X		X		X
57	Jail Road (Camp jail road)	1,200		4	4,800		X		X		X		X		X		X
58	Jail Road	500	2		1,000		X		X		X		X		X		X
59	Mall road	1,000		4	4,000		X		X		X		X		X		X
60	Mall road	800		4	3,200		X		X		X		X		X		X
61	Mall road	800		4	3,200		X		X		X		X		X		X
62	Mall road	500		4	2,000		X		X		X		X		X		X
63	The Mall (Shahra -e- Quaid -Azam)	500		4	2,000		X		X		X		X		X		X
64	The Mall (Shahra -e- Quaid -Azam)	400		4	1,600		X		X		X		X		X		X
65	The Mall (Shahra -e- Quaid -Azam)	300		4	1,200		X		X		X		X		X		X
66	The Mall (Shahra -e- Quaid -Azam)	300		4	1,200		X		X		X		X		X		X
67	The Mall (Shahra -e- Quaid -Azam)	800		4	3,200		X		X		X		X		X		X
68	Mall road (Lower Mall)	200		4	800		X		X		X		X		X		X
69	Mall road (Lower Mall)	1,600		4	6,400		X		X		X		X		X		X
70	Mall road (Lower Mall)	300		4	1,200		X		X		X		X		X		X
71	Mall road	650		4	2,600		X		X		X		X		X		X
72	Mall road	1,200		4	4,800		X		X		X		X		X		X
73	Mall road (Lower Mall)	300		4	1,200		X		X		X		X		X		X
74	Mall road (Lower Mall)	300		4	1,200		X		X		X		X		X		X
75	Mall road (Lower Mall)	300	2		600		X		X		X		X		X		X
76	Queens Road (Fatima jinnah road)	200		4	800		X		X		X		X		X		X
77	Queens Road	200		4	800		X		X		X		X		X		X

78	Queens Road	1,100		4	4,400		X		X		X		X		X		X	
79	Lawrance Road	1,000	2		2,000		X		X		X		X		X		X	
80	Lawrance Road	950		4	3,800		X		X		X		X		X		X	
81	Awan-e-Tijarat road	400		4	1,600		X		X		X		X		X		X	
82	Awan-e-Tijarat road (Shahra Awan-e-Tijarat)	970		4	3,880		X		X		X		X		X		X	
83	Bahawalpur Road	1,100		4	4,400		X		X		X		X		X		X	
84	Mazang Road (Fan road (Mazang))	400	2		800		X		X		X		X		X		X	
85	Mazang Road	1,000	2		2,000		X		X		X		X		X		X	
86	Mazang Road	500	2		1,000		X		X		X		X		X		X	
87	Canal Road (Mall road to Ferozpur Road)	1,200		4	4,800		X		X		X		X		X		X	
88	Canal Road (Mall road to Ferozpur Road)	1,200		4	4,800		X		X		X		X		X		X	
89	Canal Road (Mall road to Ferozpur Road)	1,110		4	4,440		X		X		X		X		X		X	
90	Lake Road	600		4	2,400		X		X		X		X		X		X	
91	Lake Road	800	2		1,600		X		X		X		X		X		X	
92	Lahore Ring Road/Band Road	3,700		4	14,800		X		X		X		X		X		X	
93	Lahore Ring Road/Band Road	4,600		4	18,400		X		X		X		X		X		X	
94	Lahore Ring Road/Band Road	3,100		4	12,400		X		X		X		X		X		X	
95	Lahore Ring Road/Band Road	1,500		4	6,000		X		X		X		X		X		X	
96	Lahore Ring Road/Band Road	4,200		4	16,800		X		X		X		X		X		X	
97	Lahore Ring Road/Band Road	3,800		4	15,200		X		X		X		X		X		X	
98	Lahore Ring Road/Band Road	1,500		4	6,000		X		X		X		X		X		X	
99	Lahore Ring Road/Band Road	2,500		4	10,000		X		X		X		X		X		X	
100	Devis Road	720	2		1,440		X		X		X		X		X		X	
101	Devis Road	480	2		960		X		X		X		X		X		X	
102	Devis Road	240	2		480		X		X		X		X		X		X	
103	'Bahawalpur Road	150		4	600		X		X		X		X		X		X	
104	'Bahawalpur Road	210		4	840		X		X		X		X		X		X	
105	'Bahawalpur Road	170		4	680		X		X		X		X		X		X	
106	'Bahawalpur Road	300		4	1,200		X		X		X		X		X		X	
107	'Bahawalpur Road	300		4	1,200		X		X		X		X		X		X	
108	'Lytton Road	110	2		220		X		X		X		X		X		X	
109	'Lytton Road	300	2		600		X		X		X		X		X		X	
110	'Lytton Road	420	2		840		X		X		X		X		X		X	
111	'Lytton Road	340	2		680		X		X		X		X		X		X	
112	'Lytton Road	230	2		460		X		X		X		X		X		X	
113	'Lytton Road	420	2		840		X		X		X		X		X		X	
114	Infantry Road	740		4	2,960		X		X		X		X		X		X	
115	Temple road	1,500		4	6,000		X		X		X		X		X		X	
116	Sundar das road	1,600		4	6,400		X		X		X		X		X		X	
117	Hospital road	400		4	1,600		X		X		X		X		X		X	
118	Hospital road	250	2		500		X		X		X		X		X		X	
119	Baansan wala bazar	300	2		600		X		X		X		X		X		X	
120	Saggian Bridge	3,800		4	15,200		X		X		X		X		X		X	

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LAHORE WASTE MANAGEMENT CO. CITY DISTRICT GOVERNMENT LAHORE

121	Saggian Pul to Shahdara distributary	2,200		4	8,800		X		X		X		X		X		X		X
122	Jaranwala Road	3,980		4	15,920		X		X		X		X		X		X		X
123	Shadman Main Boulevard	2,170		4	8,680		X		X		X		X		X		X		X
124	Shadbagh Road	1,200	2		2,400		X		X		X		X		X		X		X
125	Shadbagh Road	1,900	2		3,800		X		X		X		X		X		X		X
126	Shadbagh Road	400	2		800		X		X		X		X		X		X		X
127	Abu Bakr Road	900		4	3,600		X		X		X		X		X		X		X
128	Abu Bakr Road	1,400	2		2,800		X		X		X		X		X		X		X
129	Nisbat Road	950		4	3,800		X		X		X		X		X		X		X
130	Zarar Shaheed Road	1,000		4	4,000		X		X		X		X		X		X		X
131	Zarar Shaheed Road	1,800		4	7,200		X		X		X		X		X		X		X
132	Bank Road	200		4	800		X		X		X		X		X		X		X
133	Bank Road	200		4	800		X		X		X		X		X		X		X
134	Bank Road	200		4	800		X		X		X		X		X		X		X
135	Bank Road	200	2		400		X		X		X		X		X		X		X
136	Napier Road	1,500	2		3,000		X		X		X		X		X		X		X
137	Napier Road	1,500	2		3,000		X		X		X		X		X		X		X
138	Napier Road	1,500	2		3,000		X		X		X		X		X		X		X
139	Napier Road	1,500	2		3,000		X		X		X		X		X		X		X
140	Fleeming Road	1,000	2		2,000		X		X		X		X		X		X		X
141	Fane Road/Begum road	700		4	2,800		X		X		X		X		X		X		X
142	Fane Road/Begum road	500		4	2,000		X		X		X		X		X		X		X
143	Sikandar Ali Malhi Road	1,200	2		2,400		X		X		X		X		X		X		X
144	Zafar Ali Road	1,000		4	4,000		X		X		X		X		X		X		X
145	Sultan Mehmood Road	2,900	2		5,800		X		X		X		X		X		X		X
146	Amir Road	1,000	2		2,000		X		X		X		X		X		X		X
147	Umar Din Road	1,450	2		2,900		X		X		X		X		X		X		X
148	Hafeez Taib Road	1,400		4	5,600		X		X		X		X		X		X		X
149	Pilot road	900		4	3,600		X		X		X		X		X		X		X
150	Pilot road	500	2		1,000		X		X		X		X		X		X		X
151	Moulana Ahmed Ali Road	1,200	2		2,400		X		X		X		X		X		X		X
X	TOTAL	188,510			679,540														

Total Sweeping Meter	4,756,780

ZONE 1 (SQUARE)

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MECHANİCAL WASHİNG	Main Market Gulberg Chowk	20*20	400	9,300	MONDAY
2		Azam Chowk	20*20	400		
3		Mini Market Gulberg Chowk	20*20	400		
4		Qadafi Stadium Entrance Chowk	20*20	400		
5		Zahoor Elahi Roundabout	20*20	400		
6		Centre Point Chowk	30*50	1500		
7		FC Collage Square	20*20	400		
8		Hafiz Centra-Pace Square	30*30	900		
9		Hussain Chowk Gulberg	30*30	900		
10		Jail Road-Boulevard Junction	20*20	400		
11		Liberty Chowk	20*30	1200		
12		Race Course Park Square	30*30	900		
13		Shadman Fawara Chowk	30*30	900		
14		Chowk Near Akbari Public Schoil	20*20	400		
15		Kashmiri Gate Square	20*20	400		
BEHİND THE WASHİNG 2 MECHANİCAL SWEEPİNG		Sweeping Area is 35.000 mt for each vehicle	35.000*1,5	52,500	105,000	

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MEKANİK YIKAMA	Regal Chowk Square	30*30	900	9,700	TUESDAY
2		Square Near Lahore Court	20*20	400		
3		Anarkali ChowkSquare	30*30	900		
4		Charring Cross Square	50*50	2500		
5		Chowk Istanbul Square	30*30	900		
6		Nisla Gumbad Chowk	30*40	1200		
7		GPO Chowk Square	30*30	900		
8		Mall Road Chowk	20*20	400		
9		Haider Saeen Sarkar Chowk	40*40	1600		
BEHİND THE WASHİNG 2 MECHANİCAL SWEEPİNG		Sweeping Area is 35.000 mt for each vehicle	35.000*1,5	52,500	105,000	

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MEKANİK YIKAMA	Chowk Jain Mander	30*30	900	9,900	WEDNESDAY
2		Chowk Near F.J Medical Collega & Gunja Ram Hospital	30*30	900		
3		Governor House Square	30*30	900		
4		Opposite Lawrance Garden	20*20	400		
5		Safan Wala Square	20*20	400		
6		Lahore Zoo Chowk	30*30	900		
7		Mozang Square	30*30	900		
8		Shadman Square	30*30	900		
9		Gihana Chowk	30*30	900		
10		Chowk OppositeTo Eden Centre	40*40	1600		
11		Club Chowk	20*20	400		
12		Bahatti Gate	20*20	400		
13		Bollbagh Chowk	20*20	400		
BEHİND THE WASHİNG 2 MECHANİCAL SWEEPİNG		Sweeping Area is 35.000 mt for each vehicle	35.000*1,5	52,500	105,000	

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MEKANİK YIKAMA	Qurtaba Chowk Square	40*60	2400	10,000	THURSDAY
2		Mall Road Channal Intersection	30*30	900		
3		Salamatpura Chowk	20*20	400		
4		ShalimarChowk	30*30	900		
5		Shimla Pahari Square	30*30	900		
6		Square Infront Of Holiday Inn	30*30	900		
7		Sukh Near Chowk	20*20	400		
8		Tajbagh Railway Crossing	20*20	400		
9		Zafar Chowk	20*20	400		
10		Zafar Shaheed Chowk	40*40	1600		
11		Ballbagh Chowk	20*20	400		
12		Lohari Gate	20*20	400		
BEHİND THE WASHİNG 2 MECHANİCAL SWEEPİNG		Sweeping Area is 35.000 mt for each vehicle	35.000*1,5	52,500	105,000	

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MEKANİK YIKAMA	Bohar Wala	20*20	400	9,200	FRIDAY
2		Chamra Mandi Chowk	20*20	400		
3		Chowk Baraf Khana	20*20	400		
4		Cooperative Store Square	20*20	400		
5		Delgiran Chowk	20*20	400		
6		Deroghewala Chowk	20*20	400		
7		Garhi Shahu Square	30*30	900		
8		Gawal Mandi Mhowk	40*20	800		
9		Gazi Abat Chowk	20*20	400		
10		Ghorsy ShahChowk	20*20	400		
11		Haji Camp Chowk	30*30	900		
12		Jerrey Pul Chowk	20*20	400		
13		Lahore Hotal Chowk	30*30	900		
14		Lalpur Chowk	20*20	400		
15		Mian Mir Chowk	20*20	400		
16		Montgomery Road Chowk	30*30	900		
17		Urdu Bazaar Chowk	20*20	400		
BEHİND THE WASHİNG 2 MECHANİCAL SWEEPİNG		Sweeping Area is 35.000 mt for each vehicle	35.000*1,5	52,500	105,000	

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MEKANİK YIKAMA	Shad Bagh Gool Chakar	20*20	400	10,000	SATURDAY
2		Sher Sing Showk	20*20	400		
3		Usman Chowk	20*20	400		
4		Bademi Bagh Chowk	20*20	400		
5		Dehli GateChowk	30*30	900		
6		Ek Morla Pul Chowk	20*20	400		
7		Fruit Market Chowk	20*20	400		
8		Dehli Gate	30*30	900		
9		Khizri Gate Square	20*20	400		
10		Madina Chowk	20*20	400		
11		Mochi Gate	20*20	400		
12		Mochi Gate Chowk Adda Crown Bus Stop	30*30	900		
13		Neelam Cinema Chowk	20*20	400		
14		Amir Road-Ganda Nala Chowk	20*20	400		
15		Mayo Hospital Chowk	40*20	800		
16		Mcleod Road Chowk	30*30	900		
17		Lakshami Square	30*40	1200		
BEHİND THE WASHİNG 2 MECHANİCAL SWEEPİNG		Sweeping Area is 35.000 mt for each vehicle	35.000*1,5	52,500	105,000	

NO	VEHİCLE NUMBER	SQUARE NAME	FACTOR	M²	TOTAL M²	DAY
1	7 MEKANİK YIKAMA	(Samanamad TownMoon) Market Iqbal Town UC-104	3,400		36,525	SUNDAY
2		(Samanamad TownMoon) Wahdat Colony UC-115	3,453			
3		(Samanamad TownMoon) 60 Feet Road UC-90-91	123			
4		(Samanamad TownMoon) Moon Market Gulshan Ravi UC-87	2,567			
5		(Samanamad TownMoon) Ring Road Sanda UC-84	4,000			
6		(Nishtar Town) Green Town UC-140	12,616			
7		(Gulberg Town) Model Town link Road UC-127	6,616			
8		(DGBT-A) Chrishtian Ground Islam Pura UC-82	2,098			
9		(DGBT-A) Makro Ravi Road UC-67	1,652			

92 SQUARES (MECHANİCAL WASHİNG TOTAL)	95,225 m2
83 SQUARES (MECHNİCAL SWEEPİNG TOTAL)	630,000 m2


LAHORE WASTE MANAGEMENT
CITY DISTRICT GOVERNMENT

Sr. No.	Name Of Green Belt	Exact Location with Complete Address	Existing Area	How much waste is collected daily (KG)	
			Width (m) / Length (m)	Solid Waste	Green Leaves
1	1 Moria Bridge to Nawaz Sharif Hospital	Near Yaki Gate Circular Garden	37x197	12 Kg	3 kg
2	Nawaz Sharif Hospital to Sheranwala Gate	Near Sheranwala Gate Circular Garden	88x320	32 kg	5 Kg
3	Sheranwala Gate to Kashmeeri Gate	Near Kashmeeri Gate Circular Garden	61x245	15 kg	4 kg
4	Kashmeeri Gate to Masti Gate Park	Near Masti Gate Circular Garden	122x253	45 kg	5 kg
5	Out Side Shahi Qila	Nursery Sher Shah Wali	113x178	24 kg	7 kg
6	Ali Park	Fort Road, Lahore	53x142	9 kg	4 kg
7	Siddiqia Road Green Belt	Badami Bagh	3x1220	15 kg	2 kg
8	Green Belt in front of Minar-e-Pakistan	Near Badshahi Mosque		6 kg	2 kg
9	Taar Block Green Belt	Shadbagh	8x155	4 Kg	2 Kg
10	Triple Road No. 1	Shadbagh	5x573	8 Kg	3 Kg
11	Triple Road No. 2	Shadbagh	5x573	9 Kg	4 Kg
12	Green Belt	Wassan Pura Scheme No. 2	9x591	8 Kg	4 Kg
13	Green Belt Bara Dari Road	D-I, D-II, C-I, C-II, Gujjarpura	9x793	12 Kg	2 Kg
14	GT Road	UET Side	9x3049	14 Kg	7 kg
15	GT Road	Railway Sub-office Side	9x1128	8 Kg	2 kg
16	GT Road Center Median	Shalimar Chowk to Darogha Wala	1x1198	5 Kg	--
17	Green Belt Gous-e-Azam	B-II, B-III, Gujjarpura	9x274	5 kg	3 kg
18	High Tension Wire Green Belt	B-I, B-II, A-I, A-II, Gujjarpura	8x1174	--	--
19	Shalimar Link Road	Shalimar Chowk to LBC	1x1372	4 Kg	---
20	Thokar Niaz Baig to Shah Di Khoyee (R/S)	Lahore Branch Canal	28x30	30kg Daily	60 kg Daily
21	Shah Di Khoyee to Thokar Niaz Baig (L/S)	Lahore Branch Canal	30x31	32kg Daily	50kg Daily
22	Shah Di Khoyee to Feroz Pur Road (R/S)	Lahore Branch Canal	21x32	25kg Daily	50kg Daily
23	Feroz Pur Road to Shah Di Khoyee (L/S)	Lahore Branch Canal	20x28	35kg Daily	50kg Daily
24	Feroz Pur Road to Mughal Pura (R/S)	Lahore Branch Canal	21x26	25kg Daily	60kg Daily
25	Mughal Pura to Feroz Pur Road (L/S)	Lahore Branch Canal	16x29	35kg Daily	70kg Daily
26	Mughal Pura to Harbans Pura (R/S)	Lahore Branch Canal	19x26	35kg Daily	50kg Daily
27	Harbans Pura to Mughal Pura (L/S)	Lahore Branch Canal	20x27	40kg Daily	60kg Daily
28	Harbans Pura to Jallo	Lahore Branch Canal	18x29	50kg Daily	70kg Daily
29	(R/S)				
30	Jalloo to Harbans Pura (L/S)	Lahore Branch Canal	21x31	50kg Daily	70kg Daily
31	Green Belt	Main Road from Shadman Chowk to Fountain	3x668	3 Kgs	2 Kgs
32	Green Belt	Fatima Memorial to Shahjamal Fountain	2x364	3 Kgs	2 Kgs
33	Green Belt	Shadman Fountain to Fatima Memorial	4x591	3 Kgs	2 Kgs
34	Green Belt (Right Side)	Along Shadman Drain	12x591	10 Kgs	10 Kgs
35	Green Belt (Left Side)	Small Grave Yard to GOR-III	4x504	5 Kgs	5 Kgs
36	Green Belt	In front of Crescent School, Shadman	6x101	2 Kgs	3 Kgs
37	Green Belt	Infront of Habited Flats	9x189	1 Kg	3 Kg
38	Green Belt	GOR-III	2x2639	2 Kgs	10 Kgs
39	Green Belt	St.No.15-B, GOR-II	3x113	½ Kg	1 Kgs
40	Green Belt	St.No.7-B	5x256	½ Kg	2 Kgs
41	Green Belt	St.No.22-B	6x119	½ Kg	2 Kgs
42	Green Belt	St.No.48-B	6x119	½ Kg	2 Kgs
43	Green Belt	St. No.7/2-B	8x165	½ Kg	2 Kgs
44	Green Belt	St.No.8-C	5x61	½ Kg	2 Kgs
45	Green Belt	Gate No.2	11x610	½ Kg	3 Kgs
46	Green Belt	St.No.27	8x113	½ Kg	3 Kgs
47	Green Belt	St.No.30	8x113	½ Kg	2 Kgs

48	Green Belt	St.No.1-C	23x229	½ Kg	3 Kgs
49	Green Belt	Gate No.1	12x534	½ Kg	5 Kgs
50	Main Green Belt	Rivaz Garden	11x122	5.00	10.00
51	Ravi Road Green Belt	Ravi Road	3320 sq.m	20.00	20.00
52	Green Belt	Old Ravi Bridge	15x304	New	New
53	Allama Iqbal Road	Dharampura Chowk to Railway Crossing	1x1000	4 Kgs	-
54	Green Belt (Center Median)	Infantry Road	1x2	3 Kgs	-
55	Green Belt Allama Iqbal Road	Railway Line to Ghari Shahu Chowk	2x2000	7 Kgs	2 Kgs
56	Green Belt Allama Iqbal Road	Ghari Shahu Chowk to Bohar Wala Chowk	2x1000	4 Kgs	1 Kg
57	Green Belt Empress Road	Empress Road	1x854	3 Kgs	1 Kg
58	Green Belt Egerton Road	Egerton Road	1x503	1 Kg	1 Kg
59	Green Belt Davis Road Club Chowk to Muslim League House	Davis Road Club Chowk to Muslim League House	1x503	2 Kgs	2 Kgs
60	Green Belt, Davis Road Muslim League House to Shimla Hill	Davis Road Muslim League House to Shimla Hill	1x716	1 Kg	10 Kgs
61	Green Belt, Lytton Road	Lytton Road	1x2000	8 Kgs	-
62	Green Belt, Lake Road	Lake Road	1x9780	2 Kgs	-
63	Green Belt, Lower Mall to Chauburji Chowk	Lower Mall to Chauburji Chowk	1x2000	15 Kgs	-
64	Green Belt, McLeod Road	McLeod Road	1x1500	10 Kgs	-
65	Green Belt, Nisbat Road	Nisbat Road	1x1000	6 Kgs	-
66	Green Belt, Aiwan-e-Tijarat Road	Aiwan-e-Tijarat Road	1x1000	`12 Kgs	-
67	Green Belt, Lawrence Road	Lawrence Road	1x1000	6 Kgs	-
68	Green Belt, Queens Road	Queens Road	1x1000	7 Kgs	-
69	Green Belt, Abbot Road	Abbot Road	1x1000	4 Kgs	-
70	Green Belt, Nicholson Road	Haji Camp, Nicholson Road	1x500	2 Kgs	-
71	Green Belt, Mauj Darya Road	Mauj Darya Road	1x500	6 Kgs	-
72	Green Belt, Old Anarkali Road	Old Anarkali Road	1x500	3 Kgs	-
73	Green Belt	Govt. College Road	1x500	5 Kgs	-
74	Green Belt, Mozang Road	Mozang Road	1x1000	4 Kgs	
75	Abshar to Raja Market Cut Green Belt	Main Ferozpur Road	1x1507	38-kg	3-Kg
76	Raja Market to Stadium Gate	Main Ferozpur Road	2x1507	2.00	3.00
77	Stadium Gate to Police Workshop	Main Ferozpur Road	7x259	4.00	6.00
78	Wapda Petrol Pump to Yaseen nursery	Main Ferozpur Road	1x3000	3.00	2.00
79	Yaseen Nursery to Stadium Gate	Main Ferozpur Road	5x500	2.00	2.00
80	Stadium Gate to Awan-e-Science	Main Ferozpur Road	1x500	3.00	2.00
81	Awan-e-Science to Forest Nursery	Main Ferozpur Road	3x3000	4.00	3.00
82	Triangle Near PCSIR Labs	Main Ferozpur Road	1x500	1.00	1.00
83	Centre Median from to PSO Petrol Pump	Main Ferozpur Road	4598 sq.m	3.00	2.00
84	Plot Adjacent to Shell Petrol Pump	Main Ferozpur Road	1672 sq.m	1.00	3.00
85	Triangle Adjacent to Punjab College	Main Ferozpur Road	209 sq.m	4.00	1.00
86	Triangle Opposite Punjab College	Main Ferozpur Road	104 sq.m	2.00	-
87	Triangle along Rescue Office	Main Ferozpur Road	84 sq. m	1.00	-
88	Sharif Park	Main Ferozpur Road	3762 sq.m	15.00	10.00
89	Mozang to Ichra Centre Median	Main Ferozpur Road	1x 5000	15.00	2.00
90	Triangle at Shama Stop	Main Ferozpur Road	209 sq.m	1.00	1.00
91	Kalma Chowk to Modle Town More	Main Ferozpur Road	1338 sq.m	2-Kg	8.00
92	Model Town More to Bhabra Stop	Main Ferozpur Road	313 sq.m	3.00	15.00
93	Bhabra Maket to Ghulab Davi Signal	Main Ferozpur Road	10450 sq.m	10.00	25.00
94	Ghulab Davi to Overhead Bridge	Main Ferozpur Road	4180 sq.m	18.00	15.00
95	Overhead Bridge to Qainchi signal	Main Ferozpur Road	5016 sq.m	5.00	20.00
96	Qainchi signal to General Hospital	Main Ferozpur Road	4389 sq.m	2.00	10.00
97	General Hospital to Bank Stop	Main Ferozpur Road	5078 sq.m	1.00	20.00
98	Walton Road (Side Green Belts and Centre Medians)	Walton Road	31768 sq.m	2.00	10.00

LAHORE WASTE MANAGEMENT
CITY DISTRICT GOVERNMENT

99	Market Wali Green Belt	M Block Near Market	1254 sq.m	1.00	6.00
100	Butt Wali Green Belt	M Block Near Ghulab Wali Park	8360 sq.m	3.00	10.00
101	Kalma Chowk to Liberty Round	Oppsit National Bank Park	22 x1085	02-kg	20-kg
102	Centre Point to UCH Hospital	UCH Hospital	22x577	01-kg	01-kg
103	Kalma Chowk to Centre Point Nursery Side	Kalma Chowk Nurseries	14x385	01-kg	01-kg
104	Liberty Roundabout to Zahoor Elahi Chowk	Opposite Pace	20x1320	03-kg	40-kg
105	Zahoor Elahii Road Fountain No-1 to Main Boulevard Gulberg	Opposite McDonald	7x6260	15-kg	40-kg
106	Ghalib Market Green Belt	Jinnah Academy	21x1500	3.50	40.00
107	H-Block Green Belt	17-H Block Gulberg	6 x 405	1.50	20.00
108	Park Lane Road Green belts	Oppst Liberty Park	15 x 1261	5.50	1.00


LAHORE WASTE MANAGEMENT
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