REQUEST FOR PROPOSAL

For

CONSTRUCTION OF SMART PARK WITH OPERATION AND MAINTENANCE OF 5 YEARS WITH A DEFECT LIABILITY PERIOD OF TWO YEARS

IN FARIDABAD CITY

Under

SMART CITY MISSION (SCM)

in

FARIDABAD CITY

(HARYANA, INDIA)

Ref No : FSCL/2017/189

Issued on 16/10/2017

DNIT Amount: - Rs. 252 Lacs.

Employer: **Faridabad Smart City Limited**
BK Chowk, NIT Faridabad,
Haryana. 121001.
Email : faridabadsmartcitylimited@gmail.com

DISCLAIMER

The information contained in this Request for Proposal document ("RFP") or subsequently provided to bidders, verbally or in documentary or any other form by or on behalf of the Faridabad Smart City Limited (here forth referred to as FSCL in this document) or any of its employees or advisers, is provided to bidders on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is not an invitation by the Employer to the prospective Consultants or any other person. The purpose of this RFP is to provide interested bidders with information that may be useful to them in the formulation of their Proposals pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Employer in relation to the Consultancy. Such assumptions, assessments and statements do not purport to contain all the information that each bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Employer, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP, may not be complete, accurate, adequate or correct. Each bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the bidder (consultant/contractor/developer/Manufacturer/Supplier etc) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Employer accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

The FSCL and its employees and advisers make no representation or warranty and shall have no liability to any person including any bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Selection Process.

The FSCL also accepts no liability of any nature whether resulting from negligence or otherwise however caused arising from reliance of any bidder upon the statements contained in this RFP.

The FSCL may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP.

The issue of this RFP does not imply that the Employer is bound to select a bidder or to appoint the selected bidder, as the case may be, for the Consultancy and the FSCL reserves the right to reject all or any of the Proposals without assigning any reasons whatsoever.

The bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the FSCL or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses will remain with the bidder and the FSCL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a bidder in preparation or submission of the Proposal, regardless of the conduct or outcome of the Selection Process.

Sd/
Chief Executive Officer
Faridabad Smart City Limited

TENDER DOCUMENT FOR THE WORK OF

Name of the Work: **Construction of Smart Park with Operation and Maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years.**

INSTRUCTIONS TO BIDDERS
AND
QUALIFICATION INFORMATION

‘‘FORM-B”

NIT No: Dated 16.10.2017

OFFICE OF THE FARIDABAD SMART CITY LIMITED

No.FSCL/2017/189 DATED: - 16/10/2017

E-TENDER NOTICE

Faridabad Smart City Limited (FSCL) invites online tenders for the work mentioned below:-

Sr No	T No	Name of Work	Estimated Cost of Works	EMD to be deposited by bidder (Rs.)	Tender Document Fee Plus Service Fee in INR	Bid Release time and Date	Last date for online Submission of bids	Tender Open Date
1	61188	**Construction of Smart Park with operation and maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two years.**	**252 Lakhs**	**5.04 Lakhs**	**1000+1000**	**16/10/2017 @17:30 hrs**	**21/11/2017@17:30 hrs**	**27/11/2017 @11:00Hrs**

1. Tender will be opened on 27/11/2017 @11:00 Hrs

2. The detail tender notice and Tender Document can be seen on website: https://haryanaeprocurement.gov.in and downloaded online from the Portal: https://haryanaeprocurement.gov.in by the Firms / Individual registered on the Portal.

3. Possession of Digital Signature Certificate (DSC) and registration of the contractors on the portal i.e. http://haryanaeprocurement.gov.in is a prerequisite for e-tendering.

4. For any other queries, please contact Executive Engineer, Municipal Corporation, Faridabad phone no. 91-129-2410086. For further details and e-tendering schedule, visit website https://haryanaeprocurement.gov.in/

5. As the Bids are to be submitted online and are required to be encrypted and digitally signed, the Bidders are advised to obtain Digital Signature Certificate (DSC) at the earliest. For obtaining Digital Certificate, the Bidders should follow Section 1. Letter of Invitation-"General Terms and Conditions for e tendering ".

Deputy General Manager
Faridabad Smart City Limited
Faridabad

Chief Executive Officer
Faridabad Smart City Limited

Faridabad [HR]

Name of the work	**:**	**Construction of Smart Park with operation and maintenance of 5 years including with a Defect Liability Period of Two Years.**
Probable Amt. of Contract	**:**	**252.00 Lacs**
Amount of earnest money	**:**	**5.040 Lacs (EMD in the form of a DD /FDR. Or Online payment using Net Banking/RTGS/NEFT/. DD or FDR shall be drawn on Nationalized /Scheduled Bank in favour of Chief Executive Officer, Faridabad Smart City Limited and payable at Faridabad (HR) in a separate, sealed envelope) The original EMD shall be submitted along with the Technical Proposal (Envelope A) as per the time and location specified in the Data Sheet.**
Application Processing Fee (Payable to FSCL online)	**:**	**1,000 + 1000 (Non Refundable). Document can be downloaded from the web site** https://haryanaeprocurement.gov.in
Time allowed for completion of work	**:**	**3 (Three) Months including rainy season.**
Date of Tender Release (Online)	**:**	**From 5:30 PM on 16.10.2017,**
Last Date of ONLINE Bid Submission	**:**	**Up to 05:30 PM on 21.11.2017**
Last date of Physical Document Submission (Envelope 'A' & 'B')	**:**	**UP TO 4:00 PM ON Date: 24.11.2017**
Date of opening of Envelope 'A' & 'B' of tender document	**:**	**Date:27.11.2017 @ 11.00 AM onwards at Office of The Chief Executive Officer, Faridabad Smart City Limited.**
Online Financial Bid (Envelope C) opening.	**:**	**To be intimated later.**
Type of Bidder	**:**	**Class A Contractor registered under unified registration system in HR PWD with a valid UIN or Equivalent Registration in any state Govt. Dept. Central Govt. Dept., other Govt. Dept./ undertaking of state /Central Govt.**
Type of Tender	**:**	**Open**
Vender Class	**:**	**Other**
Type of contract	**:**	**Unit Rate Contract**
Engineer-in charge	**:**	**Any Officer of the rank of Executive Engineer Appointed by CEO, Faridabad Smart City Limited**
Bid Validity Period	**:**	**180 days**

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SECTION 1: INVITATION FOR TENDERS [IFT]

Faridabad Smart City Limited (FSCL) invites **Unit Rate tenders in "Form B"** from eligible bidders **Class A Contractor registered under unified registration system in HR PWD with a valid UIN or Equivalent Registration in any state Govt. Dept. Central Govt. Dept., other Govt. Dept./ undertaking of state /Central Govt** and eligible under the Pre-qualification Criteria as detailed in the tender Document. The tender documents can be downloaded from https://haryanaeprocurement.gov.in from 16.10.2017, 5.30PM onwards. The last date of tender online submission is on 21.11.2017 up to 5: 30 PM.

A. Work Details:

Sr. No.	Name of Construction Work	Completion period	Amount of EMD	Cost of tender document (Transaction Fee)
1.	**Construction of Smart Park with Operation and Maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years**	3 **(Three) Months including rainy season**	**□ 5.040 Lacs**	**□ 1,000/- + □ 1000/- as online bid submission fee**

B. Key Dates:

S. No.	Stages	Start Date and Time
1	Online Tender Release	16.10.2017 @5:30 PM
2	Pre Bid Meeting at FSCL Office	31.10.2017 @ 12:00 PM
3	Last Date of Receipt of Queries	02.11.2017 @ 5.30 PM
4	Last Date of Online Bid Submission	21.11.2017 @5:30 PM
5	Last Date of Physical document submission at FSCL office	24.11.2017 @4:00 PM
6	Date & time of Opening of Envelope A & B at FSCL office	27.11.2017 @11:00 AM
7	Online financial bid opening	To be intimated later

1. The proposal is available online on https://haryanaeprocurement.gov.in from **16/10/2017 (17:30 hrs onward) to 21/11/2017 (up to 17:30 hrs)** for a non-refundable fee as indicated in the Data Sheet as scheduled in General Terms and Condition for E-tendering. Bidders will be required to register on the website, which is free of cost. The bidders would be responsible for ensuring that any addenda available on the website is also downloaded and incorporated.
2. For submission of the bid, the bidder is required to have Digital Signature Certificate (DSC). Possession of Digital Signature Certificate (DSC) and registration of the contractors on the portal i.e. https://haryanaeprocurement.gov.in is a prerequisite for e-tendering.
3. Proposal must be submitted online on https://haryanaeprocurement.gov.in on or before **17.30 hours on 21/11/2017** and the "Technical proposal" will be **opened online on the 27/11/2017 at 11:00 AM**. The "Financial proposal" shall remain unopened in the e-procurement system until the second public Bid opening for the financial proposal. Any proposal or modifications to proposal received outside e-procurement system will not be considered. If the office happens to be closed on the date of opening of the Proposal as specified, the Proposal will be opened on the next working day at the same time. The electronic bidding system would not allow any late submission of Proposal.
4. The bidder shall also submit the Technical proposal in hard bound.
5. For any other queries, please contact Executive Engineer, Municipal Corporation Faridabad on phone No.0129 2410086
6. For further details and e-tendering schedule, visit website https://haryanaeprocurement.gov.in.

Yours sincerely,

Address: Faridabad Smart City Limited,
BK Chowk, NIT Faridabad,
Haryana. 121001.
Ph No: 0129 2410086
Email: faridabadsmartcitylimited@gmail.com

Terms & Conditions:

1. **Pre-qualification Criteria:**

a. All Contractors/ Bidders shall provide the requisite information accurately and with sufficient details as required in **Section-3: Qualification information.** The bid is open to all Bidders who fulfill the criteria laid down in the NIT.

b. **Joint venture or consortium of Bidders is NOT permitted**.

c. To become eligible , each bidder must satisfy the following:

i. Achieved during the last Three (3) financial years (2015-16, 2014-15, 2013-14 and), an average annual financial turnover of at least 84.00 Lakhs.

ii. Satisfactorily completed similar works during last 5 years as per criteria mentioned below:

a. Satisfactorily completed at least one similar work of value not less than 201.6 Lakhs as on date of submission of financial offer, **OR**

b. Satisfactorily completed at least two similar works each of a value not less than 151.2 Lakhs as on date of submission of financial offer, **OR**

c. Satisfactorily completed at least three similar works each of a value not less than 100.8 Lakhs as on date of submission of financial offer.

Necessary supporting documents duly signed under seal, by a Charted Accountant in original shall be enclosed while submitting the bid.

d. Note:

i. The turnover shall be indexed at the compounded rate of 10 % (Ten percent) for each earlier year.

ii. The value of completed work shall be updated to the value of current financial year @ compounded rate of 10 % (Ten percent).

iii. Similar works means Construction of Landscape or Park work only.

iv. Proof of having successfully completed similar works must be submitted in the form of a completion certificate issued by an officer not below the rank of an executive engineer. This certificate must be in the format appearing in Annexure 4. The completion certificate should clearly indicate the amount of Landscape work as a part of completed projects

v. The indexing factors for updating the value of works completed in previous years to the current financial year are mentioned as below:

Financial Year	Indexing Factor
FY 2016-2017	1.0
FY 2015-2016	1.1
FY 2014-2015	1.21
FY 2013-2014	1.33
FY 2012-2013	1.46
FY 2011-2012	1.61

e. In addition to the pre-qualification criteria mentioned above, the following criteria shall also be satisfied for eligibility of the Bidder:

f. The bidder should have a bank solvency **of 101 Lacs** issued by any scheduled Bank. The solvency certificate should not be more than twelve months old. The solvency certificate shall be on Banks Letter Head and duly signed by the Banks Designated Authority in Original. The solvency Certificate shall be as per the prescribed format provided in the Annexure 2.

g. It is necessary that the bidder should have executed the above work as either main Bidder.

h. The bidder should not have incurred any loss in more than three years during the last five consecutive financial years. **A certificate to this effect from a Chartered Accountant shall be provided with Technical bid.**

i. Bidders should submit all requisite and necessary details/documents with respect to the eligibility criteria. The said details to be submitted in prescribed forms appended with this tender document. The details of the requisite forms

are as under:

i.	Qualification Information	Annexure- 1
ii.	Banker's Certificate (Solvency Certificate)	Annexure-2
iii.	Income Tax return for last 5 (Five) years	Annexure-3
iv.	Details of Similar Works executed	Annexure-4
v.	Details of All works executed during last 5 (Five) years	Annexure-5
vi.	Existing commitments and on-going works	Annexure-6
vii.	Information regarding current claims, arbitration & litigation, if any	Annexure-7
viii.	Affidavit of having provided all correct information	Annexure-8

Note: All aforesaid Annexure must bear the seal and signature of the Bidder or a duly authorized person.

2. Bidder must ensure providing complete information in Annexures mentioned above along with their signatures [under seal] wherever required, before submission of tender.

3. Each Bidder must enclose
   a) Certified Copies of Income Tax Returns for the last 5 (Five) years duly audited by Chartered Accountant including his audit report. CA shall certify the true copy in original.
   b) Turnover certificate of Last 5 Years certified by Chartered Accountant in Original.
   c) An affidavit that all the information furnished with the pre-qualification document is correct in all respects (Draft format of Affidavit is provided in the tender document).
4. Bidder who meets the minimum qualification criteria will be qualified only if their available bid capacity for construction work is equal to or more than the probable amount of contract. The available bid capacity will be calculated as under:
   Assessed Available Bid capacity = (A*N*M - B)
   Where,
   A = Maximum value of all works executed in " any one financial year" during the last Five years [updated to the price level at the current financial year at the compounded rate of 10% (Ten per cent) a year taking into account the completed as well as work in progress]. This has to be certified by a Chartered Accountant.
   N = Number of years prescribed for completion of the works for which tender is invited (period up to 6 months to be taken as half-year and more than 6 months as one year). Any period beyond 12 months, the period actually mentioned in the NIT shall be considered.
   M = 2.5
   B = Value of existing commitments and on-going works be completed during the period of completion of the work for which tender is invited.
5. The Bidder should have valid VAT / Sales Tax Registration. Copies of latest VAT / Sales Tax returns filed with VAT/ Sales Tax Dept. along with a certificate of the Bidder that these returns have been filed with the VAT/ Sales Tax Dept. If not applicable submit affidavit in Rupees 100/- Non-judicial stamp paper
6. The bidder should have valid ESIC registration Certificate. A certified copy must be submitted. If not applicable submit affidavit in Rupees 100/- Non-judicial stamp paper.
7. The bidder should be registered with the Commissioner, Provident Fund and should submit copy of the registration along with the Technical bid. In case the bidder has less than 20 persons in his employment, he shall submit an affidavit to this effect in lieu of such registration.
8. Submit the Pre Integrity Pact on Rs. 100 Stamp paper as indicated in Section 9.

9. Even though the Bidder meets the above qualifying criteria, he is subject to be disqualified if he has;
   a) Made a misleading or false representation[s] in the Forms, Statements and Attachments submitted in Proof of the Qualification Requirements.

   And/ Or

   b) A record of poor performance such as Abandoning a work, Poor quality of work, Claim, Litigation History, or Financial failures etc. in any State Govt. organization/services/corporations/local body etc. (by whatever names these are called).

Chief Executive Officer
Faridabad Smart City Limited
Faridabad HR

General Terms and Conditions for E-tendering:

1. The detail tender notice and Tender Document can be seen on website: https://haryanaeprocurement.gov.in and downloaded online from the Portal: https://haryanaeprocurement.gov.in by the Firms / Individual registered on the Portal.

2. As the proposals are to be submitted online and are required to be encrypted and digitally signed, the Bidders are advised to obtain Digital Signature Certificate (DSC) at the earliest.

3. The payment for Tender Document Fee and e-service Fee shall be made by eligible bidders online directly through Debit Cards & Internet Banking Accounts and the payment for EMD can be made online directly through RTGS/NEFT or OTC Please refer to „Online Payment Guideline" available at the Single e-Procurement portal of GoH (Govt. of Haryana) and also mentioned under the Tender Document.

4. Intending bidders will be mandatorily required to online sign-up (create user account) on the website https://haryanaeprocurement.gov.in to be eligible to participate in the e-Tender. He/ She will be required to make online payment towards EMD fee in due course of time i.e. between 16/10/2017 (from 18:00 Hours) to 20/11/2017 (up to 16:00 Hours). The intended bidder fails to pay EMD fee under the stipulated time frame shall not be allow to submit his / her Proposal for the respective event / tenders.

5. The interested bidders must remit the funds at least T+1 working day (Transaction + One working Day) in advance i.e. on or before 20/11/2017 (up to 16:00 Hours); and make payment via RTGS /NEFT or OTC to the beneficiary account number specified under the online generated challan. The intended bidder / Agency thereafter will be able to successfully verify their payment online, and submit their Proposal on or before the expiry date & time of the respective events/Tenders at https://haryanaeprocurement.gov.in.

6. The undersigned reserves the right to reject any or all the tenders without assigning any reason what so ever and no conditional and postal tenders will be accepted.

7. If the date on which the tenders are to be received is declared a public holiday, the tender will be received on the next working day.

8. The offer will remain valid up to 180 days from the due date of submission of tenders.

9. Any amendment to a tender after opening of tender made by the tenderer according to his own will is liable to be ignored altogether and such tenderer will be debarred from tendering for a period of six months

Check List for online submission of Documents

Envelop A (Mandatory documents) **:**

1. Letter of EMD
2. Scanned Copy of EMD
3. Scanned Copy of Pre Contract Integrity Pact duly Signed (On Rs 100 Non judicial stamp Paper, duly Notarized)

Envelop B:

4. Letter of Technical Bid
5. Power of Attorney on Rs 100 Stamp Paper authorizing for signing the bid documents
6. Qualification Information (Annexure 1)
7. Copy of ESIC Certificate/ otherwise if not applicable submit a self certified affidavit on company's letter head in original.
8. Copies of latest VAT / Sales Tax Returns.
9. Copy of registration with Commissioner PF.
10. Affidavit of having provided all correct information (Annexure-8)
11. Information regarding current claims, arbitration & litigation, if any (Annexure-7)
12. Existing commitments and on-going works (Annexure-6)
13. Details of all works executed during last 5 (Five) years (Annexure-5)
14. Details of similar works executed (Annexure-4)
15. Income Tax returns for last 5(Five) Years (Annexure-3)
16. Bankers Certificate in original on Banks Letter head (Solvency Certificate) (Annexure-2)
17. Duly signed RFP including all corrigendum's and Pre bid responses (if any)

Section 1a:

Letter of EMD – Envelop –'A'

To,

Chief Executive Officer,
Faridabad Smart City Limited
BK Chowk, NIT Faridabad,
Haryana - 121001.

Sub: **Construction of Smart Park with Operation and Maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years.**

Dear Sir,

Enclosed please find Demand Draft / FDR No ---------- Dtd ---------- for □---------- (Rupees---------- only) drawn on ---------- issued in favour of **Chief Executive Officer, Faridabad Smart City Limited (or provide the details of other payment mode)** against Earnest Money Deposit for the work mentioned.

Thanking You

Yours Faithfully

For and on behalf

(Seal and Signature of the Authorized Signatory)
Enclosure: Demand Draft

Letter of Technical Bid Envelop –'B'

To,

Chief Executive Officer,
Faridabad Smart City Limited
BK Chowk, NIT Faridabad,
Haryana – 121001

For Bid Invitation No.: ____ Date: …….

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instruction to Bidders (ITB);

(b) We offer to execute in conformity with the bidding Documents the following Work/s: **Construction of Smart Park with Operation and Maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years.**

(c) Our bid shall be valid for a period of **180 days** from the bid submission due date in accordance with the bidding documents, and it shall remain binding up on us and may be accepted at any time before the expiration of that period;

(d) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;

(e) We, including any sub-Bidders or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITT;

(f) We are not participating, as a Bidder in more than one bid in this bidding process in accordance with the ITT,

(g) Our firm, its affiliates or subsidiaries including any Sub-Bidders or suppliers for any part of the contract, has not been declared ineligible by Government of Haryana (GoH)/ Government of India (GoI) or any of its undertakings/Other Departments any State Government, any public sector unit or any Local Body.

(h) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed.

(i) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

(j) We are not a Government owned entity / we are a Government owned entity, meeting all the requirements of the ITT.

Seal and Signature: .....

Name.....

Signed in the capacity of.....

Duly authorized to sign the Bid for and on behalf of..... Date: …….

SECTION 2: INSTRUCTIONS TO BIDDERS/Tenderers (ITB/ITT)

Table of Clauses

A. Introduction:

With a view to improve urban centers of India and make them citizen friendly and sustainable, the Government of India through the Union Ministry of Urban Development (MoUD) has initiated the Smart Cities Mission. The program is oriented around urban renewal and retrofitting of 100 cities in India in collaboration with the State Governments and the respective City Authorities.

The method of selection of the cities is through competition wherein the following two stages are already complete:

Stage I: Shortlisting of cities by States,

Stage II: The Challenge round for selection

After completion of Stage II, 20 selected Smart Cities were declared in Round 1. Subsequently, 13 cities were selected in Fast Track Round, which included the City of Faridabad.

The Ministry of Urban Development, Government of India vide its memo no. K-15016/.157/2015-SC-1 (vol.II) dated 26th May, 2016 directed Government of Haryana to constitute Special Purpose Vehicle (SPV) for Faridabad Smart City Limited. The Special Purpose Vehicle will implement the smart City Proposals prepared by Municipal Corporation, Faridabad and duly approved by MoUD under the smart City Mission of Government of India. Faridabad Smart City Limited was incorporated on Twentieth day of September Two Thousand sixteen under the Companies Act, 2013 and the company is limited by shares.

The Special Purpose Vehicle is constituted for Faridabad Smart City Limited under:

Constitution of Board of Directors:

The Board of Directors of Faridabad Smart City Limited shall comprise of the following members

1	Principal Secretary to Govt. of Haryana, Urban Local Bodies Department	Chairman
2	Mission Director, Urban Local Bodies Department	Director
3	Chief Administrator, HUDA	Director
4	Representative of Govt of India	Director
5	Chief Executive Officer of SPV	Commissioner, Municipal Corporation, Faridabad
6	Independent Directors (3 Nos.)	Director

After selection of Faridabad in the Fast Track Round, the process of implementation has been initiated with the setting up of the SPV – Faridabad Smart City Limited (FSCL). FSCL has appointed (PMC) to Design, Develop, Manage and Implement the Smart City Project under the Smart City Mission.

In order to achieve the vision set out in the Smart City Proposal, the city has identified projects under the two categories of Area Based Development and Pan City Solutions as follows:

Area Based Development: 3 Modules, 8 Sub Modules consisting of 59 sub-projects with an estimated cost of Rs. 1916 crores.

Pan City Solution: 1 Module and 09 Sub-projects with an estimated cost of Rs. 425 crores.

FSCL is interested in taking up the construction of smart park years on priority basis. As per the Smart City Proposal, the funding for this project is being sourced from Smart City Mission of Government of India.

Although FSCL is envisaging constructing many more parks at various places within ABD, it is interested in taking up works at selected location on pilot basis. The location of the Smart Park is enclosed at the end of this document.

FSCL is now inviting eligible bidders for the works "**Construction of Smart Park with Operation and Maintenance of 5 years including with a Defect Liability Period of Two Years**"

The Defect Liability Period (DLP) shall be for a period of two years from the date of actual completion of the work. The completion of work shall be reckoned from the date of issue of completion certificate by the FSCL. The Bidder shall not claim the cost of works/items covered under the DLP in the Operation and Maintenance.

FSCL reserves the right to add/ reduce or delete items at its discretion without providing any reasons. All the additional items shall be paid as per prevailing HSR rate. (In case the rates are not available in the HSR then rates shall be taken either from other states SOR rates or as decided by Engineer-In-Charge.

Further, the following smart features would be likely added to the proposed park

CCTV

WiFi

Smart LED Poles

Open Air Gym

E-Toilet

Information Kiosks

Digital Signage and markings

Laying OFC which will be connected to temporary data center which in turn be connected to Control and Command Centre.

Panic Button
STP
All the above features will **NOT** be a part of this tender. The works will be taken up under different tender/contract.
In case, different works are to undertaken simultaneously, the bidders shall coordinate the works with other contractor who will be working simultaneously on same park.

General

1.0 Scope of Tender

The Faridabad Smart City Limited (abbreviated as 'FSCL' and Referred to as the 'Employer' in these documents) invites Unit Rate Tenders from eligible Bidders for the Works as defined as "**Construction of Smart Park with Operation and Maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years**" in this document and referred to as "the Works").

The detailed Scope of Works and the Drawings can be referred at Section 7 and Annexure F of this document.

2. **Eligible Bidders:** shall be as defined in Section 1.

3. **Qualification of the Bidder:** shall be as defined in Section 1.

4. One Tender per Bidder: Each Bidder shall submit only one Tender for the Project. A Bidder who submits or participates in more than one Tender (other than as a Sub Bidder or in cases of alternatives that have been permitted or requested) will cause all the Proposals with the Bidder's Participation to be disqualified.

5. Cost of Tendering: The Bidder shall bear all Costs associated with the Preparation and Submission of his Tender and the Employer will in no case be Responsible and Liable for those Costs.

6. Site Visit: The Bidder, at his own Responsibility and Risk, is encouraged to visit and examine the Site of Works and its surroundings and obtain all Information that may be necessary for preparing the Tender and entering into a Contract for construction and execution of the Works. The cost of visiting the site shall be at the Bidder's own expense.

C. Tender Documents

7. Content of Tender Documents

The Set of Tender Documents shall have all the Sections given in 'Contents' of this document.

8. Clarification of Tender Documents

A prospective Bidder requiring any clarification of the Tender Documents may present himself with his queries in the pre-bid meeting as detailed in the N.I.T. or send the same at the address/email indicated in the bid document so that these may reach the Authority before the date and time mentioned under KEY DATES.

9. Amendment of Tender Document

9.1 Before the Deadline for Submission of Tenders, the Employer may modify the Tender Document by issuing Addenda.

9.2 Any Addendum thus issued shall be part of the Tender Documents and shall be updated on the website and **NOT** communicated in writing to any purchaser of the Tender Document. To give Prospective Bidders reasonable time in which to take an Addendum into account in preparing their Tenders, the Employer may extend, as necessary, the Deadline for **Submission of Tenders, in accordance with S. No. 16 below.**

D. Preparation of Tenders

10. Documents Comprising the Tender

The submission shall be submitted both physically (hard Copy) as well as online. The hard Copy of the Tender shall be submitted by the Bidder with Three sealed envelope and shall contain the Documents as follows.

Envelope A:

Original **Earnest Money Deposit:** 5.040 Lacs (EMD in the form of a DD /FDR. Or Online payment using Debit Card/Net Banking/RTGS/NEFT/. DD or FDR shall be drawn on Nationalized /Scheduled Bank in favour of Chief Executive Officer, Faridabad Smart City Limited and payable at Faridabad (HR) in a separate, sealed envelope)**.**

Letter of EMD (Envelope A)

Pre Contract Integrity Pact duly Signed (On Rs 100 Non judicial stamp Paper, duly Notarized)

Envelope B:

Letter of Technical Bid (Envelop B- as per format given in Page 14.)

Pre-Qualification Information as per Formats given in Section-1: Pre-qualification document.

Any other information required for completing and submitting the tender by Bidders in accordance with these Instructions.

The Documents Listed under Sections - 1 shall be filled and submitted in without exception.

11. Tender Prices

11.1 The Contract shall be for the Whole Works as described in General Scope of Works clause 1.0 and its Sub Clause 1.1.

11.2 The Unit rates quoted by the bidders shall include Goods and Service tax. The quoted rate shall therefore be including the Goods and Service tax and other taxes & Duties, such as Labour Cess, Royalties, etc. imposed by the Government (State or Central)] and other Levies payable by the Bidder under the contract or for any other cause, shall be included in the Total Tender Price submitted by the Bidder. The Unit Rate Price shall be inclusive of all taxes as applicable by the law. FSCL will not be responsible for changes in any of the tax rates.

11.3 The Lump sum Price quoted by the Bidder shall be subject to adjustment during the Performance of the Contract in Accordance with the Provisions of the General Conditions of Contract.

12. Tender Validity

12.1 Tenders shall remain valid for a period not **less than 180 days** after the Deadline Date for Tender Submission specified in Clause - 16. A Tender valid for a Shorter Period shall be rejected by the Employer as Non Responsive. In Exceptional Circumstances, prior to expiry of the Original Time Limit, the Employer may request that the Bidders may extend the Period of Validity for a specified additional period. The request and the Bidders' responses shall be made in writing. A Bidder may refuse the request without forfeiting his Earnest Money Deposit. A Bidder agreeing to the request will not be required or permitted to modify his Tender, but will be required to extend the Validity of his Earnest Money Deposit for a period of the extension, and in compliance with Clause - 13 in all respects.

13. Earnest Money Deposit

13.1 The Bidder shall make the Earnest Money Deposit 5.040 Lacs (EMD in the form of a DD /FDR. Or Online payment using Debit Card/Net Banking/RTGS/NEFT/. DD or FDR shall be drawn on Nationalized /Scheduled Bank in favour of Chief Executive Officer, Faridabad Smart City Limited and payable at Faridabad (HR) in a separate, sealed envelope)**.**

13.2 Any Tender not accompanied by an acceptable Earnest Money Deposit as indicated in Sub Clause 13.1 above shall be rejected by the Employer as Non Responsive.

13.3 The Earnest Money Deposit of unsuccessful Bidders shall be returned within 30 days of the end of the Tender Validity Period specified in Sub Clause 12.1

13.4 The Earnest Money Deposit made by a Bidder may be forfeited:

(a) If the Bidder withdraws the Tender after Tender Opening or during the Period of Tender Validity;

(b) If the Bidder does not accept the Correction of the Tender Price, pursuant to Clause 23; or

(c) In the case of a successful Bidder, if the Bidder fails within the specified time limit to execute the Agreement with the FSCL for works under this bid.

14. Format and signing of Tender:

14.1 The tendering system for the work comprises three stages (i) EMD (ii) Technical Bid [Eligibility qualification] and (iii) online Financial Bid.

The Bidders are required to submit the online tender and submit hard copy with all required documents in Three Sealed Envelopes – A & B, as detailed above, manually within specified time and date at the address given below.

Chief Executive Officer,
Faridabad Smart City Limited
BK Chowk, NIT Faridabad,
Haryana – 121001

14.2 In Stage II [Technical Bid] the Bidder shall prepare the Documents comprising the Tender as described in Clause - 10 of these Instructions to Bidders. Bidders shall attach all Copies of Certificates pertaining to their Eligibility Criteria, Qualification Information Documents and Credit lines / Letter of Credit / Certificates from Scheduled Banks, failing which the Bid shall not be considered.

14.3 Stage III - **SUBMISSION OF ONLINE FINANCIAL BID.**
(DO NOT SUBMIT FINANCIAL PROPOSAL PHYSICALLY).

14.4 The Tender shall contain no Alterations or Additions, except those to comply with instructions issued by the Employer.

E. Submission of Tenders

15. Procurement of Tenders

Tender Documents may be downloaded from the e procurement portal https://haryanaeprocurement.gov.in as indicated in the NIT

Bidders shall submit signed, complete Proposal comprising the documents and forms in accordance with Clause10 (Documents Comprising Proposal).The submission shall be physically (hard Copy) as well as online.

Only the authorized representative of the Bidder shall sign the original submission letters in the required format for the Qualification Documents, Technical Proposal and the Financial Proposal and shall initial all pages as required. The authorization shall be in the form of a written power of attorney attached to the Qualification Documents Proposal.

Any modifications, revisions, interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Proposal.

The signed Proposal shall be marked "Original". The scanned Copy shall be made from the signed original and submitted online. If there are discrepancies between the original and the scanned copies submitted online, the tender committee at FSCL shall decide the one prevails.

If the envelopes and packages with the Proposal are not sealed and marked as required, the Client will assume no responsibility for the misplacement, loss, or premature opening of the Proposal.

16. Deadline for Submission of the Tenders

16.1 As per KEY DATES given in tender notice.

16.2 The Employer may extend the Deadline for Submission of Tenders by issuing an Amendment in accordance with Clause - 9, in which case all Rights and Obligations of the Employer and the Bidders previously subject to the original deadline will then be subject to the new deadline.

17. Late Tenders

17.1 Envelopes 'A & B' received by the Employer after the Deadline prescribed As per **KEY DATES** given in tender notice will **not** be accepted.

F. Tender Opening and Evaluation

18. Opening of Envelope 'A' [EMD] and Envelope 'B' of all Tenders and Evaluation to determine Qualified Bidders:-

18.1 The Employer shall open Envelope 'A' of all the Tenders received (except those received late), in the presence of the Bidders or their representatives who choose to attend such opening of Envelope 'A' of the Tender at 11.00 HOURS **ON 28.08.2017**
at the office of the Chief Executive Officer, Faridabad Smart City Limited. In the event of the Specified Date of Tender Opening being declared a holiday for the Employer, the Tenders will be opened at the appointed time and location on the next working day.

18.2 The Bidders' Names, the Presence or Absence of Earnest Money Deposit (Amount, Format and Validity), will be announced by the Employer at the opening. Late Submission of EMD will be rejected, unopened (wherever Applicable).

18.3 Envelope 'B' [Qualification Information] only of those Bidders who have submitted all the documents prescribed in Envelope A and are found in order in all respects shall be opened for technical evaluation.

18.4 The Employer shall prepare Minutes of the Tender Opening, including the information disclosed to those present in accordance with Sub Clause - 18.3 (Wherever Applicable).

18.5 Online tender of other bidders shall be kept unopened.

18.6 The Employer will evaluate and determine whether each Tender (a) meets the Eligibility Criteria defined in ITT Clause - 2; (b) is accompanied by the Required Earnest Money Deposit as per stipulations in ITT Clause 10 and (c) meets the Minimum Qualification Criteria stipulated in ITT Clause – 3 (Section1). The Employer will draw out a List of Qualified Bidders and will intimate these Qualified Bidders.

19. Opening of online tender of Qualified Bidders and Evaluation.

19.1 The Employer will inform all the qualified Bidders the Time, Date and Venue fixed for the opening of online tender containing the Unit Rate financial offer. The Employer will open the online tender of Qualified Bidders at the Appointed Time and Date in the presence of the Bidders or their Representatives who choose to attend. In the event of the Specified Date of online Tender opening being declared a holiday for the Employer, Online Tender shall be opened at the appointed Time and Location on the next working day.

19.2 The Bidders names, the Tender Prices, any discounts, and such other details as the Employer may consider appropriate, will be announced by the Employer at the time of opening.

19.3 The Employer shall prepare Minutes of the Online Tender Opening, including the Information disclosed to those present in accordance with Sub Clause - 19.2.

20. Process to be Confidential

20.1 Information relating to the Examination, Clarification, Evaluation, and Comparison of Tenders and recommendations for the Award of a Contract will not be disclosed to Bidders or any other persons not officially concerned with such process until the Award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

21. Clarification of Tenders Clarification of Tenders

21.1 To assist in the Examination, Evaluation and Comparison of Tenders, the Employer may, at his discretion, ask any Bidder for clarification of his Tender. The request for clarification and the response shall be in writing, but no change in the price or substance of the Tender shall be sought, offered or permitted except as required to confirm the Correction of Arithmetic Errors discovered by the Employer in the evaluation of the Tenders in accordance with Clause - 24.

21.2 Subject to Sub Clause 21.1, no Bidder shall contact the Employer on any matter relating to its Tender from the time of the Tender opening to the time the Contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, he should do so in writing.

21.3 Any effort by the Bidder to influence the Employer in the employer's Tender Evaluation, Tender Comparison or contract award decisions may result in the rejection of the Bidders' Tender.

22. Examination of Tenders and Determination of Responsiveness

22.1 Prior to the Detailed Evaluation of Tenders, the Employer will determine whether each Tender; (a) has been properly signed; and (b) is substantially responsive to the requirements of the Tender Documents.

22.2 A Substantially responsive Tender is one which
Confirms to all the conditions or criteria set in the pre-qualification criteria
submission of all supporting documents indicated in Section 1,
EMD, Transaction (Document Fee), Processing Fee, Pre Contract Integrity Pact (in prescribed format) are enclosed,
All forms and annexures are enclosed.
Bid Capacity is achieved.
Terms Conditions and Specifications of the Tender Documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the Scope, Quality or Performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender Documents, the Employer's Rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Tenders.

22.3 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

23. Correction of Errors

23.1 Tenders determined to be substantially responsive will be checked by the Employer for any arithmetic errors.
23.2 The amount stated in the Tender will be adjusted by the Employer for the correction of errors and with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Tender will be rejected, and the earnest money deposit may be forfeited in accordance with Sub-Clause 13.4 (b).

24. Evaluation and Comparison of Tenders

24.1 The Employer will evaluate and compare only the Tenders determined to be Substantially Responsive in accordance with Clause - 22.
24.2 In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows:
(a) Making any Correction for Errors pursuant to Clause - 23.
24.3 The Employer reserves the right to accept or reject any variation, deviation or alternative offer. Variations, deviations and alternative offers and other factors, which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer, shall not be taken into account in Tender Evaluation.
After Evaluation of the Price Analysis, the Employer may require that the amount of the Performance Security be increased at the expense of the Successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the contract.

G. Award of Contract

25. Award Criteria

25.1 Subject to Clause-26, the Employer will award the Contract to the Bidder whose Tender has been determined to be substantially responsive to the Tender Documents and who has offered the Lowest Evaluated Lump sum Tender Price, provided that such Bidder has been determined to be (a) Eligible in accordance with the Provisions of Clause - 2, and (b) Qualified in accordance with the Provisions of Clause - 3.

26. Employer's Right to accept any Tender and to reject any or All Tenders

26.1 Notwithstanding Clause - 25, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the Award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

27. Notification of Award and Signing of Agreement

27.1 The Bidder whose Tender has been accepted will be notified in writing of the award by the Chief Executive Officer prior to expiration of the Tender validity period. This written communication from the employer to the successful Bidder shall be termed as the “Letter of Acceptance”. This Letter (hereinafter called the "Letter of Acceptance") will state the sum that the Chief Executive Officer will pay the Bidder in consideration of the execution and completion of the Works by the Bidder as prescribed by the Contract (herein after and in the Contract called the "Contract Price").
27.2 The Notification of award will constitute the formation of the Contract.
27.3 The Agreement will incorporate all Agreements between the Chief Executive Officer from FSCL and the successful Bidder. It will be kept ready for signature of the successful Bidder in the office of the Chief Executive Officer within 21 days following the notification of award along with the Letter of Acceptance. Within 7 days of Receipt, the successful Bidder will sign the Agreement and deliver it to the Chief Executive Officer, FSCL. The duration of the project will be considered from the date of issue of work order or date stipulated in the work order.

SECTION 3: QUALIFICATION INFORMATION

1.1. The Bidder shall meet the Pre-qualification Criteria indicated in Section 1.

1.2. The Bidder performance for each work completed in the last 3 years and those in hand should be certified by an officer not below the rank of Engineer-In-Charge or equivalent. Details should be furnished in **Annexure-5.**

1.3. The Bidder should furnish a legal document in the form of an Affidavit in the Performa appearing in **Annexure-8** guaranteeing the truth and accuracy of all statements and information furnished by the bidder as part of this Tender. The Affidavit shall also authorize FSCL to approach any authority/person to verify the accuracy of the information furnished or enquire about the Bidder competence and his Reputation in general.

1.4. Tender submitted by a Bidder, who has been debarred from undertaking any work or has been black-listed by any organization/agency in India as on the date of submission of this tender, shall be summarily rejected.

1.5. Bidder should have its own in-house electrical wing fulfilling all the terms & conditions given in the electrical sub heads or can associate any electrical contractor who fulfils the requisite criteria given in the electrical sub heads in the tender document.

Note: The Bidder is required to furnish all information in all the FORMS and their appurtenant formats included herein, (duly signed with seal) failing which the tender is liable to be rejected.

2. Agreement shall be drawn with the successful Bidder on approved Form 'B'. Bidder shall quote his rates as per various terms and conditions given in the General Condition of the Contract mentioned in the bid document, including the general specification and drawing.

3. The time allowed for carrying out the work is 3 **(Three) months**, including Rainy Season, to be reckoned from the date of written orders to commence the work.

4. Time is Essence of this contract.

FORM B - TENDER FOR UNIT RATE CONTRACT
(TO BE SUBMITTED ONLINE WITH DIGITAL SIGNATURE)

I/we hereby tender to execute the whole of the works as described in the scope of services indicated in called works:

a) **Name of the Work**: "**Construction of Smart Park with operation and maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years**"

b) **Location Plan and Specifications:** The location plan and specifications as detailed in Section 7: Designs and Specifications and appearing in Annexure F.

c) **Scope as defined in ITT clause 1 under "General"**

S. No.	Description of the Item	Total Rate (in figure)	Total Rate (In words)
1	**Construction of Smart Park with operation and maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years** as per the total detailed BOQ S. No. 1-319 which is mentioned below. **Total "A" (Value of A from table on page 22-81)**		
2	**Operation & Maintenance for 5 years as per detailed BOQ S.No. 320-324 (Total of 1st year to 5th Year) on page 82 , Total " B "**		
3	**Grand Total - "C" = (A+B)**		

Note: "B" = Total O & M value for 5 years shall be consider for evaluation of Bid. The bidder should also consider the inflation of O & M period. No escalation of Price shall be considered during the contract period including O&M period.

The bids will be evaluated on the basis of amounted quoted against "C ": **Grand Total (C) in INR**

(Lump sum Inclusive of all taxes including Goods and Service tax)

Total sum of (In Figures as in C) □…… (In Words) Rupees …… ……
……

And should this tender be accepted, I/we do here by agree and bind myself/ ourselves to abide by and fulfil all the conditions of this Tender Document, in default thereof to forfeit and pay to the Chief Executive Officer, Faridabad Smart City Limited the penalties of sums of money mentioned in the said condition.

Dated:

Bidder's Signature
Address …….. Seal
Witness: ……..
Address: ……..

The above tender is hereby accepted by me on behalf of the Faridabad Smart City Limited.

(Designation)

SIGNATURE OF AUTHORITY BY WHOM the TENDER IS ACCEPTED

Note: Wherever applicable, the interpretation of Items mentioned in the BOQ shall be as per HSR.

Bill of Quantity (BOQ) Part 1: CIVIL WORKS

S.no.	Ref.	No.	Description of Item	Unit	QTY	Rate (Rs)	In Words	Amount (Rs
			EARTH WORK					
1	HSR	33.1	Uprooting rank vegetation and weeds by digging the area to a depth of 60 cm removing all weeds and other growth with roots by forking repeatedly, breaking clods, rough dressing, flooding with water, uprooting fresh growths after 10 to 15 days and then fine dressing for planting new grass, including disposal of all rubbish with all leads and lifts.	Sqm	4000			
2	HSR	6.6	Earth work in excavation in foundations, trenches, etc.in all kinds of soils, not exceeding 2 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil, clear from the edge of excavation and subsequent filling around masonry, in 15 cm layers with compaction, including disposal of all surplus soil, as directed within a lead of 30 metres -Ordinary soil.	Cum	1001.82			
3	Non SOR		Disposal of surplus excavated earth by mechanical means including loading,unloading and stacking complete uopt 2 Km lead.	Cum	50			
4	HSR	28.5	Providing and placing in horizontal layers filtering media screened, washed and cleaned as described below. Coursed sand screened, cleaned and washed and graded from 3 mm to 6 mm (from Ghaggar or approved equivalent quarry)	Cum	41.02			
5	HSR	24.1	Preparation of sub grade, including trenching, rough dressing of spoil, final dressing of earth, to given levels and camber, watering rolling with road roller, and compacting the bed .	Sqm	3068			
6	Non SOR		Providing and laying 75 mm thick compacted bed of dry brick aggregate of 40 mm thick nominal size including spreading,well ramming, consolidating and grouting with jamuna sand, including finishing smooth etc. complete as per direction of Engineer-in-charge.	Sqm	2921.9			
			CONCRETE WORK					
7	HSR	10.4	Cement Concrete 1:4:8 with stone aggregate 40mm nominal size in foundation and plinth.	Cum	239			

8	HSR	10.4	Cement Concrete 1:3:6 with stone aggregate 20mm nominal size in foundation and plinth.	Cum	50				
9	HSR	10,41	Cement Concrete 1:2:4 with stone aggregate 20mm nominal size in foundation and plinth.	Cum	60				
10	HSR	10.1	Damp proof course 75 mm thick of cement concrete 1:2:4 using stone aggregate 20mm nominal size with 2 coats of bitumen 20/30 penetration, at 1.65 Kg per sqm laid hot and sanded.	Sqm	10				
11	Non SOR		providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification.	Kg	3				
12	HSR	10.8	Cement concrete 1:2:4 with stone aggregate 20 mm nominal size for reinforced concrete work but excluding steel-reinforcement centring and shuttering in foundation and plinth.	Cum	13.5				
13	HSR	10.8	Cement concrete 1:2:4 with stone aggregate 20 mm nominal size for reinforced concrete work, but excluding steel-reinforcement centring and shuttering in first storey upto 4 meters above plinth level.	Cum	2.3				
14	HSR	10.9	Cement concrete 1:2:4 with stone aggregate 20 mm nominal size for reinforced concrete work for walls (10cm to 20cm thickness) straight and curved excluding steel reinforcement but including centring and shuttering, laid in position, complete in all respects.	Cum	4.9275				
15	HSR	18.2	Cold twisted deformed (ribbed/ or steel) bars for R.C.C. works, where not included in the complete rate of R.C.C. including bending, binding and placing in position complete.	Quintal	22.7684				
16	HSR	9.5	Centring and shuttering for faces of walls, partitions, retaining walls,well steining and the like (vertical or battering)including attached pilasters etc.	Sqm	145.265				
			BRICK WORK						
17	HSR	11.4	First class brick laid in cement sand mortar 1:4 in foundation and plinth.	Cum	211.244				
18	HSR	11.9	First class brickwork laid in cement sand mortar 1:4 in first storey upto 4 meters above plinth level.	Cum	35.058				
19	HSR	11.5	11.43 cm thick brick wall with every fourth course reinforced with hoop-iron laid in 1:4 cement stone dust (from crusher) mortar in superstructure.	Sqm	200				
			PLASTERING						
20	HSR	15.7	12 mm thick cement plaster 1:6	Sqm	720				

21	Non SOR		Repair to plaster of thickness 12mm to 20 mm in patches of area 2.5 sqm and under, including cutting the patch in proper shape, raking out joints and preparing plastering the wall surface with white cement based polymer modified self curing mortar, including disposal of rubbish, all complete as per the direction of Engineer-In- Charge.	Sqm	360				
			PAINTING						
22	HSR	16.2	Preparation of plastered or concrete surfaces for painting, including sand papering the surface, applying one coat of linseed oil and filling with approved quality filler, consisting of white lead, linseed oil, varnish and chalk mitti including finishing surface to the required finish, complete.	Sqm	360				
23	HSR	16.3	Applying priming coat with cement primer in all shades on newly plastered or concrete exterior surfaces.	Sqm	90				
24	HSR	16.3	Painting two coats with ready-mixed exterior paint in all shades on newly plastered or concrete surface of walls.	Sqm	90				
25	HSR	15.2	People dash exterior plaster on walls with a mixture of washed pebble or crushed stone graded from 6 mm to 12 mmm nominal size dashed over and including fresh cement plaster in 2 coats, first coat 10 mm thick cement plaster 1:4, (1 cement, 4 sand) and finishing coat 10 mm cement plaster 1:3, mixed with 10% finely ground hydrated lime by volume of cement including arises, chamfers and/or rounded angles not exceeding 80 mm in grith.	Sqm	180				
26	HSR	16.9	Applying priming coat with metal primer on new steel or iron work including preparation of surface.	Sqm	250				
27	HSR	16.5	Painting two coats with synthetic enamel paint in all shades on old wood-work or metallic or plastered or concrete surfaces to give an even shade including rubbing down old paint.	Sqm	100				
28	HSR	16.2	Painting two coats excluding priming coat with ready-mixed paint for metallic surfaces in all shades on new steel or iron work.	Sqm	100				
29	Non SOR		Finishing walls with textured exterior paints of required shade:New work (Two or more coats applied @ 3.28 ltr/10sqm) over and including base coat or water proofing cement paint applied @ 2.20kg/10sqm	Sqm	144				
30	HSR	16.2	Painting two coats with ready- mixed paint for metallic surfaces in all shades on old steel or iron work.	Sqm	240				
			FLOORING						

31	HSR	14.54(d)	Rough red sand stone (from Agra) 40 mm thick set in 12 mm thick cement coarse sand mortar in cement coarse sand mortar 1:3 including pointing with cement mortar 1:2 with an admixture of pigment to match the shade of stone	Sqm	1145.5				
32	HSR	14.55(d)	Fine dressed and rubbed red sand stone (from Agra) 40 mm thick, set in 12 mm thick cement coarse sand mortar -in cement coarse sand mortar 1:3 including pointing with cement mortar 1:2 with an admixture of pigment to match the shade of stone	Sqm	249.75				
33	HSR	14.6	Kotah stone flooring 34 mm to 40 mm thick in any pattern as specified over 12 mm thick base of cement coarse sand mortar 1:3 laid and jointed with neat cement slurry mixed with pigment to match the shade of stone including rubbing and polishing.	Sqm	166.5				
34	HSR	14.6	Kotah stone rough dressed 40 mm to 50 mm thick slabs, set to pattern in pavements over 20 mm thick base of cement coarse sand mortar 1:3 laid and jointed with neat cement slurry mixed with pigment to match the shade of stone .	Sqm	812.25				
			GRAVEL						
35	Non SOR		Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	Cum	9.5				
			INTERLOCKING BLOCKS						
36	HSR	10.2	Providing and laying 60mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 25mm thick fine sand complete in all respect.	Sqm	1200				
			CLADDING						
37	HSR	14.6	Fine dressed and machine rubbed red sand stone (from Agra) 25 mm to 30 mm thick on wall facing (lining) on wall, pillars, skirting, dado and riser of step laid in any pattern as specified on 12 mm thick cement coarse sand mortar 1:3 with neat cement with an admixture of pigment to match the shade of stone including labour for fixing cramps, dowels and pins etc.	Sqm	13.84				
38	HSR	14.7	Kotah stone 20 mm thick in skirting risers of steps, dados and wall facing (lining) and pillars laid on 12 mm thick cement coarse sand plaster 1:3 laid and jointed with neat cement slurry, mixed with pigment to match the shade of stone including rubbing and polishing including labour for fixing cramps, dowels and pins etc.	Sqm	61				

39	Non SOR		Providing and fixing Stone tile (polished) work for wall lining over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry @ 3.3 kg/sqm including pointing in white cement complete. -Granite of any colour and shade. 8 mm thick granite stone tiles (mirror polished of all shades	Sqm	74.84				
			COPING						
40	HSR	14.55(d)	Fine dressed and rubbed red sand stone (from Agra) 40 mm thick, set in 12 mm thick cement coarse sand mortar -in cement coarse sand mortar 1:3 including pointing with cement mortar 1:2 with an admixture of pigment to match the shade of stone	Sqm	12.4				
41	HSR	14.6	Extra for nosing in steps and treads of red fine dressed sand stone.	Sqm	12.4				
42	HSR	14.6	Kotah stone flooring 34 mm to 40 mm thick in any pattern as specified over 12 mm thick base of cement coarse sand mortar 1:3 laid and jointed with neat cement slurry mixed with pigment to match the shade of stone including rubbing and polishing.	Sqm	12				
43	HSR	14.7	Extra for nosing in treads of steps of Kotah stone slab.	Sqm	12				
44	Non SOR		Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.- Area of slab over 0.50 sqm.	Sqm	12.2				
45	Non SOR		Providing edge moulding to 18mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge. -Granite work.	metre	30.5				

46	Non SOR		Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying :(a) First layer of slurry of cement @ 0.488 kg/sqm mixed with waterproofing cement compound @ 0.253 kg/ sqm. This layer will be allowed to air cure for 4 hours.) Second layer of slurry of cement @ 0.242 kg/sqm mixed withwater proofing cement compound @ 0.126 kg/sqm. This layerwill be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry	Sqm	3.78				
			MILD STEEL WORK						
47	HSR	18.1	Wrought iron and mild steel (using angles, flats, square bars, tees and channels) ladders, grills, gratting frames, window guards, iron doors open able or fixed stair case or parapet or any other type of railing, gates and tree guards etc., including cost of screws and welding rods or bolts and nuts complete fixed in position.	Quintal	21.9441				
48	HSR	18.15 (a)	Supplying M.S. Bolts of required sizes with nuts and washers complete	Kg	219.441				
49	HSR	18.15 (b)	Supplying M.S. round holding down or Anchor bolts with nuts and washers complete	Kg	109.72				
50	Non SOR		Providing and fixing stainless steel (Grade304)Benches,chair,Scultures,canoppy made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing tubes, channels, plates etc., including welding, grinding, and making curvature (wherever required) and fitting the same withbuffing, polishing necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-shall be considered excluding fixing accessories such as nuts, bolts,fasteners etc.). **-BENCH without Back in STAINLESS STEEL,weight-35 kg(image attached)**	Nos.	20				

51	Non SOR		Providing and fixing stainless steel (Grade 304) Banches,chair,Scultures,canoppy made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing tubes, channels, plates etc., including welding, grinding, and making curvature (wherever required) and fitting the same withbuffing, polishing necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-shall be considered excluding fixing accessories such as nuts, bolts,fasteners etc.)-**BENCH with Back in STAINLESS STEEL,weight-40 kg(image attached)**	Nos.	20				
52	Non SOR		Providing and fixing stainless steel (Grade 304) Banches,chair,Scultures,canoppy made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing tubes, channels, plates etc., including welding, grinding, and making curvature (wherever required) and fitting the same withbuffing, polishing necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-shall be considered excluding fixing accessories such as nuts, bolts,fasteners etc.)-**SCULPTURE (MODERN ART)**	KG	400				
53	Non SOR		Providing and fixing stainless steel (Grade 304) Sign board/Banches,chair,Scultures,canoppy made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing tubes, channels, plates etc., including welding, grinding, and making curvature (wherever required) and fitting the same withbuffing, polishing necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-shall be considered excluding fixing accessories such as nuts, bolts,fasteners etc.)-Making the(I LOVE FARIDABAD) Sign board on S steel sheet	KG	100				

54	Non SOR		Precasting and placing in position 125 mm dia Bollards 600 mm high of required shape, including providing M.S. Pipe Sleeve 50 mm dia 300 mm long in the Bollard and M.S. Pipes 40 mm dia and 450 mm long with 150x150x6mm M.S. plate welded at bottom and embedded 150 mm in cement concrete 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size), including necessary excavation of size 250 x 250 x 450 mm deep for the same in bitumen/concrete pavement at specified spacing.	Nos.	20				
55	Non SOR		Providing and fixing as per drawing /image STAINLESS STEEL DUSTBIN SERIES : ,600MM DIA X900MM HEIGHT with post hight-1200 and pipe dia 40mm SS-Grade-304 (2 NOS. FORM A ONE SET) with provision of opening at the bottom of the bin.	One Set	2				
60	Non SOR		Providing and fixing semi-transparent polycarbonate compact sheet roofing of approved colour to make any normal shape of roofing / covering of any pitch and fixing with specially designed powder coated aluminium section with 60mm wide flange of standard design weighing not less than kg/ m at spacing not more than 1.2 m centre to centre with EPDM gasket and silicon sealant on all four edges of aluminium section fixed with self-drilling stainless steel screws all complete including aluminium edge angle 40 mm x 40 mm x3mm as per manufacture specification and as per direction of Engineer-in-Charge - **6 mm thick twin wall**	Sqm	50				
			DISMANTLING						
61	Non SOR		Dismantling Brick Work, Tile Masonry or Tile Lining and Tile Terracing - in cement	Cum	6.9				
			Dismantling Concrete						
62	HSR	8.5(b)	Dismantling Concrete -cement concrete plain 1:4:8 or 1:5:10	Cum	120				
63	HSR	8.5(c)	Dismantling Concrete -cement concrete plain 1:3: 6 mi	Cum	60				
64	HSR	8.5(d)	Dismantling Concrete -cement concrete plain 1:2: 4 mi	Cum	60				
65	HSR	8.5(e)	Dismantling Concrete -reinforced cement concrete with cleaning and straightening and cutting of bars if required	Cum	15				
66	HSR	8.25	Dismantling cement conglemerate / terrazzo floors 25 mm to 50 mm thick including concrete base	Sqm	40				
67	HSR	8.27	Dismantling brick or flagged stone slab flooring including concrete base	Sqm	60				
68	HSR	8.32(c)	Scraping /DISMANTLING-cement plaster	Sqm	360				

69	HSR	8.32(e)	brick dismantled from brick work in lime or cement	1000 Nos.	4				
70	Non SOR		Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50 metres lead.	Kg	200				
			Quantity for Rain water harvesting						
71	HSR	6.6	Earth work in excavation in foundations, trenches, etc.in all kinds of soils, not exceeding 2 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil, clear from the edge of excavation and subsequent filling around masonry, in 15 cm layers with compaction, including disposal of all surplus soil, as directed within a lead of 30 metres	Cum	117.13				
72	HSR	10.6	Design mix cement concrete of grade M-10 with minimum cement contents 220 Kg./cum in foundation and plinth.	Cum	0.03454				
73	HSR	10.7	Design mix cement concrete of grade M-25 with minimum cement contents 405 Kg./cum in foundation and plinth.	Cum	0.03				
74	HSR	18.2	Cold twisted deformed (ribbed/ or steel) bars for R.C.C. works, where not included in the complete rate of R.C.C. including bending, binding and placing in position complete.	Quintal	0.17				
75	Non SOR		Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	Cum	0.94				
76	Non SOR		Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	Cum	0.94				
77	Non SOR		Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in- charge.	Cum	1.57				
78	Non SOR		Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C.pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) includingtesting of joints etc. complete 1800 mm dia RCC pipes. (Laying by mannual/ machenical means-Blind Pipe	Rmt	2.00				

79	Non SOR		Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C.pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) includingtesting of joints etc. complete 1800 mm dia RCC pipes. (Laying by mannual/ machenical means-Perforated Pipe	Rmt	4.00				
80	Non SOR		500 mm dia cover with frame (medium duty)	each	3.00				
81	Non SOR	20.6	Providing, lowering, laying, aligning, fixing in position at and jointing at alllevel/ depths ISI marked HDPE pipes of PE-100 grade and PN 6 for sewerapplication as per IS 14333-1996 (amended upto date) in trenches incomplete including all material, labour, testing and commissioning as perdirection of Engineer.Note : E/w to be measured and paid separately.. -**150 mm nominal size dia**	Rmt	600				
82		22.21	Extra for covering top of membrane with Geotextile, 120gsm non woven, 100% polyester of thickness 1 to 1.25mm bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation.	Sqm	450				
			Quantity for Compost pit						
83	HSR	6.6	Earth work in excavation in foundations, trenches, etc.in all kinds of soils, not exceeding 2 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil, clear from the edge of excavation and subsequent filling around masonry, in 15 cm layers with compaction, including disposal of all surplus soil, as directed within a lead of 30 metres	Cum	16.00				
84	HSR	10.6	Design mix cement concrete of grade M-10 with minimum cement contents 220 Kg./cum in foundation and plinth.	Cum	1.50				
85	HSR	10.7	Design mix cement concrete of grade M-25 with minimum cement contents 405 Kg./cum in foundation and plinth.	Cum	2.00				
86	HSR	18.2	Cold twisted deformed (ribbed/ or steel) bars for R.C.C. works, where not included in the complete rate of R.C.C. including bending, binding and placing in position complete.	Quintal	1.3				
87	HSR	18.1	Stair case railing of 40 mm internal dia G.I. pipe class 'B' as per I.S. No. 1239 as hand rail using flats and square bars as supporting members and base plate welded as per design specified including cutting, welding rods and complete fixed in position **-Gril for compost pit**	Cum	1.6				

			Quantity for under ground water tank						
88	HSR	6.6	Earth work in excavation in foundations, trenches, etc.in all kinds of soils, not exceeding 2 metres depth including dressing of bottom and sides of trenches, stacking the excavated soil, clear from the edge of excavation and subsequent filling around masonry, in 15 cm layers with compaction, including disposal of all surplus soil, as directed within a lead of 30 metres - for Water Tank-4 mx3.5mx3m	Cum	58.34				
89	HSR	10.6	Design mix cement concrete of grade M-10 with minimum cement contents 220 Kg./cum in foundation and plinth. -forWater Tank-4 mx3.5mx3m	Cum	2.33				
90	HSR	10.7	Design mix cement concrete of grade M-25 with minimum cement contents 405 Kg./cum in foundation and plinth.	Cum	18.53				
91	HSR	18.2	Cold twisted deformed (ribbed/ or steel) bars for R.C.C. works, where not included in the complete rate of R.C.C. including bending, binding and placing in position complete.	Quintal	20.39				
92	HSR	29.27(i)	FIXING 560MM, 500MM AND 450MM INTERNAL DIAMETER CIRCULAR OR 455MM x 610MM CLEAR INSIDE OPENING RECTANGULAR CAST IRON MANHOLE COVER AND FRAME INCLUDING CARRIAGE from the stores of the Engineer-in-charge to site of work loading, unloading including stacking AND SETTING THE same to correct lines and levels IN 1:2 CEMENT SAND MORTAR over manhole etc. -Heavy duty circular 560 mm or 500 mm internal dia (weight as per I.S.I.)	Each	1				
Bill of Quantity (BOQ)-Part-2 : HORTICULTURE WORKS A. EARTH WORKS GRASSING AND PIT DIGGING.									
			1. EARTH WORK						
93	HSR	33.7	Fine dressing the ground	Sqm	3000.00				
			2. GRASS						
94	HSR	33.9	Mixing earth and sludge or farm yard manure in proportion specified or as directed.	Cu m	760.00				
95	HSR	33.8	Spreading of sludge, farm-yard manure or/and good earth in required thickness (Cost of sludge, farmyard manure or /and good earth to be paid for separately) (MIN 200 MM LAYER)	Cu m	760.00				
96	Non SOR		Providing and laying Neelgiri/Mexican grass turf with earth 50mm to 60mm Thickness of existing ground prepared with proper level and ramming with tools wooden (Dhurmos) and then rolling the surface with light roller make the surface smoothen and light watering with sprinkler and maintenance for 30 days or more till the grass establish properly, as per direction of Officer-in-charge	Sqm	500				

97	Non SOR		Providing & laying Selection no. 1 grass turf with earth 50mm to 60mm thickness on existing ground prepared with proper level and ramming with required tools wooden and than rolling the surface with light roller make the surface smoothen and light watering the same, as per direction of Officer-in-charge.	Sqm	2500			
			3.0 TREES/PALMS /SHRUBS/CLIMBERS					
98	HSR	33.9	Mixing earth and sludge or farm yard manure in proportion specified or as directed.	Cum	1336.47			
99	HSR	33.21(i)	Digging holes in all kinds of soil, and refilling the same, with the excavated earth, mixed with well decayed farm-yard manure (cost of well decayed farm yard manure to be paid separately) in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any with all leads and liftsHoles 1.2 m dia and 1.2 m deep.	Nos.	111			
100	HSR	33.21(ii)	Digging holes in all kinds of soil, and refilling the same, with the excavated earth, mixed with well decayed farm-yard manure (cost of well decayed farm yard manure to be paid separately) in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any with all leads and liftsHoles 60 cm dia, and 60 cm deep.	Nos.	#REF!			
			TREES/ PALMS					
101	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ARECA PALM-SUPARI,Minimum 5 canes per palm	Nos.	20			
102	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.BAMBUSA VULGARIS-	Nos.	15			

			GOLDEN BAMBOO,Minimum 3.0/3.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar.						
103	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CHORISIA SPECIOSA,FLOS SILK TREE,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	2				
104	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-COCHLOSPERMUM RELIGIOSUM,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	2				
105	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CEIBA PENTANDRA-WHITE COTTON/KAPOK,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	3				
106	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CYCUS REVOLUTA,FERN SAGO,Minimum 0.3 M trunk height,Minimum 3 whorls with 15 leaves each.	Nos.	12				

107	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ERYTHRINA INDICA,Minimum 2.0/2.5m overall height,Multibranching at 2.5m from collar	Nos.	3				
108	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-FICUS BENJAMINA,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	12				
109	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-GARDENIA LATIFOLIA,CAPE JASMINE,,Multibranching at 2.0m from collarMinimum 2.0/2.5m overall height,	Nos.	2				
110	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-GLIRICIDIA SEPIUM,MATA RATON,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	3				

111	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-JACARANDA MIMOSIFOLIA,NEELA GULMOHAR,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	3				
112	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LAGERSTOEMIA THORELLII,Minimum 3.0/3.5m overall height,Minimum 75mm caliper,Multibranching at 2.0m from collar	Nos.	2				
113	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-MALALEUCA LEUCADENDRON,GOLDEN BOTTLE BRUSH,Minimum 2.0/2.5m overall height,Minimum 40mm caliper,Multibranching at 2.0m from collar	Nos.	4				
114	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PHEONIX PALM,DATE PALM,Minimum 2.5m overall height,Minimum 100mm caliper,min. 8 fronds	Nos.	6				

115	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PLUMERIA ALBA,FRANGIPANI,Minimum 3.0/3.5m overall height,Minimum 75mm caliper,Multibranching at 1.5m from collar	Nos.	8				
116	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PLUMERIA RUBRA,RED Champa,Minimum 3.0/3.5m overall height,Minimum 75mm caliper,Multibranching at 1.5m from collar	Nos.	8				
117	Non SOR		Supply & Install Trees/ Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% concentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-WASHINGTONIA PALM,Minimum 1.5m overall height,Minimum 100mm caliper,5 fronds.	Nos.	6				
			SHRUBS /PALMS	Nos.					
118	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ACALYPHA HISIPIDA CAT TAIL,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering.	Nos.	35				

119	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ACALYPHA W GREEN,Minimum 600mm height@750mmc/c,Bushy, Multibranching.	Nos.	45				
120	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ACALYPHA W RED,Minimum 600mm height@750mmc/c,Bushy, Multibranching	Nos.	30				
121	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ACALYPHA TRICOLUR,Minimum 600mm height@750mmc/c,Bushy, Multibranching	Nos.	30				
122	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-AC0CANTHERA SPECTIBILIS,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering.	Nos.	6				
123	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by	Nos.	15				

			adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ALLAMANDA NERIFOLIA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering						
124	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-BAUHINIA ACCUMINATA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	30				
125	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-BAUHINIA TOMEMTOSA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	25				
126	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-BELOPORNE GUTTATA,Minimum 450mm height@600mmc/c,Bushy, Multibranching, Flowering	Nos.	50				
127	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CAESALPINIA PULCHERRIMA,Minimum 600mm	Nos.	5				

			height@900mmc/c,Bushy, Multibranching, Flowering						
128	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CALLIANDRA EMARGINATA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	10				
129	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CALLIANDRA HAEMATOCEPHALLA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering.	Nos.	5				
130	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CASSIA ALATA,Minimum 600mm height@750mmc/c,Bushy, Multibranching, Flowering	Nos.	5				
131	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CASSIA BIFLORA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	15				

132	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CASSIA LAEVIGATA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	10				
133	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CESTRUM ELEGANS,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	20				
134	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CROSSANDRA UNDULAEFOLIA,Minimum 450mm height@600mmc/c,Bushy, Multibranching, Flowering	Nos.	55				
135	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-DURANTA TOPIARY,Minimum 1500mm height@1500mmc/c,Bushy, Multibranching	Nos.	15				

136	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ERANTHEMUM BICOLOUR,Minimum 600mm height@750mmc/c,Bushy, Multibranching	Nos.	25				
137	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-ERANTHEMUM TRICOLOR,Minimum 600mm height@750mmc/c,Bushy, Multibranching	Nos.	25				
138	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-EUPHORBIA PULCHERRIMMA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	10				
139	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-EUPHORBIA COTONIFOLIA,Minimum 600mm height@900mmc/c,Bushy, Multibranching	Nos.	15				

140	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-FICUS BEJAMINA,Minimum 1500mm height@1500mmc/c,Bushy, Multibranching	Nos.	10				
141	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-FICUS NUDA,Minimum 1200mm height@1500mmc/c,Bushy, Multibranching	Nos.	40				
142	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-FICUS PANDA,Minimum 600mm Height@900mmc/c, Bushy, Multibranching, Flowering	Nos.	60				
143	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-GARDENIA JASMINOIDES,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	10				

144	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-GOLDEN BOTTLE BRUSH ,Minimum 1500mm height@300mmc/c,Bushy, Multibranching	Nos.	20				
145	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-HAMALIA PATENS,Minimum 600mm height@900mmc/c, Bushy, Multibranching, Flowering	Nos.	50				
146	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-HIBISCUS COOPERII,Minimum 600mm height@750mmc/c,Bushy, Multibranching, Flowering	Nos.	45				
147	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-HIBISCUS ROSA SINENSIS,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	35				

148	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-HIBISCUS SNOWFLAKE,Minimum 600mm height@900mmc/c, Bushy, Multibranching, Flowering	Nos.	30				
149	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-IXORA CHENENSIS,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	25				
150	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-JASMINUM HUMILE,Minimum 900mm height@750mmc/c, Bushy, Multibranching, Flowering	Nos.	25				
151	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-JATROPHA PAUNDARAEFOLIA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	15				

152	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LAGERSTROEMIA INDICA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	20				
153	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LAGERSTROEMIA INDICA CANDIDA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	20				
154	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LAGERSTROEMIA ROSEA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	20				
155	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-MUSSAENDA ERYTHROPHYLA,Minimum 750mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	25				

156	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-NERIUM OLEANDER,Minimum 600mm height@750mmc/c, Bushy, Multibranching, Flowering	Nos.	15				
157	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-NERIUM OLEANDER VARIEGATED,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	15				
158	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PHYLANTHUS NIVOSIS,Minimum 600mm height@600mmc/c,Bushy, Multibranching	Nos.	40				
159	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PLUMBAGO CAPENSIS,Minimum 600mm height@750mmc/c,Bushy, Multibranching, Flowering	Nos.	30				

160	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-TABERNAEMONTANA C.FLORE PLENO,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	30				
161	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-TABERNAEMONTANA CORONERIA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	30				
162	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-TABERNAEMONTANA VARIEGATED,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	40				
163	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-TECOMA GAUDI CHOWDI,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	20				

164	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-TECOMARIA CAPENSIS,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	30				
165	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-THEVETIA NERIFOLIA,Minimum 600mm height@900mmc/c,Bushy, Multibranching, Flowering	Nos.	40				
166	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-THRYLIS GLAUCA,Minimum 600mm height@750mmc/c,Bushy, Multibranching, Flowering	Nos.	50				
167	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CYRTOSCHYS RENDA,Minimum 1500mm height @300mmc/c,3 /4fronds	Nos.	5				

168	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LATANIA LONTAROIDES,Minimum 1200mm height @300mmc/c,3 /4fronds	Nos.	15				
169	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LIVISTONIA ROTUNDIFOLIA,Minimum750mm height @300mmc/c,3 /4fronds	Nos.	15				
170	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CHEAMADOREA ELEGANS,Minimum 1500mm height @300mmc/c,3 /4fronds	Nos.	10				
171	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-RAPHIS PALM,Minimum 600mm height @300mmc/c,3 /4fronds	Nos.	75				

172	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PRICHARDIA PACIFICA,Minimum 750mm height @300mmc/c,3 /4fronds	Nos.	15				
173	Non SOR		Supply & Install Shrubs / Palms inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-THRINAX PARVIFLORA,Minimum 750 mm height @300mmc/c,3 /4fronds	Nos.	20				
174	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-HELLICONIA METTALICA,Minimum 150mm height @200mmc/c,bushy	Nos.	25				
175	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-RESSULIA JUNCEA,Minimum 600mm height @200mmc/c,Minimum 3 runners per plant	Nos.	20				

176	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-BRASSIA ACTINOPHYLA,Minimum 300mm height @ 900mmc/c,Bushy	Nos.	25				
177	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CORDYLINE TERMINALIS,Minimum 600mm height @750mmc/c,Minimum 3 runners per plant	Nos.	20				
178	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-HELLICONIA HUMILIS,Minimum 300mm height @600mmc/c,Minimum 3 runners per plant	Nos.	20				
179	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-HELLICONIA PSITTACORUM,Minimum 300mm height @600mmc/c,Minimum 3 runners per plant	Nos.	20				

180	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-HELLICONIA ROSTRATA,Minimum 300mm height @600mmc/c,bushy	Nos.	20				
181	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PHILODENDRON XANADO,Minimum 300mm height @450mmc/c,Minimum 3 runners per plant	Nos.	20				
182	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PHILODENRON WENDILANDI,Minimum 300mm height @450mmc/c,Minimum 3 runners per plant	Nos.	25				
183	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-MONSTERA DELICICIOSA,Minimum 300mm height @450mmc/c,	Nos.	10				

184	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SCHEFLERA ARBORICOLA,Minimum 450mm height @450mmc/c,Minimum 3 runners per plant	Nos.	25				
185	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PHILODENRON BLACK CARDINAL,Minimum 300mm height @450mmc/c,Minimum 3 runners per plant.	Nos.	10				
			CLIMBERS	Nos.					
186	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ALLAMANDA CATHERITICA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	25				
187	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ANTIGNON LEPTOPUS,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	30				

188	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-BEAUMONTIA GRANDIFLORA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	50				
189	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-BOUGAINVELLEA spp. Mix,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	200				
190	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CLERODENDRON SPLENDENS ,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	45				
191	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CLITORIA TERNATEA DOUBLE BLUE,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	30				

192	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-CLITORIA TERNATEA WHITE,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	25				
193	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-FICUS PUMILA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	50				
194	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-GLORISA SUPERBA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	25				
195	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-IPOMEA CURELEA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	20				

196	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-IPOMEA PALMATA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	25				
197	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-JASMINUM NITIDUM,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	30				
198	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-LONICERA JAPONICA	Nos.	25				
199	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-PETRA VOLUBLIS	Nos.	25				
200	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-QUISQUALIS	Nos.	40				

			INDICA,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant						
201	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-THUNBERGIA ALATAMinimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	20				
202	Non SOR		Supply & Install Climbers inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting-WHITE RAMBLING ROSES,Minimum 600mm height @2000mmc/c,Minimum 3 runners per plant	Nos.	50				
			GROUND COVERS						
203	HSR	33.9	Mixing earth and sludge or farm yard manure in proportion specified or as directed.	Cu m	20				
204	Non SOR		Supply & Install gound covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ALTERNENTHERA RED,Minimum 150mm height @200mmc/c,Bushy	Sq m	20				
205	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ALTERNENTHERA SNOW TOP,Minimum 150mm height @200mmc/c,Bushy	Sq m	10				

206	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ASPARAGUS DENSIFLORUS,Minimum 150mm height @200mmc/c,	Sq m	10				
207	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ASPARAGUS SPRENGERI,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	25				
208	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-BARLERIA CRISTATA,Minimum 300mm height @200mmc/c,Minimum 3 runners per plant,,	Sq m	10				
209	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-BELOPORNE GUTTATA,Bushy,Minimum 300mm height @200mmc/c	Sq m	10				

210	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CALADIUM HORTULANUM SPP MIX,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	10				
211	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CHLOROPHYTUM COSMOSUM,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20				
212	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CROSSANDRA UNDULAEFOLIA,Minimum 150mm height @200mmc/c,	Sq m	20				
213	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CUPERUS ALTERNIFOLIOUS,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20				

214	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CUPHEA HYYSOFOLIA,Minimum 150mm height @200mmc/c,	Sq m	40				
215	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-IRESINE,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	30				
216	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-IPOMEA GOLDEANA,Minimum 300mm height @200mmc/c,Minimum 3 runners per plant	Sq m	60				
217	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-IPOMEA PURPUREA.Minimum 300mm height @200mmc/c,Minimum 3 runners per plant	Sq m	25				

218	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-LANTANA SELLOWIANA,Minimum 300mm height @200mmc/c,Minimum 3 runners per plant	Sq m	40				
219	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-LANTANAN WHITE,Minimum 300mm height @200mmc/cMinimum 3 runners per plant	Sq m	15				
220	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-MANIHOT EXELSA,Minimum 300mm height @200mmc/c,bushy	Sq m	20				
221	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-NEPHROLEPIS BISERATUM FURCANS,Minimum 300mm height @200mmc/cMinimum 3 runners per plant,Minimum 300mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20				

222	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-OPHIOPOGON BLACK GRASS	Sq m	40				
223	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PLUMBAGO CAPENSIS,Minimum 3 runners per plant	Sq m	15				
224	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.SYNGONIUM,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	75				
225	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SYNGONIUM EMERALD GREEN,Minimum 150mm height @200mmc/cMinimum 3 runners per plant	Sq m	75				
226	Non SOR		Supply &Install ground covers/ Shade Minimum 150mm height @200mmc/cplants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the	Sq m	50				

			time of planting.-SYNGONIUM VAR,Minimum 3 runners per plant,					
227	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-TRADESCANTIA FLUMENSIS,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20			
228	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-VERBENA VOILET,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	10			
229	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-VERBENA WHITE,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	5			
230	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-WEDELIA TRILOBATA,Minimum 3 runners per plant,Minimum 150mm height @200mmc/c	Sq m	50			

231	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ZEBRINA PENDULA,Minimum 300mm height @250mmc/c,Minimum 3 runners per plant	Sq m	40				
232	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SHADE PLANTS,AGLOENEMA COMMUTATUM,Minimum 300mm height @300mmc/c,Bushy.	Sq m	20				
233	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.ALPINIA ZERUMBET VAREIGATED,Minimum 300mm height @300mmc/c,Bushy	Sq m	30				
234	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ASPARAGUS MYERS,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20				

235	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ASPARAGUS PLUMOSUS,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant.	Sq m	20				
236	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ASPIDISTRA ELATIOR,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	10				
237	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CALTHEA BELLA,Minimum 250mm height @300mmc/c,Minimum 3 runners per plant	Sq m	5				
238	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CRYPTANTHUS BIVITTATUS PINK STARLITE,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	5				

239	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-CRYPTANTHUS BIVITTATUS GOLD N GREEN,Minimum 150mm height @200mmc/c,Minimum 3 runners per plant	Sq m	5				
240	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-DIEFFENBACHIA VAREITIES,Minimum 300mm height @450mmc/cMinimum 3 runners per plant	Sq m	25				
241	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-DRACENA FRAGRANS MASSANGEANA,Minimum 300mm height @600mmc/c,bushy	Sq m	10				
242	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-DRACENA MARGINATA TRICOLOUR,Minimum 300mm height @600mmc/c,Minimum 3 runners per plant	Sq m	20				

243	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-DRACENA SANDEREANA LUTEA,Minimum 300mm height @600mmc/c,Minimum 3 runners per plant	Sq m	5				
244	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-DIZYGOTHECA ELEGANTISSIMA CASTOR,Minimum450mm height @450mmc/c,Minimum 3 runners per plant	Sq m	10				
245	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-MARANTA ARUNDINACEA,Minimum 250mm height @300mmc/c	Sq m	15				
246	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-MARANTA BICOLOUR VAREIGATED,Minimum 250mm height @300mmc/c,Minimum 3 runners per plant	Sq m	10				
247	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem	Sq m	10				

			oil cake and 50 gm stearameal per pit at the time of planting.-IPOMEA BLACK,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant						
248	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-OPHIOPOGON,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	30				
249	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PANDANUES SANDERI,Minimum 450mm height @900mmc/c,Minimum 3 runners per plant	Sq m	20				
250	Non SOR		Supply &Install ground covers/ Shade Minimum 3 runners per plantplants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PEPROMIA GREEN,Minimum 150mm height @200mmc/c,	Sq m	15				
251	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PLEOMELE ANGUSTIFOLIA,Minimum 450mm height @250mmc/c,Minimum 3 runners per plant	Sq m	5				

252	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PLEOMELE REFLEXA,Minimum 600mm height @1000mmc/c,Minimum 3 runners per plant	Sq m	10				
253	Non SOR		Supply &Install ground covers/ Shade plaMinimum 3 runners per plannts inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PILEA CADERIE,Minimum 200mm height @200mmc/c,	Sq m	10				
254	Non SOR		Supply &Install ground covers/ Shade Minimum 3 runners per plantplants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-PILEA MICROPHYLA,Minimum 200mm height @200mmc/c,	Sq m	8				
255	Non SOR		Supply &Install ground covers/ Shade plantsMinimum 3 runners per plant inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-ROHEO SPATHACEA VITTATA,Minimum 300mm height @2000mmc/c,	Sq m	15				

256	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SPATHEPHYLUM CLEVELANDI,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	40				
257	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SYNGONIUM BUTTERFLY,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	120				
258	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SYNGONIUM RED,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	50				
259	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SYNGONIUM GOLDEN/WHITE,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	40				

260	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-SYGONIUM MACROPHYLLA,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20				
261	Non SOR		Supply &Install ground covers/ Shade plants inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-TRADESCANTIA ALBIFLORA,Minimum 200mm height @200mmc/c,Minimum 3 runners per plant	Sq m	20				
			HEDGES						
262	Non SOR		Supply & Install plants to form hedge , inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**MURRAYA EXOTICA**,Minimum 300mm height @300mmc/c,Bushy	Rmt	60				
263	Non SOR		Supply & Install plants to form hedge inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**CLERODENRON MACROSIPHON**,Minimum 250mm height @200mmc/c,Bushy	Rmt	40				

264	Non SOR		Supply & Install plants to form hedge inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**PHYLANTHUS NIVOSIS**,Minimum 300mm height @200mmc/c,Bushy	Rmt	30				
265	Non SOR		Supply & Install plants to form hedge, inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**CLERODENDRON INERME**,Minimum 300 mm height @200mmc/c,Bushy	Rmt	75				
266	Non SOR		Supply & Install plants to form hedge, inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**DURANTA GOLDEN** Minimum 300mm height @200mmc/c,Bushy	Rmt	60				
267	Non SOR		Supply & Install plants to form hedge, inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**TECOMA CAPENSIS** Minimum 150mm height @200mmc/c,Bushy	Rmt	50				

268	Non SOR		Supply & Install plants to form hedge, inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**FICUS LONGISLAND** Minimum 150mm height @200mmc/c,Bushy	Rmt	50				
269	Non SOR		Supply & Install plants to form hedge, inclusive of: i).Removal of rubbish/ all construction debris /site trash, and surplus earth inclusive with all leads and lift. ii). Treat the pit with Chloropyriphos solution of 0.5% oncentration(5 ml/liter water) as required iv). Flooding the pit with water after making kiaries where required vi). Fertilise the pit by adding DAP 50gm, MOP 25 gm, 50gm neem oil cake and 50 gm stearameal per pit at the time of planting.-**FICUS PANDA** Minimum 300 mm height @200mmc/c,Bushy	RMT	50				
			5.0 MANURE						
270	HSR	33.1	Supplying at site of work well-decayed farm-yard manure, from any available source, approved by the Engineer-in-charge including screening and stacking.	Cum	298.56				
271	HSR	33.2	Supplying site of work-Deoiled Neem-Cake duly packed in used bags	Quintal	59.71				
272	HSR	33.3	Supplying at site of work sludge duly stacked at site.	Cum	25.00				
			6.0 TREE FELLING						
273	Non SOR		Felling trees of the girth (measured at a height of 1 m above ground level),including cutting of trunks and branches, removing the roots and stackingBeyond 30 cm girth upto and including 60 cm girth	Nos.	20				
274	Non SOR		Felling trees of the girth (measured at a height of 1 m above ground level),including cutting of trunks and branches, removing the roots and stackingBeyond 60 cm girth upto and including 120 cm girth	Nos.	20				
Bill of Quantity (BOQ) :Part-3 ELECTRICAL WORKS									
			LUMINARIES						
275	Non SOR		Supply, installation, testing and commissioning of POST TOP Luminaire: Outdoor type, Integral LED lamp, Decorative, Direct lighting type, Non corrosive Aluminium housing, Housing Colour: Black/Grey ,Suitable for mounting on pole. Luminaire integrated and prewired	Nos.	50.00				

			from terminal connector for incoming supply with LED lamp . Low power loss LED driver for 36 W LED,Operated on 240V, 50Hz AC supply,Typical view of Luminaire, Refer Fig. 1:					
276	Non SOR		Supply, installation, testing and commissioning of BOLLARD: Outdoor type, Integral LED lamp, Decorative, Luminaire: Non corrosive Aluminium, Aluminium plate for bolting onto foundation. Robust Design, High Luminous efficiency at reduce wattage , Cable entry for main supply cable. Earthing connection provision shall be provided. Minimum protection of IP 54. Operate on 240V, 50 Hz AC supply. Earthing terminals for earth connection, Rating: 6W LED Typical view of Luminaire, Refer Fig. 2:	Nos.	11.00			
277	Non SOR		Supply, installation, testing and commissioning of UPLIGHT:, Landscape luminaries for direct spot light. Luminaire with arrangement of connecting cable and bracket for permanent installation on wall or ceiling or landscape area.Suitable for outdoor application.Contain Clear tempered safety glass diffuser. Swivel range in horizontal axis. Earthing terminal for earth connection.Prewired LED driver Suitable for operation on 230V, 50Hz AC supply, Rating: 6W LED, Two way connector (IP 67) Typical view of Luminaire, Refer Fig. 3:	Nos.	5.00			
278	Non SOR		Supply, installation, testing and commissioning of DOWN LIGHT: Luminaire made with Non corrosive Aluminium frame,Toughen clear glass diffuser. Suitable for wall mounting. Aluminium base for mounting on wall, Integral LED lamp with power supply connection cable arrangement outside the luminaire. Earthing terminal for earth connection. Suitable of outdoor use. Prewired LED driver, Suitable for operation on 230V, 50Hz AC supply Rating: 5W, Typical view of Luminaire, Refer Fig. 4:	Nos.	15.00			

279	Non SOR		Supply, installation, testing and commissioning of LIGHT POLES:(i) Steel tubular poles with base plate of size 300x300x6mm welded at bottom, necessary hole for cable entry and earthing stud welded at standard height including painting . Fabricated pole shall be made form Galvanized Iron (GI) pipes or mild steel (MS) pipes The pole shall be complete with cap and base plate, Light pole suitable to accommodate Post top luminaire.Hollow pole of thickness not less than 2.3 mm. Earthing terminals for earth connection. Cable will be terminate at luminaire through hollow pole.Pole is black/grey in colour having corrosion resistance coating on it. Suitable for outdoor application. Height : 3.5-4 mtr,Top dia: 76 mm, Bottom dia: 140 mmTypical view of Luminaire, Refer No. 5:	Nos.	50.00				
280	HSR	1.06	Design mix cement concrete of grade M-25 with minimum cement contents 405 Kg./cum in foundation and plinth. -1. 300 X300X 900 MM		4.01				
			EARTHING WORK						
281	Non SOR		Supply, Erection of Maintenance free Earthing with all allied materials	Each	9				
282	HSR	31.22 (viii)	Supplying and laying 25mm X 5mm G.I. strip at 0.5 metre below ground level as conductor earth electrode including thimble, soldering etc. as required.	Meter	600.00				
283	HSR	31.22 (vii)	Supplying and laying 6 S.W.G. G.I. wire 0.5 metre below ground level as conductor earth electrode including thimble, soldering etc. as required.	Meter	180.00				
			ELECTRICAL CABLE						
284	Non SOR		Supply of 4C X 25 sqmm, Al, XLPE cable	Meter	1700				
285	Non SOR		Supply of 2C X 16 sqmm, Al, PVC cable	Meter	700				
286	Non SOR		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required. Upto 35 sqmm	Meter	2400				
287	Non SOR		Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 kV grade as required. 4 X 25 sq. mm (28mm)	Each	90				

288	Non SOR		Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 kV grade as required. 2 X 16 sq. mm (22mm)	Each	20				
289	HSR	31.9(d)	Supply and erection of PVC copper insulated and sheathed 2 core circular flexible wire:¬Size 1.50 sqmm (48/0.20mm)	Meter	800.00				
			Distribution Board						
290	Non SOR		Supply, installation, testing and commissioning and interconnection of wiring of wall mounted double door distribution board (8 way, 8+24 modules) having plane door, IP 43 protected, as per IS 8623 including blanking plates, insulated busbar and earth bar, circuit identification label i) Incomer: 1 no. 80 A TPN MCCB of 40kA and ii) Outgoing: 4 nos. each of 25A TPN D curve MCB of 10 kA and 4 nos. each of 16A DP MCB	Nos.	1.00				
291	Non SOR		Supply, installation, testing, commissioning of Plug and socket outlet with Metal plug and socket with IP 30 protection, 32A 3 pin with Earth	Nos.	2.00				
292	HSR	31.4 vii c	Supply and erection of pipe of 1.60 mm thickness recessed in wall and complete with M.S. boxes for housing regulators wall sockets, switches etc. 3 pin 5 amp. plug point	Each	2.00				
293	HSR	31.4 i C	Supply and erection of pipe of 1.60 mm thickness recessed in wall and complete with M.S. boxes for housing regulators wall sockets, switches etc. Fan Point	Each	1.00				
294	Non SOR		Supply and erection of 1200mm ceiling fan, operating on 230V AC	No.	1.00				
295	Non SOR		Supply and erection of 32W CFL spiral lamp	No.	3.00				
			Dismentaling						
296	Non SOR		Dismantling the existing armoured / unarmoured power cable upto 35 sqmm from surface including recoiling of dismantled cable and shifting to department store	mtr	450.00				
297	Non SOR		Dismantling the all sizes outdoor lighting luminaries from steel poles with accessories including shifting of dismantled material to department store	Nos.	18.00				

Fountain(Programmable Fountain)									
298	Non SOR		Supply, Installation, Testing & Commissioning of Brass/ Gun Matel Vertical 1" Outlet Jet Nozzles Standard.etc., complete	Nos.	16				
299	Non SOR		Supply, Installation, Testing & Commissioning of White ABS plastic bottom inlet 2" for concrete with S.S. screws and regulable .. Flow/ inlet = 9,000 l/hr.	Nos.	3				
300	Non SOR		Supply, Installation, Testing & Commissioning of Noyel Body Niche Light 12V 18W With Niche Standard etc., complete	Nos.	16				
301	Non SOR		Supply, Installation, Testing & Commissioning of Power Supply,	Nos.	3				
302	Non SOR		Supply, installation, testing and commissioning of single stage/Horizontal self priming centrifugal pumping set with prefilter, heavy duty thermo plastic body, Noryle plastic impeller, stainless steel AISI-316 shaft, mechanical seal in stainless steel connected to a TEFC induction motor with built-in thermal protection and automatic reset suitable for 220 volts, single phase, 50 cycles A.C supply, IP-55 motor protection complete with basket strainer of adequate capacity 2HP	Nos.	4				
303	Non SOR		Supply, installation, testing and commissioning of single stage/Horizontal self priming centrifugal pumping set with prefilter, heavy duty thermo plastic body, Noryle plastic impeller, stainless steel AISI-316 shaft, mechanical seal in stainless steel connected to a TEFC induction motor with built-in thermal protection and automatic reset suitable for 220 volts, single phase, 50 cycles A.C supply, IP-55 motor protection complete with basket strainer of adequate capacity 1HP	Nos.	1				
304	Non SOR		Supply, Installation, Testing & Commissioning of TOTALLY ANTI-CORROSIVE Bobbin Wound filter,400mm diameter. Fitted with pressure gauge panel manual air bleeder, water drain and emptying plug.fitted with collector arms and diffuser made from unplasticizedPVC and polypropelene .etc., complete. Max.EN ISO 9001 :2000 Standard.working pressure : 2.5 kg/cm². Flow rate = 6m³/hr.	Nos.	1				
305	Non SOR		Sand for Sand Filter (SIZE 16/32 Mesh)	Nos.	100				

306	Non SOR		Supply, Installation, Testing & Commissioning of Online ChlorineDosing Unit for chlorine made in ABS Plastic	Nos.	1				
307	Non SOR		Supply & Commisioning of control panel complete as required. MCC - 1 as described above and below.etc., complete Contactors,Push Button & Indicators,Selector Switch,Ammeter,Volt Meter, Lugs, Wires, Enclosure,Centrifugal Pump and power supply and automation for pump	Nos.	1				
308	Non SOR		Providing & fixing of Wires/cables of various sizes including necessary accessories	LS	1				
309	Non SOR		Providing and fixing of pipes (uPVC pipe-10 kg. Pressure) & fittings (Heavy)	LS	1				
310	Non SOR		Providing & fixing of Valves, fittings etc of required size	LS	1				
Bill of Quantity (BOQ) Part : PLAY EQUIPMENT									
311	NON SOR		Providing and fixing in playequipment , including excavation of 0.45 x 0.45 x 0.45 m size pit and fixing the each supporting leg / anchoring arm of playing instrument in 1:11/2:3 grade concrete block of 0.45 x 0.45 x 0.45 m size including curing etc. complete including providing for epdm flooring at all fall areas (min 1.50x 1.50 m)A-Multi activity play equipment with straight tube slide of 3' ht, small wave slide 3' ht with slide entry, an railing with abacus play system, an FRP steps to climb to a metal sq deck with canopy.-Play zone 35' x 25'-Max platform ht 3'-Age group 3-6 yrs	Nos	1				
312	Non SOR		Multi activity play equipment with 1. double wave slide of 5' ht, 2. spiral slide 5' ht with slide entry, bridge 2nos, 3. metal plain bridge 8' length with cross checked railing assembly and 4. swinging bridge with railing assembly, 5. railing with cross and zero play system, 6. an metal ladder 5' height, and 7. 3 nos metal sq deck with canopy (2nos) and without canopy(1 nos) .8. crawl tube below 8' length below deck.9. metal rock climber 5' height. with hand rails at suitable positionsand a clinging bar.-Play zone 40' x 36' approx-Max platform ht 5'-Age group 5-12 yrs	Nos	1				
313	HSR	10.7	Design mix cement concrete of grade M-25 with minimum cement contents 405 Kg./cum in foundation and plinth.	Cum	10				

314	Non SOR		Providing and fixing Tri basket, Area :2.0m Dia Safe Play Area : 3.5m Dia (11.5ft Dia) Ideal For 5-14Years,Friends at a time :4-6 on suitable location at smart park	each	1				
315	Non SOR		Providing and fixing Elephant see - saw Product Area :0.4m X 0.75m,Safe Play area:1.4m X2m,Ideal For : 3-8 Years Friends at a time :2, on suitable location at smart park	each	2				
316	Non SOR		Providing and fixing Standard See-saw, Product Area : 2.5m X 0.3m, Safe Play Area :3.5m X1.3m, Ideal For :4-10 Years, Friends at a time : 2 no.on suitable location at smart park	each	2				
317	Non SOR		Providing and fixing Double Post Swing,Area : 3.5m x 1.0m,• Safe Play Area : 4.5mX2.0m Ideal For :4-14 Years, Friends atatime:2 on suitable location at smart park,	each	2				
318	NON SOR		Cold plastic Road Marking Compound with Reflectorizing Glass Beads on Road Surface-Providing and laying material conforming to IRC-35-2015, Clause 2.4, roll on surfacing material a solvent free, high build, two pack, seamless tough, skid resistant 2.00 mm thick colour (as required) based on gloss and colour retaining acrylic cross linking resin system on road as approved by the engineer including reflectorizing glass beads @ 300 kg/sqm area, using special roller, wipers, mixing agitator etc complete as per specifications. The thickness of 2 mm should be exclusive of surface applied glass beads. The finished surface to be levelled, uniform and free from oil, grease, dirt and other foreign materials as per Clause A-24 of additional specification of the Contract document.	Sqm	100				
319	Non SOR		EPDM rubber (ethylene propylene diene monomer (M-class) rubber), Thickness – 24 mmA type of synthetic rubber is an elastomer which is characterized by a wide range of applications. The E refers to ethylene, P to propylene, D to diene and M refers to its classification in ASTM standard D-1418. The M class includes rubbers having a saturated chain of the polyethylene type. For providing space for practicing Yoga, the EPDM floor extends at least 3 M beyond the gym equipment floor.Note- **Colour and pattern as per Drawing or directed by Engineer.**	Sqm	200.00				

S.No	Ref.	No.	Description of Item	Unit	QTY			
320	NON SOR		Providing O& M service as indicated in the scope of work , refer clause No. 1.2 of Section 7, Page No. 67. This includes but not limited to the supply of Manpower, Labour, Equipments, Tools & Tackles, water, Pumps, Security, Spares of Installed Equipments, Complete maintenance of the entire Park features having as per yard stick in the Park area i.e. lawn trees, shrubs, hedge, flower beds, foliages, creepers etc. including hoeing,weeding pruning replacement of plants, gap filling, watering, mowing of lawn, grass cutting by lawn mover and brush cutter , removal of Park waste, applying insecticide, pesticide & fertilizers(whenever required) top dressing of lawn with good earth and menure and maintenance of other park related works as directed by office-in-charge (Cost of Good Earth, Manure, Fertilizer, Insecticide , Pesticide , lawn mover and brush cutter with fuel will be calculated as per actuals & other T & P material/articles shall be provided by the contractor.)- **for 1st Year**	Year	1			
321			O & M Scope of park as mentioned in S.no.320 -for 2 nd year	Year	1			
322			O & M Scope of park as mentioned in S.no320 for 3rd year	Year	1			
323			O & M Scope of park as mentioned in S.no.320 -for 4th year	Year	1			
324			O & M Scope of park as mentioned in S.no.320 -for 5th year	Year	1			

Note:

1. **The quantity mentioned in the BOQ is for Tender Purpose Only**
2. **The bidder should also consider the inflation of O & M period. No escalation of Price shall be considered during the contract period including O&M period**

PROVISIONAL ITEMS

The Bidder need to quote a unit rate price for the below indicated Provisional BOQ items/works. (The rates quoted in the below table will apply only when required). **THIS WILL NOT BE CONSIDERED IN THE BID VALUE OR BID PRICE.**

NOTE: THE RATE OF PROVISIONAL ITEMS TO BE COMPULSORY SUBMITTED ALONGWITH TECHNICAL PROPOSAL ONLY.

Bill of Quantity (BOQ) PROVISIONAL ITEMS

S.No	Ref.	No.	Description of Item	Unit	QTY	Rate (Rs)	In Words	Amount (Rs)
1	Non SOR		Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. - Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	Sqm	127.5			
2	Non SOR		Providing and laying Flamed Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc.	Sqm	277.5			

			all complete as specified and as directed by the Engineer-in-Charge. - Flamed Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.					
3	Non SOR		Supply, installation, testing and commissioning of **WATER ATM** and coin operated water vending machine on specified location and as per drawing In smart park.	Set	1.0			
4	Non SOR		Supply, installation, testing and commissioning of Solar panal on Canopy at seating area in the park	Set	3.0			
5	Non SOR		Supply & installation, Testing & commissioning of Water Supply line of 75mm/ 50 mm dia of uPVC pipe for irrigation of Park including all accessories (valves, taps, fittings, etc.) as per the instructions provided by the Engineer-in charge. The Provisional item will be paid as per the HSR rates or NON SOR rates, if rates are not available in the HSR. The NON SOR rates will be applicable based on the market rate and rate analysis.	Set	1.0			

SECTION 5: GENERAL CONDITIONS OF CONTRACT (GCC).

The GCC applies for entire duration of the contract period (Construction, Operation and Maintenance Period)

1. **Security Deposit:** The person whose tender may be accepted (hereinafter called the Bidders which expression shall unless excluded by or repugnant to the context include his heirs executers, administrators representatives and assigns) shall permit FSCL at the time of making any payments to him for the value of work done under the contract to deduct the security deposit as under.

   The **Security Deposit** to be taken for the due performance of the contract under the terms & conditions printed on the tender form will be the earnest money plus a deduction of 5 % (Five Percent) from the payment made in the running bills. The EMD and Security advance together shall not be more than 5 % of the contract value. Further, upon completion of works and subsequent to issue of completion certificate as detailed in the special conditions of contract an amount equal to 50% of the total security deposit deducted from the running payments may be refunded to the contractor, provided that all the recoveries/out standings against the contractor have been realized. Balance 50 % of the amount shall be refunded after Four months of successful Operation period.

   Performance Security:

   I) The successful bidder shall deposit BG against Performance Security computed @ 15 % of the contract value at the time of signing of the contract. **This performance security shall be in addition to the Security Deposit. Draw the BG Shall in favour of Chief Executive Officer, Faridabad Smart City Limited payable at Faridabad.**

   II) a) An amount equal to 25 % value of the Performance security deposit in the form of Bank Guarantee as above shall be released on successful completion of Defects Liability Period.

   b) Balance amount equal to 75 % value of the Performance security deposit in the form of Bank Guarantee as above shall be released on successful completion of O&M Period.

   The release of BG in lieu of the Performance Security as above shall be subject to the contractor furnishing a fresh BG for an amount equal to the amount to be retained by the FSCL.

2. **Additional Performance Security:**

   If the rate quoted by the lowest Bidder (L1) considered to be unbalanced in relation to the Authority's estimated of cost of work to be performed under the contract, the Chief Executive Officer then may require giving the Bidder notice to submit detailed price/ rate analysis of major items of the work. The bidder shall submit the rate analysis within 7 days of such notice so as to demonstrate the internal consistency of these price(s)/rate(s) with his quoted price(s)/rate(s). After revaluation by tender sanctioning authority, Chief Executive Officer may require the Bidder to submit 5 % additional Security over the performance security in the form of B.G., which shall be refunded along with the Second instalment of the normal Security Deposit (After four months of completion of successful operation period of works). In the event, contractor fails to complete the work to the satisfaction of the authority or abandoned the work incomplete, the authority may forfeit this 5 % additional Performance Security Deposit along with performance security and Security deposit & the agreement shall be terminated and action shall be taken accordingly. In case if the lowest Bidder, whose rates quoted, is considered to be unbalanced, does not agree to deposit additional 5 % Security Deposit then his bid may be rejected by the sanctioning authority and earnest money shall be forfeited

3. The Bidders is /are to provide everything of every sort and kind (with the exception noted in the schedule attached) which may be necessary and requisite for the due and proper execution of the several works included in the contract according to the true intent and meaning of the drawings and specifications taken together, which are to be signed by the Engineer in Charge designated by the FSCL (herein after called the Engineer-In-Charge) and the Bidder whether the same may not be particularly described in the specifications or shown on the drawings, provided that the same are reasonably and obviously to be inferred there from and in case of any discrepancy between the drawings and the specifications the Engineer-In-Charge which shall prevail.

4. The Bidder (s) is/are to set out the whole of the works in conjunction with an officer to be deputed by the Engineer-in-charge and during the progress of the works, to amend on the requisition of the Engineer-in-charge any errors that may arise therein and provide all the necessary labours, and materials for so doing. The Bidder(s) is/are to provide all plant, labour and materials (with the exceptions noted in the schedule attached) which may be necessary and requisite for the works. All the materials and workmanship are to be the best of their respective kinds. The Bidder(s) is/are to leave the works in all aspects clean and perfect at the completion thereof.

5. The Bidder must extensively coordinate with FSCL and its Technical Consultant during all stage of the contract. The successful bidder shall obtain written approvals from FSCL at all stages, before commencing work on any particular stage of work. During the construction phase, after completion of any particular stage/phase of works and before

commencing work on the next stage/phase of work, the successful bidder shall obtain written approval on the completed works/phase from FSCL, before commencing work on the next stage/phase of works

6. **CONTRACTOR TO SUPPLY PLANT, LADDERS, SCAFFOLDING, ETC.:** The contractor shall supply at his own cost materials (except such special materials if any, as may in accordance with the contractor be supplied from the Engineer – in – charge's Stores) plants, tool, appliances, implements, ladders, cordage, tackle, Scaffolding and temporary work requisite for the proper execution the work whether original, or altered or substituted, and whether included in the specification or other documents forming part of the contractor referred to in these condition or not or which may be necessary for the purpose of satisfying or complying with the requirement of the Engineer – in – charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage there for to and from the work . The contractor shall also supply without charge requisite number of persons with the means and materials necessary for the purpose of setting out works, and counting, weighing & assisting in the measurement or examination at any time and from time to time of the work, or materials. Failing his so doing the same may be provided by the Engineer -in charge at the expenses of the contractor and the expenses may be deducted from any money due to the contractor under the contract, or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

7. During the entire contract period (Construction and Operation and Maintenance); the Contractor is liable for damages arising from non-provision of lights fencing etc. The contractor shall also provide at his own cost except when the contract specifically provides otherwise and except for payments due under clause all necessary fencing and lights required to protect the public from accident and shall be bound to bear the expenses of defense of every suit, action or proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions & to pay any damage and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the contractor be paid to compromise any claim by any such person.

8. The location of the existing features is provided for bidding purpose only. It is the responsibility of the bidder to gather relevant approved drawings and approvals from the concerned department and agencies, prior taking up the works defined in the scope of services of this tender.

9. If the contractor finds that the data provided to him is not accurate or require more information, in such cases the contractor shall conduct all relevant survey's, studies, investigations at his own cost.

10. Prior bidding the project, the contractors shall visit the site and have his own assessment of the accuracy of the information provided in this document.

11. The contractor should submit the construction plan and have it approved by FSCL before starting of work including shifting of utilities.

12. The Contractor shall have approvals including design mix concrete from FSCL prior to the commencement of the tasks/activities.

13. **Drawings:** All the Drawings received from FSCL for construction work has to be returned to FSCL after completion of work.

14. All machine and equipment foundation design shall be as per the Manufacture. Prior commencing the works, the Manufacturer's design details shall be submitted to FSCL for approval.

15. All works indicated in the scope of Services of this tender (Backfilling, Concreting, steel work, civil works, landscaping, etc) Quality, Testing, Sampling, shall be done in accordance with BIS and specifications.

16. The contractor has to liaison with the various departments for seeking approvals including applying for new connection or for increase (change in the power load). The Administration cost shall be borne by the FSCL.

17. Utilities: The cost of shifting of the utilities like OFC and Gas shall borne by the relevant service provider.

18. Dismantling:
    - **a.** Prior to commencing dismantling work, the contractor shall discuss the dismantling plan and have it approved.
    - **b.** The dismantling plan shall clearly indicate the materials that would be reused or disposed.
    - **c.** The reusable materials shall be returned to the FSCL in such a way that it can be used again or sold.
    - **d.** The reusable material shall be segregated and stacked at designated location as indicated by the Engineer-In-Charge.
    - **e.** In case the reusable material is damaged, the contractor will repay the cost of reusable material to FSCL. The decision of the E in C shall be final in assessing the damaged material.

19. All disposable (waste) material shall be dispose at place identified by the Engineer –In-Charge (E in C) or Construction &

Debris (C & D) Plant in case of such notification issued by the relevant agencies.

20. The contractor shall also ensure that the streets (beyond the site premises) on which his equipment traverses/ply are not damaged. If they are damaged or spread with construction material, the contractor shall restore it to the satisfaction of the E in C at his own cost.

21. From the Commencement of the work to the completion of the contract, the site and the works thereupon are to be under the Bidder(s) charge. The Bidder (s) is/are to be held responsible for and to make good all injuries, damages and repairs occasioned or rendered necessary to the same by fire or other causes and they are to hold the FSCL harmless from any claims for injuries to persons or for structural damage to property happening from any neglect, default, want of proper care or misconduct on the part of the Bidder(s) or of any one in his/their employment during the execution of the works.

22. The Bidder shall execute the work as per detailed specifications as incorporated in the tender document and in accordance with the approved drawings and special conditions incorporated in the tender documents or BIS.

23. **Transport of materials is Bidder responsibility**: The Bidder shall make his own arrangement for transport of all materials. FSCL is not bound to arrange for priorities for getting wagons or any other materials though all possible assistance by way of recommendation will be given, if it is found necessary in the opinion of the Engineer–in–Charge. If the efforts of the Engineer-in charge prove in effective, the Bidder shall have no claim for any compensation on this account.

24. Contractor should submit the procurement plan prior procuring the material and same should be approved by FSCL before procurement. If any materials whose make is not specified in the approved make list, then before procurement of same it is to be approved by FSCL.

25. Contractor shall submit the monthly progress report and expedite the Project as per the instruction provided by the FSCL.

26. Debris cleaning in the park area /site has to be done by contractor at their own cost. The debris needs to be disposed at the designated compost pit indicated in the drawing.

27. FSCL shall **NOT** provide any space or place for storage of construction materials or Equipment(s). The bidder shall arrange the same at their own cost.

28. The contractor has to stack the excavated, debris and vegetation material at a location designated by the Engineer In Charge (E in C- FSCL official) at his own cost.

29. The works shall be undertaken in a phased manner so that operation of parks should not get affected.

30. The Bidder is to set out the whole of the works in conjunction with an officer to be deputed by the Engineer-in-charge and during the progress of the works, to amend on the requisition of the Engineer-in-charge any errors which may arise therein and provide all the necessary labours, and materials for so doing. The Bidder(s) is/are to provide all plant, labour and materials (with the exceptions noted in the schedule attached) which may be necessary and requisite for the works. All the materials and workmanship are to be the best of their respective kinds. The Bidder(s) is/are to leave the works in all aspects clean and perfect at the completion thereof.

31. **COMPLETION TIME :**

a) The works are to be commenced immediately upon receipt of order of commencement given in writing by the Engineer-in-charge. The whole work, including all such addition and variations as aforesaid (but excluding such, if any, as may have been postponed by an order from the Engineer-in charge) shall be completed in every respect within 3(Three) months including rainy season from the reckoned date. The work shall throughout the stipulated period of contract be proceeded with all due diligence, keeping in view that time is the essence of the contract.

32. **CHANGE IN SCOPE :**

(i) As a part of the approval process, the bidder shall, when the Authority [The FSCL] demands changes, the bidder shall obtain the written approval before commencing the work for such changes. All such revisions shall be to the complete satisfaction of FSCL and on which mandatory written approvals obtained from the FSCL before commencing work related to the requested approval. No work under the scope of works under this bid/contract shall be commenced before obtaining the said written approval from the Authority.

(ii) If at any time before or after the commencement of the work, Engineer-in-charge shall for any reason whatsoever: -

(a) Cause alterations, omissions or variations in the drawings and specifications involving any curtailment of works as originally contemplated; or

(b) Not requiring the whole of the work as specified in the tender to be carried out, The Bidder(s) shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he/they might have derived

from the execution of the work in full as specified in the tender but which he/they did not derive in consequence of the curtailment of the works by reasons of alterations, omissions or variations or in consequence of the full amount of the work not having been carried out. But the Bidder(s) shall be entitled to compensation for any loss sustained by him/them by reason of his/their having purchased or procured any materials or entered in to any engagements or made any advance to labour or taken any other preliminary or incidental measures on account of or with a view to the execution of the works or the performance of the contract.

(iii) In case any item/work is not executed as per the drawings, designs, estimates and /or specifications (as per the agreement executed) the same shall be deducted and recovered from the Bidder at (prevailing market rates or at par with FSCL/ HSR whichever is more at the time of execution in force Plus 15 % of total value as extra. No compensation shall be paid for any change in quantities occurring due to site and / or requirements of design.

(iv) **Addition Alterations In Specifications & Designs:** The Chief Executive Officer shall have power to make any alteration in, omissions, from additions to, or substitutions for, the original specifications, drawings &instructions that may appear to him to be necessary or advisable during the progress of the works, and the contractor shall bound to carry out the work in accordance with any instructions which may be given to him to writing signed by the Engineer in Charge such alternations omissions additions or substitutions shall not invalidate the contract and any altered, additional of substituted work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out contractor on the same conditions in all respects on which he agree to do the main work & at the same rates as are specified in the tender for the main work, provided total value of such increased or altered or substituted work does not exceed 25% of the amount put on tender inclusive of contractor's percentage. If such value exceeds 25%, it shall be open to the contractor either to determine the contract or apply for extension.

33. BILL OF QUANTITIES

(i) The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning works to be done by the Contractor.

(ii) The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rates in the Bill of Quantities for each item

34. CHANGE IN QUANTITIES

(i) If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 per cent provided the change exceeds 1% of initial Contract Price, the Engineer shall

adjust the rate to allow for the change, duly considering

(a) justification for rate adjustment as furnished by the contractor,
(b) economies resulting from increase in quantities by way of reduced plant, equipment and overhead costs,
(c) entitlement of the contractor to compensation events where such events are caused by any additional work

The Engineer shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 per cent, except with the Prior approval of the Employer. If requested by the Engineer, the Contractor shall provide the Engineer with a detailed cost breakdown of any rate in the Bill of Quantities

35. PAYMENT FOR CHANGE IN QUANTITIES

(i) The Contractor shall provide the Engineer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Engineer. The Engineer shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Engineer and before the Variation is ordered.

(ii) If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Engineer, the quantity of work is above the limit stated in Sub Clause 35 (i) or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.

(iii) If the Contractor's quotation is unreasonable, the Engineer may order the Variation and make a change to the Contract Price which shall be based on Engineer's own forecast of the effects of the Variation on the Contractor's costs

(iv) If the Engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

(v) The Contractor shall not be entitled to additional payment for costs which could have been avoided by giving early warning

36. DAMAGES TO THE EXISTING INFRASTRUCTURE:

a) During the contract period (Construction and Operation and Maintenance), the bidder shall be responsible for any

damage caused to existing infrastructure like green area, trees, play equipment, pumps, pump room, compound wall, sewerage line, water pipelines, telephone lines, Electrical cables, OFC cables, Gas lines or any utility lines etc. Upon request from FSCL or by himself, the bidder shall restore the damaged works immediately at his own cost to the satisfaction of the FSCL.

b) During the Cosntrcution and O& M period, in case the bidder fails to repair the damages caused to existing infrastructure indicated in the above clause, the E in C shall have the damages repaired by other contractor or its staff or by any other means and deduct the actual amount incurred as per market rate plus 15 % extra for undertaking such works from the contractors bills. The delays caused due to inaction of the bidder on the above dmages will be considered for penalty equivalent to the sum indicated in the "Penalty clause" in the GCC of this document.

c) The contractor will inform in writing if any Heritage Structure/Tree is found in the work area. After receipt of written confirmation or instruction from FSCL the contractor will take suitable action.

d) In case of shifting or cutting of trees, prior permission has to obtain in writing from FSCL and all other relevant authorities.

e) If any utilities lines which are affecting the construction of Park then contractor shall inform in writing to FSCL. As per the instructions of E in C the contractor will shift the lines accordingly at their own cost.

37. OBLIGATION OF EMPLOYER :

(i) Upon request from the contractor, whatever relevant data available with the FSCL will be shared with the contractor.

(ii) All the approved construction drawings shall be provided by FSCL. No work shall be started without approved construction drawings.

(iii) Acquisition of land or removal of encroachment in the work area shall be the responsibility of FSCL. The bidder/contractor shall mobilize their team only after getting the clearance from FSCL.

38. EXECUTION OF WORK ACCORDING TO TIME SCHEDULE:

The work shall be done by the Bidder according to the time schedule (working hours, weekdays etc) fixed by the Engineer-In-Charge, FSCL. At no point of time, works during night shall not take place. Works shall not cause any inconvenience to the residents. In case of any complaints, the contractor shall inform the FSCL and as per instruction shall cease the works until further instructions from FSCL.

39. DESIGN AND CONSTRUCTION :

(i) The Bidder (s) cannot vary or deviate from the drawings or specifications or execute any extra work of any kind whatsoever unless upon the authority of Engineer-in-charge to be sufficiently shown by any order in writing by any plan or drawings expressly given and signed by him as extra or variation or by any subsequent written approval signed by him.

(ii) In cases of daily labor all vouchers for the same are to be delivered to the Engineer-in-charge or the officers-in-charge at least during the week following that in which the workmen have been engaged and only such day work is to be allowed for as such as may have been authorized by the Engineer-in-charge to be so done unless the work cannot from its character be properly measured and valued.

(iii) **Applicable Specifications :** As indicated in the Tender document, I.S.I. codes for buildings or special specifications whenever enclosed separately shall apply in the case of any variance the following order of precedence shall prevail.

a) Specifications as per NIT.

b) Specifications as per S.O.R.

c) Mode of measurements of work shall be as provided in the S.O.R. applicable to the contract. Where such mode of measurement is not specified in the S.O.R. it shall be done as per l.S.l. Code of building measurement. However if any mode of measurement is specifically mentioned in the N.l.T. (Tender-document) the same will get precedence over all the above.

(iv) **WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATION, DRAWING, ORDER, ETC.:** The contractor shall execute the whole and every part of work in the most substantial and workman like manner, and both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Engineer – in – charge and lodged in his office and to which the contractor shall be entitled to have access at such office or on the site of the work for the purpose of inspection during office hours and the contractor shall if he so requires be entitled at his own expense to take or cause to be made copies of the specifications, and of all such designs, drawings and instructions as aforesaid.

(v) In the case of any class of work for which there is no specification as is mentioned in Rule such work shall be carried out in accordance with the specification approved by CEO, FSCL for application to work.

(vi) The Engineer-in-charge has full power to require the removal from the premises of all materials which, in his opinion, are not in accordance with the specification and in case of default, the Engineer-in- charge is to be at liberty to employ other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-charge is also to have full power to substitute other improper materials to be substituted and in case of default, the Engineer-in-charge may cause the same to be supplied and all costs which may arise due to such removal and substitution are to be borne by the Bidder (s).

40. QUALITY ASSURANCE, MONITORING AND SUPERVISION :

(i) The Engineer-in-charge is to have at all times access to the works which are to be entirely under his control. He may require the Bidder(s) to dismiss any person in the Bidder (s) employ upon the works that may be incompetent or misconduct him and the Bidder (s) is/are forthwith to comply with such requirements.

(ii) Cubes shall be casted and tested for all concrete pour as per the relevant IS Standards.

(iii) Contractor shall submit mock samples and product literature of all materials (Material used in construction of Smart Park) & it have to be approved by FSCL before procuring the materials and Equipments.

(iv) All the materials have to be tested & necessary reports/ test certificated has to be submitted to FSCL before start of work.

(v) The cost of conducting all the tests which is required during the execution of contract or as instructed by E in C shall be borne by the contractor. All the required test has to be carried as per relevant IS Standard.

(vi) The Contractor has to strictly adhere to the instructions provided by the FSCL officials from time to time. The contractor shall rectify bad workmanship works within the stipulated time provided by the E in C. The E in C has the right to dismantle the works which according to him is not complying with the drawings and standards. The Contractor upon receiving such instruction shall either rectify the defect or dismantle the structure at his own cost.

(vii) The bidder has to arrange accredited 3rd party testing agency to meet the quality standard at his own cost. The frequency of Testing shall be as per the BIS or as indicated by the E in C.

(viii) The E in C has the right to reject the concrete or all other works that according to him is not complying the standards and specifications. The contractor upon receiving such instruction with no time shall stop concreting and discard the concrete at his own cost.

(ix) At any point of the contract period, In case the contractor does not obey the instructions of the E in C, the E In C has the authority to get the work/dismantled/ rectified by other contractors/workers. The cost of such work on actual amount incurred as per market rate plus 15 % extra amount will be deducted from the contractor's bill.

(x) **Inspection and Technical audit by the Authority :** The FSCL shall have the right to cause Audit and Technical Examination of the work and the final bills of the Bidder including all supporting voucher, abstract, etc. to be made as per payment of the final bill and if as a result of such Audit and Technical Examination the sum is found to have been overpaid in respect of any work done by the Bidder under contract or not to have been executed, the Bidder shall be liable for refund of the amount of over payment and it shall be lawful for the FSCL to recover the same from the security deposit of the Bidder or from any other dues payable to the Bidder. If it is found that the Bidder was paid lesser than what was due to him under the contract the amount of such under payment shall be duly paid by the FSCL, to the Bidder.

In the case of any audit examination and recovery consequent on the same, the Bidder shall be given an opportunity to explain his case and the decision of the Chief Executive Officer- FSCL shall be final.

In the case of Technical Audit, consequent on which there is a recovery from the Bidder no recovery should be made without orders of the Chief Executive Officer- FSCL whose decision shall be final. All action(s) under this clause should be initiated and intimated to the Bidder within a period of Twelve months from the date of completion of work.

(xi) **Work to be open for inspection-contractor or responsible agent to be present:** All work under or in course of execution or executed in pursuance of the contract shall at all time be open to the inspection and supervision of the Engineer-in-Charge and his subordinates and the contractor shall at all time during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his subordinate to visit the work shall have been given to the contractor, either himself be present to receive orders and instruction or have a responsible agent duly accredited in writing present for that purpose. Orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

(xii) Further, the Contractor shall ensure of having a knowledgeable Technical Engineer at site all times. The Engineer will be responsible for coordinating with the FSCL officials and his firm. The Contractor shall replace the Technical Staff

if he/she is found to incompetent by the FSCL officials.

(xiii) All works to be executed under the contract shall be executed under the direction and subject to the approval in all respect of the CEO, FSCL for the time being who shall be entitled to direct at what point or points and in what manner they are to commenced and from time to time carried on.

(xiv) Contractor should provide a Quality Assurance Plan (QAP) and have it approved by the FSCL .The cost of all material inspection within and outside the site shall be borne by the contractor. This includes cost of travel and accommodation of FSCL officials/Consultants for inspection outside the Site Premises.

(xv) FSCL reserve the rights to reject any materials which contractor shall procure without prior approval from FSCL. The cost of such rejected materials shall be bourn by Contractor

41. INSURANCE :

(i) **Insurance:** The bidder shall have a suitable insurance to cover all the risks that are likely to occur from the scope of services indicated in this project. The insurance shall cover FSCL, FSCL's Project Management Consultant staff, Users etc. Risks may include but are not limited to a) accidents b)Mal function of equipment/or machines c) casualties d) Safety e) Theft etc.

(ii) If the Contractor shall fail to effect and keep in force any of the insurances referred to in Clause 84 hereof, or any other insurance which he may be required to effect under the terms of the Contract, the Employer may in any such case effect and keep in force any such insurance and pay such premium as may be necessary for that purpose and from time to time deduct the amount so paid by the Employer as aforesaid from any monies due or which may become due to the Contractor, or recover the same as a debt due from the Contractor

42. DEFECTS LIABILITY PERIOD: The contractor shall be responsible for all the defects except usual wear and tear of this project for the period of two years from the date of issue of Completion certificate.

43. COST OF REMEDYING DEFECTS :

(i) At any point of the contract period, If in the opinion of the Engineer-in-charge any of the works, are executed with improper/Inferior materials or defective workmanship, the Bidder(s) is/are, when required by the Engineer-in-charge to re-execute the same forthwith and to substitute proper materials and workmanship, and in case of default of the Bidder(s) in doing so within a week, the Engineer-in-charge shall have full powers to employ other persons/agency to re-execute the work and the cost there of the actual amount incurred as per market rate plus 15 % extra amount shall be borne by the Bidder(s).

(ii) Any Defects, dying of plants/vegetation/grass/shrinkage or other faults which may appear within the contract period including O & M period arising out of defective or improper materials or workmanship or due to any other reason are, upon the direction of the Engineer-in-charge, to be amended and made good by the Bidder at his / their own cost unless the Engineer-in charge decides that he/they ought to be paid for the same and in case of default the Engineer-in-charge may recover from the Bidder (s) the cost of making good the works as per prevailing norms and specifications.

(iii) During the entire contract period including O & M period, the contractor shall maintain the grass green and coverage all the times. If it is found that the grass greenery is not maintained and it is found dry then cost grass plus 15 % extra shall be recovered from contractor

44. PENALTY CLAUSE FOR DELAY IN COMPLETION :

The Engineer-In-Charge have full power to recover penalty for Delay Period during both construction and operation and maintenance. The Penalty will be calculated @ 0.5% Per Week or Part thereof of value of works not completed. Total Penalty shall be limited to maximum to 5% of Agreement Amount for construction period and 5 % of amount of the operation and maintenance for the O & M period. Engineer-In-Charge will be fully responsible for recovery of Penalty. The timeline for completion and delays of maintenance shall be determined by the E In C.

45. TERMINATION :

(i) The Engineer-in-charge may terminate the contract if the Bidder causes a fundamental breach of the contract.. The fundamental breach of contract shall include, but not be limited to, the following: -

a) The Bidder stops work for four weeks, when no stoppage of work is shown on the current programme or the stoppage has not been authorized as by the Engineer-in-charge.

b) If serious rectification of bad / poor quality work is not done by the Bidder within 15 days from

1st notice issued to him by Engineer-in-charge might attract termination of the agreement and whole performance guarantee will be forfeited.

c) If the Bidder fails to appoint the technical staff and if appointed do not function properly for 4 weeks even after due

written notice by the Engineer-in charge.

d) If he violates labour laws.

e) Any other deficiency which goes to the root of the contract Performance

(ii) If the contract is terminated, the Bidder shall stop work immediately, make the site safe and secure and leave the site as soon as reasonably possible.

(iii) The Engineer - in - charge shall cause recording and checking of measurements of all items of work done (taking in to account quality and quantity of items actually executed) and prepare the final bill after adjusting all pervious outstanding dues. Such recording of measurements shall be done after due notice regarding time and date of recording measurement and directing the Bidder to either remain present himself or his authorized representative so as to satisfy himself that the recording of measurement is just and proper. Failure on his parts either to attend and or refusing to acknowledge the measurement so recorded in the department measurement book, shall be at his sole risk and responsibility.

46. SUBMISSION OF BILL :

(i) **Bill To Be Submitted Monthly:** "A bill shall be submitted by the contractor by 3rd day of each month for all works executed by him till the end of previous month less the gross amount received by him till the last previous month. This bill must be supported by records of detail measurement of quantities of all executed item of work along with true copies of record and result of all test conducted in the previous month (date wise). The C.E.O shall take or cause to be taken the requisite measurement for purpose of having the same verified/checked by the his authorized Engineer/Representative concern (if any) for quantity, quality and specification and examining all the "test results" and record the same in the Departmental measurement book. Based on above record measurement bill shall be corrected /prepared afresh. The contractor shall sign the measurement and the bill.

If the contractor fails to submit, the bill on or before the day prescribed, the Engineer in Charge after waiting for another 15 days shall depute a subordinate to measure the said work in the presence of contractor and or his authorized Engineer/Representative, whose counter signature to the measurement recorded with quantity and quality remark will be sufficient proof for acceptance of the same and shall be binding on the contractor.

All such running bill payments arc by way of "Advances" and shall be subject to final adjustment.

Bills to be submitted for Maintenance: The Bidder shall submit the maintenance running bill every three months (quarter). The bill amount would be the amount quoted by the bidder for that year and interpolated for the quarter.

Payment for the O & M shall be made upon issue of satisfactory completion certificate for that period by the E in C.

(ii) **Bill To Be On Printed Forms:** The contractor shall submit all bills on printed forms to FSCL account, and the charges in the bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender at the rates hereinafter provided for such work. The deduction or addition as the case may be of the percentage will be calculated on the amount of the bill for the work done, after deducting the cost of materials supplied departmentally at rates specified in the agreement.

47. PAYMENT :

(i) The Bidder(s) shall be paid as per the payment schedule.

(ii) A certificate of the Engineer - in - charge or Authorised person by FSCL as the case may be, showing the final balance due or payable for the Bidder(s) is to be conclusive evidence of the works / having been duly completed and that the Bidder(s) is/are entitled to receive payment of the final balance but without prejudice to the liability of the Bidder(s) under provisions of clause.

(iii) **Mobilization Advance** : No Mobilization advance shall be paid to the bidder.

(iv) **Bank Commission Charges:** Bank commission charges in all payments by demand drafts shall be borne by Bidder.

(v) **Payment Of Intermediate Certificate To Be Regarded As Advances:** Intermediate payment during the course of execution of works if considered desirable in the interest of work, can be made on monthly basis, on the recommendation of Engineer In charge, in such a way that in his opinion, it reflects the amounts due to the Contractor in accordance with the contract, after deduction of any sums which may have become due and payable by the contractor to the employer. In cases where there is a difference of opinion as to the value of any item, the Engineer's view shall prevail. Within the 14th day of the receipt of the monthly bill, the Engineer shall determine the amounts due to the contractor and shall deliver to the Employer and the contractor an Interim Payment Certificate, certifying the amounts due to the contractor.

(vi) But all such intermediate payments shall be regarded as payments by way of advance against the final payment for

works actually done and completed and shall not preclude the requiring of bad unsound and imperfect or unskillful work to be removed and taken away and reconstructed or erected or be considered as admission of the due performance of the contract or any such part thereof, in any respect, or the accruing of any claim, nor shall it conclude determine, or affect in any way the powers of the employer under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for completion of the work, otherwise the Engineer-in charge's certificate of the measurement and of the total amount payable for work accordingly shall be final and binding on all parties.

(vii) Receipts for payments made on account of a work when executed by a firm must also be signed by the several partners, except where the contractors are described in their tender as a firm/ proprietor in which case the receipt must be signed in the name of-the firm by one of the partners, or by some other person having authority to give effectual receipt for the firm.

48. ARBITRATION CLAUSE:

Except as otherwise provided in this contract all question and dispute relating to the meaning of the specification, designs, drawings and instruction herein before mentioned as to thing whatsoever in any way arising out of or relating to the contract designs, drawings, specification, estimate, concerning the works, or the execution or failure to execute the same, whether arising during the progress of the work, or a after the abandonment there of shall be referred to the TA -FSCL for his/her decision, within a period of 30 (thirty) days of such an occurrence (s). There upon the TA-FSCL shall give his written instructions and/or decisions, after hearing the contractor and Engineer in Charge within a period of 15 (fifteen) days of such request. This period can be extended by mutual consent of parties. Upon receipt of written instructions or decisions, of TA - FSCL the parties shall promptly proceed without delay to comply such instructions or decisions. If the TA-FSCL fails to give his instruction or decisions in writing within a period of 15 (fifteen) days or mutually agreed time after being requested and/or, if the party (es) is/are aggrieved against the decision of TA-FSCL, the aggrieved party may within 30 days prefer an appeal to the Chief Executive Officer -FSCL, who shall afford an opportunity to the parties of being heard and to offer evidence in support of his appeal. The, Chief Executive Officer, will give his decision within 30 (thirty) days, or such, mutually agreed period. If any party is not satisfied with the decision of the Chief Executive Officer, he can file a petition for resolving the dispute through arbitration in the arbitration tribunal. A reference to Arbitration Tribunal shall be no ground for not continuing the work on the part of the Contractor. Payment as per original terms and condition of the agreement shall be continued by the Engineer in Charge.

49. DEATH OR PERMANENT INVALIDITY OF BIDDER: - if the Bidder is an individual or a proprietary concern or a partnership concern, dies during the currency of the contract or becomes permanently incapacitated, and where the surviving partners are only minors, the contract shall be closed without levying any damages/ compensation as provided in the contract agreement. However, if competent authority is satisfied about the competence of the surviving Partner[s], then the competent authority Engineer - in - charge shall enter into a fresh agreement for the remaining work strictly on the same terms and condition under which the contract was awarded.

50. FSCL reserves the right to accept or reject any Tenders or all tender at any time prior to the Award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the FSCL action.

51. SUBLETTING OF WORKS:

The contract may be rescinded & security deposit forfeited, for subletting, bribing or if contractor become insolvent.

The contract shall not be assigned are sublet without the written approval of the Engineer in Charge, & if the contractor shall assigns or sublet his contract, or attempt, so to do, or become insolvent commence any insolvency proceeding for make any composition with his creditors, or attempt so to do or if any bribe, gratuity, gift, loan, perquisite , regard of advantage pecuniary or otherwise shall either directly or indirectly be given, promised or offered by the contractor, or any of his servants, or agents to any public office or person in the employ of Authority in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in shall contract, the Engineer in Charge may there up by notice in writing record the contract, & the S.D. of the contractor shall be there upon stand forfeited & be absolutely at the disposal of Authority, & the same consequence shall ensure as if the contract had been rescinded under clause 6 hereof , & in addition the contract shall not be entitled to recovered or be paid for any work there to fore actually per firmed under the contract.

If the contractor gets item/items of work accepted on a task rate basis with or without materials, this shall not amount to sub-letting of the contract.

Sum payable by way for compensation to be considered as reasonable compensation without reference to actual loss.

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of FSCL without reference to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

52. TAXES, ROYALTY, ETC.:

[a] Taxes: The rate quoted by the Bidder **shall include Goods and Service Tax component.** The quoted rate shall therefore be including the **Goods and Service Tax** and other taxes such as sales and other levies, duties, royalties, cess, toll, taxes of Central and State Governments, local bodies and authorities that the Bidder will have to pay for the performance of this Contract. The FSCL will perform such duties in regard to the deduction of such taxes at source as per applicable law. Any payment claimed by the Bidder due to any change[s] in the existing tax structure shall not be entertained by the FSCL Deposit/remittance of Goods and Service Tax in government treasury within stipulated time shall be sole responsibility of the contractor and failing to which FSCL may recover the due amont from any other payable dues with FSCL. The decision of competent authority shall be final and binding on the contractor in this regard.

[b] Royalty on Minor Minerals: The Bidder shall pay all quarries, Royalty charges etc. If the Bidder fails to produce the royalty clearance certificate from concerned department then the Executive Engineer shall deduct the royalty charges from his bills and keep in deposit head, which shall be refunded to the Bidder on production of royalty clearance certificate from the concerned department. If he fails to produce the royalty clearance certificate within 30 days of submission of final bill, then royalty charges which were kept under deposit head by the Executive Engineer shall be deposited to the concerned department and his final bill payment shall be released.

In all cases where change[s] in the royalty rates of minor minerals are notified by the state government after the date of submission of financial offer by the bidder/ Bidder the same shall be not reimbursed.

[c] Income tax at the rate of 2% or such other percentage as may be fixed by income tax department from time to time from any sum payable to the Bidder shall, at the time of credit of such sum or at the time of payment to the Bidder by cash, cheque or draft or any other mode, shall be deducted at the source from the running, final or any type of payment for this contract as per section 194 of income tax Act. 1961.

[d] Labour Welfare Cess at the rate of 1% or such other percentage as may be fixed by Labour department Government of Haryana from time to time from any sum payable to the Bidder shall, at the time of credit of such sum or at the time of payment to the Bidder by cash / cheque or draft or any other mode, shall be deducted at the source from the running, final or any type of payment for this contract as per Labour Act.

[e] It is open to the Bidder, as the case may be; to make an application to the Income Tax officer concerned and obtain from him a certificate authorizing the payer to deduct tax at such lower rate or deduct no tax as may be appropriate to his case. Such certificate will be valid for the period specified therein unless it is cancelled by the income Tax Officer earlier.

53. MODEL RULES FOR WATER SUPPLY, SANITATION IN LABOUR CAMPS:

The Bidder will be bound to follow the Haryana model rules relating to layout of water supply and sanitation in labour camps (Vide Annexure-A).

54. FAIR WAGES TO LABOURERS:

The Bidder shall pay not less than minimum wages as described in the Labour Acts & Laws to labourers engaged by him on the work. (Copy of rules enclosed vide Annexure-B).

55. RIGHT TO TAKE UP WORK DEPARTMENTALLY OR TO AWARD ON CONTRACT: The Chief Executive Officer, FSCL reserves the right to take up departmental work or to award works on contract in the vicinity without prejudice to the terms of contract.

56. ISSUE OF MATERIALS BY THE DEPARTMENT:

No Materials shall be supplied by the FSCL. So far as supply of cement and steel (TMT Bars) and other materials is concerned these has to be arranged by the Bidder himself at his own cost and the conditions given in the Annexure-E shall prevail.

57. REMOVAL OF UNSUITABLE OR UNDESIRABLE EMPLOYEES OF BIDDER:

The Bidder shall, on receipt or the requisition form the Engineer-in-charge at once remove any person employed by him on the work who in the opinion of Engineer-in-charge is unsuitable or undesirable.

58. RECOVERY OF AMOUNT BY FSCL FROM BIDDER:

Any amount due to FSCL from the Bidder on any account, concerning work may be recovered from him as arrear of land revenue and/or from payment due to him in any of the Govt. / Semi Government Department.

59. MISCELLANEOUS :

(i) FSCL shall provide the source of water. The contractor has to make his own arrangement for distribution of water Like hosing, pipe laying in the park etc at their own cost. The O & M cost which will be paid to the contractor shall be inclusive of all such costs.

(ii) The Electric charges for running the construction equipment(s) during the contract including O & M period shall be bourn by contractor. FSCL shall provide only the source of Power. In case power failure, Contractor shall make alternate arrangement for supply of Power at their own cost.

(iii) The bidder shall arrange at his own cost tools and plants required for proper execution of work during the Contract period which includes construction and operation and Maintenance period.

(iv) The contractor should submit the Site Layout plan indicating the location of the Labour Camp, Store House, Site Laboratory if any etc and have it approved by FSCL.

(v) All work materials brought and left upon the ground by the Bidder(s) or his/their orders for the purpose of forming part of the works are to be considered to be the property of the FSCL and the same are not to be removed or taken away by the Bidder's or any other person without the special license and consent in writing of the Engineer-in-charge but the FSCL is not to be in any way answerable for any loss or damage which may happen to or in respect of any such work or materials either by the same being lost or stolen or injured by weather or otherwise.

(vi) From the Commencement of the work to the completion of the contract, the site there upon are to be under the Bidder(s) charge. The Bidder (s) is/are to be held responsible for and to make good all injuries, damages and repairs occasioned or rendered necessary to the same by fire or other causes and they are to hold the FSCL harmless from any claims for injuries to persons or for structural damage to property happening from any neglect, default, want of proper care or misconduct on the part of the Bidder(s) or of any one in his/their employment during the execution of the works.

(vii) The Bidders is / are to provide everything of every sort and kind (with the exception noted in the schedule attached) which may be necessary and requisite for the due and proper execution of the several works included in the contract according to the true intent and meaning of the drawings and specifications taken together, which are to be signed by the Engineer in Charge, FSCL, (herein after called the Engineer-In-Charge) and the Bidder whether the same may not be particularly described in the specifications or shown on the drawings, provided that the same are reasonably and obviously to be inferred there from and in case of any discrepancy between the drawings and the specifications the Engineer-In-Charge which shall prevail.

(viii) The authority competent to accept a tender reserves the right of accepting the tender for the whole work or for distinct part of it or of distributing the work between one or more Bidders.

(ix)If the total duration of suspension of the work is more than the six months, then this suspension of the work will be considered as permanent stoppage of the work, and the contractor can determine the contract, if he so desires**.**

(x) The contractor shall protect all the existing electric poles and will cordon the work area. They will take all proper safety protection and measures while working for the scope indicated in this tender.

(xi) All soft and hard copies of the construction plans submitted by Bidders shall be property of FSCL & FSCL has all power to choose & adopt any construction plans submitted by all Bidders.

(xii) Existing tower inside the park which has been used for communication has to be protected. The contractor shall take care of all electric lines, OFC cable, telephone lines etc connected to tower so that it should not get disturbed. In case of any disturbance caused due to construction activities then contractor shall rectify the same at his own cost on priority basis so that it should not cause any inconvenience to the public.

(xiii) The bidder shall make the plan for activities of Construction, Operation and Maintenance in such a way that it should not stop the existing operations of park (i.e. including but not limited to movement of residents surrounding the parks, movement of vehicles near park, etc) and should not cause any inconvenience to the public and residents living near by the proposed park.

(xiv) In case of damage /break down of Pump, contractor has to repair the Pump at their own cost. During the break down period the contractor has to make alternate arrangement for supply of water through tanker in the park at their own cost.

60. Increase or Decrease of work specified: The competent authority reserves the right to increase or decrease any work specified within lump sum during the currency of the contract and Bidder will be bound to comply with the order of the competent authority.

61. Canvassing or support for acceptance of tender: Canvassing or support in any form for the acceptance of any tender is strictly prohibited. Any Bidder doing so will render him liable to penalties which may include removal of his name from

the register of approved Bidders.

62. **List of persons employed by Bidder**: Bidder shall not be permitted to tender for works in the FSCL who's near relative is posted as Assistant Engineer or above capacity. A list showing the names of the persons who are working with the Bidder and are near relatives to any officer in the FSCL should also be appended to the tender. The Bidder should also intimate to the Engineer-In-Charge the names of subsequently employed persons who are near relatives of any officer in FSCL. Any breach of this condition by the Bidder would render him liable to be removed from the bidding process.

63. **Validity of Offer:** Tenders shall remain open up to **180 days** from the prescribed date of opening of tenders. However, In the event of the Bidder withdrawing the offer before the aforesaid dates for any reason whatsoever, Earnest money deposited with the tender shall be forfeited.

In the event of Bidder withdrawing his/her offer before the expiry of the period of validity of offer or failing to execute the contract agreement he/she not be entitled to tender for this work in the case of recall of tenders in addition to forfeiture of his/her earnest money as may be applicable for the work. If the Bidder has committed a similar default on an earlier occasion as well, his/her registration in the department may be suspended temporarily for a period of 6 months from such date as may be ordered by the authority which had registered him/her.

64. **FORCE MAJEURE:** Should failure in performance of any part of this contract arise from war, insurrection, restraint imposed by FSCL, act of Legislature or other authority, stoppage of hindrance in the supply of raw materials, or fuel, explosion, accident, strike, riot, lockout, or other disorganization, of labour or transport, breakdown of machine, flood, fire act of God, or any inevitable or unforeseen event beyond human control directly or indirectly interfering with the supply of stores or from any cause which may be a reasonable ground for an extension of time, the competent authority will allow such additional time as he considers to be justified in the circumstances of the case. No compensation will be payable to the Bidder for any loss incurred by him due to these reasons.

65. Each Bidder shall supply the name, residence and place of business of the person or persons submitting the tender and shall be signed by the Bidder with his usual signature. When tender is submitted by partnerships the full names of all partners shall be furnished. An attested copy of the constitution of the firm and the registration number of the firm shall be furnished. In such a case, the tender must be signed separately by each partner thereof or in the event of the absence of any partner it must signed on his behalf by a person holding a power of attorney authorizing him to do so. Tenders by a company /corporation shall be signed with the legal name of the company/corporation followed by the name of the state of incorporation and by signature and by designation of the president, secretary or other persons authorized to bind it in the matter.

66. **TECHNICAL KNOWLEDGE AND STAFF:** The tender shall be submitted with an Information that the Bidder has successfully carried out similar works of this nature and has adequate organization, machinery and experienced personnel to handle jobs of this type and magnitude.

67. A brief description of similar works previously executed by Bidder: After the tender has been opened any Bidder may be required to submit detailed particulars of such works along with manner of their execution and any other information that will satisfy the officer receiving the tender that the Bidder has adequate organization, Including experienced personnel to execute vigorously the work to be carried out as per these specifications.

(a) The Bidder shall employ adequate Construction Managers, Graduate Engineers & Diploma Engineers as Technical Staff during the execution of the work.

(b) The Technical Staff should be available at site and take instructions from the Engineer-in-Charge or other supervisory staff including PMC.

(c) In case the Bidder fails to employ the technical staff as aforesaid, the Engineer-In-Charge shall have the right to take suitable remedial measures.

(d) The Bidder shall give the names and other details of the graduate engineer / diploma engineer to whom he intends to employ or who is under employment with him, at the time of agreement and also give his curriculum vita.

(e) The Bidder shall give a certificate to the effect that the graduate engineer / diploma engineer is exclusively in his employment.

(f) A Retired Assistant Engineer who is holding a diploma may be treated at par with a Graduate Engineer for the operation of the above clause.

Note: - Such Degree or Diploma engineer must always be available on works site on day to day basis and actively supervise, instruct and guide the Bidder's works force and also receive instruction form the Departmental Engineers / Sub engineers. In case the Bidder fails to employ the required technical staff or fails to employ technical staff / personnel as submitted by the Bidder in Prequalification documents and or the technical staff/personnel so employed are generally

not available on work site and or do not receive or comply the instructions of the Departmental Engineers, the Engineer-In-Charge shall recover / deduct from his bills as directed by the Engineer – In charge.

68. The tender documents have to be completed and submitted with all the documents required in the tender notice. Following is the summary of the documents required to be submitted with the completed tender form.

[a] Name, residence and place of business etc.

[b] Details of contracts already held by the Bidder.

[c] Attested copy of the constitution of firm and power of attorney.

[d] A declaration that there has been no conviction imprisonment for an offence involving moral turpitude.

[e] Declaration and description.

69. **Registration with Labor Department:** As per rule 1976 rule-21 (Form-4) or applicable laws, the successful Bidder shall submit the Labor registration Certificate after issuing the work order and prior to the Commencement of work.

70. **INDEMNIFY:** The bidder shall indemnify the FSCL and its Project Management Consultant staff on all accounts from all aspects while performing the scope of services of this project.

71. **EXTENSION OF TIME**

(i) If the contractor shall desire an extensions of time for completions of work on the ground of his having been "UNAVOIDABLY" hindered or on compensation event(s) or on any other ground(s), he must apply giving all and complete details of such hindrances and/or compensation event(s) and/or other cause(s) in writing, to the Chief Executive Officer, through Engineer In charge positively within 15 (Fifteen) days of occurrence of such hindrance(s)/compensation event(s)/other cause(s) and seek specific extension of time (period from…… to…….).

If in the opinion of Engineer in Charge, such reasonable grounds are shown, the Engineer-in-charge shall himself grant extension of time, if the extension of time sought by the contractor is for one month or 10% (ten percent) of the stipulated period of completion, whichever is more. If the extension of time sought is more than above period mentioned, then the Engineer in Charge shall refer the case to the CEO, FSCL with his recommendation and only after his decision in this regard, the Engineer in Charge shall sanction extension of such time as decided by the CEO, FSCL.

Once the Chief Executive Officer, FSCL has decided the case of extension of time with reference to the particular application of the contractor, it will not be competent for them to review/change such a decision later on. However, the Chief Executive Officer , FSCL shall give the contractor an opportunity to be heard (orally and or in writing), before taking any final decision either of granting extension of time or permitting the contractor to complete the work by the delayed date or before refusing both.

Provided further where the Engineer In charge has recommended grant of extension of particular time contract or has refused to recommend extension of time but has recommended permitting the contractor for delayed completion, the contractor shall continue with the work till the final decision by Chief Executive Officer, FSCL.

Failure on the part of the contractor for not applying extension of time even within 30 days of the cause of such an hindrance, it shall be deemed that the contractor docs not desire extension of time and that he has "Waived" his right if any to claim extension of time for such cause of hindrance.

(ii) **EXTENSION OF TIME IN CONSEQUENCE OF ALTERATIONS:** The time for the completion of the work shall be extended in the proportion that the altered, additional or substituted work bear to the original contractor's work and certificate of the Engineer in Charge shall be conclusive as to such proportion.

(iii) **Compensation Events for consideration of extension of time without penalty**:

The following mutually agreed Compensation Events unless they are caused by the contractor would be applicable;

a) The Chief Executive Officer FSCL does not give access to a part of the site.

b) The Chief Executive Officer FSCL modifies the schedule of other contractor in a way, which affects the work of the contractor under the contract.

c) The Chief Executive Officer FSCL orders a delay or does not issue drawings, specification or instructions / decisions/approval required for execution of works on time.

d) The Chief Executive Officer, FSCL instructs the contractor to uncover or to carry out additional tests upon work, which is then found to have no defects.

e) The Chief Executive Officer FSCL gives an instruction for additional work required for safety or other reasons.

f) The advance payment and or payment of running bills (complete in all respect) are delayed.

g) The Chief Executive Officer, FSCL unreasonably delays issuing a Certificate of Completion.

h) Other compensation events mentioned- in contract if any.

72. FINAL CERTIFICATE:

On completion of the work the contractor shall be furnished with a certificate by the C.E.O, FSCL as per completion-report of the Engineer-in-charge, of such completion in the form appended at the end, but no such certificate shall be given, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the works shall be executed, all scaffolding surplus materials and rubbish, and cleaned off the dirt from all wood-work, doors windows walls, floors or other parts of any building in upon or about which the work is to be executed or of which he may have had possession for the purpose of the execution there of nor until the work; shall have been measured by the Engineer-in-charge whose measurement shall be binding and conclusive against the contractor. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding surplus materials and rubbish and cleaning of dirt on or before the date fixed for the completion of the work, the Engineer-in-charge may, at the expense of the contractor remove such scaffolding, surplus materials and rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid and the contractor shall forthwith pay the amount of all expenses so incurred, and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid, except for any sum actually realized by the sale thereof.

73. PRICE ESCALATION

No escalation (whatsoever) will be paid for entire contract period including extension period if provided.

74. RATES FOR WORKS NOT IN SCHEDULE OF RATES:

And if the altered, additional or substituted work includes any class of work, for which no rate is specified in this contract, then such classes of the work shall carried out at the rates entered in the applicable schedule of rates which was in force on the date of tender provided that when the tender for the original work as a percentage below/above the schedule of rates, the altered, additional or substituted work required as aforesaid shall be chargeable at the said schedule of rate minus/plus the same percentage deduction, addition and such class of work is not entered in & arrange to carry in out in such manner as may be considered advisable provided always & if the contractor shall commence work or incur any expenditure in regard thereto before the rates shall have been determined as lastly herein before mentioned than & In such case he shall only be entitled to the paid in respect of the work carried to such rate or rates be fixed by the Chief Executive Officer in the event of a dispute the decision of the Chief Executive Officer, shall be final.

If the contractor commence non-schedule work or incur expenditure in regard there to before the rates shall have been determine by the Chief Executive Officer than he shall be entitled for payment for the work done as may be finally decided by the Chief Executive Officer. In the event of dispute, the decision of the Chief Executive Officer shall be final.

75. CLAIM OR COMPENSATION :

(i) **Claims for compensation for delay in starting the work** :No compensation shall be allowed for any delay caused in the starting on the work on account of acquisition of land, or in the case of clearance work, on account of any delay in according sanction to estimates.

(ii) Quantities shown in the tender are approximate and no claim shall be entertained for quantities of work executed being either more or less than those entered in the tender of estimate.

(iii) **No claim to any payment or compensation for alteration in or restriction of works:** If at any time after the execution of the contract documents, the Engineer – in – Charge shall for any reason whatsoever require the whole or any part of the work as specified in the tender to be stopped for any period or shall not require the whole or part of the work to be carried out at all or to be carried out by the contractor he shall give notice in writing of the fact to the contractor who shall thereupon suspend or stop the work totally or partially, as the case may be.

If

any such case, except as provided hereunder, the contractor shall have no claim to any payment or compensation what so ever on account of any profit or advantage which he might have derived from the execution of the work in full, but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put to on account of materials purchased or for unemployment of labor recruited by him. He shall not also have any claim for compensation by reason of any alteration having been made in the original specifications, drawing, designs and instructions, which may involve any curtailment of the work as originally contemplated. Where, however, materials have already been purchased or agreed to be purchased by the contractor shall be paid for such materials at the rates determined by the Engineer-in-charge, provided they are not in excess of requirement and of approved quality and / or shall be compensated for the loss, if any that he may be put to, in respect

of materials agreed to be purchased by him, the amount of such compensation to be determined by the CEO whose decision shall be final. If the contractor suffers any loss on account of his having to pay labor charges during the period during which the stoppage of work has been ordered under this clause, the contractor shall, on application be entitled to such compensation on account of labor charges as the CEO, whose decision shall be final, may consider reasonable provided that the contractor shall not be entitled to any compensation on account of labor charges, if in the opinion of the Engineer – in – charge, the labor could have been employed by the contractor elsewhere for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid.

76. ACTION AND COMPENSATION :

(i) **Action and compensation payable in case of bad work** : If at any time before the security deposit is refunded to the contractor, it shall appear to the Engineer – in – charge or his subordinate in charge of the work, that any work has been executed with unsound, imperfect or unskillful workmanship or with material of inferior quality or that any materials or articles provided by him for the execution of the work are unsound, or of a quality inferior to that contracted for, or are otherwise not in accordance with the contract, it shall be lawful for the Engineer – in – charge to intimate this fact in writing to the contractor and then notwithstanding the work, materials or articles complained of may have been Inadvertently passed, certified and paid for contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require, or if so required, shall remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost, and in the event of his failing to do so with in a period to be specified by the Engineer – in – charge in the written intimation aforesaid ,the contractor shall be liable to pay compensation at the rate of one percent on the amount of contract put to tender every day not exceeding ten percent, during which the failure so, continues and in the case of any such failure the Engineer – in – charge may rectify or remove and, re-execute the work or remove and replace the materials or articles complained of as the case may be at the risk and expense in all respects of the contractor. Should the Engineer-in-charge consider that any such inferior work or materials as described above may be accepted or made use of it shall be within his discretion to accept to the same at such reduced rates as he may fix therefore. This shall be exclusive of, and will be in addition to any action being taken under other clause of the contract.

(ii) In any case in which under any clause or this contract the Bidder shall have renders himself liable to pay compensation amounting to the whole of the security deposit (whether paid in one sum or deducted by installments) or committed a breach of any terms in Fair Wages or in the case of delays beyond three months or in case of abandonment of the work owing to the serious illness or death of the Bidder or any other cause, Engineer-In-Charge on behalf of the FSCL shall have power to adopt anyone of the following courses, as he may deem best suited to the interest of the Board.

(a) The rescind of contract, (of which recession notice in writing to the Bidder under the hand of the Engineer-In-Charge shall be conclusive evidence) and in which case the security deposit of the Bidder shall stand forfeited and be absolutely at the disposal of the Board.

(b) To employ labour paid by the FSCL or by employing FSCL machinery and to supply materials to carry out work, or any part of the work, debiting the Bidder with the cost of the labour or hire charge of FSCL machinery and the price of the materials (of the amount of which cost and price, a certificate of the Engineer-In-Charge shall be final and conclusive against the Bidder) and crediting him with the value of the work done, in all respects in the same manner and the same rates as it had been carried out by the Bidder under the terms of this contract or the cost of the labour and the price of the materials as certified by the Engineer-In-Charge whichever is less the certificate of the Engineer-In-Charge as to the value of the work done shall be final and conclusive against the Bidder. This does not qualify the Bidder to any refund if the work is carried out at lower rates than the rates quoted by the Bidder. Saving, if any, will go to the Board.

(c) To measure up the work of Bidder and to take such part thereof as shall be unexecuted out of his hands and to give it to another Bidder to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original Bidder if the whole work had been executed by him (of the amount of which excess certificate in writing or the Engineer-In- Charge shall be final and conclusive) shall be borne and paid by the original Bidder and may be deducted from any money due to him by FSCL under the contract or otherwise or from his security deposit or the proceeds of sale thereof or a sufficient part thereof. The same provision of recovery of the difference amount will apply in case of failure in compliance on part of the Bidder to execute the work or part of the work as per work and time schedule. Engineer-In-Charge will have the right to decide as to which work or which part of work / item is to be put in fresh tender in case of failure in execution as the part of the Bidder.

(d) In the event of any of the above courses being adopted by the Engineer-In- Charge, the Bidder shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any agreement or made advances on account of or with a view to the execution of the work or the performance of the contract. And in case the contract shall be rescind under the provisions aforesaid, the Bidder shall not be entitled to recover or to be paid any sum for any work thereof actually performed under this contract, unless and

until the Engineer-In- Charge will have certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

(iii) **Notice to be given before work is covered up:**The contractor shall give not less than five day notice in writing to the Engineer–in–charge or his subordinate in charge of the work before covering tip or otherwise placing beyond the reach of measurement any work in order that the same may be measured, and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement, any work without the consent in writing of the Engineer-in charge or his subordinate in charge of the work and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the contractors expenses, or in default thereof, no payment or allowance shall be made for such work or the materials with which the same was executed.

77. LIABILITY AND INDEMNITY :

(i) **Contractor Liable For Damage Done And For Imperfections After Certificate Of Completion :**If the contractor or his work people or servants shall break, deface injure or destroy any part of infrastructure in which they may be working or any building, road, road curbs, fences, enclosures, water pipes, cables drains, electric or telephone posts or Wires trees grass or grassland or cultivated ground continuous to the premises on which the work or any part of it is being executed, or if any damage shall happen to the work while in progress, from any cause whatever, or any imperfections become apparent ,the contractor shall make good the same at his own expense or in default, the CEO may cause the same to be made good by other workmen and deduct the expense of which certificate of the Engineer-in charge shall be final) from any sums that may be then or at any time thereafter, may become due to the contractor or from his security deposits, or the proceeds of sale thereof or of a sufficient portion thereof.

78.

COMPENSATION UNDER SECTION 12 SUB-SECTION (1) OF THE WORKMAN'S COMPENSATION ACT 1923:

In every case in which by virtue of the provisions of section 12 sub-section (1) of the workman's compensation Act 1923 FSCL is obliged to pay compensation to a workman employed by the contractor in execution of the works, CEO, FSCL will recover from the contractor the amount of compensation so paid and without prejudice to the rights of FSCL under section (1) sub-section (2) of the said Act. CEO, FSCL shall be at liberty to recover the amount or any part thereof by deducting it from the security deposit or from any sum due by FSCL to the contractor whether under this contract or otherwise. FSCL may not be bound, to contest any claim made against them under section - 12 subsections (1) of the said Act except on the written request of the contractor and upon his giving to FSCL full security for all cases for which FSCL might become liable in consequence contesting such claim.

79. CHANGE IN THE CONSTITUTION OF FIRM:

In the case of tender by partners any change in the constitution of the firm shall be forthwith notified by the contractor to the CEO for his information, and contractor shall initiate steps for fresh & new registration which shall be assessed & decided by the competent authority for fresh registration.

80. EMPLOYMENT OF SCARCITY LABOUR:

If FSCL declare a state of Scarcity or famine to exist in any village situated within sixteen kilometers of the work the contractor, shall employ upon such parts of the work as are suitable for unskilled labor, any person certified to him by the CEO FSCL or by any person to whom the CEO FSCL may have delegated this duty in writing to be in need of relief and shall be bound to pay to such persons wages not below the minimum which FSCL may have fixed in this behalf. Any dispute, which may arise in connection with the implementation of this clause, shall be decided by the FSCL whose decision shall be final and binding on the contractor

81. PENALTY FOR BREACH OF CONTRACT:

On the breach of any term or condition of this contract by the contractor the said CEO, FSCL shall be entitled to forfeit the Security deposit or the balance thereof that may at the time be remaining, and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of the CEO to recover further sums as damages from any sums due or which may become due to the contractor By FSCL or otherwise howsoever.

82. JURISDICTION : All disputes or claim arising out of this contract shall be subject to the jurisdiction of courts in Faridabad, Haryana.

SECTION 6: SPECIAL CONDITIONS OF CONTRACT

6.1 **General:** The special conditions are supplementary instructions to the tenders and shall form part of the contract.

6.2 Drawing: All Drawings/Layout plans given in Section 7 are for reference or guidance purpose only. The Bidder will submit the detailed construction plan of construction of Smart Park within 15 days from date of issuing work order or Agreement whichever is earlier. The same shall be reviewed and approved by Engineer – In charge of FSCL or through other agency approved by FSCL. This 15 days period is included in stipulated time for construction. Construction of Smart Park shall be carried out as per the approved drawings provided by FSCL.

6.3 **Data to be furnished by the Bidder:** The Bidder shall submit the following information to the Engineer-in-charge.

6.4 Proposed constructions Programme and time schedule showing sequence of operations within **15 days** of receipt of notice to proceed with the work in pursuance of the conditions of contract.

6.5 **Action when the progress of any item of work is unsatisfactory:** If the progress of a item of work during construction, which is important for timely completion of work is unsatisfactory, the Engineer-in-charge shall not withstanding that the general progress of work is satisfactory, after giving the Bidder **15 days'** notice in writing get the said work executed by employing other means including other labour / Bidder etc. and the Bidder will have no claim for compensation for any loss sustained by him owing to such action.

6.6 In case if any of the works under this contract are found unsatisfactorily by the Engineer in charge, the E in C shall either request the bidder to rectify the defect immediately or at his discretion may have it done by others (vendor or contractor) and deduct the actual amount incurred as per market rate plus 15 % extra incurred in such works from the bidders.

6.7 **Inspection and Tests:** Except as otherwise provided in here of all material and workmanship if not otherwise designated by the specifications shall be subject to inspection, examination and test by the Engineer-in-Charge at any and all times during manufacture and/or construction and at any/all places where such manufacture or constructions are carried on. The Engineer-in charge shall have the right to reject defective materials and workmanship or require its corrections. Rejected workmanship shall be satisfactorily replaced with the proper material without charge thereof and the Bidder shall properly segregate and remove the rejected material from the premises. If the Bidder fails to proceed at once with the replacement of the rejected material and/or the construction of defective workmanship the Engineer-in charge may replace such material and/or correct such workmanship and charge the cost thereof to the Bidder.

The Bidder shall be liable for replacement of defective work up to the time of completion of DLP in accordance with the conditions of contract of all work to be done under the contract. The Bidder shall furnish promptly without additional charge all facilities, labour and material necessary for the safe and convenient inspection and tests that may be required by the Engineer-in-Charge. All inspections and tests by the departments shall be performed in such a manner as to not unnecessarily delay the work. Special full size and performance test shall be charged with any additional cost of inspection when materials and workmanship are not kept ready by the Bidder at the time of inspection.

6.8 **Removal of temporary work, Plant & Surplus materials:** Prior to final acceptance of the completed work, but excepting as otherwise expressly directed or permitted in writing, the Bidder shall, at his own expenses remove from the site and dispose of all the temporary structures including buildings, all plant and surplus materials, and all rubbish and debris for which he is responsible to the satisfaction of Engineer-in-Charge.

6.9 **Possession prior to completion:** The Engineer-in-Charge shall have the right to take possession of or use any completed part of the work. Such possession or use shall not be deemed as an acceptance of any work not completed in accordance with the contract.

6.10 **Damage to works:** The works whether fully completed or incomplete, all the materials, machinery, plants, tools, temporary building and other things connected there with shall remain at the risk and in the sole charge of the Bidder until the completed work has been delivered to the Engineer-in- Charge and till completion certificate has been obtained from the Engineer in- charge. Until such delivery of the completed work, the Bidder shall at his own cost take all precautions reasonably to keep all the aforesaid works, materials, machinery, plants, temporary buildings and other things connected there with free from any loss, damages and in the event of the same or any part there of being lost or damaged, he shall forthwith reinstate and make good such loss or damages at his own cost.

6.11 **Examination and tests on completions:** On the completion of the work and not later than three months thereafter, the Engineer-in-charge shall make such examination and tests of the work as may then seem to him to be possible, necessary or desirable, and the Bidder shall furnish free of cost any materials and labour which may be necessary thereof and shall facilitate in every way all operations required by the Engineer-in-Charge, in making examination and tests.

6.12 **Climatic Conditions:** The Engineer-in-Charge may order the Bidder to suspend any work that may be subject to

damage by climatic conditions and no claims of the Bidder will be entertained by the department on this account.

6.13 As per the Ministry of Environment and Forest Guidelines 2010 and Ministry of Urban Development notifications, the Site area shall be protected from dust by fixing Green Fencing around the Construction site area.
The Contractor is instructed to strictly adhere to the following at his own cost.

a) Supply and Fixing Green barriers and wind breaking walls around their sites.

b) Cover tarpaulin on scaffolding around area of construction,

c) Do not store construction material, particularly sand, on any part of the street, roads in any colony,

d) Cordon the work area with proper fencing by other means with due consideration of safety of workers, public, etc.

e) Dust emissions from construction site are controlled.

f) Sprinklers should be compulsorily used at the site and Wet jets in grinding and stone cutting must be used.

g) The work area shall be well illuminated during nights.

6.14 **Safety regulations:** During the entire contract period, while carrying out this works indicated in this tender, the Bidder will ensure compliance of all safety regulations as provided in the Safety Code (Annexure - D). The bidder will be responsible for safety of the works.

6.15 **The Bidder will make his own arrangement:** for supply of Water, Light & Power for his works and labour camps etc.: The Bidder will make his own arrangement for supply of water, light and power for his works and labour camps etc. The department will not entertain any claim what so ever for any failure or break down etc. in supply of to the Bidder. The Bidder will supply and fix his own tested meter of the approved make but the meter will be kept in the custody of the department.

6.16 **Interference with other Bidders:** The Bidder must not interfere with other Bidders who may be employed simultaneously or otherwise by the department at the Site. He will at no time engage departmental labour or that of other Bidders without the written permission of the Engineer-in-Charge. **Bidder is fully responsible for cause of damages of the adjoining works of different works at site and the same cost of rectification of damages shall be recovered from the Bidder as per Engineer In-charge instructions**.

6.17 **Regulations and bye laws:** The Bidder shall conform to the regulations, bye-laws any other statutory rules made by any local authorities or by the Government and shall protect and indemnify FSCL, against any claim or liability arising from or based on the violation of any such laws, safety, theft, ordinance, regulation, orders, decrees etc.

6.18 **Site Order Book:** A site order book shall be kept in the departmental office at the site of the work. As far as possible all orders regarding the works are to be entered in this book. All entries therein shall be signed by the departmental officers in direct charge of the work and the Bidder or his representatives. In the important cases the CEO or TA/GM/DGM of FSCL will countersign the entries which shall except with the written permission of the TA and the Bidders or his representative shall be bound to take note of all instructions meant for the Bidder as entered in the site order book without having to be called for separately to note them. The Engineer-in-charge shall submit periodically copies of the remarks of the site order book to the CEO, FSCL for record and to the Bidder for compliance and report.

6.19 **Conversion of units:** Whenever in the contract agreement dimensions and units have been expressed in F.P.S. system, the same will be converted in to metric system units by applying the standard conversion table of Indian Standard Institution so as to derive the corresponding figure arithmetically and the Bidder will have to accept the figures so derived without any claim or compensation whatsoever.

6.20 **Rights of other Bidders and persons:** If, during the progress of the work covered by this contract, it is necessary for other Bidders or persons to do work in or about the site of work, the Bidder shall afford such facilities, as the Engineer-in-charge may require.

6.21 **Employment of technical persons: T**he Bidder shall employ or produce evidence of having in his employment a qualified technical person not below the rank of a Graduate Engineer from an Institution recognized by the Government of Haryana / Govt. of Other State / Govt. of India.

6.22 The above is the minimum requirement of Manpower. However contractor shall access the actual requirement and deploy the necessary manpower. The bidder shall include the cost of extra manpower if required in the Operation & Maintenance cost. No extra cost will be paid for deployment of extra manpower if required.

6.23 The technical staff shall be got approved in writing from the Engineer (whose approval may be withdrawn any time) for supervision of works and to receive direction from the Engineer of the work on behalf of the contractor. The supervisory staff of the contractor will not be changed without the approval of the Engineer.

6.24 FSCL holds the right to generate the revenue and collect from the Smart Park. Contractor shall not claim any

revenue generated from the Smart Park.

6.25 ADVANCES TO BIDDERS:

No Advance either Mobilization or Secured amount will be paid to the bidder.

6.26 Escalation: No escalation whatsoever shall be paid.

6.27 **Scope of Unit rate Contract**: The unit rate contract shall comprise of construction of Smart Park which includes provision of all labour, materials, constructional plants, tools and tackles, transport and all works of a temporary or permanent nature required for such works as indicated above in so far as is necessary for providing the same and is specified in the contract.

6.28 Ground water level variation: It is liable to vary. No claim due to variation of low water level shall be entertained.

DETAILED PAYMENT SCHEDULE:

6.29 Schedule of running payment:

1. The Contractor shall submit running bills by 3rd of the every month. The payment will be based on the works billed in the Monthly running bills.
2. The Contractor representative and the FSCL staff shall collectively measure the quantities claimed in the Monthly bill.. The Monthly bill will be paid upon approval of the measurement from the FSCL.

Notes: [For 6.29]

1. The payments as indicated above are for complete works.
2. The Engineer in Charge may provide Adhoc payments to the contractor. However, the Adhoc payments shall be in proportion to the works executed and in no case shall it be more than the percentage stipulated for each phase in the payment schedule. The Engineer in Charge shall estimate the work done as per the milestones provided in the payment schedule and decide upon the proportion of executed works.
3. The milestones indicated above are for payment purpose and may therefore not indicate all items that have to be executed as part of the works under this tender. The payments for all such items, even though not explicitly mentioned above, shall therefore be deemed to have been included in the schedule mentioned above and no separate or additional payments whatsoever shall be made.
4. The Engineer in Charge shall verify the sum of all Adhoc payments made to the contractors and deduct the excess amount if paid over the stipulated percentage for milestones as provided in the payment schedule.
5. The Engineer- In-Charge, FSCL may require the Bidder to extend the validity period of the Bank Guarantee(s) for such period which he considers it proper and the Bidder shall extend the validity period of such Bank Guarantee accordingly, if the Bidder fails to extend the period accordingly, the Engineer-In-Charge, FSCL may encash the B.G. before the expiry of the validity period.
6. The Bidder shall carryout all necessary rectifications of defects noticed, caused due to any reasons at his own cost within such reasonable period as mentioned in such communication notice from the Engineer-in-Charge, FSCL to him.
7. Failure of Bidder to rectify the defects properly in the given period, it shall be open for the Engineer-In-Charge, FSCL to get the defect(s) rectified either departmentally or through other agency (Without calling any tender / Quotation) and recover the actual amount incurred as per market rate plus 15 % (Fifteen per cent) of such cost from the Bidder from any sum, in any form available with the department.
8. During the Construction and O & M period, If the Bidder or his work people shall break, deface, injure or destroy any part of building in which they may be working or any building road curbs, fences, enclosures, water pipes, cable\s, drains, electric or telephone posts or wires, trees, grassland cultivated ground continuous to the premises on which the work or any part of it is being executed or if any damage shall happen to the work while in progress from any cause whatever, or any imperfections become apparent in it within three months(Six month in the case of road works) after a certificate final or otherwise or its completion shall have been given by the Engineer-In-Charge as aforesaid the Bidder shall make good the same at his own expense or in default the Engineer-In-Charge may cause the same to be made good by other work men and deduct the expense of which certificate of the Engineer-In-Charge shall be final) from any sum that may be then or at any time thereafter, may become, due to the Bidder or from his security deposits, or the proceeds of sale thereof or of a sufficient portion thereof.
9. The Bidder hereby also covenants that it shall be his responsibility to see that the Smart Park constructed under this contract do/ does not leak during the rainy seasons period of DLP after its completion and if any defects are pointed out

to him by the Engineer-In-Charge during the said period the same shall be removed by him own expenses or in default the Engineer-In-Charge. The Bidder needs to provide 10 years warrantee period from water proofing.

10. Proportional part payment may be made for incomplete items of work. These part payments shall be at the sole discretion of the Engineer-In-Charge of the Project.
11. The Bidder/Bidder shall give in advance authority letters(s) in favour of the Engineer-In-Charge of the Project authorizing him to get all Banks' Fixed deposit security, Bank Guarantees (either normal security deposit and or for performance security) to get these Bank Receipts and Guarantee deeds verified and confirmed from the concerned Bank. It will be only after getting such confirmation that the Engineer-In-Charge of the Project shall pay any amount accordingly or refund the equal amount for which BG submitted has been duly verified and confirmed.
12. The Bidder shall not remove minor mineral from borrow areas/ Quarries without prior payment of Royalty charges.
13. Extra work and rebate: Extra /Rebate work arising out of this contract shall be valued at HSR rate. If the rates are not available at HSR then the rate for such items shall be worked out by the Bidder in consultation with the Engineer-in-charge and approved by the Chief Executive Officer, FSCL. Such approval of rate[s] must invariably be obtained before taking-up of execution of such item[s] of work. This approved rate shall be final and binding on the Bidder.
14. This **is a unit rate contract where time is of utmost importance**. **No claims of any sort with regard to escalation shall be admissible and therefore no payment what so ever in this regard shall be made.**

Project Management Consultancy:

OBJECTIVE The objective of this Consultancy (the "Objective") is to assist the FSCL in implementation of the Project till the successful completion and handing over of all works to the FSCL and comprehensively supervise the works and activities carried out by the Bidder(s) as "Engineer's Representative" under the respective contract(s) in a manner that would ensure:

a. Total compliance of technical specifications and various other requirements contained in the respective contracts by the Bidder(s);
b. High standards of quality assurance system in the Consultancy as well as the works and activities of the Bidder(s);
c. Comprehensive and documented reporting to the FSCL of Consultant's own activities, progress of the Project(s) and compliances/ non-compliances by the Bidder(s);
e. Proper verification of measurements and bills submitted by the Bidder(s) so that payments made by the FSCL against these bills truly reflect the actual work done at site complying with the requirements of the respective contract(s);
f. proper interface and coordination among the FSCL, Bidder(s), other Bidders/ Bidders and local bodies/ state government; and
g. Full documentation of the completed works including applications for various approvals.

The objectives of the PMC is not limited to the above, CEO of FSCL have discretion implement other objectives or the completion of the project.

SECTION 7:

DESIGNS AND SPECIFICATIONS

This section has to be read along with the information provided in Scope of Tender in ITT Section 2

7.1 Drawings & Design:

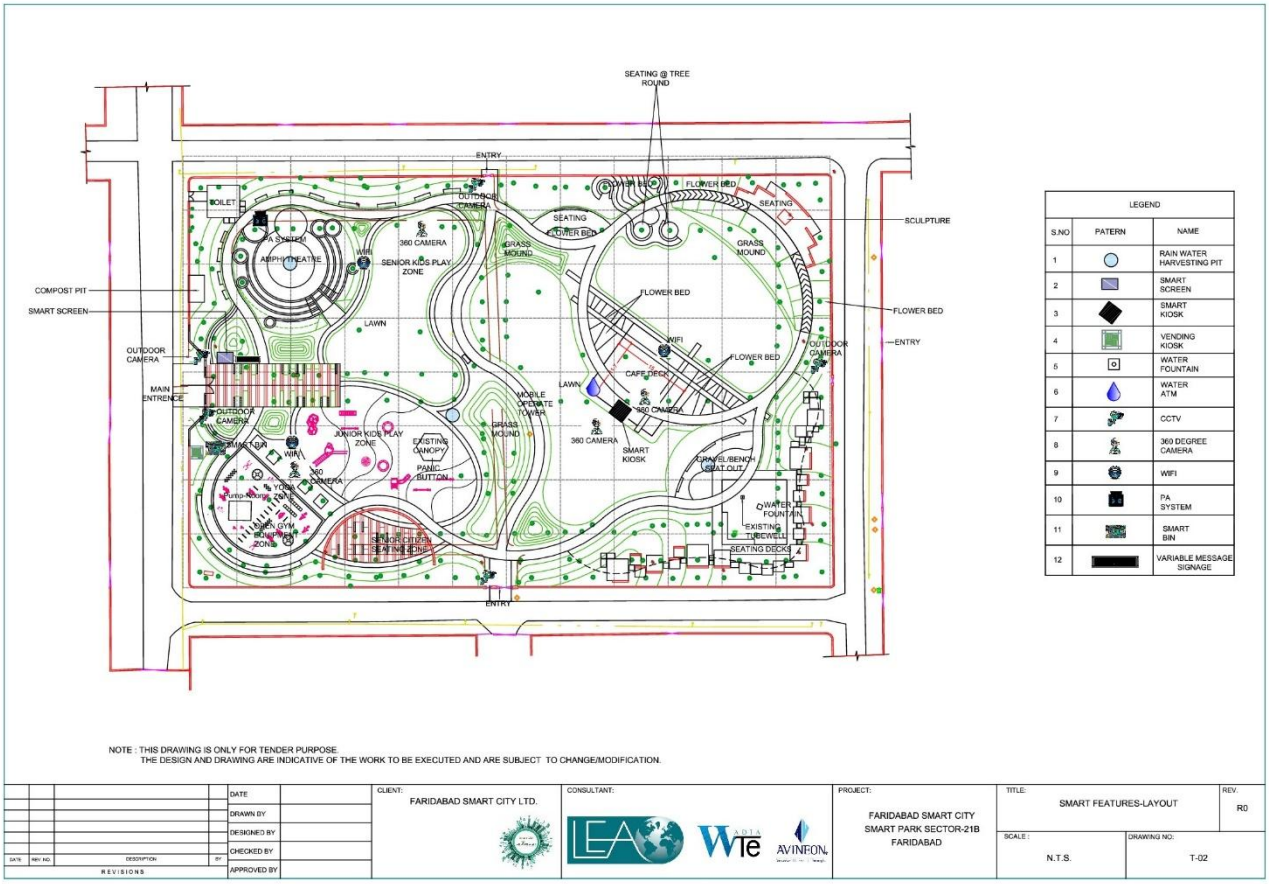
FSCL will provide the following Drawings & these drawings are enclosed in NIT:-

1) Location Plan of Smart Park on Google Maps
2) Conceptual Plan of Smart Park
3) Landscape Plan of Smart Park
4) Planting Plan of Smart Park
5) Lighting Plan of Smart Park
6) Gate Detail
7) Section Detail of the Smart Park
8) Furniture Detail
9) Vending Kiosk Detail
10) Existing Site Pictures

1. **LOCATION PLAN OF THE SMART PARK IN ABD BOUNDARY OF FARIDABAD CITY (SECTOR-21B)**

2. CONCEPTUAL PLAN OF THE SMART PARK

3. LANDSCAPE PLAN OF THE SMART PARK



NOTE : THIS DRAWING IS ONLY FOR TENDER PURPOSE.
THE DESIGN AND DRAWING ARE INDICATIVE OF THE WORK TO BE EXECUTED AND ARE SUBJECT TO CHANGE/MODIFICATION.

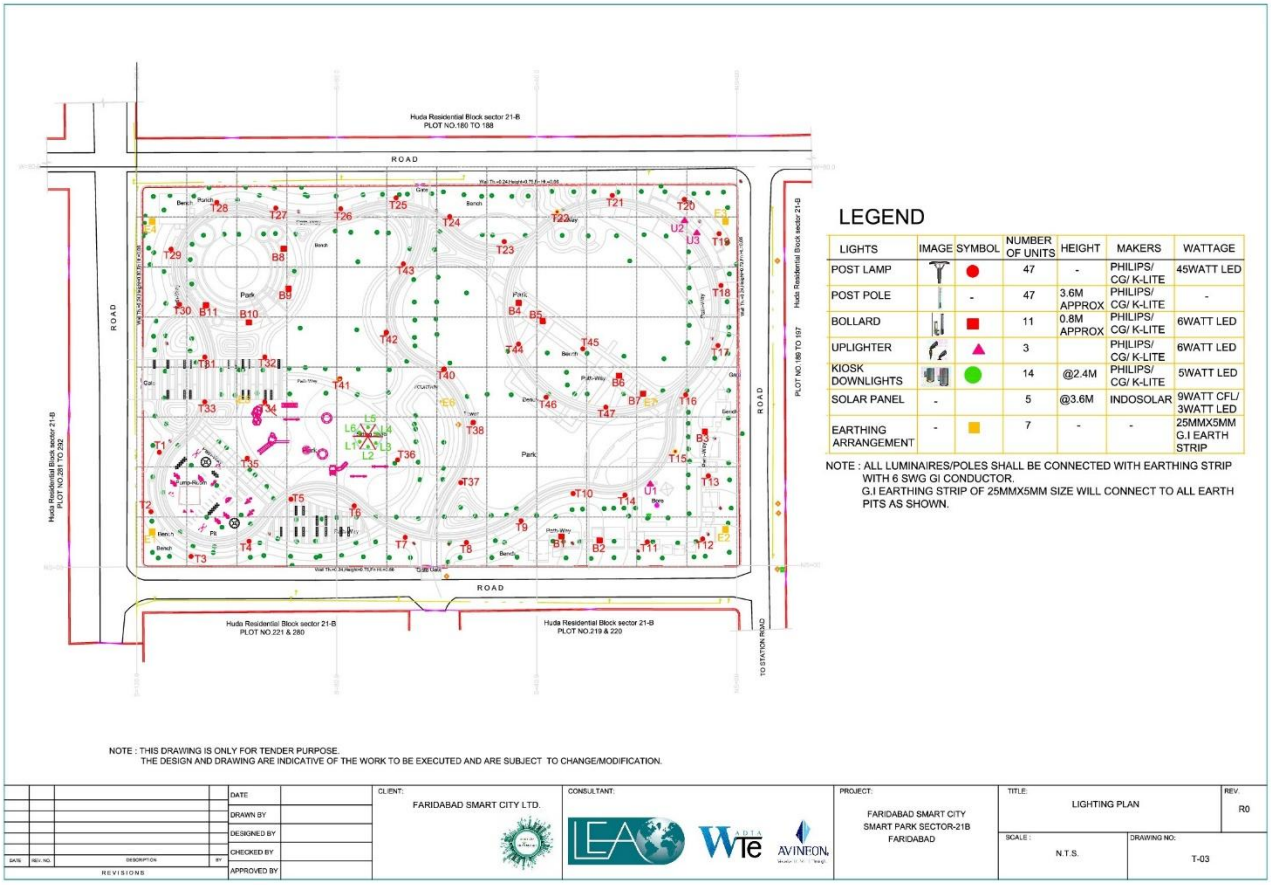
REVISIONS	DATE		CLIENT: FARIDABAD SMART CITY LTD.	CONSULTANT:	PROJECT: FARIDABAD SMART CITY SMART PARK SECTOR-21B FARIDABAD	TITLE: SMART FEATURES-LAYOUT / REV. R0
	DRAWN BY					SCALE: N.T.S. / DRAWING NO: T-02
	DESIGNED BY					
	CHECKED BY					
	APPROVED BY					

4. PLANTING PLAN OF THE SMART PARK

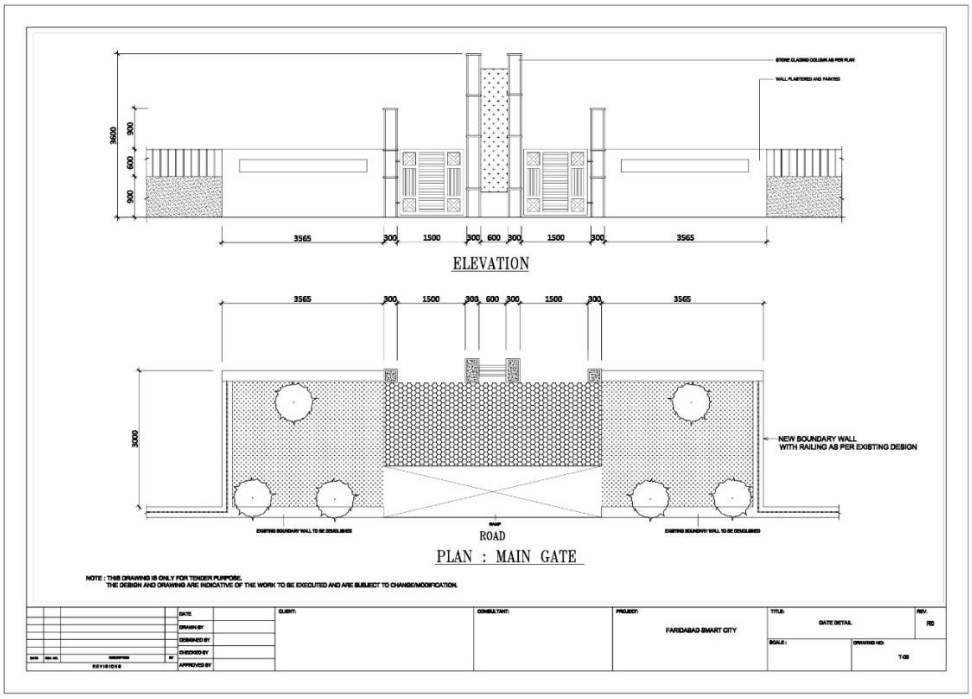
NOTE : THIS DRAWING IS ONLY FOR TENDER PURPOSE.
THE DESIGN AND DRAWING ARE INDICATIVE OF THE WORK TO BE EXECUTED AND ARE SUBJECT TO CHANGE/MODIFICATION.

REVISIONS	DATE		CLIENT: FARIDABAD SMART CITY LTD.	CONSULTANT:	PROJECT: FARIDABAD SMART CITY SMART PARK SECTOR-21B FARIDABAD	TITLE: PLANTING PLAN / REV. R0
	DRAWN BY					SCALE: N.T.S. / DRAWING NO: T-04
	DESIGNED BY					
	CHECKED BY					
	APPROVED BY					

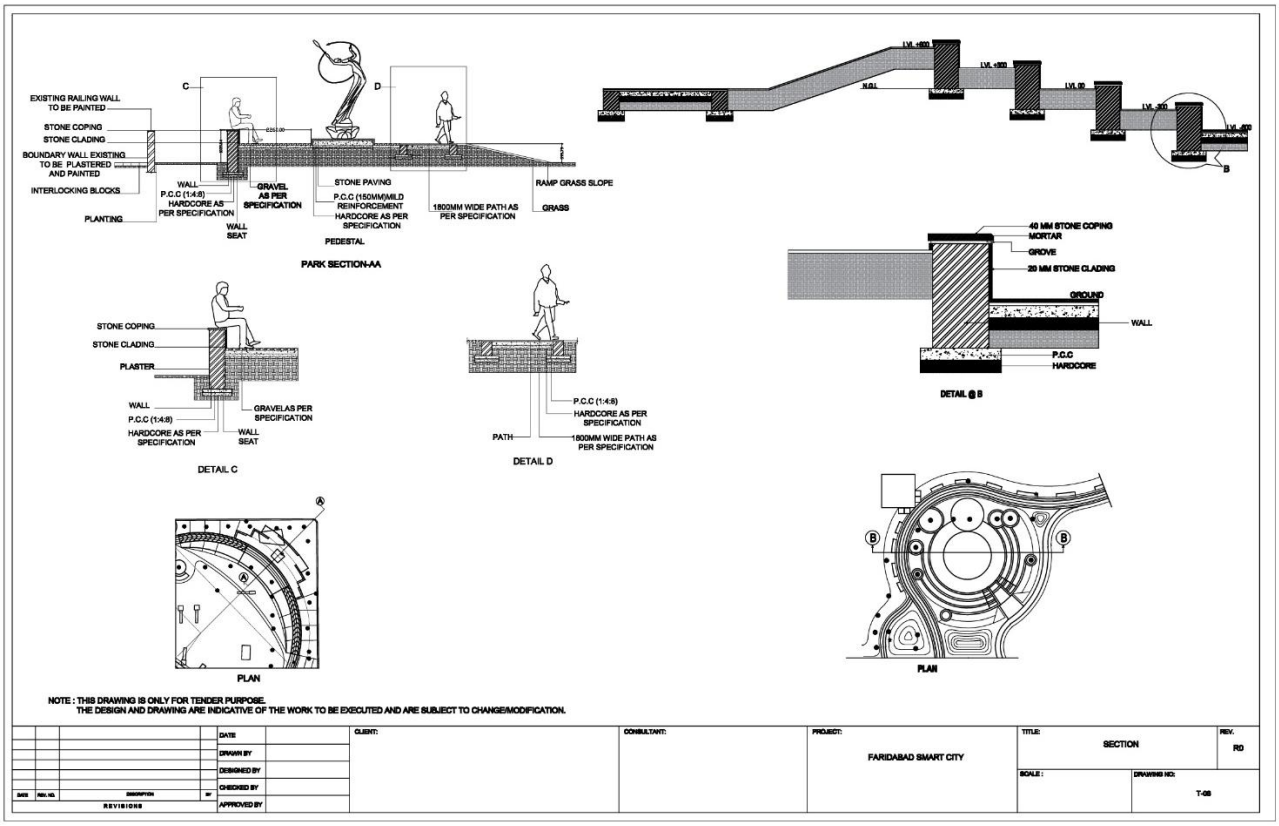
5. LIGHTING PLAN OF THE SMART PARK



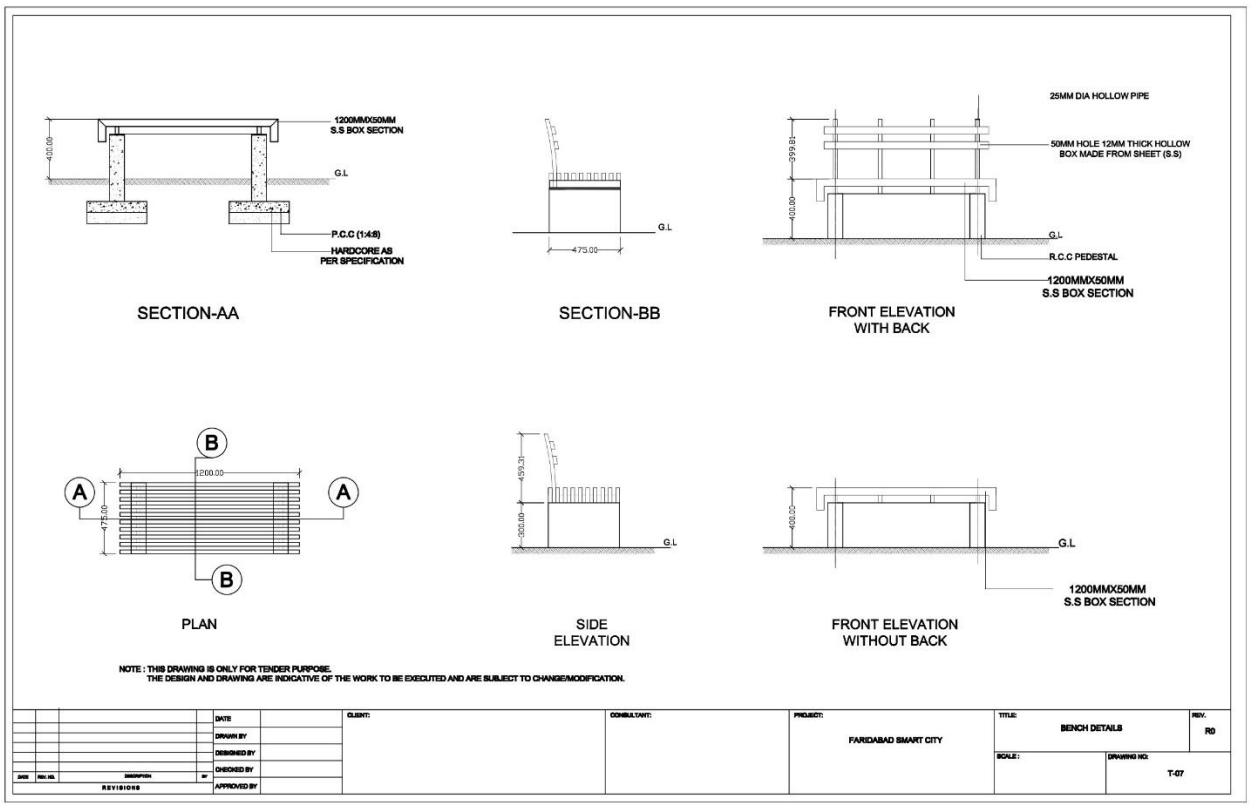
6. GATE DETAIL



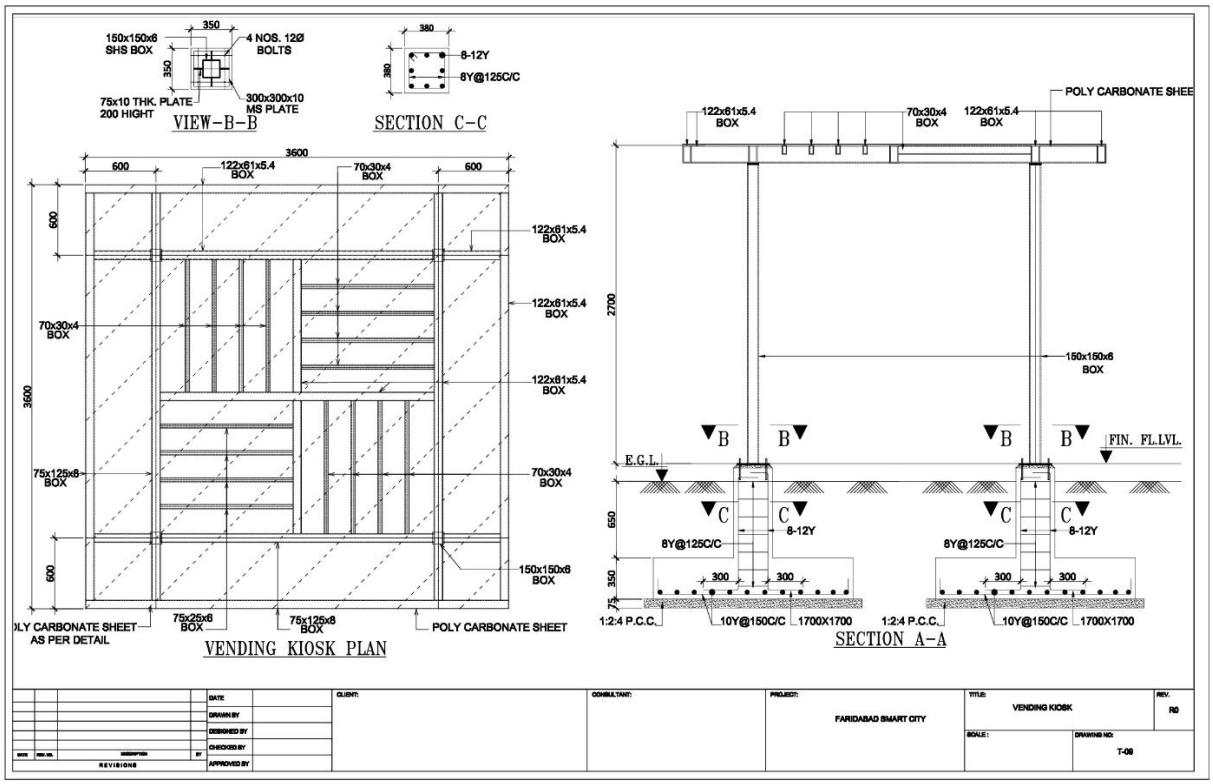
7. SECTION DETAIL OF THE SMART PARK



8. FURNITURE DETAIL



9. VENDOR KIOSK DETAIL



10. SITE PHOTOGRAPHS

Note : FSCL reserves the rights to add/Reduce or delete any location(s) without any prior intimation.

7.2 GOVERNING DESIGN PARAMETERS FOR CONSTRUCTION

All designs shall confirm to the various standards & codes as under:

1. Space Standard for Roads in Urban Areas (IRC:69-1977)
2. Guidelines on Road Drainage (IRC SP 42:2014)
3. Bureau of Indian Standards
4. Plain and Reinforce Concrete: Code of Practice IS: 456-2008
5. Design Aids for Reinforced Concrete SP-16
6. Handbook on Concrete Reinforcement and Detailing SP-34

The above list is indicative. Other codes/standards may also be required to be adopted. In such cases, the same shall be adopted upon approved from the Authority (the FSCL)

7.3 Approval of design mix for RCC: On approval of the tender, Bidder is required to arrange all for approval of design mix of RCC from any of the Indian Institute of Technology or National Institute of Technology or NABL accredited Laboratories.

7.3.1 Materials of construction of proposed Smart Park shall be governed by the relevant Indian Standards Codes of Practice.

7.3.2 The design procedure permissible stresses in material and other relevant stipulations shall be governed by the codes of practice published by BIS and other relevant IS codes.

7.3.3 New Codes of Practice and amendments issued by the Bureau of Indian standards till the date of tender will also be automatically applicable for the work, similarly amendments and revisions. Specifications made up to the date of tender shall also be applicable.

7.4 Testing of concrete: All concrete used in the RCC structure shall be mixed in power driven mechanical mixers and vibrated. The Bidder's unit Rate shall include the cost of testing of concrete cubes. Installation of a Calibrated Testing Machine at site by the Bidder will be acceptable. The testing will however, be done under the supervision of the Engineer-in-charge or his authorized representative. The Bidder shall finish a test certificate of the concrete test machine, to be used by him on the site of works sampling, strength test of

concrete and acceptance criteria shall be in accordance with IS Codes.

7.5 Finish of concrete surface: Good surface of the exposed reinforced concrete members must be ensured by the Bidder by using plane and true to shape form work. Corrections of defects must be done as desired by the Engineer-in-charge. Tolerance in form work shall be in accordance with IS Codes.

7.6 Size of Aggregate: Size of aggregate to be used in plain concrete, RCC concrete structure shall be in accordance with specifications. However, for sections of structural components of 300 mm thickness and less only 20mm and downgraded aggregate shall be used.

4.7 Model Rules relating to labour, Water Supply & Sanitation in Labour Camps are given in ANNEXURE - A.

SCOPE OF WORK & GENERAL SPECIFICATIONS

Brief Description of Work: Construction of Smart Park with Operation and Maintenance for 5 years in Faridabad City including with a Defect Liability Period of Two Years. The smart park is being constructed in the ABD area with smart features.

Detailed Scope of Work and Specifications: The scope of work includes Construction of Smart Park as per the specifications and drawings provided in this document.

The Good for Construction drawings shall be submitted to the contractor by the FSCL after award of the contract.

1.1 Scope of work

Work under this Contract shall consist of furnishing all labour, materials, equipment and appliances necessary and required to completely finish including testing and commissioning of all the landscape works including earthworks, civil works, landscape lighting, electrical works, irrigation, drainage, finishing items, plantation of trees, shrubs, groundcovers, palms, climbers, etc. and maintenance of the same for the period of five years for the development of around 2 acre residential park as specified in the Bill of Quantities and/or shown on the drawings.

Without restricting to the generality of the foregoing, landscape works shall include the following: -

A. Earthworks

Setting out works and carrying out confirmatory survey.

Excavation, backfill, grading and fine dressing of earth as per levels mentioned in the drawings.

B. Civil works

Setting out works and carrying out confirmatory survey.

Construction of pathways, steps, walls, paved sit out areas, and any other civil items as specified in the drawings.

Construction of feature walls, wall benches, supplies and installation of street furniture such as benches, lights, bins etc.

Construction of water feature structure and pump and filtration sump.

C. Landscape lighting.

Setting out works and carrying out confirmatory survey.

Supply, installation and commissioning of light fixtures and poles as per technical specifications and location mentioned in the drawings.

Supply, installation and commissioning of the all-electrical works pertaining to water feature, irrigation, lights, pump and filtration of the same.

D. Landscape drainage

Setting out works and carrying out confirmatory survey.

Supply, laying, jointing, testing and commissioning of slotted piped drain, catch basins and other appurtenant works including underground trenches.

Landscape horticultural works

Setting out works and carrying out confirmatory survey.

Supply and planting plant material as per technical specifications and location mentioned in the drawings.

Use of insecticides, pesticides, and manure as requirement mentioned in the detail scope of works of maintenance of horticultural works.

E. Rainwater Harvesting

Setting out works and carrying out confirmatory survey.

Supply, laying, jointing, testing and commissioning of 150 mm dia pipes about 600 m length of HDPE (PE100) along with specials and other allied works in parks.

Construction of thrust blocks, chambers and other allied works.

Supply, laying, NP3 1800 Hume Pipe

Submission of as built drawing.

F. Compost Pits: Provision of compost pit as indicated in the drawing.

G. General

Work under this Contract shall be carried out strictly in accordance with the specifications devoted with the tender.

Items not covered under these specifications due to any ambiguity or misprints or additional works, the work shall be carried out as per specifications for Buildings, roads, sanitary, plumbing, sewerage works.

1.2 SCOPE of WORK IN OPERATION AND MAINTENANCE :

The Scope of Work in Operation & Maintenance includes but not limited to the followings.

(1) Deployment of required labors,

(2) Watering the Parks

(3) Putting the lurches

(4) Trimming the plants/shrubs in the shape in the shapes as instructed by E in C

(5) Repair and / or replacement of materials, pumps,

(6) Painting to grills

(7) Maintenance of water fountains

(8) cleaning of benches and statues, art, or any other panels, equipments.

(9) filling water in the tanks/ power (source will be provided by FSCL)

(10) All dead plant shall be replaced with plant of the same quality, specifications and of the present age of the plant to be replaced (i.e. Age of the planted tree on the date op plantation plus period from date of planting to the date of by replacement of the plant)

(11) The contractor shall spray/spread of the followings with minimum quantity per month as mentioned below.

(i) Urea/Ammonium Sulphate (30 gm/sqm)

(ii) Bone Meal (150 gm/sqm)

(iii) Potassium Sulphate or Murate of Potash (20gm/sqm)

(iv) Insecticides (10 ml in 10 Liter water/sqm)

(v) DAP

(vi) Pesticides (10 ml in 10 Liter water/sqm)

(vii) Manure (1 cum /100 Sqm)

(12) All leaf falls, branches, twigs, cut grass after mowing shall be deposited in layers in the compost pit. Care should be taken to cover the compost pit with grill and process for making compost shall be done by contractor.

(13) The contractor shall manage/operate the compost pit as per relevant Standard and guidelines. Any other debris , fallen trees for whatsoever reason shall be dispose off at designated locations as instructed by Engineer –In-Charge.

(14) The Contractor shall deploy the security guards round the clock (24x7) for managing the parks. The contractor shall be also be responsible to protect all the assets of parks including protection of damage or theft of IT and other infrastructures, equipments.

(15) In case of any damage/theft occurs during the O & M period it shall be bourn by the contractor.

(16) The contractor shall maintain all planted areas within the landscape contract boundaries for five year from the date of handing over of the complete area .(until the area is handed over in whole or in phases). The handover date shall be consider from the date of issue of completion certificate.

(17) Maintenance shall include replacement of dead plants, watering, weeding, cultivating, control of insects, fungus and other diseases by means of spraying with an approved insecticide or fungicide, pruning, and other horticulture operations necessary for the proper growth of the plants and for keeping the landscape contract area neat in appearance.

(18) All the under performing plants shall also be replaced with the healthy plants of the same quality and specifications as described above for dead plants .However if Engineer In charge is convinced and feels that the under performing plants can perform better during the balance period from the maintenance period of five years then the contractor may get this relaxation up to the completion of the maintenance period but at the end he has to replace all the under performing plants with the healthy plants having same height and specification of the same type of plant grown in the area or as specified above for dead plants.

(19) After the completion of defect liability period of one year the minimum heights of all the planted trees shall be as described below:

a) 80% of the trees should be between 12 feet to 15 feet height.
b) 10% of the trees should be between 6 feet to 8 feet height.
c) Rest of the trees shall be between the specified height (i.e.in the BOQ description of item) to 8 feet

(20) Submit an O & M Plan, Manual, Litrature to FSCL

1.3 **Pruning and repairs**:

Upon completion of planting work under the contract, all trees should be pruned and all injuries repaired where necessary. The amount of pruning shall be limited to the minimum necessary to remove dead or injured twigs and branches and to

compensate for the loss of roots and result of transplanting operations. Pruning shall be done in such a manner as not to change the natural habitat or special shape of the trees.

1.4 **Nursery Stock**:

Planting should be carried out as soon as possible after reaching the site. Where planting must of necessity be delayed, care should be taken to protect the plants from pilfering or damage from people or animals. Plants with bare roots should be heeled – in as soon as received or otherwise protected from drying out, and others set closely together and protected from the wind. If planting is to be delayed for more than a week, packed plants should be unpacked, the bundles opened up and each group of plants heeled in separately and clearly labeled. If for any reason the surface of the roots becomes dry the roots should be thoroughly soaked before planting.

1.5 **Protective fencing**:

According to local environment, shrubs shall be protected adequately from vandalism until established.

1.7 Completion: On completion, the ground shall be formed over and left tidy.

1.8 LIST OF APPROVED NURSERY'S OR PLACES FOR PROCUREMENT OF PLANTS/TREES ETC

i. GROW MORE, HYDERABAD

ii. SATYADEVA NURSERY, KADIUM

iii. SATYA NARAYAN NURSERY

iv. RAINBOW GARDEN, KOLKATTA

v. MALIK NURSERY SAHARANPUR

vi. KRISHNA NURSERY, DEHRADUN

vii. SAHIL NURSERY, GAJRAULA

viii. PRAGATI NURSERY, GAJRAULA

ix. ROYAL NURSERY DELHI

x. GREENWAYS NUSERY DELHI

xi. NATURE VIEW NUSERY GURGAON.

xii. RANCHODBHAI CHOTUBHAI NURSERYMEN, AMALSAD ST, DHAMDACHA. GUJRAT

xiii. POCHA SEEDS , PUNE

1.8.1 The contractor shall provide the necessary documents to support that the plants /Trees are procured from the list of above approved Nursery.

1.8.2 Contractor have to inform and get the approval from the Engineer Incharge regarding the place and Nursery for different types of trees /Ground cover etc. before placing the order of the same Regarding the transplanted trees also approval process shall remain the same. If any tree/Plant etc is not available in the above specified places / Nursery's than contractor shall inform the Engineer Inchrage and also provide two / Three options of places / Nursery's then Engineer Incharge will take the decision for the places / Nursery's to procure the trees/ Plants etc. which may or may not be from the options provided by the contactor. Decision of the Engineer Incharge shall be final and binding for both the parties.

Following minimum man power shall be deployed by the contractor during the maintenance period.

S. No.	Position/Qualification	Nos. to be deployed
1	Sr. horticulturist – Degree (agri/ horti) holders with minimum experience of 3 years in the field.	1
2	Sr. Gardener (Mali): minimum experience of 4 years in the field.	2
3	Gardeners (Mali): minimum experience of 1 year in the field. Employment as per seasons	9*
4	Security Guard (24 x 7)	5

1.9 Defect Liability: If any manufacturing defects / Poor workmanship are found during the Defect Liability Period (DLP), then the contractor shall be liable for repair/ replacement of the same at his own cost.

2. TECHNICAL SPECIFICATION OF LANDSCAPE WORK IN SMART PARK

2.1 Sign Board(Project information)

The Contractor shall provide few sign boards at the site of works of approved size and designs, which provides.

The name of the project

The name and address of the Employer, the contractor and the consultant

The name and short description about the projects

The amount of contract price

Starting and completion dates

Such signboards shall be located at places in the project coverage area as directed by the Engineer. Contractor shall take care of signboards and replace it in case of loss, damage, theft etc. The signboard may be in English / Hindi or both as directed by the Engineer.

2.2 Sampling and Testing during construction

The Contractor shall be responsible to develop a quality control program as per IS Codes and to provide all necessary materials, apparatus, instruments, equipment, facilities and qualified staff for sampling, testing and quality control of the materials and the works under the Contractor. Without limiting the generality of the foregoing, the Contractor shall either (i) establish a testing laboratory at the site of Works which is adequately equipped and staffed to carry out all sampling and testing in accordance with the requirement and provide all field equipment and apparatus as necessary to conduct all specified in-situ tests and/or any Tests on Completion, or (ii) arrange for routine sampling, testing and reporting, as required, through a certified independent testing laboratory acceptable to the Employer.

All costs of such sampling, testing and reporting of test results will be borne by the Contractor, and the Contractor shall include sufficient provisions in his tendered rates to allow for sampling and laboratory testing under the direction of the Engineer In- Charge (E in C).

2.3 Order of Precedence, Clarifications and Interpretation

When the various specifications and codes referred to in preceding portion are at variance with these specifications and with each other, the order of precedence will be Bill of Quantities (BOQ), Technical specifications and Drawings.

The attention of the bidder is drawn to those clauses of these specifications and of BIS codes, which may require either clarification by Engineer, or the mutual agreement of employer and contractor. In such cases it is the responsibility of the contractor to seek clarification on any uncertainty and obtain prior approval of the Engineer during pre bid meeting before taking up the supply/construction.

2.4 Submittals

2.4.1 Materials, product data and equipment schedule

All specifications, diagrams, samples, drawings and such other data shall be provided by the Contractor, in a format to be agreed with the Employer, which may be required to demonstrate compliance with the specification. This shall include but not limited to the following information:

Originals of catalogues and engineering data sheets for manufactured items; each item and option to be provided shall be clearly marked and each item not to be provided shall be deleted.

Literature to show that products provided meet the requirements for material, construction, operation and testing.

Information on the following items as a minimum:

Pipes; pipe jointing systems, manhole covers and frames, chamber covers and frames etc

Manufacturer's installation instructions for all items.

Certified reports for all tests and inspections designated herein, signed and sealed, showing full compliance with referenced standards.

Maintenance requirement and procedures.

Period of guarantee for the products.

Operation manual

2.4.2 Approval of material

Approval of all sources of material for works shall be obtained in writing from the E in C before their use on the project.

The Contractor at no extra cost will submit raw and processed samples of all materials.

2.4.3 Completion Drawings / As Built Drawing

On completion of work, Contractor shall submit one complete set of original tracings developed in Auto CAD, soft copy in CD in PDF as well as editable form and two prints of "Completion/As Built" drawings to the E in C. These Drawings shall be accurate and correct in all respects and shall be shown to and approved by the E in C. These drawings shall have but not limited to the following information:

a. Civil works

i. Plan showing services crossing i.e pipes, cables below paved areas.

ii. Plan showing final location, demarcation of wall benches, street furniture such as benches, lights, bins etc.

iii. Plan showing location of water feature structure and underground sump for fountain pump with capacity and filtration system specifications and underground tank

b. Landscape lighting

i. Plan showing circuit diagram, light fixtures, operational specifications, crossings, switch box, tap points for electrification along with technical specifications of the parks/open spaces.

ii. Plan showing all electrical works pertaining to water feature, lights, pump and filtration of the same.

c. Landscape drainage

i. L-section showing the G.L, I.L, slope, top of drain, connecting level of the branch lines etc

d. Landscape horticultural works

i. Plan indicating final placement of plant material such as trees, palms, shrubs, climbers and ground covers as per site development.

ii. Maintenance schedule to be adopted for the upkeep of the green spaces. Listing out the periodic use of insecticides, pesticides, and manure.

iii. Detail of manpower class wise, tools and tickles, machinery made available at the site during of maintenance of horticultural works.

Contractor shall provide four sets of catalogues, performance data and list of spare parts together with the name and address of the manufacturers for all electrical and mechanical equipment provided by him and installed in the Project.

All "Warranty cards" given by the manufacturers shall be handed over to the Engineer-In-Charge.

Completion certificate shall not be issued unless the as-built drawings are submitted as indicated above.

2.5 Materials

a. All materials used in the works shall conform strictly to the Tender specifications.
b. All materials, as specified shall be used with the approval of the Engineer – In- Charge.
c. Unless otherwise specified and expressly approved in writing by the FSCL Engineer- In- Charge (E in C).

2.6 Quality control on works and material

(i) The contractor shall be responsible for the quality of the works in the entire construction works within contract. The contractor shall, therefore, have own independent and adequate set up for ensuring same.

(ii) The Engineer in charge shall inspect the work from time to time during and after construction and ascertain the quality of the work tested (by contractor Testing and Quality Control Units or by any other agency deemed fit by him and approved by the E in C generally as per the requirements of BIS standards. Additional tests may also be conducted where, in the opinion of the E in C, need for such test exists.

(iii) The contractor shall provide necessary cooperation and assistance in obtaining the samples for tests and carrying out the field tests as required by the Engineer from time to time. This may include provision of labour, attendance, assistance in packing and dispatching and any other assistance considered necessary in connection with the tests.

(iv) Similar permission from the Engineer in charge shall be obtained in respect of other items of work prior to proceeding with the next stage of construction. The Contractor shall offer the Engineer any sequential work Ready for Inspection (RFI) after the said work has been certified by his E in C as ready to proceed with.

(v) The contractor shall carry out modification in procedure of work, if any, as directed by the Engineer in charge during inspection.

(vi) For testing of samples of soil, soil mix, aggregates, manhole & pit covers / gratings etc. samples as required by standards shall be furnished by the Contractor. All the test as required or instructed by E in C shall be carried out by contractor at their own cost.

(vii) For cement, reinforcing steel and similar other materials where essential tests are to be carried out at the manufacturer's plants or at laboratories the cost of samples, sampling, testing and furnishing of test certificates shall be borne by the Contractor. He shall also furnish the test certificates to the E in C. All materials shall be tested to relevant BIS codes.

(viii) Where the Engineer considers that in the interest of the control of the quality on materials or workmanship, modifications, if any, are necessary, the contractor shall carry out such modifications.

3 Section: 2 Technical Specifications

3.4 General Requirements

I. The contractor shall be verification of ground reality prior to execution of work. The contractor shall carry out topographical survey of the proposed work to establish final alignment of structures. Reference bench mark will be shown at site and level value of the same will be provided to the contractor by the E in C for carrying out topographical survey.
II. The contractor shall furnish updated map and level information near the site to the E in C as a verification of data given in the drawings by the E in C. Any variation found in the details provided in the drawings provided by the Engineer shall be corrected by the Engineer. The revised drawings shall be used for implementation of construction.
III. All landscape works including civil, drainage, lighting and irrigation, pipes and fittings and appurtenance shall be laid at proper depths or to the required slopes in a neat workman like manner.

3.5 Alignment and Grade

All landscape works, civil, lighting and drainage system shall be laid to alignment and gradient shown on the drawings but subject to such modifications as shall be ordered by the E in C from time to time to meet the requirements of the works at site. No deviations from the lines, depths of cutting or gradients as shown on the plans and sections shall be permitted except by the express direction in writing of the Engineer-In-Charge.

3.6 Excavation and Backfilling

3.6.1 General

The earthwork excavation in trenches and structures shall be carried out as shown in the drawings and as per specifications.

All applicable Indian Standard, unless otherwise specified herein, shall be applicable. In all cases, the latest revision of the codes shall be referred. IS 3764(1992): Code of safety for excavation work, IS 1200: Part 1(1992): Methods

of measurement of building and civil engineering works: Part 1 Earthwork, IS: 2720(Part 2, 7, 8, 28&29): For method of test for compaction.

The Contractor shall be responsible for the adequate pumping, drainage and bailing out of water from the excavation. In case of failure to make such provisions or any other provisions, which may result in unsuitable sub-grade conditions, the Contractor shall replace and repair the sub-grade to the satisfaction of the E in C, at his own cost and responsibility.

During construction of park all excavated good earth shall be stacked and maintained free from debris.

Contractor should assess the availability of extra earth required for refilling in case of shortage in any particular reach well before quoting rates. Even in case the Contractor resorts to mechanical excavation, the Contractor should take care of proper refilling, consolidation and disposal of surplus earth.

3.6.2 Shoring and bracing (timbering)

The Contractor shall supply, fix and maintain necessary sheathing, shoring and bracing etc., in steel or wood, as may be required to support the sides of the excavation, to protect workmen in the trench and to prevent any trench movement which might any way injure or delay the work, change the required width of the trench, make unsafe condition for adjacent pavements, utilities, buildings or other structures above or below ground.

Sheathing, shoring and bracing shall be withdrawn and removed as the backfilling is being done, except when the Engineer may agree that such sheathing, shoring and bracing be left in place, at the Contractor's request. In any case, the Contractor shall cut off any such sheathing at least 600 mm below the surface and shall remove the cut off material from the trench.

All sheathing, shoring and bracing which are left in place under the foregoing provisions shall be removed in a manner so as to not endanger the completed work or other structures, utilities or property, whether public or private.

Timbering shall be provided as per safety code for excavation works IS: 3764 (Clause5).

Timber shoring shall be close or open, depending upon the nature of soil and depth of pit or trench. The type of timbering shall be as approved by the Engineer.

3.6.3 Back filling of trenches

a) General

The Contractor shall use selected surplus soils from excavated materials for backfilling and all fill material shall be subject to the E in C's approval. The excavated materials suitable for backfilling shall be stored not closer than 600 mm from the edge of the trench and shall not obstruct any public utilities or interfere with travel by local inhabitants or general public. Handling and storage of excavated materials must meet with the regulations of the Local Government Authorities. The detailed specifications for backfilling shall be IS: 3114-1994.

b) Method of Backfilling

1. Excavated Trench, Manhole and Roadside chamber shall be backfilled to original ground level or to such other levels, as the E in C may direct. All backfilling shall be carried out in orderly manner expeditiously and consistent with good workmanship.

2. Backfill material put into the trenches for backfilling, shall unless otherwise specified be compacted and built up as to minimise future settlement as much as is reasonably possible. For this, care shall be exercised in selecting backfill material free from large hard clay lumps, especially in cramped areas directly adjoining the walls of structures.

3. Backfilling in trenches shall be done as pipe laying progresses, with the permission of the Engineer, after the pipe or conduit is properly bedded, jointed and inspected and the Engineer properly records all measurements for the location of junctions. However the trench shall be backfilled after successful completion of testing. Backfilling around and over the pipe, conduit, or structure shall be taken up uniformly on all sides and in the sequence and manner specified hereinafter, with care to avoid the displacement or damage to the pipe, conduit or structure. Trenches should be carefully guarded till back filling.

4. For the purpose of backfilling, the depth of trench shall be divided into the following three zones measured from bottom to top of trench, as follows:

5. Zone A: From bottom of trench to the centre line of pipe,

6. Zone B: From the level of centre line of pipe to a level of 300 mm above the top of pipe,

7. Zone C: From a level of 300 mm above the top of pipe to the top of trench.

8. Backfilling in the trenches and around structures shall be carried out in horizontal layers of uniform thickness of not more than 150 mm when measured loose. As may be necessary to attain maximum compaction, the backfill material shall be moistened by sprinkling with water. After placing each layer of backfill material, the layer shall be thoroughly and uniformly compacted by means of mechanical plate vibrators or hand tampers.

9. After the backfill material is placed in Zone A and Zone B as specified above, the remaining portion i.e., Zone C of the trench may be machine backfilled. Even in this case the backfill material shall be placed in uniform horizontal layers of not more than 150 mm thickness. Small pebbles of size less than 50 mm, if any, shall be so distributed throughout the mass, that all interstices are solidly filled with fine material. The backfill material shall be tamped with mechanical tamping equipment like plate vibrator, after moistening the backfill by sprinkling with water to obtain maximum compaction.

10. Machine backfill shall be conducted so that the material deposited in the trench shall not fall directly on top of the pipe from such a height as might result in damage to the pipe joints or alignment.

11. If the trench is subjected to conditions, which might cause flotation of the pipe before sufficient backfill has been placed; the Contractor shall take the necessary precautions to prevent floatation of the pipe, conduit or structure.

12. Before final acceptance of the work, additional tamped earth shall be added to restore the settled trench surface to the required level of the adjacent earth surface or to the base of crushed rock wearing surface or to the finished earth base.

13. If from the excavated soil, enough backfill material is not available, imported, selected and approved backfill material from the borrow pits is required to be placed for backfill, on approval of the E in C at their own cost.

c) Compaction Test

The earth backfill (Sub grade) shall be consolidated to achieve at least 95% proctor density with respect to field density before excavation.

To ensure the fill has been compacted specified field and the contractor for checking the Optimum Moisture Content (O.M.C) at his cost shall carry out laboratory test.

The Contractor should carry out tests for density of backfill at his own cost and that if the backfill is found to be unsatisfactory, it shall be rectified or the backfilling will be got done by the other agencies at the cost of the Contractor.

Method of test for campaction shall be as directed by Engineer in charge (E in C).

3.6.4 Disposal of surplus excavated material

The excavated material which is in surplus to the requirements after backfilling shall be disposed off as directed by the E in C at Construction & debris plant at their own cost., at suitable site with all lead and lift for which no extra payment shall be made. The site is to be assessed by the Contractor and got approved by the Engineer.

3.7 Responsibility

Responsibility for various activities in pre-commissioning and commissioning procedures will rest with the Contractors.

3.7.1 Pipes Material

HDPE pipes PE100 & PN 8 shall be provided. Specifications of pipes shall be as per IS: 7634(Part-II) or as amended up to date using PE 100 grade raw material. The pipes should be handled carefully while loading, unloading, transporting and during laying and jointing at site.

a. Laying, Jointing and Testing
Providing, Laying, jointing, testing and commissioning of HDPE shall be as per IS: 4984-1995 and ISO 4427.

b. Marking
All pipes will be marked as below:

- Manufacturer name/ stamp
- Nominal diameter
- Class reference
- Lot number/Batch number

c. Specials for HDPE pipes
The following types of HDPE specials (10 KSC) shall be manufactured and tested in accordance with ISO 8008 specifications.

d. Jointing of the Pipes
Pipe joints shall be water tight and butt fusion jointing is carried out in HDPE Pipes conforming to IS: 14333-1996 specifications. The method requires field equipment's to hold the pipe and fittings in close alignment, melt the pipe, and join the pipe. Butt ends have to be faced, cleaned, melted, and fused together, then cooled under fusion parameters recommended by the supplier. Laying and jointing by butt fusion welding technology as per manufacturer recommendation.

e. Testing and commissioning
After the new pipe is laid, jointed and partially back filled hydraulic tests is to be carried out. Hydraulic test both at factory and at site as per latest IS: 4985 code of practice or 1.5 times the rated pressure whichever is higher.

Portions of the line shall be tested by subjecting the pressure test as the laying progresses before the entire line is completed (the test stretch should not generally exceed 500 m), to identify any error of workmanship which can be detected and corrected at minimum cost. For all these tests water of approved quality has to be arranged by the Contractor.

f. Measurement and payment
The length of the irrigation network pipes shall be measured in running meter for a particular pipe diameter along the centre line of pipe to the nearest centimetre. Measurement of specials for fittings shall be as per BOQ item.

The payment will be made per m length of pipe measured based on the quoted rates once the testing and backfilling is completed.

3.7.2 Bedding of the pipes

The trench bottom shall be even and smooth so as to provide a proper support for the pipe over its entire length, and shall be free from stones, lumps, roots and other hard objects that may injure the pipe or coating.

Laying of Jamuna sand bedding for pipe lines with carefully compacted in layers not more than 15 cm thick including ramming, watering, consolidating and dressing complete for pipe bedding and surrounding as per drawing and as directed by engineer in-charge. Holes shall be dug in the bedding bottom to accommodate sockets so as to ensure continuous contact between the trench and the entire pipe barrel between socket holes.
It is also essential that the soil is sufficiently compacted to develop uniform lateral passive soil pressure. Proper bedding is required to control deflection, which is the main criterion in design of plastic pipes.

3.8 Civil works

3.8.1 Site Clearance and rough grading

Before the start of the works, the entire site shall be cleared of all bushes, shrubs, jungle and unwanted vegetation growth etc., and made clean. The rubbish shall be disposed off as directed by the Engineer. After the site is cleared, it shall be roughly graded to even out any undulations or ditches present therein.

3.8.2 Materials

All materials used in the work shall be subjected to mandatory tests in accordance with relevant IS codes and as specified in specifications. Before incorporating the materials in the permanent Works, test reports shall be submitted to the E in C for seeking his permission.

3.8.3 FORM WORK

3.8.3.1 GENERAL

Formwork, shuttering, centering, scaffolding etc. shall be of steel plates or plywood, lined with MS-sheets and for scaffolding steel tubular shall be used. Joints should be sufficiently tied to prevent loss of cement slurry from the concrete. All forms, shuttering shall be leveled, aligned, and thoroughly cleaned, before they are used for concreting.

Formwork shall be removed after specified days of curing with the prior written permission of the E in C. The surface of RCC after removal of formwork / shuttering shall be smooth, even and without honeycombing or undulations.

3.8.3.2 BRACINGS, STRUTS AND PROPS:

Shuttering shall be braced, strutted, propped and so supported that it shall not deform under weight and pressure of the concrete and also due to the movement of men and other materials. Bamboos shall not be used as props or cross bracings. The shuttering for beams and slabs shall be so erected that the shuttering on the sides of beams and under the soffit of slab can be removed without disturbing the beam bottoms.

Re-propping of beams shall not be done except when props have to be reinstated to take care of construction loads anticipated to be in excess of the design load. Vertical props shall be supported on wedges or other measures shall be taken whereby the props can be gently lowered vertically while striking the shuttering.

If the shuttering for a column is erected for the full height of the column, one side shall be left open and built upon sections as placing of concrete proceeds, or windows may be left for pouring concrete from the sides to limit the drop of concrete to 1.0 m or as directed by Engineer-in-charge.

3.8.3.3 INSPECTION OF FORM WORK:

Following points shall be borne in mind while checking during erection of form work and formwork got approved by the Engineer-in-charge before placing of reinforcement bars

a) any member which is to remain in position after the general/ dismantling is done, be cleanly marked.

b) Material used should be checked to ensure that, wrong items/ rejects are not used.

c) If there are any excavations nearby which may influence the safety of form works, corrective and strengthening action must be taken.

d) (i) The bearing soil must be sound and well prepared and the sole plates shall bear well on the ground.

(ii) Sole plates shall be properly seated on their bearing pads or sleepers. (iii) The bearing plates of steel props shall not be distorted.

(iv) The steel parts on the bearing members shall have adequate bearing areas.

e) Safety measures to prevent impact of traffic, scour due to water etc should be taken. Adequate precautionary measures shall be taken to prevent accidental impacts etc.

f) Bracing, struts and ties shall be installed along with the progress of form work to ensure strength and stability of form work at intermediate stage. Steel sections (especially deep sections) shall at adequately restrained against tilting, overturning and form work should be restrained against horizontal loads. All the securing devices and bracing shall be tightened.

g) The stacked materials shall be placed as catered for, in the design.

h) When adjustable steel props are used, they should :

(i) Be undamaged ad not visibly bent

(ii) Have the steel pins provided by the manufacturers for use

(iii) Be restrained laterally near each end.

(iv) Have means for centralizing beams placed in the fork heads.

i) Screw adjustment of adjustable props shall not be over extended.

j) Double wedges shall be provided for adjustment of the form to the required position wherever any settlement / elastic shortening of props occurs. Wedges should be used only at the bottom end of single prop. Wedges should not be too steep and one of the pair should be tightened / clamped down after adjustment to prevent other shifting.

k) No member shall be eccentric upon vertical member

l) The number of nuts and bolts shall be adequate

m) All provisional of the design and / or drawings shall be complied with

n) Cantilever supports shall be adequate

o) Props shall be directly under one another in multistage constructions as far as possible.

p) Guy ropes or stays shall be tensioned properly.

3.8.3.4 REUSE OF FORMS:

Before reuse, all forms shall be thoroughly scrapped, cleaned, nails removed, holes that may leak suitably plugged and joints examined and when necessary repaired and the inside retreated to prevent adhesion, to the satisfaction of Engineer-in-charge. Warped lumber shall be resized.

Contractor shall equip himself with enough shuttering to complete the job in the stipulated time.

3.8.4 Bricks

3.8.4.1 SCOPE OF WORK:

The work covered under this specification pertains to procurement of best quality locally available bricks and workmanship of walls of various thickness. In strict compliance with the specifications and applicable drawings.

3.8.4.2 MATERIAL:

First class Bricks shall be best quality locally available bricks and having strength 105 Kg/Sq.cm shall be got approved by the Engineer-in-charge before incorporation in the work.

The nominal size of bricks (F.P.S) shall be 22.9 X 11.4 X7cm (9" X 4 1/2 X 2 3/4"). Permissible tolerance on dimensions shall be + 3mm. in length and + 1.5 mm in width / thickness. The contractor shall get approved the sample and source of bricks from Engineer- in-charge before procurement on large scale and shall maintain the same for the entire work.

3.8.4.3 Workmanship:

1. Four courses of brickwork with four joints should not exceed by more than 40mm the same bricks piled one over the other without mortar.
2. Brickwork shall not be raised more than 10 courses a day unless otherwise approved by the Engineer-in-charge. The brickwork shall be kept wet for at least 7 days.
3. Brickwork shall be uniformly raised around and no part shall be raised more than 1.0 metre above another at any time.
4. All joints shall be thoroughly flushed with mortar of mix as specified in the schedule of quantities, at every courses. Care shall be taken to see that the bricks are bedded effectively and all joints completely filled to the full depth.
5. The joints of brick work to be plastered shall be raked out to a depth not less than
6. 10mm as the work proceeds. The surface of brickwork shall be cleaned down and wiped properly before the mortar sets.

3.8.4.4 Mode of measurement:

For Brick work measured in Cubic Meters:

The contract rate shall be for a unit of one cubic metre of brick masonry as actually

Opening or chases required for P.H. or electrical inserts less than 0.1 sqm. and bearing of precast concrete members shall not be deducted.

No extra payment shall be made for any extra work involved in making the above openings or placements.

3.8.4.5 Reinforced Cement Concrete (RCC) Work

1. Water : Water used for cement concrete mortar, plaster, grout or curing shall be clear and free from injurious amounts of oils, acids, alkalies and other harmful substances in such amounts

2. The aggregates and cement shall be proportioned by weight only. The mixing shall always be carried out in mechanical mixer and in such a way so as to avoid any loss of water or cement. No hand mixed concrete will be allowed. It should be conveyed, placed in position and compacted by suitable type of mechanical vibrator, as rapidly as practicable but in no case the time of compaction after mixing shall increase 30 minutes. Standby concrete mixer and vibrator shall be available at site.

3. Ordinary Portland Cement (OPC) 53 Grade conforming to IS: 8112 mark shall only be used. Cement manufactured in mini-cement plants shall not be used.

4. All reinforcement used shall be of TMT bar (Fe 500) ISI mark and shall be clean and free from loose mill scales, rust and coating of oil or other coatings which may destroy or reduce bond.

5. Only steel shuttering shall be used. Shuttering shall be new or in a good condition without holes or dents. It has to be approved by the Engineer. The individual elements of shuttering shall be in the correct shape to ensure a gap free shuttering. Suitable systems have to be provided for keeping the shuttering in place and keeping the correct distance in case of walls.

6. The construction joints should be minimum and these have to be executed with utmost care. Before concreting on contact on joint loose material has to be removed and they have to be cleaned properly. Honeycombing has to be avoided by suitable fixing of shuttering and proper use of vibrators.

7. The exposed surfaces of concrete shall be kept continuously in a wet condition by ponding or covering with a layer of sackings, canvas or similar materials and kept continuously wet for at least 21 days from the date of placing of concrete.

8. To obtain dense concrete and to reduce chances of honey combing adequate vibrating and compacting shall be ensured.

9. RCC grade shall be as specified in the construction Drawings or as per Bill of Quantities (BOQ).

3.8.5 Cement

Cement to be used in the works shall be any of the following types with the prior approval of the Engineer. These have to be procured from reputed ISO: 9000 organizations:

i. Ordinary Portland cement, 53 Grade, conforming to IS: 12269.

Cement conforming to IS: 8041 shall be used only for pre-cast concrete products after specific approval of the Engineer.

3.8.6 Coarse aggregates

For plain and reinforced cement concrete (PCC and RCC) works, coarse aggregate shall consist of clean, hard, strong, dense, non-porous and durable pieces of crushed stone or Kota stone or other approved inert material. They shall not consists pieces of disintegrated stones, soft, flaky, elongated particles, salt, alkali, vegetable matter or other deleterious materials in such quantities as to reduce the strength and durability of the concrete, or to attack the steel reinforcement. Coarse aggregate having positive alkali silica reaction shall not be used. All coarse aggregates shall conform to IS: 383 and tests for conformity shall be carried out as per IS: 2386(Parts I to VIII).

Nominal size of coarse aggregate for various components in PCC & RCC is mentioned in BOQ. In case of discrepancy, the decision of the E in C is final.

3.8.7 Sand/Fine Aggregates

For masonry work, sand shall conform to the requirements of IS 2116.

For plain and reinforced cement concrete (PCC and RCC) works, fine aggregate shall consist of a suitable combination of natural sand. They shall not contain dust, lumps, soft or flaky, materials, mica or other deleterious materials in such quantities as to reduce the strength and durability of the concrete, or to attack the embedded steel. Sand washing machines should be used to remove impurities from sand. Fine aggregate having positive alkali-silica reaction shall not be used. All fine aggregate shall conform to IS: 383 and test for conformity shall be carried out as per IS: 2386 (Part I to VIII). The contractor shall submit to the Engineer the entire information indicated in Appendix A of IS: 383. The fineness modulus of fine aggregate shall neither be less than 2.0 nor greater than 3.5.

3.8.8 Water

Water used for mixing and curing shall be clean and free from injurious amounts of oils, acids, alkalis, salts, sugar, organic materials or other substances that may be deleterious to concrete or steel. Potable water is generally considered satisfactory for mixing concrete.

3.8.9 Cement mortar

Cement and sand shall be mixed in specified proportions given in the construction Drawings. Cement shall be proportioned by volume. The unit weight of cement shall 1.44 tons per cubic meter. Sand shall be proportioned by volume taking into account due allowance for bulking. All mortar shall be mixed with a minimum quantity of water to produce desired workability consistent with maximum density of mortar. The mix shall be clean and free from injurious type of soil/acid/alkali/organic matter or deleterious substances.

The mixing shall preferably be done in a mechanical mixer operated manually or by power. Hand mixing can be resorted to as long as uniform density of the mix and its strength are assured subject to prior approval of the E in C. Hand mixing operation shall be carried out on a clean water-tight platform, where cement and sand shall be first mixed dry in the required proportion by being turned over and over, backwards and forwards several times till the mixture is of uniform color. Thereafter, minimum quantity of

water shall be added to bring the mortar to the consistency of a stiff paste. The mortar shall be mixed for at least two minutes after addition of water.

Mortar shall be mixed only in such quantity as required for immediate use. The mix which has developed initial set shall not be used. Initial set of mortar with ordinary Portland cement shall normally be considered to have taken place in 30 minutes after mixing. In case the mortar has stiffened during initial setting time because of evaporation of water, the same can be re-tempered by adding water as frequently as needed to restore the requisite consistency, but this re-tampering shall not be permitted after 30 minutes. Mortar unused for more than 30 minutes shall be rejected and removed from site of work.

3.8.10 Curing

Brick work shall be protected from rain by suitable covering and shall be kept constantly moist on all faces for a minimum period of seven days. Brick work carried out during the day shall be suitably marked indicating the date on which the work is done so as to keep a watch on the curing period. Top of the masonry work shall be left flooded with water at the close of the day. Watering may be done carefully so as not to disturb or wash out the green mortar.

During hot weather, all finished or partly completed work shall be covered or wetted in such a manner as will prevent rapid drying of the brickwork.

During the period of curing of brick work, it will be suitably protected from all damages. At the close of day's work or for other period of cessation, watering and curing shall have to be maintained. Should the mortar perish i.e., become dry, white or powdery, through neglect of curing, work shall be pulled down and rebuilt as directed by the Engineer. It any stains appear during watering, the same shall be removed from the face.

3.8.11 Steel

3.8.11.1 Reinforcement

For reinforced cement concrete (RCC) works, the reinforcement / intentioned steel as the case may be shall consist of the following grades of reinforcing bars:

All steel shall be procured from original producers, or their authorized distributors.

Only new steel shall be delivered to the site. Every bar shall be inspected before assembling on the work and defective, brittle or burnt bar shall be discarded. Cracked ends of bars shall be discarded.

Whenever specified, either in construction drawings or BOQ, reinforcement steel i.e. high yield strength deformed bars. Utmost care should be taken so that bars are not damaged during handling and transportation.

3.8.11.2 Structural steel

Unless otherwise permitted herein, all structural steel shall before fabrication comply with the required specifications as per Indian Standards. If any standard is not specified in the BOQ then materials has to be procured after getting the approval from FSCL Engineer-In-Charge.

3.8.11.3 Stone: Red Agra Stone /Kota Stone:

3.8.11.4 SCOPE

This specification includes fabricated Red Agra Stone / Kota stone components required for the completion of Kota stone work indicated in the BOQ.

3.8.11.5 Source of Supply

All Red Agra Stone / Kota Stone shall be obtained from quarries having adequate capacity and facilities to meet the specified requirements. Fabrication shall be by a firm equipped to process the material

promptly in accordance with specifications. Evidence to this effect shall be provided by the supplier if required by the Design Professional.

3.8.11.6 Samples

Sufficient samples of Red Agra Stone / Kota Stone shall be submitted to the Design Professional through the General Contractor.

Each sample set shall include three samples.

Sample set shall show anticipated range of color, natural variations of grain structure, inclusions and any other visual characteristics to be expected in the final installation.

Approved sample set shall establish the standard by which stonework will be judged.

3.8.11.7 Shop Drawings

The Red Agra Stone / Kota Stone supplier shall submit: copies of required shop drawings to the Design Professional for approval. These drawings shall show all bedding, bonding, jointing and anchoring details, and the dimensions of each piece of Red Agra Stone / Kota Stone. No final sizing or finishing shall be done until the shop drawings for that part of the work has been approved.

3.8.11.8 Defective Work

Any piece of Red Agra Stone / Kota Stone showing manufacturing flaws upon receipt at the storage yard or building site shall be referred to the Design Professional for determination as to whether it shall be rejected, patched or redressed for use.

3.9 Materials

(1) CEMENT CONCRETE FLOORING

(2) **Cement Concrete:** Cement concrete of specified mix grade shall be used and it shall generally conform to the specifications described under HSR

(3) Base Concrete

(4) Flooring shall be laid on base concrete where so provided. The base concrete shall be provided with the slopes required for the flooring. Flooring shall have slope ranging from 1 : 48 to 1 : 60 depending upon location and as decided by the Engineer-in-Charge.

(5) The flooring shall be commenced preferably within 48 hours of the laying of base concrete. The surface of the base shall be roughened with steel wire brushes without disturbing the concrete. Immediately before laying the flooring, the base shall be wetted and a coat of cement slurry @ 2 kg of cement spread over an area of one sqm so as to get a good bond between the base and concrete floor.

(6) If the cement concrete flooring is to be laid directly on the RCC slab, the top surface of RCC slab shall be cleaned and the laitance shall be removed and a coat of cement slurry @ 2 kg of cement spread over an area of one sqm so as to get a good bond between the base and concrete floor.

(7) Thickness

The thickness of floor shall be as specified in the description of the item.

(8) Laying

(9) ***Panels :*** Flooring of specified thickness shall be laid in the pattern including the border as given in the drawings or as directed by the Engineer-in-Charge. The border panels shall not exceed 450 mm in width and the joints in the border shall be in line with panel joints. The panels shall be of uniform size and no dimension of a panel shall exceed 2 m and the area of a panel shall not be more than 2 sqm.

The joints of borders at corners shall be mitred for provision of strips.

(10) ***Laying of Flooring with Strips :*** Normally cement concrete flooring shall be laid in one operation using glass/aluminum/PVC/brass strips/stainless steel strips or any other strips as required as per drawing or instructions of the Engineer-in-Charge, at the junction of two panels. This method ensures uniformity in colour of all the panels and straightness at the junction of the panels. 4 mm thick glass strips or 2 mm PVC strips or 2 mm aluminum or brass strips shall be fixed with their tops at proper level, giving required slopes. Use of glass and metallic strips shall be avoided in areas exposed to sun. Cost of providing and fixing strips shall be paid for separately.

(11) Concreting: Cement concrete shall be placed in the panels and be leveled with the help of straight edge and trowel and beaten with thapy or mason's trowel. The blows shall be fairly heavy in the beginning but as consolidation takes place, light rapid strokes shall be given. Beating shall cease as soon as the surface is found covered with a thin layer of cream of mortar. The evenness of the surface shall be tested with straight edge. Surface of flooring be true to required slopes. While laying concrete, care shall be taken to see that the strips are not damaged/disturbed by the laborers. The tops of strips shall be visible clearly after finishing with cement slurry.

(12) ***Laying of Flooring without Strips:*** Laying of cement concrete flooring in alternate panels may be allowed by the Engineer-in-Charge in case strips are not to be provided.

(13) Shuttering : The panels shall be bounded by angle iron or flats. The angle iron/flat shall have the same depth as the concrete flooring. These shall be fixed in position, with their top at proper level giving required slopes. The surface of the angle iron or flats, to come in contact with concrete shall be smeared with soap solution or non-sticking oil (Form oil or raw linseed oil) before concreting. The flooring shall butt against the unplastered masonry wall.

(14) Concreting : The concreting shall be done in the manner described above. The angle iron/ flats used for shuttering, shall be removed on the next day of the laying of cement concrete. The ends thus exposed shall be repaired, if damaged with cement mortar 1 : 2 (1 cement : 2 coarse sand) and allowed to set for minimum period of 24 hours. The alternate panels shall then be cleaned of dust, mortar, droppings etc. and concrete laid. While laying concrete, care shall be taken to see that the edges of the previously laid panels are not damaged and fresh mortar is not splashed over them. The joints between the panels should come out as fine straight lines.

(15) Finishing

a. The finishing of the surface shall follow immediately after the cessation of beating. The surface shall be left for some time, till moisture disappears from it or surplus water can be mopped up. Use of dry cement or cement and sand mixture stiffening the concrete to absorb excessive moisture shall not be permitted. Excessive trowelling shall be avoided.

b. Fresh cement shall be mixed with water to form a thick slurry and spreaded @ 2 kg of cement over an area of one sqm of flooring while the flooring concrete is still green. The cement slurry shall then be properly processed and finished smooth.

c. The men engaged on finishing operations shall be provided with raised wooden platform to sit on so as to prevent damage to new work.

(16) Curing

The curing shall be done for a minimum period of ten days. Curing shall not be commenced until the top layer has hardened. Covering with empty gunnies bag shall be avoided as the colour of the flooring is likely to be bleached due to the remanents of cement dust from the bags.

(17) Precautions

During cold weather, concreting shall not be done when the temperature falls below 4°C. The concrete placed shall be protected against frost by suitable covering. Concrete damaged by frost shall be removed and work redone. During hot weather, precautions shall be taken to see that the temperature of wet concrete does not exceed 38° C. No concreting shall be laid within half an hour of the closing time of the day, unless permitted by the Engineer-in-Charge.

3.10 KOTA STONE FLOORING

(1) Kota Stone Slabs

The slabs shall be of selected quality, hard, sound, dense and homogeneous in texture free from racks, decay, weathering and flaws. They shall be hand or machine cut to the requisite thickness. They shall be of the colour indicated in the drawings or as instructed by the Engineer-in-Charge.

The slabs shall have the top (exposed) face polished before being brought to site, unless otherwise specified. The slabs shall conform to the size required. Before starting the work the contractor shall get the samples of slabs approved by the Engineer-in-Charge.

(2) Dressing

Every slab shall be cut to the required size and shape and fine chisel dressed on the sides to the full depth so that a straight edge laid along the side of the stone shall be in full contact with it. The sides (edges) shall be table rubbed with coarse sand or machine rubbed before paving. All angles and edges of the slabs shall be true, square and free from chippings and the surface shall be true and plane. The thickness of the slab after it is dressed shall be 20, 25, 30 or 40 mm as specified in the description of the item. Tolerance of ±2 mm shall be allowed for the thickness. In respect of length and breadth of slabs Tolerance of ± 5 mm for hand cut slabs and ± 2 mm for machine cut slabs shall be allowed.

(3) Preparation of Surface and Laying

Base concrete or the RCC slab on which the slabs are to be laid shall be cleaned, wetted and mopped. The bedding for the slabs shall be with cement mortar 1:4 (1 cement: 4 coarse sand) or as given in the description of the item. The average thickness of the bedding mortar under the slab shall be 20 mm and the thickness at any place under the slab shall be not less than 12 mm.

The slabs shall be laid in the following manner:

Mortar of the specified mix shall be spread under the area of each slab, roughly to the average thickness specified in the item. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped with wooden mallet and brought to level with the adjoining slabs. It shall be lifted and laid aside. The top surface of the mortar shall then be corrected by adding fresh mortar at hollows. The mortar is allowed to harden a bit and cement slurry of honey like consistency shall be spread over the same at the rate of 4.4 kg of cement per sqm. The edges of the slab already paved shall be buttered with grey or white cement with or without admixture of pigment to match the shade of the marble slabs as given in the description of the item.

Stone slabs to be paved shall then be lowered gently back in position and tapped with wooden mallet till it is properly bedded in level with and close to the adjoining slabs with as fine a joint as possible.

Subsequent slabs shall be laid in the same manner. After each slab has been laid, surplus cement on the surface of the slabs shall be cleaned off. The flooring shall be cured for a minimum period of seven days. The surface of the flooring as laid shall be true to levels, and, slopes as instructed by the Engineer-in-Charge. Joint thickness shall not be more than 1 mm. Due care shall be taken to match the grains of slabs which shall be selected judiciously having uniform pattern of Veins/streaks or as directed by the Engineer-in-Charge. The slabs shall be matched as shown in drawings or as instructed by the Engineer-in-Charge.

Stone slabs which are fixed in the floor adjoining the wall shall enter not less than 12 mm under the plaster skirting or dado. The junction between wall plaster and floor shall be finished neatly and without waviness.

Stone slabs flooring shall also be laid in combination with other stones and/or in simple regular pattern/design as described in item of work and/or drawing.

The edges of the slabs to be jointed shall be buttered with grey cement, with admixture of pigment to match the shade of the slab. The thickness of the joints should be minimum as possible. In any location, it shall not exceed 1 mm.

(4) Polishing and Finishing

The specifications shall be as described above except that (a) first polishing with coarse grade carborundum stone shall not be done, (b) cement slurry with or without pigment shall not be applied on the surface before polishing.

3.12 RED OR WHITE FINE DRESSED SAND STONE FLOORING

(1) Stone Slabs

The slabs shall be red or white as specified in the description of the item. The stone slabs shall be hard, sound, durable and tough, free from cracks, decay and weathering. In case of red sand stone, white patches or streaks shall not be allowed. However, scattered spots upto 10 mm diameter will be permitted. Before starting the work the contractor shall get samples of slabs approved by the Engineerin-Charge.

The slabs shall be hand or machine cut to the requisite thickness along planes parallel to the natural bed of stone and should be of uniform size if required.

(2) Dressing of Slabs

Every slab shall be cut to the required size and shape and chisel dressed on all sides to a minimum

depth of 20 mm. The top and the joints shall be fine tooled so that straight edge laid along the face is fully in contact with it. In case machine cut stones are used, chisel dressing and fine tooling of machine cut surface need not be done provided a straight edge laid anywhere along the machine cut surface is in contact with every point on it.

The thickness of the slabs after dressing shall be 40 mm or as specified in the description of item with a permissible tolerance of ± 2 mm.

(3) Laying

Base concrete on which the slabs are to be laid shall be cleaned, wetted and mopped. The bedding for the slabs shall be with cement mortar 1:5 (1 cement : 5 coarse sand) or as given in the description of the item.

The average thickness of the bedding mortar under the slabs shall be 20 mm and the thickness at any place under the slabs shall not be less than 12 mm.

The slab shall be laid in the following manner:

Mortar of specified mix shall be spreaded under each slab. The slab shall be washed clean before laying. It shall then be laid on top, pressed and larried, so that all hollows underneath get filled and surplus mortar works up through the joints. The top shall be tapped with a wooden mallet and brought to level and close to the adjoining slabs, with thickness of joint not exceeding 5 mm. Subsequent slabs shall be laid in the same manner. After laying each slab surplus mortar on the surface of slabs shall be cleaned off and joints finished flush.

In case pointing with other mortar mix is specified, the joint shall be left raked out uniformly and to a depth of not less than 12 mm when the mortar is still green. The pointing shall be cured for a minimum period of 7 days. The surface of the flooring as laid shall be true to levels and slopes as instructed by the Engineer-in-Charge.

Slabs which are fixed in the floor adjoining the wall shall enter not less than 12 mm under the plaster, skirting or dado. The junction between wall plaster skirting and floor shall be finished neatly and without waviness.

The finished floor shall not sound hollow when tapped with wooden mallet.

(4) Finishing

In case of chisel dressed stone flooring slight unevenness, if any existing between the edges of slabs at joints shall then be removed by chiselling in a slant.

3.13. RED OR WHITE FINE DRESSED AND RUBBED SAND STONE FLOORING

(1) Stone Slabs shall be as specified in fine dressed stone slabs for red and stone flooring.

(2) Dressing

The specifications for dressing the top surface and the sides shall be as described in fine dressed stone slabs for red and stone flooring in addition the dressed top and sides shall be table rubbed with coarse grade carborundum stone before paving, to obtain a perfectly true and smooth surface free from chisel marks. The thickness of the slabs after dressing shall be as specified with a permissible tolerance of ± 2 mm.

(3) Laying

The slabs shall be laid with 3 mm thick or 5 mm thick joints as specified in the description of the item.

Where the joints are to be limited to 3 mm thickness, the slabs shall be laid as specified above for stone work except that the bedding mortar shall be as specified in fine dressed stone slabs and sides of the slabs to be jointed shall be buttered with cement mortar 1:2 (1 cement : 2 stone dust) admixed with pigment to match the shade of the slab.

Where the slabs are to be laid with 5 mm thick joints, the specifications for laying shall be as described in fine dressed stone slabs.

(4) Finishing shall be as specified in for fine dressed stone slabs except that chisel marks and unevenness shall be removed by rubbing with coarse grade carborundum stone.

3.13 KOTA / RED SAND STONE IN RISERS OF STEPS, SKIRTING AND DADO

3.13.1 Kota / Red sand Stone Slabs and Dressing shall be as specified above except that the thickness of the slabs shall be 25 mm or as specified in the description of the item. The slabs may be of uniform size if required.

3.13.2 Preparation of surface

The joints shall be raked out to a depth of at least 15 mm in masonry walls. In case of concrete walls, the surface shall be hacked and roughened with wire brushes. The surface shall be cleaned thoroughly, washed with water and kept wet before skirting is commenced. where necessary, the wall surface shall be cut uniformly to the requisite depth so that the skirting face shall have the projection from the finished face of wall as shown in drawings or as required by the Engineer-in-Charge. In no case the skirting should project by more than thickness of stone.

3.13.3 Laying

The risers of steps and skirting shall be in grey or white cement admixed with or without pigment to match the shade of the stone, as specified in the description of the item, with the line of the slab at such a distance from the wall that the average width of the gap shall be 12 mm and at no place the width shall be less than 10 mm, if necessary, the slabs shall be held in position by temporary M.S. hooks fixed into the wall at suitable intervals. The skirting or riser face shall be checked for plane and plumb and corrected. The joints shall thus be left to harden then the rear of the skirting or riser slab shall be packed with cement mortar 1:3 (1 cement : 3 coarse sand) or other mix as specified in the description of the item. The fixing hooks shall be removed after the mortar filling the gap has acquired sufficient strength.

The joints shall be as fine as possible but not more than 1 mm. The top line of skirting and risers shall be truly horizontal and joints truly vertical, except where otherwise indicated.

The risers and skirting slab shall be matched as shown in drawings or as instructed by the Engineerin- in Charge.

The joints of the slabs shall be set in grey cement mixed with pigment to match the shade of the slabs.

3.13.4 Curing, Polishing and Finishing

The day after the stone are laid all joints shall be cleaned of the grey cement grout with a wire brush or trowel to a depth of 5 mm and all dust and loose mortar removed and cleaned. Joints shall then be grouted with grey or white cement mixed with or without pigment to match the shape of the topping of the wearing layer of the stone. The same cement slurry shall be applied to the entire surface of the stone in a thin coat with a view to protect the surface from abrasive damage and fill the pin holes that may exist on the surface.

The floor shall then be kept wet for a minimum period of 7 days. The surface shall thereafter be grounded evenly with machine fitted with coarse grade grit block (No. 60). Water shall be used profusely during grinding. After grinding the surface shall be thoroughly washed to remove all grinding mud, cleaned and mopped. It shall then be covered with a thin coat of grey or white cement, mixed with or without pigment to match the colour of the topping of the wearing surface in order to fill any pin hole that appear. The surface shall be again cured. The second grinding shall then be carried out with machine fitted with fine grade grit block (No. 120).

The final grinding with machine fitted with the finest grade grit blocks (No. 320) shall be carried out the day after the second grinding described in the preceding para or before handing over the floor, as ordered by the Engineer-in-Charge.

For small areas or where circumstances so require, hand grinding/polishing with hand grinder may be permitted in lieu of machine polishing after laying. For hand polishing the following carborundum stones, shall be used:

1st grinding — coarse grade stone (No. 60)

Second grinding — medium grade (No. 80)

Final grinding — fine grade (No. 120)

In all other respects, the process shall be similar as for machine polishing.

After the final polish, oxalic acid shall be dusted over the surface at the rate of 33 gm per square metre sprinkled with water and rubbed hard with a ‘namdah’ block (pad of woollen rags). The following day the floor shall be wiped with a moist rag and dried with a soft cloth and finished clean.

If any tile is disturbed or damaged, it shall be refitted or replaced, properly jointed and polished.

Cement slurry with or without pigment shall not be applied on the surface and polishing shall be done only with hand. The face and top of skirting shall be polished.

4 SUPPLYING AND LAYING PAVER BLOCK

4.4 PERFORMANCE BASED SPECIFICATIONS:

The following is a Performance based Specification which relates to the supply and laying of Paver blocks.

4.4.1 Methodology and Sequence of Work

The Contractor shall not commence any Hardscape work until the following have been completed:

a. All in ground drainage completed
b. All Kerb edge restraints completed
c. All other in ground services laid and complete
d. All areas surveyed and string lines set to establish the final finished level.
e. Any pre-existing manhole covers or drainage covers adjusted and raised or lowered to conform to the final finished Pavement Level.
f. The Contractor shall submit a full methodology, setting out his proposed sequence of work and trade before commencing paver blocks laying works.

4.4.2 Setting Out

a. The Contractor shall achieve the formation levels required for paving as indicated in the Contract Drawings listed in Appendix-A.
b. The line and levels of the paved areas shall be carefully set out in accordance with the Contract Drawings and be frequently checked by the Contractor, care being taken to ensure that correct gradients and cross falls are achieved.
c. The finished gradients of all pavements shall be formed so as to provide adequate falls for drainage as shown on the Contract Drawings.

4.4.3 Storage

Paving materials shall be stored in a place on-site, as agreed with the Engineer-In-Charge. Supply to site shall be timed to minimize the required storage period for all materials. Method of storage shall avoid damage to all materials. Damaged units shall be replaced by the Contractor at his expense.
Due care should be taken to handle all units in a manner that will keep the risk of strain and deformation to a minimum.

4.4.4 Cutting

All paving materials requiring cutting shall be cut using a diamond blade bench saw to give an acceptable quality edge to the satisfaction of the Engineer-In-Charge. A sample of cutting must be approved by the Engineer-In-Charge prior to any cutting taking place on site.
Paving materials showing a jagged or irregular edge will be rejected by the Engineer-In-Charge and must be replaced to the approval of the Engineer-In-Charge entirely at the Contractors expense. The Contractor must allow for the periodic replacement of blades in cutting equipment to ensure clean cut edges to paving units.

4.4.5 Trip Hazard

A trip hazard is defined as any deviation in the pavement by ± 10mm,including failure to adapt the finished levels to any pre-existing manhole cover or grating. The Contractor shall, therefore, carefully survey all areas to be paved, prior to commencing work. On completion of the works, the Completed hardscape shall be carefully inspected for any Trip Hazards and these shall be rectified entirely at the Contractor’s cost.

4.4.6 Construction in Inclement Weather

All newly laid paving shall be protected against the harmful effects of weather until such a time as the work is completed to the approval of the Engineer-In-Charge. Areas of paving damaged by inclement weather prior to Completion shall be replaced entirely at the Contractor's expense.

4.4.7 Sample Areas

The Contractor shall lay a 2.0 x 2.0 meter sample section of each paving type together with edge restraints and drainage furniture and obtain the approval of the Engineer-In-Charge before proceeding with laying of each of the paving types. The size, unless outlined in this Specification, and location of the sample area shall be agreed with the Engineer-In-Charge. Sample panels may be incorporated into the completed works by prior agreement with the Engineer-In-Charge.

4.4.8 Finished Levels of all Hardscape Surfaces

The finished level of the Hardscape surfaces is to be shown on the General Arrangement drawings. However, these are indicative only and the Contractor shall always extend a string line between edge restraints to establish smooth flowing gradients. The Contractor shall allow for in his ratesthe readjustments, raising, or lowering of any pre-existing manhole (of anytype) that may be required in order to achieve the finished levels. TheContractor may in situation, readjust the finished level of the Hardscapeareas, to match a pre-existing manhole, cover, or grating, provided priorconsent is given by the Engineer-In-Charge.

4.4.9 Finishing Work against all Items of Lighting Poles, Manhole and Drainage Covers.

The Contractor shall extend his Hardscape finishes right up to the edge of allitems of Lighting Poles, Manhole and Drainage Covers.Cement mortar filler pieces in excess of 25mm wide shall be rejected and theContractor shall make all efforts to ensure a neat, crisp and seamless joint.

4.4.10 Protection of the Completed Work

The Contractor shall protect and barricade off all areas of completed Hardscape upon completion, until Handover to the Client. The Contractor shall be responsible for ensuring that the works are handed over in a cleanand tidy condition, and any staining in the completed Hardscape will be rejected.

4.5 LAYING OF INTERLOCKING PAVERS

All pavers shall be of approved brand and manufacturer – Pave Espania, Super Tiles or KJS makes approved by FSCL.

4.5.1 Characteristics

Concrete pavers shall be of M40 grade concrete, precast, and 60mm thickness. Tolerance in dimension allowed is ±2mm.

Shape	As per client's Drawing/BOQ
Edges	Chamfered
Application	Walkway, Driveway
Thickness	60 mm
Compressive Strength /finish	200 kg/cm^2,300 kg/cm^2,300-500kg/cm^2 . Smooth, Coarse.
No. Of layers	Two
Top Layer	1:1
Bottom Layer	Design mix as per strength criteria.(M-40)
Bed preparation	WBM or lean P.C.C. (1:4:8 or 1:5:10) 75 mm thick.
Fixing Medium	Mortar 25 mm (1:6) or 40mm sand with vibratory Compaction.
Slope / Gradient	Adequate (Minimum 1% preferably 2%)
Grouting	Dry Grouting
Edge Restraint	Kerbstone or Retaining wall.

Abrasion Resistance	Less than 3.
Water Absorption	Less than 7% (After 24 Hrs.)

4.5.2 Sand Bedding

The paving blocks are indicated in the Contract Drawings to be bedded onsand (flexible paving) this material shall be naturally occurring sand or shallconsist of crushed rock or gravel or a combination thereof with naturallyoccurring sand, hard, clean, free from all adherent coatings. It shall comply inall respects with relevant Indian Standards and be wellgraded down from 5mm.
The moisture content of the laying course should be as uniform as possibleand at or about its optimum. Where material is to be stockpiled it should becovered.
The laying course should be such that, after compaction, it forms a nominallyuniform layer,20mm thick below the pavers.
The material should be spread loose in a uniform layer and screeded to athickness required to give nominal 20mm layer after completion of the paving or the material should be spread in a loose, uncompacted layer toapproximately 2/3rd of the required final thickness. This layer should be lightlycompacted by means of a vibrating plated compactor. A further layer of loosematerial should be spread and screeded to create a loose surface on to whichthe units can be placed.
Care should be taken to avoid localized disturbance of the prepared layingcourse sand by pedestrian or wheeled traffic prior to placing units. The areaof laying course prepared should be such that the position of its boundary isnot more than one meter from the position of the laying face at the end of theworking period wherever practicable.

4.5.3 Joints in Flexible Paving

Joints are to be 2mm when placed hand-tight. Pavers shall be laid workingfrom an existing laying face edge or edge restraint. Full pavers should be laidfirst; closure units should then be laid. The area to be laid should becompleted as far as is possible in entire paver units. Wherever possible,infilling to boundaries and obstructions should proceed as the laying of thesurface course proceeds and infilling should be completed before compactioncommences. Mechanical force shall not be used to obtain tight joints.

For flexible paving sand shall be brushed into the joints until they are filled tothe top surface of the paving blocks. Sand for joint filling should be dry with aminimum particle size no greater than 1.18mm containing about 10% byweight passing a 0.75mm sieve. Sand colour shall be agreed withEngineer-In-Charge prior to brushing into joints.

The Contractor shall allow for cutting units to achieve laying to curves (without opening up joints).

4.5.4 Laying Pavers

The units shall be laid to the patterns shown in the drawings.

Laying of paver blocks:

1) Paver blocks shall be laid in pattern specified in drawing throughout the pavement. Once the laying pattern has been established, it shall continue without interruption over the entire pavement surface. Cutting of blocks, the use of infill concrete or discontinuities in laying pattern is not to be permitted in other than approved locations.
2) Paver blocks shall be placed on the un-compacted screened sand bed to thenominated laying pattern, care being taken to maintain the specified bond throughout the job. The first row shall be located next to an edge restraint.
3) Specially manufactured edge paving blocks are permitted or edge blocks may be cut using a power saw, a mechanical or hydraulic guillotine, bolster or other approved cutting machine.
4) Paver blocks shall be placed to achieve gaps nominally 2 to 3 wide between adjacent paving joints. No joint shall be less than 1.5 mm and not more than 4 mm.

5) Frequent use of string lines shall be used to check alignment. In this regard the“laying face” shall be checked at least every two metres as the face proceeds.

6) Should the face become out of alignment, it must be corrected prior to initial compaction and before further laying job is proceeded with.

7) In each row, all full blocked shall be laid first. Closure blocks shall be cut and fitted subsequently. Such closer blocks shall consist of not less than 25 % of full blocks.

8) To infill spaces between 25 mm and 50 mm wide concrete having screened sand, coarse aggregate mix and strength of 45 N/sq.mm shall be used. Within such mix the nominal aggregate size shall not exceed one third the smallest dimension of the infill space. For smaller spaces dry packed mortar shall be used. Except where it is necessary to correct any minor variations occurring in the laying bond, the paver blocks shall not be hammered into position. Where adjustment of paver blocks, necessary care shall be taken to avoid the premature compaction of the sand bedding.

Initial Compaction:

9) After laying the paver blocks, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than two(2) passes of a suitable plate compactor.

10) The compactor shall be a high-frequency, low amplitude mechanical flat plate vibrator having plate area sufficient to cover a minimum of twelve paving blocks.

11) Prior to compaction all debris shall be removed from the surface. Compaction shall proceed as closely as possible following laying and prior to any traffic. Compaction shall not, however, be attempted within one metre of the lying face. Compaction shall continue until lipping has been eliminated between adjoining blocks. Joints shall then be filled and recomputed as described in relevant Clause.

12) All work further than one metre from the laying face shall be left fully compactedat the completion of each day’s laying.

13) Any blocks that are structurally damaged prior to or during compaction shall be immediately removed and replaced.

14) Sufficient plate compactors shall be maintained at the paving site for both bedding compaction and joint filling.

4.5.5 Cutting Pavers

Paving blocks requiring cutting shall be cut using a diamond blade bench sawto give an acceptable quality edge to the satisfaction of the Engineer-In-Charge and prior to general cutting taking place on site.

Pavers shall be cut to form, neat junctions/boundaries with other paving materials/kerbs, street furniture, etc. fillets of colour matched mortar in lieuof small pieces of unit paving shall be avoided where possible and only beused with the approval of the Engineer-In-Charge.

Paving blocks showing a jagged or irregular edge will be rejected by the Engineer-In-Charge and must be replaced to the satisfaction of theEngineer-In-Charge all at the Contractors expense.

Care shall be taken to avoid placing more than one cut kerb and/or paver unitin close proximity to another cut unit at junctions/changes of direction ofpaving.

The Contractor must allow for the periodic replacement of blades in cuttingequipment to ensure clean cut edges to paving units.

4.5.6 Compaction of Flexible Paving

Pavers on sand bed shall be subjected to passes of a steel-faced vibratingplatecompactor to adequately compact the laying course and to bed andregulate the paving blocks. The vibrating-plate compactor shall have acentrifugal force of 16-20KN, a plate area of 0.35-0.5 sqm and a frequency of75-100Hz. Enough passes shall be made to compact the paving course andproduce an even surface. All trimming should be completed before the area iscompacted.

Compaction should follow laying as soon as possible but should not becarried out within 1m of the laying edge. Apart from this edge strip no area ofpaving should be left without being compacted at the completion of the days'work. The E in C approval must be obtained if compactionis not to be completed at the end of the day's work.

4.5.7 Finished Levels

Finished levels of the paving units shall not deviate by more than 2mmagainst adjacent units whilst the deviation from the design profile measured under a 3m straight edge should not exceed 10mm. The units shall form neat junctions with and prevent damage to adjacent work.

4.5.8 Cleaning on Completion of Work

On completion the face of the units must be clear of all dust, rust and other stains, adhering mortar and other droppings. Any units from which stains cannot be removed shall be replaced at the Contractors expense and be tothe approval of the E in C.

Flexible paving surfaces are to be brushed down with a soft bristle brush with joints refilled with sand where required. The paved areas must be left in a neat and tidy condition to the satisfaction of the Engineer-In-Charge.

4.6 Subgrade (Footpath/Parking Area)

All sub-grades shall be constructed in accordance with the requirements of this section and in conformity with the lines, grades, and cross-sections as shown in the contracted drawing listed in Appendix A or as directed by the Engineer.

4.6.1 Materials and General Requirements

Physical requirements

The materials used in sub-grades shall be soil, murrum, gravel, a mixture of these or any other material approved by the Engineer. Such materials shall be free of logs, stumps, roots, rubbish or any other ingredient likely to deteriorate or affect the stability of the sub-grade.

The following types of material shall be considered unsuitable for sub-grade:

a. Materials from swamps, marshes and bogs;
b. Peat, log, stump and perishable material; any soil that classifies as OL,OI, OH or Pt in accordance with IS:1498;
c. Materials susceptible to spontaneous combustion;
d. Materials in a frozen condition;
e. Clay having liquid limit exceeding 70 and plasticity index exceeding 45; and
f. Materials with salts resulting in leaching in the embankment.

Expansive clay exhibiting marked swell and shrinkage properties (“free swelling index” exceeding 50 per cent when tested as per IS:2720-part 40) shall not be used as a fill material. Whereas expansive clay with acceptable “free swelling index” value can be used as a fill material.

Any fill material with a soluble sulphate content exceeding 1.9 grams of sulphate (expressed as SO3) per litre when tested in accordance with BS:1377 (Test 10), but using a 2:1 water-soil ratio shall not be used as a sub-grade.

Materials with a total sulphate content (expressed as SO3) exceeding 0.5 percent by mass, when tested in accordance with BS:1377 (Test 9) shall also not be used as a sub-grade.

The size of coarse material in the mixture of earth shall ordinarily not exceed 50mm when placed in the sub-grade. However, the Engineer may at his discretion permit the use of material coarser than this also if he is satisfied that the same will not present any difficulty as regards the placement of fill material and its compaction to the requirements of these specifications. The maximum particle size shall not be more than two-thirds of the compacted layer thickness.

Ordinarily, only the materials satisfying the density requirements given in Table No. 1 shall be employed for the construction of the sub-grade.

Table 1 DENSITY REQUIREMENTS OF SUBGRADE MATERIALS

S. No.	*Type of Work*	*Maximum laboratory dry unit weight when tested as per IS:2720 (Part 8)*
1	*Sub-grade*	*Not less than 17.5 kN./cum*

Note: (1) This Table is not applicable for lightweight fill material e.g. cinder, fly ash, etc.

(2) The Engineer may relax these requirements at his discretion taking into account the availability of

materials for construction and other relevant factors.

(3) The material to be used in sub-grade should also satisfy design CBR at the dry unit weight applicable as per Table No. 1.

4.6.1.1.1 General Requirements

The materials for embankment shall be obtained from approved sources with preference given to materials becoming available from nearby roadway excavation or any other excavation under the same Contract.

The work shall be so planned and executed that the best available materials are saved for the sub-grade.

Borrow Materials: Where the materials are to be obtained from designated borrow areas, the location, size and shape of these areas shall be as indicated by the Engineer and the same shall not be opened without his written permission. Where specific borrow areas are not designated by the Employer/the Engineer, arrangement for locating the source of supply of material for sub-grade as well as compliance to environmental requirements in respect of excavation and borrow areas as stipulated from time to time by the Ministry of Environment and Forests, Government of India and the local bodies, as applicable shall be the sole responsibility of the Contractor.

Borrow pits along the road shall be discouraged. If permitted by the Engineer, these shall not be dug continuously. Ridges of not less than 8.00m width should be left at intervals not exceeding 300m. Small drains shall be cut through the ridges to facilitate drainage. The depth of the pits shall be so regulated that their bottom does not cut an imaginary line having a slope of 1 vertical to 4 horizontal projected from the edge of the final section of the bank, the maximum depth in any case being limited to 1.50m. Also, no pit shall be dug within the offset width from the toe of the embankment required as per the consideration of stability with a minimum width of 10m.

Haulage of material of fill shall proceed only when sufficient spreading and compaction plant is operating at the place of deposition.

No excavated acceptable material other than surplus to requirements of the Contract shall be removed from the site. Should the Contractor be permitted to remove acceptable material from the site to suit his operational procedure, then he shall make good any consequent deficit of material arising therefrom.

Where the excavation reveals a combination of acceptable and unacceptable materials, the Contractor shall, unless otherwise agreed by the Engineer, carry out the excavation in such a manner that the acceptable materials are excavated separately for use in the permanent works without contamination by the unacceptable materials. The acceptable materials shall be stockpiled separately.

The Contractor shall ensure that he does not adversely affect the stability of excavation or fills by the methods of stockpiling materials, use of plants or siting of temporary buildings or structures.

The Contractor shall obtain representative samples from each of the identified borrow areas and have these tested at the site laboratory following a testing programmed approved by the Engineer. It shall be ensured that the sub-grade material when compacted to the density requirements as in Table 2 shall yield the design CBR value of the sub-grade.

The Contractor shall at least 7 working days before commencement of compaction submit the following to the Engineer for approval:

(i) The values of maximum dry density and optimum moisture content obtained in accordance with IS:2720 (Part 7) or (Part 8), as the case may be, appropriate for each of the fill materials he intends to use.

(ii) A graph of density plotted against moisture content from which each of the values in (i) above of maximum dry density and optimum moisture content were determined.

(iii) The Dry density-moisture content-CBR relationships for light, intermediate and heavy compactive efforts (light corresponding to IS: 2720 (Part 7), heavy corresponding to IS: 2720 [Part 8] and intermediate in-between the two) for each of the fill materials he intends to use in the sub-grade. Once the above information has been approved by the Engineer, it shall form the basis for compaction.

Materials finer than 425 micron shall have Plasticity Index (PI) not exceeding 6.

The final gradation approved within these limits shall be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve or vice versa.

4.6.1.2 Bedding sand course:

The bedding sand shall consist of clean well graded sand passing through 4.75mm sieve and suitable for concrete. The bedding should be from either a singlesource or blended to achieve the grading limits as shown in Table 2.

Table-2 Gradation for Sand Bedding

Sieve size	*% passing*
9.5 mm	*100*
4.75 mm	*95-100*
2.36 mm	*80-100*
1.18 mm	*60-100*
600 microns	*25-60*
300 microns	*10-30*
150 microns	*5-15*
75 microns	*0-10*

1) Contractor shall be responsible to ensure that single-sized, gap-graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp (not rounded) as sharp sand possess higher strength and resist the migration of sand from under the block to less frequency areas even though sharp sands are relatively more difficult to compact than rounded sands, the use of sharp sands is preferred for the more heavily trafficked driveways. The sand used for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence. The sand shall be of

uniform moisture content and within 4 % - 8 % when spread and shall be protected against rain when stock piled prior to spreading.

2) Saturated sand shall not be used. The bedding sand shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be of 45mm and within +/- 5 mm. Thickness variation shall not be used to correct irregularities in the base course surface. The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following screening. Any pre-compacted sand or screeded sand left overnight shall be loosened before further laying of paving blocks take place.
3) Sand shall be slightly screeded in a loose condition to the predetermined depth only slightly ahead of the laying of paving unit.
4) Any depressions in the screeded sand exceeding 5 mm shall be loosened, rakedand rescreeded before laying of paving blocks.

4.7 SAMPLING AND TESTING PROCEDURES FOR PAVER BLOCKS

4.7.1 Sample size

- Internal – Average of minimum 3 samples per 5000 blocks – for paver block manufacturers.
- Internal – Minimum 9 blocks per 5000 blocks. Average of minimum 9 blocks per site or captioned contractors.

4.7.2 Water Absorption:

Testing for water absorption shall be in accordance with IS: 2185: 1979: Part-(Specifications for Concrete Masonry Blocks) Appendix C.

4.7.3 Sampling of Paver Blocks

4.7.3.1 Method of sampling:

Before laying paver blocks, each designated section comprising not more than50,000 blocks shall be divided into ten approximately equal groups. Nine blocks shall be drawn from each group.

4.7.3.2 Marking and Identification:

All samples shall be clearly marked at the time of sampling in such a way that the designated section of part thereof and the consignment represented by the sample are clearly defined.
The sample shall be dispatched to the approved test laboratory taking precaution to avoid damage to the paving in transit. Protect the paving from damage and contamination until they have been tested. The samples shall be stored in water at 20 ºC + 5 ºC for 24 hours prior to testing.

4.8 PROCEDURE FOR TESTING OF COMPRESSIVE STRENGTH FOR PAVER BLOCKS SHALL BE AS PER RELEVANT BIS.

4.9 DRY STONE CLADDING

4.9.1 MATERIAL

Stone shall be of the type as specified in the item. It shall be hard, sound durable and tough free from cracks, decay and weathering and defects like cavities cracks, flaws, holes, veins, patches of soft or loose materials etc. Thickness of stone shall be as specified in the BOQ/drawings.

Stone shall be cut with the gang saw to the required size and shape on all beds and joints so as to free from any waviness and to give truly vertical horizontal surface as required. The exposed face and sides of stones forming joints shall be such that the straight edge laid along the face of the stone is in

contact with every point on it. All the visible angle and edges shall be square and free from chipping. The

Dressed stone shall be of the thickness specified with permissible tolerance of + 2 mm.

Before starting the work, the contractor shall get the samples of stone approved by Engineer-Incharge.

Approved sample shall be kept in custody of Engineer-in-Charge and stones supplied and used on the work shall conform to sample with regard to soundness, colour, veining and general texture. The

stone shall be cut by gang saw into slabs of required thickness along the places parallel to the natural bed. When necessary double scaffolding for fixing the stone at greater heights, jib crane or other mechanical appliances shall be used to hoist the heavy pieces of stone and placed them into correct positions. Care shall have to be taken that corners of the stone are not damaged. Stone shall be covered with gunny bags before tying chain or rope is passed over and it shall be handled carefully. No pieces which has been damaged shall be used that work

4.9.2 STACKING AND SHORING

Stone slabs are thin and brittle and should never be stacked flat across timber supports. They should therefore, be stacked on edge on timber or like runners. Packing pieces inserted between the slabs may be rope or timber. Slabs shall be well covered with plastic sheeting to protect them from any possible staining.

4.9.3 SCAFFHOLDING

Double scaffolding having two sets of vertical supports shall be provided. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding planks shall be fixed.

4.9.4 FIXING

The size & shape of the cramps shall be as per drawing and as per directions of Engineer-in-charge. The samples of steel cramps should be approved in advance before starting the stone cladding work. The cramp shall be attached to top and bottom of the stone. The cramps shall have inbuilt adjustment for vertical and horizontal alignment. The cramps used to hold support and transfer the load of stone unit to the supporting structured steel shall be designed by the manufacturer and approval of the same shall be obtained from the Engineer-in-Charge.
The minimum number of clamps required shall be as per requirement of design to carry the load of individual stone slabs. The cramps shall be spaced not more than 60 cm horizontally and vertically along the stone side for insertion of pins / bolt attached with the steel cramps. Adequate cutting in stone shall be made with precision instrument to hold the cramps pins at the joints.

Stone shall be secured with clamps with high quality workmanship. The walls shall be carried up truly plumb. All the courses shall be laid truly horizontal and all the vertical joints truly vertical. The sequence of execution for cladding work shall be approved by the Engineer-in-Charge.

a. **Jointing:** Joints horizontal and vertical shall be filled with weather sealant of make as approved by Engineer-in-charge with the help of pouring gun for filling the sealant. Before filling the joint with sealant, masking tape are required to be fixed on stones surface on both edges of joints of the stones, so that sealant may not spoil the surface of the stone. When all the joints are filled and sealant has dried, the masking tape may be removed.

b. **Protection:** Work shall be protected from rain by suitable covering. The work shall also be suitably protected from damage and rain during construction.
Measurement: The length and breadth shall be measured correct to a cm. The area shall be calculated in square metre correct to two places of decimal. Any opening of area 0.01 sqm. or less shall not be deducted.

c. **Rate:** The rate includes the cost of materials and labour involved in all operations described above including cost of support scaffolding staging, sealant, pouring guns but excluding the cost of steel cramps drilling holes / making recesses in stones which shall be paid for separately.

4.10 Water Proofing for wall and Slab

Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces ,planters wall etc consisting of following operations:

a. Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls up to 300 mm height including cleaning the surface before treatment.
b. Laying brick bats with mortar using broken bricks/brick bats 25mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs
c. After two days of proper curing applying asecond coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge.
d. Finishing the surface with 20 mm thick. joint less cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and
Approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surfacewith trowel with neat cement slurry and making pattern of 300x300mm square 3 mm deep.

e. The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge : 22.7.15.1 With average thickness of 120 mm and minimum thickness at khurra as 65 mm

4.10.1 FENCE/ CHAIN LINK

The work shall generally be carried out as per these specifications, relevant drawings and as directed by the Engineer-in-charge.

4.10.1.1 M.S. Posts and Struts :

All the M.S. posts / struts shall be free from rust, scale, cracks, twists and other defects and shall be fabricated to the required shape and size out of the specified sections. The posts and struts shall be conforming to relevant specifications stipulated hereinbefore under relevant sections. All the posts an struts shall be of sizes and lengths as specified in the tender schedule. The exposed surfaces of the posts and struts shall be painted with two coats of approved primer.

4.11 MILD STEEL WORK

4.11.1.1 General

The contractor shall submit 6 copies of shop drawings shall show all dimension, details of construction, installation relating tot eh adjoining work.

4.11.1.2 Materials :

All structural steel shall conform to IS 2062 Grade A sections for MS work and shall be free from loose mill scales, rusts, pitting or any other defects affecting its strength and durability.

4.11.1.3 Fabrication :

The grills shall be fabricated to the design and pattern shown in the drawings. All joints shall be made in best workman like manner with slotting and welding as required to the specified

size and shape. The edge of the M.S. flats shall be suitably mitred before welding to get the

desired shape. The joints shall be filled to remove excess stay after welding screws, nuts, washers, bolts, rivets and any other miscellaneous fastenings devices shall be of steel and shall be provided by the contractor.

Manufactured M.S. Grills then be fixed in between the posts, balusters, M.S. frame work etc. to correct alignment. Any undulations, bends etc. found shall be rectified by the contractor at his own cost. The complete assembly of rill / railing so fixed shall be firm and there shall not be any lateral movements.

4.11.1.4 Samples :

Samples of grill and railings shall be submitted for approval of the Engineer-in-charge and to be got approved before taking up for mass fabrication.

4.11.1.5 Installation:

The approved grills shall be fixed in position where specified and shown in drawings including in masonry walls, teakwood frames, hand railings etc. Any damages to walls, frames etc. caused during fixing the grills shall be made good by grouting with cement mortar/packing

/repairing properly at the contractors cost.

4.11.1.6 Painting:

Painting shall be done as per the specification specified under painting.

4.11.1.7 Mode of measurement :

Actual area of M.S. grill manufactured and fixed in position shall only be measured in square metre for payment. All measurements shall be taken to two places of decimal of a metre and area shall be calculated to second place of decimals of a square metre. The rate is to include the cost of all materials, labour, transporting, fabricating, installing,

Scaffolding if necessary, grouting etc. complete.

4.11.1.8 Finishing / Painting/Polishing for railing :

Teak wood hand rail shall be polished with wax polish / French polish / melamine with two or more coats over one coat of wood/primer or painted with two coats of synthetic enamel paint / flat oil paint of approved make and shade over one coat of approved primer. M.S. grills, balusters, etc. also to be painted as per specifications specified under Painting/ Polishing.

4.11.1.9 Mode of measurements (hand rails) :

Hand railing shall be measured for payment in running metre. The lengths shall be measured along the top center line of the hand rail and shall be measured between ends of

balusters, newels, posts as the case may be upto two places of decimals of a metre. Rates shall

include fabrication, leaving suitable pockets, grouting the same, providing an fixing suitable teak wood plugs, fixing, all labour, materials, transport, painting/polishing, finishing and scaffolding if necessary.

5 HORTICULTURE WORKS

5.4 General

Scope: Contractor to furnish all materials labor and related items necessary to complete the work indicated on drawing and specified herein including maintenance of the premises for 60 months after completion.

5.4.1 Materials

5.4.2 Plant materials

a. Plant materials shall be well formed and shaped true to type, and free from disease, insects and defects such as knots, windburn, injuries, abrasion or disfigurement.
b. All plant materials shall be healthy, sound, and vigorous, free from disease, insect pests, or their eggs, and shall have healthy, well – developed root systems.
c. All plants shall be hardy under climatic conditions similar to those in the locality of the project.
d. Plants supplied shall conform to the names listed on both the plan and the plant list.
e. No plant material will be accepted if branches are damaged or broken.
f. All material must be protected from the sun and weather until planted.
g. Any nursery stock shall have been inspected and approved by the Engineer-In-Charge.
h. All plants shall conform to the requirements specified in the plant list, except those plants larger than specified may be used if approved, but use of such plants shall not increase the Contract price. If the use of the larger plant is approved, the spread of roots or ball of earth shall be increased in proportion to the size of the plant.
i. Deliver plants with legible identification labels.
j. The minimum acceptable size of all trees after pruning, with branches in normal positions, will confirm to the measurement specified in the Bill of Quantities unless stated otherwise. Calliper measurement will be taken at a point on the trunk 1.0 meter above natural ground. Plants that meet the specified measurement, but do not possess a normal configuration or balance of height and spread will be rejected
k. All trees supplied will be branched as specified in the Bill of Quantities. All trees supplied must have terminal shoots.
l. All specimen trees must have a minimum crown spread of not less than half the size of the overall height.
m. The root system shall be conducive to successful transplantation. Where necessary, the root - ball shall be preserved by support with hessian or other suitable material. On soils where retention of a good ball is not possible, the roots should be suitably protected in some other way which should not cause any damage to roots.

5.4.3 Topsoil: (Good earth) pH range 6.5 to 7.5

d. Topsoil or good earth shall be a friable loam; typical of cultivated top soils of the locality containing at least 2%of decayed organic matter (humus). It shall be taken from a well-drained arable site.
e. It shall be free of subsoil, stones, earth clods, sticks, roots or other objectionable extraneous matter or debris.
f. It shall contain no toxic material. No topsoil shall be delivered in a muddy condition.

5.4.4 Fertilizer

a. Dry farm yard manure shall be used measurement shall be in stacks, with 8% reduction for payment.
b. It shall be free from extraneous matter, harmful bacteria insects or chemicals.

5.4.5 Condition

a. Trees and shrubs shall be substantially free from pests and diseases, and shall be materially undamaged.
b. Torn or lacerated roots shall be pruned before dispatch.
c. No roots shall be subjected to adverse conditions, such as prolonged exposure to adverse conditions, such as prolonged exposure to drying winds or subjection to water-logging, between lifting and delivery.

5.4.6 Supply and substitution:

Upon submission of evidence that certain materials including plant materials are not available at time. Of contract, the contractor shall be permitted to substitute other material and plants, with an equidistant adjustment of price. All substitutions shall be subject to the approval of the Engineer-In-Charge.

5.4.7 Packaging:

Packaging shall be adequate for the protection of the plants and such as to avoid heating or drying out.
Marking: Each specimen of tree and shrub, or each bundle, shall be legibly labeled with the following particulars:
Its name
The name of the supplier.
The date of dispatch from the nursery.

5.5 Execution

5.5.1 Fine Grading

a) The nominated Landscape contractor will adjust with screened soil as necessary. Grades will be smooth and even on a uniform plane without abrupt changes or pockets and slope it away from the buildings.
b) The nominated Landscape Contractor will verify the surface drainage of planting areas and notify the Engineer-In-Charge of any discrepancies, obstructions or other conditions considered detrimental to proper execution of the work and plant growth.
c) Landscape work will be tied to the existing condition such as existing trees , palms , landscape features, utility lines , pavement curbs , etc. Finished grade will bear proper relationship to such control.
d) The nominated Landscape Contractor will adjust all works as necessary to meet the conditions and fulfil the intention of the Drawings.
e) After initial settlement the finish grade will be :

I. Turf 20mm lower than adjacent walks, kerbs.

II. Shrubs and Ground covers 40mm lower than adjacent walks, kerbs.

III. Prior to planting operation, the contractor will ensure all planting areas free of weeds, debris, rocks over 25mm in diameter and clumps of earth that will not break up.

5.5.2 Tree Planting

5.3 Digging

a. Trees should be supplied with adequate protection as approved. After delivery, if planting is not to be carried out immediately, balled plants should be placed cheek to cheek and the ball covered with sand to prevent drying out. Bare rooted plants can be heeled in by placing the roots in a prepared trench and covering them with earth which should be watered in to avoid air pockets round the roots.
b. Digging of Pits

i. Tree pits shall be dug a minimum of three weeks prior to backfilling.

ii. The pits shall be 120cms in diameter and 120cms deep. While digging the pits, the topsoil upto a depth of 30cms may be kept aside, if found good (depending upon site conditions), and mixed with the rest of the soil.

iii. If the soil is bad below, it shall be replaced with the soil mixture as specified further herein. If the soil is normal it shall be mixed with manure; river sand shall be added to the soil if it is heavy.

iv. Flooding of Pits to reduce air pockets

a. The soil backfilled watered through and gently pressed down, a day previous to planting, to make sure that it may not further settle down after planting. The soil shall be pressed down firmly by treading it down, leaving a shallow depression all rounds for watering.
b. Planting

v. No tree pits shall be dug until final tree positions have been pegged out for approval.

vi. Care shall be taken that the plant sapling when planted is not buried deeper than in the Nursery, or in the pot.

vii. Planting should not be carried out in water logged soil. Plant trees at the original soil depth; the soil marks on the stem is an indication of this and it should be maintained on the finished level, allowing for setting of the soil after planting.

viii. All plastic and other imperishable containers should be removed before planting.

ix. Any broken or damaged roots should be cut back to sound growth. The bottom of the planting pit should be covered with 50mm to 75mm of soil. Bare roots should be spread evenly in the planting pit; and small mound in the centre of the pits on which the roots are placed will aid an even spread.

x. Soil should be placed around the roots, gently shaking the trees to allow soil the particles to shift into the root system to ensure close contact with all roots and to prevent air pockets.

xi. Back fill soil should be firm as filling proceeds, layer by layer, care being taken to avoid damaging the roots, as follows:

25gms of 50% BHC shall be sprinkled on walls of pit, and initially pit shall be filled to 200 depth with earth mixed with 10gm of BHC. The balance earth shall be filled in a mixture of 1 : 2 (1 part manure to 2 part earth). Aldrin or equivalent shall be applied every 15 days in a mixture 0.2% which comes to 6cc in 1 litre of water.

5.4 Staking

Newly planted trees must be held firmly although not rigidly by staking to prevent a pocket forming around the stem and newly formed fibrous roots being broken by mechanical pulling as the tree rocks.

Methods: The main methods of staking shall be:

i. A single vertical stake, 900mm longer than the clear stem of the tree, driven 600mm to 900mm into the soil.

ii. Two stakes as above driven firmly on either side of the tree with cross-bar to which the stem is attached. Suitable for small bare-rooted or balled material.

iii. A single stake driven in at an angle 450 and leaning towards the prevailing wind, the stem just below the lowest branch being attached to the stake, Suitable for small bare-rooted or balled material.

iv. The end of stake should be pointed and the lower 1m to 1.2m should be coated with non - injurious wood preservative allowing at least 150mm above ground level.

5.4.1.1 Tying

Each tree should be firmly secured to the stake so as to prevent excessive movement. Abrasion must be avoided by using a buffer, rubber or hessian, between the tree and stake. The tree should be secured at a point just below its lowest branch, and also just above ground level ; normally two ties should be used for tree. These should be adjusted or replaced to allow for growth.

5.4.1.2 Watering

The contractor should allow for the adequate watering in all newly planted trees and shrubs immediately after planting and he shall during the following growing season, keep the plant material well watered.

Fertilizing

Fertilizing shall be carried out by application in rotation of the following fertilizers, every 15 days from the beginning of the monsoon till the end of winter:

Organic well-rotted dry farmyard manure : 0.05 cum or 1 tassla

d. Urea 25gm Or Ammonium sulphate 25gm
Potassium sulphate 25gm

e. All shrubs, which are pot grown, shall be well soaked prior to planting.
f. Watering in and subsequent frequent watering of summer planted container-grown plants is essential.

5.4.2 Shrub Planting in Planters and Beds

All areas to be planted with shrubs shall be excavated, trenched to a depth of 600mm, refilling the excavated earth after breaking clods and mixing with manure in the ratio 8:1 (8 parts of stacked volume of earth after reduction by 20%: 1 part of stacked volume of manure after reduction by 8%).

For planting shrubs and ground cover shrubs in planters, good earth shall be mixed with manure in proportion as above and filled in planters.

Tall shrubs may need staking: which shall be provided if approved by the Engineer-In-Charge, depending upon the conditions of individual plant specimen.

Positions of shrubs to be planted should be marked out in accordance with the planting Plan.

When shrubs are set out, precautions should be taken to prevent root drying. Planting holes 60cm dia. and 60cm deep should be excavated for longer shrubs.

Polythene and other non- perishable containers should be removed and any badly damaged roots carefully pruned.

The shrubs should then be set in holes so that the soil level, after settlement, will be at the original soil mark on the stem of the shrub.

The hole should be back-filled to half its depth and firmed by treading. The remainder of the soil can then be returned and again firmed by treading.

5.4.3 Grassing

Preparation

The soil shall be ploughed and trenched (3 times) up to 45 cm depth and any hard substances including stones, old masonry, etc. shall be removed.

i. All roots and other corms of vegetation shall be removed.

ii. During period prior to planting the ground shall be maintained free from weeds.

iii. Grading and final levelling of the lawn shall be completed at least three weeks prior to the actual sowing.

iv. Regular watering shall be continued until sowing by dividing the lawn area into portions of approx. 5mts square by constructing small bunds to retain water. These “bunds” shall be levelled just prior to sowing of grass plants.

v. At the time of actual planting of grass, it shall be ensured that the soil has completely settled.

a) Soil

The soil shall be mixed with termite control and weed control agents @ 5 kg per 1000 sqm. Also well rotten FYM (farm yard manure) @2.0 kg / sqm, bone meal @100gm / sqm, Neem Cake @100 gm / sqm. , Single Super Phosphate @ 15 gms / sqm and Copper Sulphate @ 2.5 gms / sqm shall be mixed and the soil dressed upto 1cm thickness, with soil and river silt in the ratio 1:2.The soil itself shall be ensured to the satisfaction of the Engineer-In-Charge to be a good fibrous loam, rich in humus.

b) Sowing the grass roots

Grass roots (Selection No.1 or a local genus approved by the Engineer-In-Charge) shall be obtained from a grass patch, seen and approved before hand.

i. The grass roots stock received at site shall be manually cleared of all weeds and water sprayed over the same after keeping the stock in a place protected from sun and dry winds.

ii. Grass stock received at site may be stored for a maximum of three days.

I. In case grassing for some areas is scheduled for a later date fresh stock of grass roots shall be ordered and obtained.

II. Small roots shall be dibbled about 7.5cms apart into the prepared grounds.

III. Watering shall be done sparingly but regularly till new growth starts.

IV. Grass areas will only be accepted as reaching practical completion when germination has proved satisfactory and all weeds have been removed.

V. Maintenance

VI. As soon as the grass is approximately 3cm high it shall be rolled with a light wooden roller in fine, dry weather – and when it has grown to 5 to 8cms above ground, weeds must be removed and regular cutting with the scythe and rolling must be begun.

VII. A top – dressing of farm yard manure, Bone meal @50gm / sqm and NPK @10 gm / sqm shall be applied when the grass is sufficiently secure in the ground to bear the mowing machine, the blades must be raised an inch above the normal level for the first two or three cuttings. That is to say, the grass should be cut so that it is from 4 to 5cms in length, instead of the 3cm necessary for mature grass.

VIII. Micronutrients mixture shall be sprayed after 30 days from the first growth. In the absence of rain, in the monsoon the lawn shall be watered with sprinklers every, three days soaking the soil to a depth of at least 20cms.

IX. Damage, failure or dying back of grass due to neglect of watering especially for seeding out of normal season shall be the responsibility of the contractor. Any shrinkage below the specified levels during the contract or defects liability period shall be the rectified at the contractor's expense.

i. The contractor is to exercise care in the use of rotary cultivator and mowing machines to reduce to a minimum the hazards of flying stones and brickbats. All rotary mowing machines are to be fitted with safety guards.

c) Rolling

Lawn mower with roller shall be used periodically, taking care that the lawn is not too wet and sodden.

d) Edgings

These shall be kept neat and must be cut regularly with the edging shears.

e) Watering

Water shall be applied at least once in three days during dry weather. Water whenever done should be through and should wet the soil at least up to a depth of 20cms.

f) Weeding

Prior to regular mowing the contractor shall carefully remove rank and unsightly weeds.

5.4.4 COCONUT PEAT BLOCK

Supplying and stacking at site COCONUT PEAT BLOCKS (0.3X0.3X0.14 M) , including carriage up to 1 km (1 block is equivalent to 70 litres(approx.)/0.07 Cu.M/5 Kg+ /-0.3Kg) with moisture content Less than 20% , with pH value 5.2 to 6.8 .

6.0 **TECHNICAL SPECIFICATION OF WATERPROOFING COMPOUND**.

6.1 Integral Cement based Water Proofing treatment including preparation of. Surface as required for treating roofs, balconies, Terraces etc with Brick Bat Coba.

6.1.1 Preliminaries to be attended

Before taking up the waterproofing work the construction of parapet walls etc, including finishing should be completed in all respects. (i) Similarly, the ancillary items like haunches, khurras, grooves to tack the fiber cloth layer, where ever applicable fixing up of all down-take pipes, water pipes and electric conduits etc. should be completed and no such work should be allowed on the area to be treated during the progress of water proofing treatment or even later.

6.1.2 Preparing the Surface

It would be advantageous to roughen the surface by scraping the surface when the slab is being cast, however the surface need not be hacked. In case the slab is already cast and surface fairly finished, the same shall be cleaned neatly of all mortar droppings, loose materials etc.

6.1.3 Blending Cement Water with water Proofing Compound

(i) Whenever the water proofing compound is to be used, it is advantageous to blend the same with cement if the water proofing compound is in powder form and if the same is in liquid form the required quantity of water blended with water proofing compound alone should be used for preparing slurry / mortar. (ii) The water proofing compound to be used shall conform to 1S:2645 and be of reputed brand with a clear 1S1 marked on the container which should be in the form of sealed tins or closed packets. (ill) The correct quantity of water proofing compound to be used per 50 Kg grey cement shall be as prescribed by the manufacturer on the tins/packets literature. However, not more than 3 % of water proofing compound shall be used per 50 Kg of grey cement. (iv) Blended cement with water proofing compound or water mixed with liquid water proofing compound shall be used to prepare slurry/mortar.

The water proofing compound shall be used / mixed for preparation of slurry, mortar bedding layer , top layer or wherever cement finishing is required.

6.1.4 Preparing of Slurry

(i) The quantity of water required to prepare the slurry with 2.75 Kg of cement to be painted/applied over an area of 1 sqm shall be calculated exactly as described below.

This can be done only by trial and error method by preparing few samples with prescribed quantity of cement and applying over few patches each of say 1/2 sqm area and thus the required quantity of water per sqm area can be decided say ‘x’ litres per sqm.

(ii) Depending upon the area of surface that has to be covered, the required quantity of slurry should be prepared using 2.75 Kg blended cement/sqm + x litres of water per sqm area to be covered, taking particular care to see that only that much quantity of slurry shall be prepared which can be used within 1/2 an hour of preparation

6.1.5 Application of Slurry under Base coat

(i) The slurry prepared as explained above shall be applied over the dampened surface with brushes very carefully, including the joints between the floor slab and the parapet wall, holes on the surfaces and joints of pipes in masonry/concrete.

(ii) The application of the slurry should continue up to a height of 300 mm over the parapet wall and also to the groove. The slurry should also be applied up to a height of 150 mm over pipe projection etc.

6.1.6 Laying Base coat 25mm thick

Immediately after the application of slurry and when the application is still green, 25mm thick average cement plaster as base coat with cement mortar 1:4 (1 blended cement: 4 sand) shall be evenly applied over the concrete surface taking particular care to see that all comers and joints are properly packed and the application of the base coat shall be continued up to a height of 300 mm over the parapet wall.

6.1.7 Placing of Brick bat

Brick bats of size 40 to 75mm thick shall be placed over the screed bed by hand packing having minimum 15mm thick mortar below the brick bats and suitable gaps in between. Only fully burnt bricks shall be used and the brick bats shall be well soaked before laying. Application of another layer of slurry after curing of the above surface for a minimum period of 24 hours as per the specification mentioned herein above. Then filling the gaps between the brick bats with Cement mortar 1:4.

6.1.8 **Laying Finishing Layer (Protective Coat)**

(i) Immediately on applying the cement mortar as above and the surface is green, a 20 mm thick layer of cement plaster, without leaving any joints shall be applied with cement mortar 1:4 (1 blended grey cement: 4 sand) over the entire surface including the haunches/ gola and the small portion on the parapet wall. The groove in the parapet wall over the haunches shall also be filled neatly packing the mortar firmly in the groove.
(ii) The surface of the finishing layer (protective coat) shall be neatly finished with cement slurry and finished smooth with wooden / steel hand float. The finished surface shall be allowed to dry for a while till a string mark can easily be made on the surface, when 300mm x 300 mm square marks shall be made over the entire surface.

The water proofing treatment shall be covered upto minimum 30cm on parapet wall, and wherever parapet wall exists the wall plaster shall project over the treatment.

6.1.9 **Curing and Testing the Treatment**
The entire surface thus treated shall be flooded with water by making bunds with weak cement mortar, water shall be made to remain on the roof slab for a minimum period of two weeks during which it can be observed if there are any leakage or not. Brick bat coba shall be provided as specified , however recommended average thickness is 120mm and minimum 65 mm.
The measurement shall be taken flat between the parapetsor end to end where parapet wall does not exists. The covering of Parapet wall shall not be measured and paid.
Guarantee period
Water proofing treatment shall be guaranteed for a period of 10 years (defect liability period) from the date of completion of the contract as a whole and required to submit a guarantee bond on stamp paper.

6.2 Technical information of Poly Carbonate sheet(multi wall)

6.2.1 Acoustic

Accordance with DIN 52210-75, the maximum obtainable sound transmission class for a particular thickness is listed below.

Sheet Thickness (mm)	Sound reduction Values(dB)
4	**15**
6-8	**18**
10	**19**
16	**21**
20	**22**
25-32	**23**

6.2.2 Chemical resistance

Sheets have been successfully used in combination with building materials and glazing components. The chemical stability depends on many factors such as concentration of the chemical agents and on exposure temperatures. Considering the complexity of chemical compatibility, all chemicals which come into contact with polycarbonate should always be tested. In general, polycarbonate is not compatible with PVC (*polyvinyl chloride*).

6.2.3 Flammability

Method	Classification*
BS 476/7	Class 1
DIN 4102	B-1 (10&16 mm)
NSP 92501	M-1, M-2
ASTM D-635	CC-1
ASTM-E-84	Class A
EN 13501	B, s1, d0

*Classifications depend on sheet type and thickness.

6.2.4 UV protection

Solar radiation has a harmful component by UV rays which initiate degradation of many polymeric materials including polycarbonate. This depends on geographic locations, seasons, etc. Polycarbonate sheets feature a specially coextruded UV absorption and protection layer, which provides long-lasting high stability against damaging UV radiation, protects against outdoor weathering and retains its original color and light transmission.

6.2.5 Impact strength – Hail Resistance:

Loss of "impact strength in the event of hail" shall be determined by an impact test according to ASTM D 5628-95 geometry FE (tap diameter 20mm). (In this test, failure is determined when the upper wall of the sheet is penetrated by the tap. The sheet does not reach the required standard if the Mean Failure Energy obtained in the test is less than 0.831 Joules. This energy is equal to the energy generated by a 20 mm (~3/4") diameter ice ball at a speed of 21 m/s.)

6.2.6 Bending the sheet

Polygal sheet can be successfully cold bent over curved support glazing profiles, to suit many glazing applications to include domes, roof-lights, etc. Providing the radius is not below the minimum recommended value, then the introduced stress by cold-bending will not have any adverse effect upon the mechanical performance of the sheet. Sheets must always be bent longitudinally, never across the width of the sheet.

7.0 DETAILED SPECIFICATIONS FOR PLAY EQUIPMENT

7.1 Play Equipment

7.1.1 UPRIGHT POSTS:

a. All upright posts are to be schedule HOT DIP Galvanized steel with a 114mm OD {Outer Diameter} and
b. 2.2mm (wall) thickness of the tubing.
c. Steel quality is BS1387-1985 technical standard BS1387-1985.
d. Posts are to be finished with a baked on powder coat finish.
e. Electro - statically applied polyester powder must have a tough finish with maximum durability.
f. The pretreatment and curing process includes the following: -

Sand blasting > acid wash > freshwater rinse > iron phosphate rinse > final rinse > seal &
dry-off> oven baked electro-static powder application and dual zone curing in the oven.

g. Finished products have the following typical characteristics: 0.5mm thickness, oven cured between 191oC and 220oC, to achieve Flexibility, Impact, Salt Spray {Corrosion} Resistance, Hardness, and Adhesion.

7.1.2 POST CAPS:

h. All post caps are to be cast from aluminum which is pretreated, cured and sandblasted, 114mm diameter,
i. with a baked on powder coat finish.
j. All post caps are to be made from Aluminum with a 114mm OD {Outer Diameter}.
k. Posts Caps are to be finished with a baked on powder coat finish.
l. Electro - statically applied polyester powder must have a tough finish with maximum durability.
m. The pretreatment and curing process includes the following: -
n. Sand blasting > acid wash > freshwater rinse > iron phosphate rinse > final rinse > seal &
o. dry-off> oven baked electro-static powder application and dual zone curing in the oven.
p. Finished products have the following typical characteristics: 0.5mm thickness, oven cured between 191oC
q. and 220oC, to achieve Flexibility, Impact, Salt Spray {Corrosion} Resistance, Hardness, and Adhesion.

7.1.3 BASE PLATES:

All base plates to be made from steel with 114mm inner diameter.

The pre treatment and curing process or each Base Plate must include the following:- sandblasting > acid wash > freshwater rinse > iron phosphate rinse > final rinse and seal > dry-off > oven electro-static powder application, and dual zone cure in oven. Finished products have the following typical characteristics: 0.5mm thickness, oven cured between 191oC and 220oC, Flexibility, Impact, Salt Spray resistance, Hardness, and Adhesion

7.1.4 Clamp:

Clamps are to be cast from aluminum which is pretreated, cured and sandblasted , 114mm diameter, with a baked on powder coat finish.

7.1.5 Couplings:

Couplings are to be cast from aluminum which is sandblasted, pretreated, and cured, 32mm diameter, with a baked on powder coat finish.

DECK, STEP PLATFORM, STAIRS, and BAFFLE:

Shall be an all-ROBOTIC welded assembly fabricated from 2mm perforated punched steel. Deck perimeter is precision pre punched for attachments. Decks are pressed, punched, and welded; sand blasted to remove rust & impurity; powder coated to 2.2mm thickness or vinyl plastic coated to a thickness of 4mm [optional].

7.1.**6** **MATERIALS**: All materials shall be of first grade quality as per specified standard sections in accordance with relevent I.S. code provisions.

(A) G.I. PIPES G.I. PIPES G.I. PIPES :- The G.I. Pipe of 'B' Class of approved make Viz. Zenith / TATA / Jindal / SAIL I.S. 1239 (part i) 1979, with UV. U.V stabilised pure polyster powder coating shall be used.

(B) M.S. ANGLES M.S. ANGLES M.S. ANGLES :- All M.S. Angle shall be in accordance with I.S. 226 of 1975 (Latest) and of CIDCO approved make Viz. Jindal Power / TATA / SAIL with U.V. stabilized pure polyster powder coating shall be used.

(C) ELECTRICAL WELDING RODS: - Electrical welding rods shall be manufactured by advani oerliken or sunarc equipment. The welding rods shall not be kept in open environment much before in use as it may get affected by water vapors from the air, which may be result in priority defect in the weld.

(D) NUT BOALTS & OTHER FASTENERS :- Galvanised iron nuts, bolts, and other fasteners must be used for all moving and non-moving type of play equipment. All the fasteners used shall be standard ones.

(E) JOINTING: - The jointing work shall be done by metal inter welding process. The welded joint shall be ground with electric surface grinder and finally polished the ground surface are then finished with epoxy sealant of m-seal brand. Utmost care shall be taken while welding ensures that won't be any under cuts or foreign particles entrapment or hydrogen embitterment in the welded joints. Contractor No. of Corrections Executive Engineer 79

(F) BENDING: - During bending operation it is ensured that there won't be any deformation in the diameter of the pipe more than 1.2 times the dia. This shall be achieved by use of slip guages, and the usage of special bending dies suitable for different diameter. All the bending are done by using mechanical bending machine , to give the perfect curves.

(G) DRILLLING: - All the holes shall be drilled by the use of specially designed hardened drilling fixtures to ensure repeatability and interchangeability of the components.

(H) CUTTING: - All the cutting shall be done by the use of bend saw machine and cross cutting manchines to ensure linearity and exact length.

(I) PLANTING: - All the plated parts shall be of hot dipped galvanized or electro galvanized which shall be passivized and thickness of all plating are ensured to be minimum of 10 microns.

(J) F.R.P. MATERIAL :- All the fiber reinforced plastic (FRP) material shall be processed by he hand laid process which is considered to be the best of its type in the wherein the process it as follows : After the preparation of the mould shall be done a layer of gel coat is applied which is of N.P.G which is duly mixed with U.V stabilized pigment to give the required colour to the product. Then a coat of G.P. resin above the surface of the gel coat after it becomes tack free.

7.1.7 PIT INFORMATION: -

The fixing shall be done in C.C. 1:11/2:3 grade PCC with minimum 45 cm X 45 cm X 45 cm deep size pit. A) The constitutive layers C.S.M (chopped strand matt.) Glass fiber shall be laid down along with resin to the required extend to build up the required thickness in sandwich pattern. * The back side coating of the resin shall be done to give a smooth finish. The moulds are to be kept open to dry for a specified duration. This procedure strengthens the F.R.P. * after the mould shall be completely cured for the specified duration the FRP shall be removed from the mould. Then all the corners and edges of it shall be removed from the mould. Then all the corners and edges of it shall ground to make them smooth and harmless from the strands of the glass wool. 8)

7.1.8 PAINTING PROCESS:-

All the items that are to be painted are first to be made free from. Any burr and welding spots are ground to finish and cleaned with degusting chemical solutions and phosphating is done then all the welded joints are applied with epoxy sealant to avoid any exposure to atmosphere so that further corrosion is not going to take place. Beside the sealing process it gives smooth and better aesthetics to the product. The powder is to be sprayed onto the items by means of static electric gun at 8000 volts, ensure uniform powder thickness all over. The thickness to be maintained shall be minimum of 60 to 80. micron. (dry films thickness) The coated product is then to be cured in oven at 200 degree Celsius for twenty minutes.

7.1.9 INSPECTION: - All the raw materials and parts shall be inspected for any defects like scratches, dents, cracks and similar shortcoming. The in-process parts shall be inspected while working on them by the skilled operator themselves and by the supesvisior for matching ability and conformance to the dimension. The agency shall carry out 100% inspection of the final goods produced for the conformation with specification. All the parts assemblies shall be checked for their matching with corresponding parts and their interchangeability.

7.1.10 PACKING:- All the equipment manufactured , painted and rested for quality are to be packed to make them ready for dispatch. This packing facility in order to provide dirt and scratch proofing. * For any additional specification the work shall be For any additional specification the work shall be executed as executed as directed by engineer in charge. directed by engineer in charge. rected by engineer in charge.

7.2 GENERAL MATERIALS SPECIFICATIONS

a. PIPES :- All pipes shall be galvanized steel confirming to IS : 1239 (part) of reputed make like TATA , Zenith, Jindal Bhushan (NB = Nominal Bore i.e inner diameter) of 'A' Class with stabilized pure polyester powder coating.

b. FIBREGLASS REINFORCED PLASTIC :- All FRP product shall be made of top quality polyester resin of reputed brands and virgin standard glass made of reputed brand only. The molding of FRP is done by contact molding and has a minimum tensile strength of 60 mpa. The FRP products to be all self pigmented , food grade materials with U.V stablized.

c. MOULDED PLASTICS :- LLDPE and HDPE with self pigmented colour and U.V stabilized shall be use in the moulded plastic product. The product are seamless for long life and durability (LLDPE : Linear Low Density Poly Ethyelene & HDPE : High Density Poly Ethylene.

d. SWING SEATS :- It shall be made of sythetic rubber reinforced wih heavy duty canvas & has a chequered and water silence.

e. BEARINGS :- All bearing shall be of reputed make (SKF) & press fitted for smoot rotation with lubricant and water silence.

f. FASTERNERS :- All bolts & nuts totally galvanized.

g. FABRICATION :- All steel components shall be welded by electric are welding using the best quality welding rods confirming to is : 814. All welded joints are to be properly rounded & coated with an epoxy sealant for rust resistance. All sheet components shall be galvanized for rust resistance.

h. POWDER COATING :- The powder is to sprayed onto the substrate by means of static electric gun at 8000 volts, ensure uniform powder thickness all over. The thickness maintained shall be a minimum of 60 to 80 microns. (dry films thickness) The coated product is then cured in oven at 200 degree Clesius for twenty minutes. .

i. MANUFACTURING :- The relevant Indian, British & European standard shall be followed for playground equipment as BN 1176 : 1999 parts 1 to 7 IS : 1239 (Part 1) 1990 : mild steel tubes tubular and other wrought steel fitting part 1 mild steel tubes (fifth revision) IS : 1363 (part 1) 1992 : hexagon head bolts, screws and nuts of product grade c : part 1) hexagon head bolts (size range m5 to m64) third revision) part3) 1992 : hexagon head nuts (size range m5 to m64) third revision) IS : 2429 (PART1) 1987 : round steel short link chain (electric butt welded), grade 1 (3) part 1 non-calibrated load chains for lifting purpose (third revision) IS : 3109 (part 2) 1982 : short link chain, grade m (4) part 2 calibrated lad chain for pulley blocks and other lifting appliances (second revision) IS : 6869 (part 1) 1973 :

7.3.1 Item Descriptions:

Product Name : Junior Play Equipment

Product Area : 8.3m x 5m (27.2ft x 16.4ft)

Safe Play Area : 10.3m x 7m (33.8ft x 23ft)

Age Group : 3-6 yrs

Friends at a time : 6

Platform Height : 3ft

Technical Specification:

Platform:-Material:- FRP (Fiber Reinforced Plastic) with anti-skid surface on top.

Thickness:- Minimum thickness of 3-5 mm and side flanges of 6-8 mm thickness

Size:- Center to center distance 1160mm.

Others:- Ribbed structure on bottom side

Shape:- Square & Triangle

Brazing Frame:- ISA 40x40x5mm thick and ISF 40x5mm thick which is galvanized and then duly Powder Coated.

Clamp:- Made by Nylon 6 material by Injection Molding Process which is UV stabilized and having better strength to give support to other parts.

Vertical Pipes:- 100NB GI pipes. Wall thickness as per the class of pipe used

Straight Tube Slide 3'ht with Slide Entry:

Straight tube slide is designed as per ASTM & EN standards.It is made up of LLDPE complied to ROHS in rotational molding process. Straight Tube slide is assembled with the help of tubes having different shape and sizes with the help of Non-rusting S.S. nuts and bolts. Straight Tube Slide 3'ft height is made up of one straight tube module, two 45° bends, one landing, one small straight module and one entry module. The landing of the slide is supported by stand made up of 20 NB pipe and 5mm thick MS plate with GI plating. Slide Entry of the slide is made up of LLDPE by Rotational molding process. It is attached to deck pipe with the help of 20NB GI pipes and Injection Molded Nylon Clamps.

Wave Slide 3'ht:Wave Slide is made up ofLLDPE by Rotational Molding Process. The landing of the slide is supported by stand made up of 20 NB pipe and 5mm thick MS plate with GI plating.

Slide Entry: Slide Entry of the slide is made up of LLDPE (Linear Low Density Polyethylene) by Rotational molding process. It is attached to deck pipe with the help of 20NB GI pipes and Injection Molded Nylon Clamps.

Staircase 3ft HT:-The staircase is made up of totally in LLDPE (Linear Low Density Polyethylene).

The Staircase has a sufficient reinforcement to maintain strength and avoid bending. The top surface of the staircase is anti-skid to avoid slippery movements. Handrails are inbuilt in mold itself. Handrails have sufficient reinforcement to maintain strength and avoid bending. Overall width of the staircase is around 1000mm and height is around 1500mm including handrails with allowable shrinkage.

Abacus Railing:-The balls for Abacus Railing and the frame are made of LLDPE (Low-Density Polyethylene Plastic) in rotational molding process. The frame is fixed on 20 NB GI pipes. The pipes are powder coated. The balls are attached over 12 mm dia rod to the frame.

Cupola Canopy:-Cupola Canopy is made up of LLDPE (Low-Density Polyethylene Plastic). It is made in two parts; Top Dome & Base. Top Dome is bolted to Base part with the help of non-rusting bolts & nuts. Base part has 4 legs which has center to center distance as 1160mm.

FRP (FIBER REINFORCED PLASTIC):- All the Fibre Reinforced Plastics (FRP) materials are processed by the hand laid process which is considered to be the best of its type. We use international quality of Gel coats which is duly mixed with U.V stabilized pigment to give the required color to the product. Thickness of the FRP material varies from 3 mm to 5 mm as per the product. The FRP material is tested for abrasion resistance & UTS (ultimate tensile test)."

LLDPE (LINEAR LOW DENSITY POLYETHYLENE): The product is manufactured using material LLDPE (Linear Low Density Polyethylene) with UV stabilization of Food Grade Non Hazardous Plastic compiled to ROHS. Thickness of the product varies from 5 mm to 8 mm as per the product. The overall product obtain is a seamless to ensure perfect blend of uniform thickness & durability.

Pipes: All metal pipes are Hot Dipped Galvanized Pipes conforming to IS 1239 (Part 1) with GI thickness of 60micron.

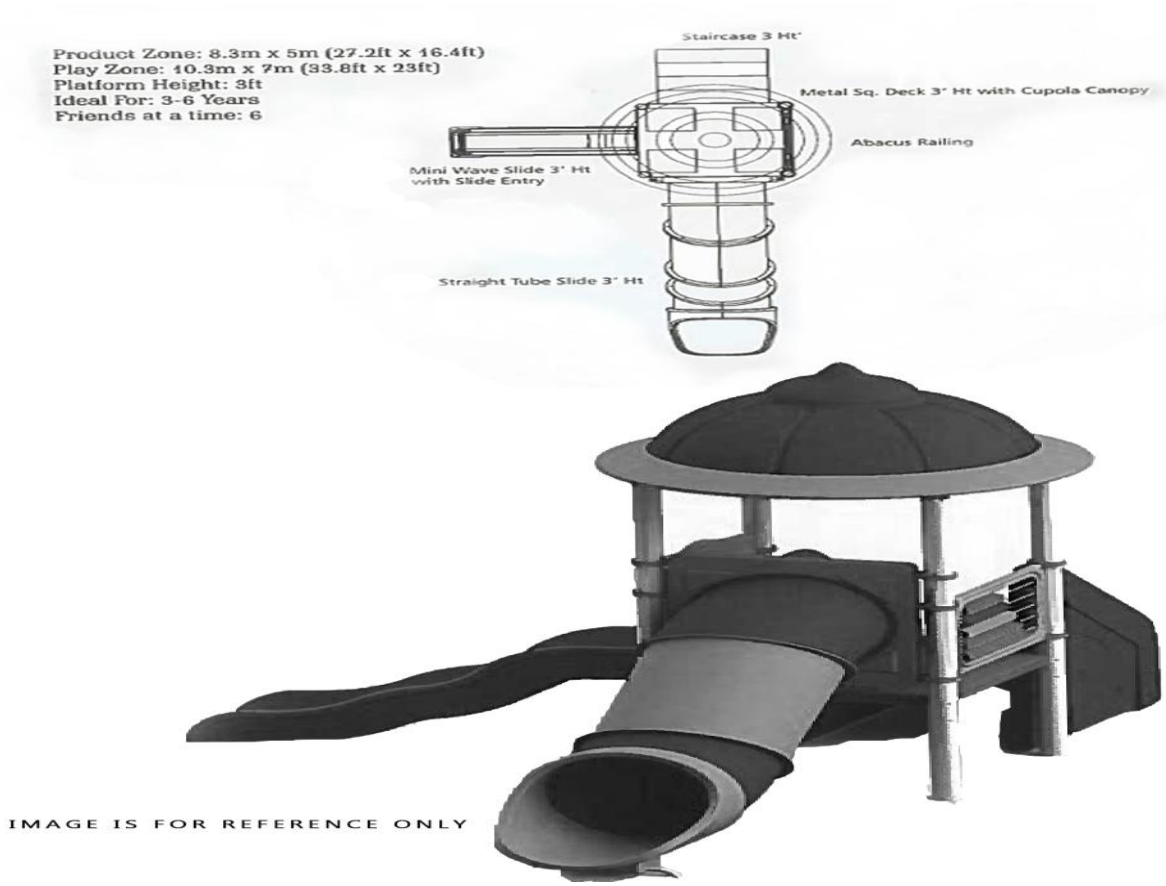
Pipe Materials or Class: Medium Duty ('B' Class) & Light Duty ('A' Class) Series of pipes only. Wall thickness of pipe varies according to class / series of pipe used.

Powder coating: It shall be done with pure polyester raw material.Dry film Thickness maintained within the range of 50-70 microns. It is tested for adhesion test (According to ASTM-D-3359) with the help of cross hatch cutter instruments.

Nut and Bolts: Galvanized/ S.S./Allen Bolt/Button Head Allen Bolt & Nuts / Nylon Lock Nuts are used with PVC Bolt Caps. All open ends of pipe been closed by GI / PVC caps for user safety against entrapment.

Color: Multicolor for optional or customized

Packaging: Safety 3 layer packaging like 1st EPE Foam 2nd HDPE Film and 3rd is Stretch wrap



7.3.2 Item Descriptions:

Product Name : Senior Play Equipment

Product Area : 9.6m x 8.8m (31.5ft x 28.9ft)

Safe Play Area : 11.6m x 10.8m (38ft x 35.4ft)

Age Group : 5-12 yrs

Friends at a time : 20

Platform Height : 5ft

Technical Specification:

Platform:-Material:- FRP (Fiber Reinforced Plastic) with anti-skid surface on top.

Thickness:- Minimum thickness of 3-5 mm and side flanges of 6-8 mm thickness

Size:- Center to center distance 1160mm.

Others:- Ribbed structure on bottom side

Shape:- Square & Triangle

Brazing Frame:- ISA 40x40x5mm thick and ISF 40x5mm thick which is galvanized and then duly Powder Coated.

Clamp:- Made by Nylon 6 material by Injection Molding Process which is UV stabilized and having better strength to give support to other parts.

Vertical Pipes:- 100NB GI pipes. Wall thickness as per the class of pipe used

Double Wave Slide 5'ht: Double Wave Slide is made up of LLDPE by Rotational Molding Process. It is molded in single piece. The landing of the slide is supported by stand made up of 20 NB pipe and 5mm thick MS plate with GI plating.

Spiral Slide With Slide Entry:- The slide is completely made up of one piece with a thickness of 5-8mm keeping in consideration the ASTM & EN standards. The material used is LLDPE (Low-Density Polyethylene Plastic) in rotational molding process. The entry module of the slide is different from the other as it looks like as if going through a tunnel and then sliding through the slide.It is made from LLDPE (Linear Low Density Polyethylene) by Rotational molding process and aseembled with pipe and clamp to deck pipe. Spiral slide entry support part is combination of rectangular pipe and GI plate.

Handle grip of 20NB conforming to EN 1176-1:1998 attached with Nylon clamp of Grade-6 clamped to the Deck pipe using SS304 graded non rusting nut-bolts

Swinging Bridge:-

Size:- 2400mm

Material:- Frame - 80NB GI pipes 2384 mm long and GI plated MS angles of 75x75x5mm 1020mm.

Planks - Low-Density Polyethylene Plastic in rotational molding process.

Planks in same or different colors are suspended with the help of 12mm galvanized chains & specially designed clamps made up of 16SWG M.S. sheet. These chains are mounted on 'U' hooks. 12mm dia U Hooks are welded on the inner side of the M.S. angles and other side of the U hook is grinded.

FRP Plain Bridge 2.4mtr Long:-

Size:- 2400mm

Material:- FRP (Fiber Reinforced Plastic) with a minimum thickness of 3-5mm.

Ribs are provided at defined distance to improve strength as well as aesthetics of the bridge.

Bridge Railing:-Railings are provided on both sides of bridge as barrier for safety purpose. It is made up of LLDPE (Low-Density Polyethylene Plastic) in rotational molding process and has a support of 20 NB powder coated GI pipes. The railing is attached to the support pipe using an Injection Molded Nylon Clamps.

Ladder 5ft:-

Size:- 5 Ft

Material:- FRP (Fiber Reinforced Plastic) with a minimum thickness of 3-5mm or 16SWG Metal Sheet. The top surface of the ladder is anti-skid to avoid slippery movements. There is also provision for Handrails on ladder for better grip. The ladder is supported by stand made up of 25NB G.I. pipe and 50x10mm thick flat from the bottom.

FRP Rock Climber:-

Central pad of ROCK Climber is made up of FRP (Fibre Reinforced Plastic). The rocks are mounted on platform and it has gradient from the ground.

The ladder is supported by stand made up of 25NB G.I. pipe and 50x10mm thick flat from the bottom.

Tunnel 2.4mtr Long:-

Size:- 2400mm

Material:- Low-Density Polyethylene Plastic .

Outer diameter of the tunnel is 860mm and inner diameter is 760mm. Each half of the Tunnel is 1160mm long. Tunnel is assembled with slide entry. Six Holes are provided on top surface for ventilation purpose. Tunnel is assembled with slide entry with the help of Non-rusting S.S. Nuts and Bolts which in turn clamped by 80x20 Injection Molded Nylon Clamps.

MAPS Chinning Bar:- Vertical support of Chinning Bar is made up of 80NB G.I. pipes. Horizontal bar is made up of 25NB G.I. pipe. Horizontal bar is bolted to main frame.

Cross N Zero Railing:- This item provides brain washing experience to the children and enhances their tactical strength by providing them a intelligent game. The prisms for the "X" and "O" and also the frame of this item are made up of LLDPE (Low-Density Polyethylene Plastic) in rotational molding process. The prisms are fixed on powder coated GI pipe frame of 20 NB and 15 NB pipes.

Cross Checkered Railing:- Railings are provided as barrier for safety purpose. Cross Checkered Railing is made up of LLDPE (Low-Density Polyethylene Plastic) in rotational molding process and has a support of 20 NB powder coated GI pipes. The railing is attached to the support pipe using an Injection Molded Nylon Clamps.

Bubble Panel Railing:- In this type of railing the bubble is made up of acrylic and the frame is made up of LLDPE (Low-Density Polyethylene Plastic). It provides an outer view of the area to the person present on that MAPS deck. It has been supported with a 20 NB powder coated GI pipes. The railing is attached to the support pipe using an Injection Molded Nylon Clamps.

Butterfly:- This Butterfly is made up ofLLDPE by Rotational Molding Process.

Flower:- This Butterfly is made up ofLLDPE by Rotational Molding Process.

Leaf:-This Butterfly is made up ofLLDPE by Rotational Molding Process.

Tile Canopy:- Tile Canopy is made up of LLDPE (Low-Density Polyethylene Plastic). It has 4 legs which has center to center distance as 1160mm.

FRP (FIBER REINFORCED PLASTIC):- All the Fibre Reinforced Plastics (FRP) materials are processed by the hand laid process which is considered to be the best of its type. We use international quality of Gel coats which is duly mixed with U.V stabilized pigment to give the required color to the product. Thickness of the FRP material varies from 3 mm to 5 mm as per the product. The FRP material is tested for abrasion resistance & UTS (ultimate tensile test)."

LLDPE (LINEAR LOW DENSITY POLYETHYLENE):- The products are manufactured using material LLDPE (Linear Low Density Polyethylene) with UV stabilization of Food Grade Non Hazardous Plastic compiled to ROHS. Thickness of the products varies from 5 mm to 8 mm as per the product. The overall product obtain is a seamless to ensure perfect blend of uniform thickness & durability.

Pipes: All metal pipes are Hot Dipped Galvanized Pipes conforming to IS 1239 (Part 1) with GI thickness of 60micron.

Pipe Materials or Class: Medium Duty ('B' Class) & Light Duty ('A' Class) Series of pipes only. Wall thickness of pipe varies according to class / series of pipe used.

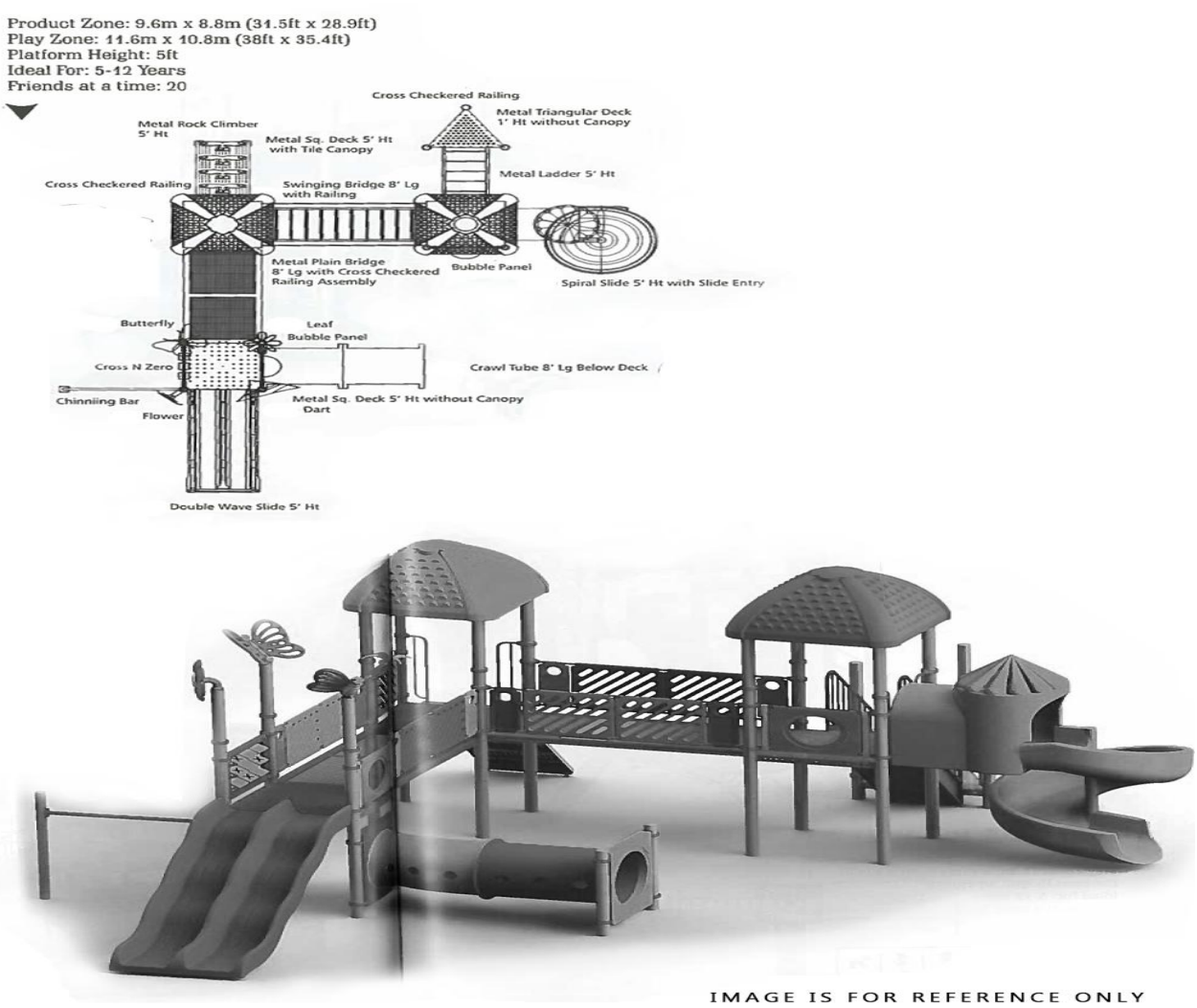
Powder coating: It shall be done with pure polyester raw material.Dry film Thickness maintained within the range of 50-70 microns. It is tested for adhesion test (According to ASTM-D-3359) with the help of cross hatch cutter instruments.

Nut and Bolts: Galvanized/ S.S./Allen Bolt/Button Head Allen Bolt & Nuts / Nylon Lock Nuts are used with PVC Bolt Caps.

All open ends of pipe been closed by GI / PVC caps for user safety against entrapment.

Color: Multicolor for optional or customized

Packaging: Safety 3 layer packaging like 1st EPE Foam 2nd HDPE Film and 3rd is Stretch wrap.



7.3.3 Item Descriptions:

Product Name : Tri Basket

Product Area : 2.0m Dia (6.6ft Dia.)

Safe Play Area : 3.5m Dia (11.5ft Dia)

Ideal For : 5-14Years

Friends at a time : 4-6

Technical Specification:

Center support pipe :80NB hot dip galvanized swing leg pipe of length 2300mm conforming to IS 1239 with GI thickness upto 60µ.

FRP Basket Duct :Maximum size of ball that can pass through this basket is limited to dia 290mm.

Leaf : Leaf is made up of in Rotational molding process. These leafs are attached to vertical support with help of metal bush.

Rotational Molded Products :The product is manufactured using material LLDPE (Linear Low Density Polyethylene) with UV stabilization of Food Grade Non Hazardous Plastic compiled to ROHS. Thickness of the products varies from 5 mm to 8 mm as per the product. The overall product obtain is a seamless to ensure perfect blend of uniform thickness & durability.

FRP products: All the Fibre Reinforced Plastics (FRP) materials are processed by the hand laid process which is considered to be the best of its type. We use international quality of Gel coats which is duly mixed with U.V stabilized pigment to give

the required colour to the product. Thickness of the FRP material varies from 3 mm to 5 mm as per the product.The FRP material is tested for abrasion resistance & UTS (ultimate tensile test).

Pipes: All metal pipes are Hot Dipped Galvanized Pipes conforming to IS 1239 (Part 1) with GI thickness of 60micron.

Pipe Materials or Class: Light Duty ('A' Class) & Medium Duty ('B' Class) Series of pipes only. Wall thickness of pipe varies according to class/ series of pipe used.

Powder coating: It shall be done with pure polyester raw material.Dry film Thickness maintained within the range of 50-70 microns.it is tested for adhesion test (According to ASTM-D-3359) with the help of cross hatch cutter instruments.

Nut and Bolts: Galvanized/ S.S./Allen Bolt/Button Head Allen Bolt & Nuts / Nylon Lock Nuts are used with PVC Bolt Caps.

All open ends of pipe been closed by GI / PVC caps for user safety against entrapment.

Color:Multicolor for optional or customized & according to RAL shade.

Packaging: Safety 3 layer packaging like 1st EPE Foam 2nd HDPE Film and 3rd is Stretch wrap.

7.3.3 Item Descriptions:

Product Name : Standard See-saw

Product Area : 2.5m X 0.3m (8.2ft X 1ft)

Safe Play Area : 3.5m X1.3m (11.5ft X 4.3ft)

Ideal For : 4-10 Years

Friends at a time : 2

Technical Specification:

Frame: Frame of standard see-saw is designed using 15NB , 20NB & 25NB G.I. pipe and it has been given radius by suitable bending techniques. Plates has been welded at places were seat has to be installed so that seats can be fixed to the frame with suitable bolting arrangement.

Seat : Rotational molded seats of thickness 6mm areused in these see-saw , it has been provided with bolts to fix it too see-saw frame which has a plates of 200X150X5mm welded on to the frame. Handle has been provided on the frame made up of 20NB pipe and also conforming to EN standards.The Multi Seater See saw comprises four seats.

For product: The products are manufactured using material LLDPE (Linear Low Density Polyethylene) with UV stabilization of Food Grade Non Hazardous Plastic compiled to ROHS. Thickness of the products varies from 5 mm to 8 mm as per the product. The overall product obtain is a seamless to ensure perfect lend of uniform thickness & durability.

See-saw stand : 50NB Hot dip Galvanized Pipe conforming to IS 1239 with GI thickness of 60µ ,Pipe length 550mm Plate 150X150X5mm is used as a foundation plate for the vertical pipe

Standard See-saw Clamp: Standard see saw clamp is used in see saw so as to provide required motion for the see saw.

Bearing: The bearing used in this item is heavy duty nylon bush type

Pipes: All metal pipes are Hot Dipped Galvanized Pipes conforming to IS 1239 (Part 1) with GI thickness of 60micron.

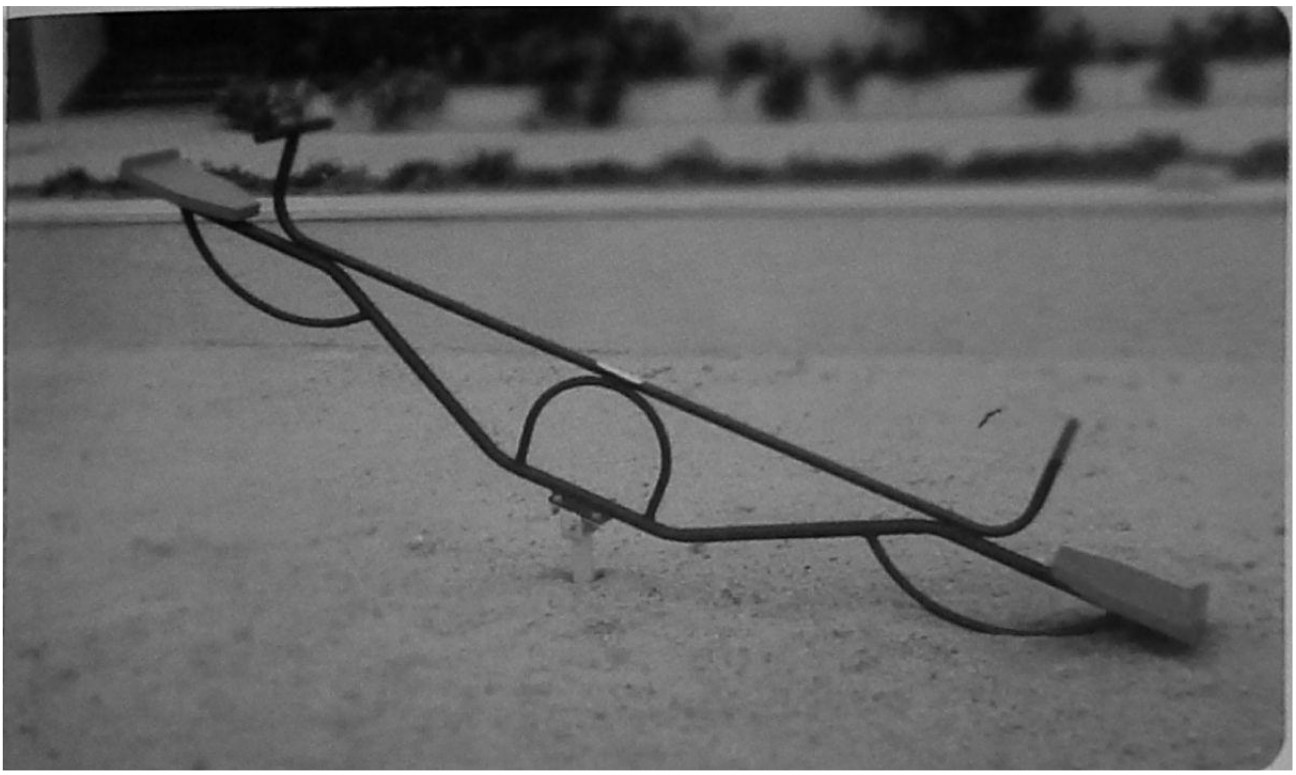
Pipe Materials or Class: Light Duty ('A' Class) & Medium Duty ('B' Class) Series of pipes only. Wall thickness of pipe varies according to class / series of pipe used.

Powder coating: It shall be done with pure polyester raw material.Dry film Thickness maintained within the range of 50-70 microns. It is tested for adhesion test (According to ASTM-D-3359) with the help of cross hatch cutter instrument.

Nut and Bolts: Galvanized/ S.S./Allen Bolt/Button Head Allen Bolt & Nuts / Nylon Lock Nuts are used with PVC Bolt Caps. All open ends of pipe been closed by GI / PVC caps for user safety against entrapment.

Color: Multicolor for optional or customized & according to RAL shade.

Packaging: Safety 3 layer packaging like 1st EPE Foam 2nd HDPE Film and 3rd is Stretch wrap.



7.3.4 Item Descriptions:

Product Name : Elephant see - saw

Product Area : 0.4m X 0.75m (1.3ft X 2.4ft)

Safe Play Area : 1.4m X2m (4.5ft X 6.5ft)

Ideal For : 3-8 Years

Friends at a time : 2

Technical Specification:

Handle: Handle made from 2mm thick 15NB SS 304 pipe, 300mm long welded to 2mm thick SS 304 plate 240mm long with specialized mechanical polishing process for material finish

Character See-saw lever: Character See-saw lever made from two 50x25x3mm,1800mm long square pipe welded to 260x200x6mm plate at the center

Elephant Character: Elephant Character made from 6'x3' Mat. - PP / HDPE Sheet and Thickness 12mm

Seat :It is made from rotational moulded material.It is 295x190x70mm Rotational molded seat with grip.

For product: products are manufactured using material LLDPE (Linear Low Density Polyethylene) with UV stabilization of Food Grade Non Hazardous Plastic compiled to ROHS. Thickness of the products varies from 5 mm to 8 mm as per the product. The overall product obtain is a seamless to ensure perfect lend of uniform thickness & durability.

Spring assembly : It consists of top plate, spring & square base plate suitably fixed to each other with U-Bolts. The Spring is made from En45 Spring Steel & the two plates are made from MS with GI plating for corrosion resistance

Pipes: All metal pipes are Hot Dipped Galvanized Pipes conforming to IS 1239 (Part 1) with GI thickness of 60micron.

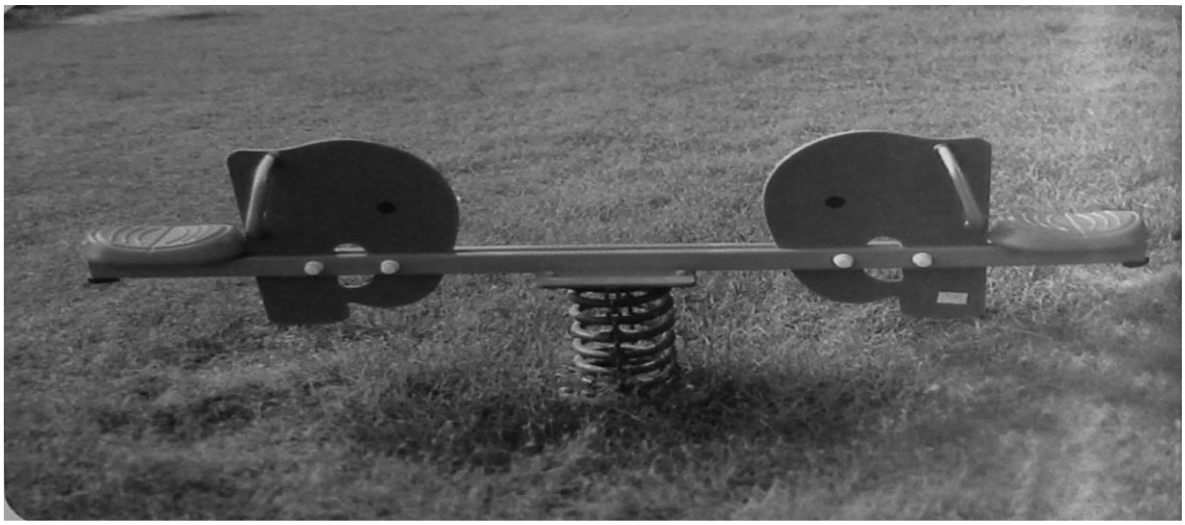
Pipe Materials or Class: Light Duty ('A' Class) & Medium Duty ('B' Class) Series of pipes only. Wall thickness of pipe varies according to class / series of pipe used.

Powder coating: It shall be done with pure polyester raw material.Dry film Thickness maintained within the range of 50-70 microns. It is tested for adhesion test (According to ASTM-D-3359) with the help of cross hatch cutter instrument.

Nut and Bolts: Galvanized/ S.S./Allen Bolt/Button Head Allen Bolt & Nuts / Nylon Lock Nuts are used with PVC Bolt Caps. All open ends of pipe been closed by GI / PVC caps for user safety against entrapment.

Color: Multicolor for optional or customized & according to RAL shade.

Packaging: Safety 3 layer packaging like 1st EPE Foam 2nd HDPE Film and 3rd is Stretch wrap.



7.3.5 Item Descriptions:

Product Name : Double Post Swing

Product Area : 3.5m x 1.0m (11.5ft x 3.3ft)

Safe Play Area : 4.5m X 2.0m (14.8ft X 6.6ft)

Ideal For : 4-14 Years

Friends at a time : 2

Technical Specification:

Vertical support : 100NB Pipe welded together with a flat 50x5mm thick & 10mm thick base plate to form a strong frame. The 100NB pipe is hot dip galvanized pipe of height 2950mm conforming to IS 1239 with GI thickness of 60µ.

Top pipe : 50NB Top Pipe with two Arc Swing Flanges welded at both its ends. Pipe can withstanding torsional stress created due to swinging motion. These 50NB top pipe is hot dip galvanized pipe of length 2950mm conforming to IS 1239 with GI thickness of 60µ.

Seat assembly :

Swing clamp assembly :Swing clamps made up of two parts are joined together with M6 Allen bolts along with S-Hook & a specially designed swing pin. The S-Hook is specially designed to house a bearing for smooth & noiseless swinging. The clamps are made from injection molded Nylon-6 plastic.

Chain :Rubber dip molded swing chain of dia. 6mm & 1450mm Long.

Hook : S-Hook of dia 8mm & 145x130 Triangular hook of Grade SS 304.

4) Seat : Rubber Seat made by Natural Rubber with sufficient reinforcement.

Pipe Materials or Class: Light Duty ('A' Class) & Medium Duty ('B' Class) Series of pipes only. Wall thickness of pipe varies according to class /series of pipe used.

Powder coating : It shall be done with pure polyester raw material.Dry film Thickness maintained within the range of 50-70 microns. It is tested for adhesion test (According to ASTM-D-3359) with the help of cross hatch cutter instrument.

Bearing: Bearing is self-lubricated made of SKF/ NTN/ NACHI make shall be provided for smooth & trouble-free movement.

Pins and Circlips: 12mm diameter pins shall be made from EN8 material & Circlip A10.

Nut and Bolts: Galvanized/ S.S./Allen Bolt/Button Head Allen Bolt & Nuts / Nylon Lock Nuts are used with PVC Bolt Caps. All open ends of pipe been closed by GI / PVC caps for user safety against entrapment.

Color: Multicolor for optional or customized & according to RAL shade.

Packaging: Safety 3 layer packaging like 1st EPE Foam 2nd HDPE Film and 3rd is Stretch wrap

7.4 SPECIFICATION FOR STAINLESS STEEL BENCH/SCULPTURE

1. DESCRIPTION: This item shall govern the provision of fabrication, supply and installation of stainless steel benches with or without back rest and Sculpture as per design and drawing approved by Engineer in-charge.
2. GENARAL REQUIRMENT: The stainless steel benches with or without back rest and Sculpture shall be fabricated in accordance with the design requirements and detailed as per drawing, in conformity with the requirement of this specification.
3. MATERIAL DESCRIPTION: The benches/Sculpture shall be manufactured using stainless steel 304/316 grade conforming to IS:6911/ASTMA240/A240M
4. FABRICATION DESCRIPTION:

   BENCH :

   The 4 seater bench with or without back rest shall be manufactured using stainless steel 304/316 grade matt finished as per design. Stainless Steel sheet/plates shall be of 16 gauge, round pipe shall be of 50/25 dia and 2mm thickness, square pipe shall be of size 50mmx50mm and 2mm thickness, rectangle pipe shall be of 25mmx50mm and 2mm thickness, base plate shall be 8mm thick and stainless steel fastener shall be of 10mmx100mm. The punching/perforation in seating plate and back rest shall be done by turret punching machines as per approved sample for punching pattern. All fabrication work shall be done on roller machine by CNC laser cutting and argon welding. The Argon welding shall be done by TIG (Tungsten inert gas) Arc welding method as per IS:9604. Joints shall be welded under controlled condition to avoid formation of crack and metal flow at welding point by using tungsten electrodes as per IS:13907 and SS304/SS304L/SS316 grade filler material. Welds should be treated with K-2 solution. All the jints shall be finished and polished using automatic polishing machine to match with parent material as per detail drawing.

   BENCH DETAIL:

   Length: 1300mm

Width: 450mm

Height from ground: 400mm

Base plate to be fixed on ground:400mmx120mmx8mm

BACK REST DETAIL

Length: 1300mm

Width: 300mm

Seat and back rest connecting pipe shall be of 50mm dia or 50mmx50mm square or 25mmx50mm rect. With 2mm thickness.

Clear height of bench with back rest: 840mm

SCULPTURE :

The sculpture shall be manufactured using stainless steel 304/316 grade matt finished as per design. Stainless Steel sheet/plates shall be of 16 gauge, round pipe shall be of 50/25 dia and 2mm thickness, square pipe shall be of size 50mmx50mm and 2mm thickness, rectangle pipe shall be of 25mmx50mm and 2mm thickness, base plate shall be 8mm thick and stainless steel fastener shall be of 10mmx100mm. The punching/perforation in steel sheet/plates shall be done by turret punching machines as per approved sample for punching pattern. All fabrication work shall be done on roller machine by CNC laser cutting and argon welding. The Argon welding shall be done by TIG (Tungsten inert gas) Arc welding method as per IS:9604. Joints shall be welded under controlled condition to avoid formation of crack and metal flow at welding point by using tungsten electrodes as per IS:13907 and SS304/SS304L/SS316 grade filler material. Welds should be treated with K-2 solution. All the jints shall be finished and polished using automatic polishing machine to match with parent material as per detail drawing.

5. FINISH: All the surface of the bench should be uniform smooth mirror finish as per table 8 of IS:6911, polished with automatic polishing machine and free from crack and seam. Welding joints shall be finished ensuring that no welding arks are visible.
6. TOLERANCE: All dimensions (expect thickness of SS plate/pipe) shall be as per drawing _+2 mm. stainless steel plate thickness tolerance shall be as specified in IS:6911-1993 with latest amendment
7. MEASUREMENT: The unit of measurement shall be In kg.
8. PAYMENT: This price shall be cover the fabrication, handling and installation including labour, material and equipment's. Manufacturer should provide maintenance manual and basics material test report for steel grade

   Certification

STAINLESS STEEL BENCH 1

LENGTH-54"
WIDTH-18"
HIGHT FROM
GROUND-17"

STAINLESS STEEL BENCH 2

7.5 WATER FOUNTAIN

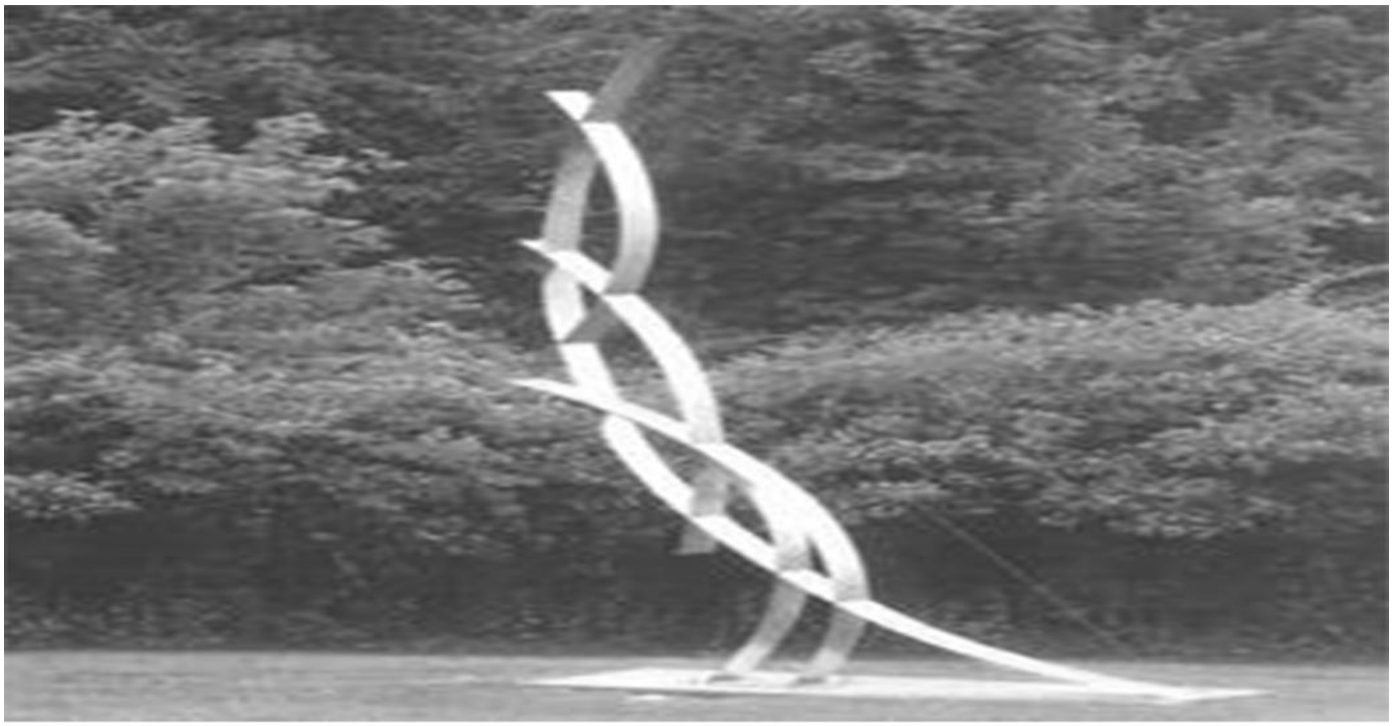
The Programmable Surprise Jet Fountain shall be installed as per Approved make & manufacturer's recommendations (approved make of Ripples, Premiere Fountain & water Miracle or equivalent). It is a sixteen nozzles programmable fountain. All sixteen nozzles will be divided into four parts. Four water jets from the nozzles shall go up at a time to the minimum height of 4-5 feet and will fall back on the floor to get collected in the tank below. One by one all four sets will go on and off. An underground water tank constructed will be connected to dry Pumps, which shall be automated, for the rise & fall of the jets (approved make CG/ kirlosker). The water from the jets will recirculate and filtered in a separate chamber below ground. The Filter shall be TOTALLY ANTI-CORROSIVE Bobbin Wound filter, 400mm diameter fitted with pressure gauge panel manual air bleeder, water drain and emptying plug fitted with collector arms and diffuser made from unplasticizedPVC and polypropylene. Each fountain nozzle will be fitted with colour changing LED lights (approved make of Ripples, water miracle, Philps or equivalent) with wires, cables of various sizes. The 1.1 kvLT PVC wire/ cables shall conform to IS 7098 standards of make RR Kabel / Polycab/ Finolex or equivalent. The Master Control panel shall include PLC relay power supply & software for 32 digital outputs with necessary accessories. The nozzles shall be of Brass / Gun Metal Vertical 1" Outlet Jet Nozzles and Noyel Body Niche Light. The Pump shall be single phase /Horizontal self-priming centrifugal pumping set with prefilter, heavy duty thermo plastic body, Noryle plastic impeller, stainless steel AISI-316 shaft, mechanical seal in stainless steel connected to a TEFC induction motor with built-in thermal protection and automatic reset suitable for 220 volts, single phase, 50 cycles A.C supply, IP-55 motor protection with basket strainer of adequate capacity 2HP. uPVC pipe -10kg pressure with heavy fittings & necessary valves (make of Prince / Harrit or equivalent) shall be used. UPVC pipes shall conform to IS : 4985 of approved make of Prince/ Finolex / Suprem or equivalent.

7.6 DRAINAGE:

Trenches will be dug manually, and perforated pipes laid with an inclination of 1 in 100 to 1 in 200. The UPVC Perforated pipe is surrounded geo textile and gravel is filled up in the trench. Geo textiles (GSM 120) are used to prevent migration of the drainage material as well as preventing dirt and roots from entering and clogging the drainage pipe. The perforated pipe

provides a minor underground storage volume but the prime purpose is for the perforations to drain the area along the full length of the pipe and to discharge any surplus water at its end. The direction of percolation will depend on the relative conditions inside and outside the pipe. These will be directed to Rain water harvesting pits placed at 3 locations in the park.

SPECIFICATIONS FOR SCULUPTURE



SCULPTURE HEIGHT-10'

MATERIAL THICKNESS-3MM TO 4 MM

GRADE-304

BOTTOM MAT FINISH

SCULPTURE

8. **DETAILED SPECIFICATIONS FOR LIGHTING**

8.1-POST TOP Luminaire:

i. Outdoor type,

ii. Integral LED lamp,

iii. Decorative

iv. Direct lighting type

v. Non-corrosive Aluminum housing.

vi. Housing Color: Black

vii. Suitable for mounting on pole.

Luminaire integrated and prewired from terminal connector for incoming supply with LED lamp

viii. Low power loss LED driver for 45 W LED

ix. Operated on 240V, 50Hz AC supply

8.2-BOLLARD:

i. Outdoor type,
ii. Integral LED lamp,
iii. Decorative
iv. Luminaire: High pressure die cast Aluminium
v. Non corrosive fastner
vi. Aluminium plate for bolting onto foundation.
vii. Robust Design
viii. High Luminous efficiency at reduce wattage
ix. Cable entry for main supply cable. Earthing connection provision shall be provided. Minimum protection of IP 54.
x. Operate on 240V, 50 Hz AC supply.
xi. Earthing terminals for earth connection
xii. Protect pedestrian from glare.
xiii. Rating: 6W LED

8.3-UPLIGHT:

i. Landscape luminaries for direct spot light.
ii. Luminaire with arrangement of connecting cable and bracket for permanent installation on wall or ceiling or landscape area.
iii. Suitable for outdoor application.
iv. Contain Clear tempered safety glass diffuser.
v. Swivel range in horizontal axis.
vi. Earthing terminal for earth connection.
vii. Prewired LED driver

viii. Suitable for operation on 230V, 50Hz AC supply
ix. Rating: 6W LED

8.4 LIGHT POLES:

i. Light pole suitable to accommodate Post top luminaire.

ii. Hollow pole

iii. Light in weight.

iv. Earthing terminals for earth connection.

v. Cable will be terminate at luminaire through hollow pole.

vi. Pole is black in colour having corrosion resistance coating on it.

vii. Suitable for outdoor application.

viii. Height : 3.5-4 mtr

SECTION 8: ANNEXURES

PART A: Annexure A to G

ANNEXURE- "A"

MODEL RULES RELATING TO LABOUR, WATER SUPPLY AND SANITATION IN LABOUR CAMPS

Note: These model rules are intended primarily for labour camps which are not of a permanent nature. They lay down the minimum desirable standard which should be adhered to Standards in Permanent or semi-permanent labour camps should not obviously be lower than those for temporary camps.

1. Location: The camp should be located in elevated and well drained ground in the locality.

2. Labour: Huts are to be constructed for one family of 05 persons each. The layout is to be shown in the prescribed sketch.

3. Hut line: The huts to be built of local materials. Each hut should provide at least **20 Sqm.** of living space.

4. Sanitary facilities: There shall be provision of latrines and urinals at least **15 M** away from the nearest quarter separately, for men and women specially so marked.

5. **Latrines**: Pit provided at the rate of 10 users or three families per set. Separate Urinals as required as the privy can also be used for this purpose.

6. Drinking water: Adequate arrangement shall be made for the supply of drinking water. If practicable, filtered and chlorinated supply shall be arranged. Where supply is from intermittent sources, an overhead covered storage tank shall be provided with a capacity of five litres per person per day. Where the supply is to be made from a well it shall confirm to the sanitary standards laid down in the report of the Rural Sanitation Committee. The well should be at least 30 meters away from any latrine or other sources of pollution. If possible a hand pump should be installed for drawing the water from well. The well should be effectively disinfected once every month and quality of water should be got tested at Public Health institution between each work of disinfection. Washing and bathing should be strictly prohibited at places where water supply is from a river. The daily supply must be disinfected. In the storage reservoir and given at least 3 minutes contact with the disinfectant before it is drawn for use.

7. Bathing and Washing: Separate bathing and washing place shall be provided for men and women for every **25 persons** in the camp. There shall be a gap and space of **2 Sqm**. for washing and bathing. Proper drainage for waste water should be provided.

8. Waste disposal: Dustbins shall be provided at suitably place in camp and the residents shall be directed to throw all rubbish into these dustbins. The dustbins shall be provided with covers. The contents shall be removed every day and disposed of by trenching or through Municipal solid waste disposal system, if the same exists.

9. Medical facilities.

a) Every camp where **1000 or more persons** reside shall be provided with full time doctor and dispensary. If there are women in the camp a full time nurse shall be employed.

b) Every camp where less than 1000 but more than 250 persons reside shall be provided with dispensary and a part time nurse/midwife shall also be employed.

c) If there are less than 250 persons in any camp a first aid kit shall be maintained by the in- charge of the whole time persons. All medical facilities mentioned above shall be for all residents in the camp, including a dependent of the workers, if any, free of cost. Sanitary Staff: For each labour camp there should be qualified sanitary Inspector & Sweepers should be provided in the following scale:

1. For Camps with strength over 200 One Sweeper for every 75 persons but not exceeding 500 persons above the first 200 for which three sweepers should be provided.

2. For camps with strength over 500 One sweeper for every 100 persons above the first 500 for which six Sweepers should be provided.

ANNEXURE – "B"
BIDDER'S LABOUR REGULATIONS.

The Bidder shall pay not less than fair wage to Labourers engaged by him in the work.

Explanation:

a) "Fair Wages" means wages whether for time or piece work as notified at the time of inviting tenders for the works and where such wages have not been so notified the wages prescribed by the Labour Department for the division in which the work is done.

b) The Bidder shall, notwithstanding the provisions of any contract to the contrary, cause to be paid a fair wage to labourers indirectly engaged on the work including any labour engaged by his sub- Bidders in connection with the said work as if labourers had been immediately employed by him.

c) In respect of all labour directly or indirectly employed on the works on the performance of his contract, the Bidder shall comply with their cause to be complied with the labour act in force.

d) The Chief Executive Officer/Engineer in Charge shall have the right to reduce from the money due to the Bidder any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfilment of the conditions of the contract for the benefit of the workers, non-payment of wages or the deductions made from his or their wages, which are not justified by the terms of the contract or non-observance of regulations.

e) The Bidder shall be primarily liable for all payments to be made under and for the observance of the regulations aforesaid without prejudice to his right to claim indemnity from his sub-Bidders.

f) The regulations aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be breach of this contract.

g) The Bidder shall obtain a valid license under the contract (Regulations and Abolition) Act in force and rules made there under by the competent authority from time to time before commencement of work and continue to have a valid license until the completion of the work. Any failure to fulfil this requirement shall attract the penal provisions of this contract arising out of the resulted non-execution of the work assigned to the Bidder.

ANNEXURE 'C'

FORM OF CERTIFICATE OF INCOME TAX TO BE SUBMITTED BY BIDDER TENDERING FOR WORKS COSTING 2.00 LAKHS OR MORE.

1. Name and Title (of the company/firm (HUF) or individual) in which the applicant is assessed to Income Tax and Address for the purpose of assessment.

2. The Income tax Circle /Ward /District in which the applicant is assessed to income tax.

3. Following particulars concerning the last Income tax assessment made. a) Reference No. (or GIR No.) of the assessment

b) Assessment year and accounting year. c) Amount of total income assessed.

d) Amount of tax assessed IT, ST, EPT, and BPT

e) Amount of tax paid IT, ST, EPT, and B.P.T.

f) Balance being tax not yet paid and reasons for such arrears.

g) Whether any attachment or certificate proceedings pending in respect of the arrears.

h) Whether the company or firm or HUF on which the assessment was made has been or is being liquidized wound up, dissolved, partitioned or being declared insolvent, as the case may be.

i) The position about latter assessment namely whether returns submitted under Section 22(1)or (2) of the Income Tax Act, and whether tax paid under, "Section 18A of the Act and the amount of tax so paid or in arrears.

4. In case there has been no Income tax assessment at all in the past, whether returns submitted under section 21(1) or (2) and 18-A(3) and if so, the amount of Income Tax returned or tax paid and the Income Tax Circle/ Ward/District concerned.

5. The Name and address of branch (es) verified the Particulars set out above and found correct subject to the following remarks.

Dated: …….. Signature of I.T.I.

Annexure C-I:
(Irrevocable Bank Guarantee Bond) (GUARANTEE BOND)
(In lieu of performance Security Deposit) (To be used by approved Scheduled bank)

1. In consideration of the Chief Executive Officer (CEO), Faridabad Smart City Limited, Faridabad (here in after called the CEO having office at Bk Chowk NIT Faridabad Haryana 121001 agreed to exempt M/s. (Bidders Firm name) having its registered office ……..(write the official address of the Bidder) (Herein after called the Bidder (s) from the demand under the terms and conditions of an agreement dated .....made between, for the work (Name of Work) (Here in after called the said Agreement) of Performance Security deposit for the due fulfilment by the said Bidder (s) of the terms and conditions contained inthe said agreements on production of a **Bank Guarantee** for □..... (Rupees .....Only).

We. . . . . (herein after referred to as " the bank (at the request of the said Bidder (s) do here by undertake to pay the FSCL, an amount not exceeding □..... against any loss or damage caused to or would be caused to or suffered by the Faridabad Smart City Limited , by reasons of any breach by the said Bidder (s) of the terms or conditions contained in the said agreement.

2. We (Banks Name) ..... do here by undertake to pay the amount due and payable under this guarantee without any demur merely on demand from the Chief Executive Officer- FSCL stating the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the FSCL, Faridabad by reason of breach by the said Bidder (s) of any of the terms or conditions contained in the said agreements or by reasons of the Bidder (s) failure to perform the said agreement, Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee, However our liability under this Guarantee shall be restricted to an amount not exceeding.....

3. We undertake to pay to the FSCL, Faridabad any money so demanded not withstanding any dispute or disputes raised by the Bidder (s) in any suit or proceedings pending before any court or tribunal relating thereto, our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Bidder (s) shall have no claim against us for making such payments.

4. We (Bank Name) ..... further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the **performance** of said agreement and that it shall continue to be enforceable till all the dues of the FSCL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till the Chief Executive Officer, FSCL. Certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Bidder (s) and terms and conditions of the said agreement have been fully and properly carried out by the said Bidder (s) and accordingly discharged this guarantee, unless a demand to claim under this Guarantee is made on us in writing on or before the (here indicate a date which will be the end of Defect Liability Period)..... We shall be discharged from all liability under the guarantee.

5. We (.) ..... further agree with the Chief Executive Officer that the FSCL shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Bidder (s) from time to time or to postpone for any time or for time to time any of the powers exercisable by the Chief Executive Officer / TA/GM against the said Bidder (s) and to for bear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reasons of any such variations or extension being granted to the said Bidder (s) or for barnacle, act or Chief Executive Officer on the part of the FSCL. Or any indulgence by the FSCL to the said Bidder (s) or by any such matter or thing what so ever which under the law relating to sureties would but for this provision have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Bidder.

7. We (Bank Name).....lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Chief Executive Officer in writing:-

Dated the..... Day of..... for

( ).....

(.) Indicate the Name of the Bank.....

Annexure C-II

To,
……..
……..
……..

Dear Sir,
We enclose Demand Draft / Bank Guarantee/Cash Certificate other similar instrument no. …… for …….. in favour of ……... Designation of the Officer concerned in lieu of deposits required from …… for the due fulfilment by him/them of the terms of Bidder dated…….. for during the period …… commencing from …….. there of if any.

Yours faithfully,

For and on behalf.

h) Scaffolding:

(i) Suitable scaffold should be provided for workman for all works that cannot safely be done from the grounds or from solid construction except such short period work as can be done safely from ladder is used on extra labour shall be engaged for holding the ladder for carrying materials as well suitable foot holes and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to ¼ Horizontal and 1 vertical).

(ii) Scaffolding or staging more than 12 M above, the ground floor swung or suspended from an overhead support or erected with stationer/support shall have a guard rail property attached, bolted, braced or otherwise secured at least 1 meter high above the floor platforms of such scaffolding or staging and extending along the entire length of the outside the ends thereof with only such opening as may be necessary for the delivery of the materials. Such scaffolding or staging shall be fastened as to prevent it from swaying from the building of structure.

(iii) Working platform gangways and stairway should be so constructed that they should not away unduly or unequally and if the height of the platform of the Gangway or the stairway is more than 3.54 meters above ground level and or floor level they should be closely bearded, should have adequate width and should be suitably fenced as described (ii) above.

(iv) Working platform be provided with suitable means to prevent the falling of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 meter.

(v) Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable ladder shall be over 9 meter in length while the width between side rails in ring ladder shall be in no case be less than 0.3 meters from ladder up to and including 3 meter length. For longer ladders this width should be increased at least 2 cm. For each additional meter of length. Uniform step spacing shall not exceed 0.3 M adequate precaution shall be taken to prevent danger form electrical equipment. No material on any of the work site shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Bidder shall also provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defence of every suit action or other precautions of law that may be brought by any person for injury sustained owing to neglect of the above and to pay any damages and costs which may be awarded in any such suit action or proceeding to any such person or which may with consent of the Bidder be paid to compromise by any such person.

2 Excavation and Trenching: All trenches 1.2 meter or more in depth, shall at all times be supplied with at least one ladder for each 30 Meter in length or fraction thereof. Ladder shall be extended from bottom of the trench to at least 1 meter above the surface of the ground. The side of trenches which are 1.5 meter or more in depth shall be stepped back to give suitable slopes or securely held by timber bracing so as to avoid the danger of sides to collapse The excavated materials shall not be placed within 1.5 meter of the edge of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.

3 Demolition: Before any demolition work is commenced and also during the process of the works.

(a) All roads and open area adjacent to the work site shall either be closed or suitably protected.

(b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.

(c) All precautionary steps shall be taken to prevent danger to persons employed from risk of fire or explosion of flooring. No floor roof or other part of the building shall be so overloaded with debris of materials as to render it unsafe.

4 Painting: All necessary personal safety equipment as considered adequate by the Engineer-in-charge should be kept available for the use of person employed on the site and maintained in a condition suitable for immediate use and the Bidder should take adequate steps to ensure proper use of equipment by those concerned.

a) Workers employed on mixing asphaltic materials cement lime mortars shall be provided with protective footwear and. protective goggles.

b) Stone brackets shall be provided with protective goggles and protective clothing, and seated at sufficiently safe intervals.

c) Those engaged in welding works shall be provided with welder's protect.

d) When workers are employed in sewers and manholes which are in use, the Bidders shall ensure that the manhole covers are open and are ventilated at least for an hour before the work shall be coronet off with suitable railing and provided with warning signals or boards to prevent accident to the public.

e) The Bidder shall not employ men below the age of 19 and women on the work of painting with products containing lead in any form whenever men above the age of 18 are employed on the work of lead painting the following precautions should be taken.

f) No paint containing lead or lead shall be used except in the form of paste or readymade paint.

i) Suitable face masks should be supplied for use by the workers when paint applied in the form of spray or a surface having lead paint dry rubble and scrapped.

ii) Overhauled shall be supplied by the Bidder to the workman and adequate facilities shall be provided to enable the working painters to wash during the cessations of work.

5. Drawing: When the work is done near any place where there is risk a drawing of all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment for all injuries likely to be sustained during the course of the work.
6. Every crane driver or hosing equipment operator shall be properly qualified and should not have any personal disorder. Such person must be of a minimum age of 21 years.

a) In case of every hoisting machine and every chain ring lowering or as means of suspensions. The sate working load shall be ascertained by adequate means. Every hoisting machine and gear referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond the safe working load except for load purpose of testing.

b) In case of departmental machine the safe working and load shall be notified by the Electrical Engineer-in-charge. As regarded Bidder's machine the Bidder shall notify the safe working load of the machine to the Engineer-in-charge, whenever he brings any machinery to site of work and get verified by the Electrical Engineer concerned.

c) Motors, gearing transmission, Electric wiring and other dangerous part of the hoisting appliance should be provided with efficient safe guards and with such means as well reduce adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load be coming accidentally displaced When

workers employed on Electrical installations which are already unregistered insulating mats wearing apparel such as gloves sleeves and boots as may be necessary should be provided the workers should not wear rings, watches and carry keys, or other materials which are good conductors of electricity.

7. All scaffolds, ladders and their safety device mentioned or described herein shall be maintained in safe condition and no scaffold ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

8. These safety provisions should be brought to the notice of all concerned by display on a Notice Board at prominent places at the work spot. The persons responsible for compliance of the safety code shall be named therein by the Bidder.

9. To ensure effective endorsement of the rules and regulations relating to safety precautions the arrangement made by the Bidder shall be open to inspection by the Labour Officer, Engineer-in-charge, or the Department or their representatives.

10. Notwithstanding the above clause (1) to (9) there is nothing in these three except the Bidders to exclude the operations of any other act or rule in force in the Republic of India.

11. The bidder has to place the safety sign board in the work area which should be properly visible to prevent any accident.

12. The bidder has to take 3rd party Insurance of the work area, equipment(s), Tools and Tackles.

13. The bidder shall keep the Safety Engineer / Officer who shall take care for safety related issues and shall be present on work area on full time basis during construction work.

ANNEXURE – E

List showing the name of near relative working in FSCL as required vide

S. No.	Name of Officers working in FSCL,	Relationship with self	Name of Person working with the Bidder who are near relative to officer mentioned in column(2)	Relationship
1	2	3	4	5

ANNEXURE-F
GENERAL SPECIFICATION

1. . The successful Bidder shall carry out the construction of Smart Park for ABD area as per the approved drawings which shall be provided by FSCL. All norms of IS/NBC shall be fully complied. Before commencing construction work the successful bidder shall submit the construction plan to FSCL. The Authority shall study all such submissions and either approve the same or provide its suggestions or comments on the submissions. The successful bidder shall duly incorporate all such suggestions or comments, and if required by the Authority, and make fresh submissions to the Authority for approval. In no case shall any work be commenced by the successful bidder before obtaining all necessary approvals from the Authority. The bidder shall always commence the construction work as per Approved drawings provided by FSCL.

   All designs must fully take into account conditions/terms stipulated in Section 2: Instruction to Bidders, Or any other conditions mentioned elsewhere in the Tender document.

2. It is to be noted that the works are in the ABD area of the proposed smart city and as such is prone to many challenges from the residents and users. The bidder shall cooperate with the FSCL in resolving the challenges.

3. The Smart Park works shall be constructed in such a way that it will not damage the existing facilities and the entire existing operations function normally.

General Specifications:

All material should be ISI mark / ISO 9000 accredited company or manufactured by Public sector/Govt. Owned Companies or of the firms of repute. However Govt. / Public Sector makes are preferred makes. It is necessary to mention make of equipment Bidder intends to use. If Bidder does not mention make, the Owner would be free to mention the make of his choice.

Notes:

1. Complete copies of the drawings & Designs must be submitted by the successful bidder for obtaining approval of the Authority before commencing works.
2. General specification for work following order of priority regarding specification for work shall be followed by the Bidder.
   b) (i) Relevant B.I.S. Specification.
   c) (ii)Specifications as may be given in writing by the Engineer-in-charge from time to time.
   d) (iii)C P.W.D / Haryana P.W.D. specification/N.B.O./MORTH.
3. Nothing in these clauses, however, shall curtail the right of the "Engineer-In- Charge" to alter the specification for any part or whole of the work, if he considers it necessary in the interest of work. On all matters where there is a deference of opinion between the Bidder and the Engineer-In-Charge the matter will be referred to the Chief Executive Officer, FSCL whose decision will be final conclusive and binding on the Bidder.
4. The Bidder shall ensure the quality and workmanship of work as per approved drawings.
5. The existing development should not be damaged by the successful Bidder and he should hand them back as in original constructed condition.
6. Materials to be get approved before providing, execution and installation from the Engineer-in- charge. Further the bidder shall provide Ready Mix Challan clearly indicating the mix time, cement quantity, setting times, etc.
7. **The Bidder shall supply manufacturing certificates along with the supply of materials.**

LIST OF APPROVED MANUFACTURERS / MAKES:-

All material should be ISI mark / ISO 9000 accredited company or manufactured by Public sector/Govt. owned Companies or of the firms of repute. However Govt. / Public Sector makes are preferred makes. It is necessary to mention make of equipment Bidder intends to use. If Bidder does not mention make, the Owner would be free to mention the make of his choice.

S.No.	MATERIAL		MAKE
1	Structural/Reinforcement Steel:	:	SAIL/TATA/RINL/JINDAL
2	Stainless Steel:	:	SAIL/TATA/RINL/JINDAL
3	GI Pipes	:	ZENITH /TATA/JINDAL
4	Cement:	:	ACC/Ultra tech/Century/Lafarge/Ambuja
5	UPVC pipes / HDPE Pipes/LLDP		Astral / Finolex / Prince / Supreme
6	Ready/Mixed concrete		ACC/L&T/Ultratech/RMC/Godrej
7	Cables		Polycab / Finolex / RPG / Gemscab /Havells / KEI
8	LED Light		K-Light / Philips / Bajaj
9	Light Pole		K- Light / Philips / Bajaj
10	Distribution Board & Switchgears		L&T /LEGRAND /SIEMENS
11	Poly Carbonate Sheet		LEXAN/GALLINA/TUFLITE
12	Water Proofing Compound		FOSROC/SIKA/PIDILITE
13	Paints		ASIAN / BERGER/ NEROLAC
14	Interlocking Paver Block		NILITE CONCRETE/PAVERS INDIA/NIMCO
15	Water Fountain Nozzles		PREMIER / RIPPLE

ANNEXURE G: TESTING & SPECIFICATION OF MATERIAL

FOR WORKS:

i) Rates include the element of testing of samples of various materials brought by the Bidder for use in the work as per list of mandatory tests attached herewith. Frequency of such tests to be carried out shall not be less than the prescribed frequency. Bidder shall arrange a third party testing agency which shall be approved by the Engineer-in-charge. The tests shall have to be conducted by the Bidder's material under the supervision of Engineer-in-charge or his authorized representative. A record of such tests shall be maintained in a duplicate register at site of work Duplicate copies of such tests shall be submitted to office along with running account bills. The original register shall also be submitted along with the final bill. Failure to conduct any of the test or not up to the prescribed frequencies would invite following consequences. The Engineer-in-charge may reject the work, but if in his opinion the work can be accepted despite the aforesaid shortcomings, then he may do so subject to a recovery of money to be decided by the E in C for each default and simultaneously inform the Chief Executive Officer.

ii) Wherever applicable As regards steel reinforcement; TMT Steel – confirming to IS-1786:2008 shall be provided.

All reinforcement shall be free from loose mill scales, loose rust and coats of paints, oil, mud or other costing which may destroy or reduce bond.

Only such steel as is obtained from main producers of steel as indicated in the approved makes list.

The Bidder shall have to produce Test Certificate in the Performa prescribed/ approved by B.I.S. from the manufacturer for every batch of steel brought to site of work.

Before commencement of use of steel, from any batch, brought to site of work by the Bidder, the Engineer-in-charge shall arrange to get samples tested for nominal mass, tensile strength, bend test and rebind test from any Laboratory of his choice at the cost of Bidder. The selection of test specimens and frequency shall be as per relevant I.S. Specification of steel to be used.

iii) Where, contract provides for cement to be arranged by the Bidder himself, only M25 Grade and above cement of relevant I.S. standard specifications shall be allowed to be used in the work subject to the following tests. The arrangement for necessary equipment and testing shall have to be made by the Bidder, himself at a site to be decided by the Engineer-in-charge. All expenses shall be borne by the Bidder. Any lot of cement brought to site by the Bidder would be permitted to be used in the work under the supervision of the Engineer-in-charge or his authority's representative. The record of the tests results shall be maintained in the register referred in subsequent Para.

iv)

Type of Test	Frequency	Minimum
a) Test for initial & final /setting time as per IS: 4031 (Part 5)-1988.	1st Test for 10 tonnes or part thereof	10 tonnes
b) Test for determination of compressive strength of cement as per IS: 4031 (Part 6)-1988.	1st test for 50 tonnes or part thereof.	50 tonnes

A Duplicate register as per format hereunder shall be maintained at site of work. Extract certified copies of the entries for each month shall be submitted to the Engineer-in-charge by the Bidder. The original register shall also be submitted to the Engineer-in-charge on completion of the work by the Bidder.

S. No	Place of receipt of cement	No. of bags	Name and Address of firm From whom Purchased	Signature of Bidder or his authorized representative	Signature of authorized representative of Engineer- in charge.	Results of test for initial and final	Result of tests for compres sive strength of cement	Remark
1	2	3	4	5	6	7	8	9

When the strength of concrete required is up to M-20, then O.P.C. conforming to I.S.: 269-2013 or PPC conforming to IS: 1498-1976 may be used.
When the strength of concrete required is more than M-20 but up M-30, the O.P.C. Conforming to IS: 8112-2013 shall be used.
Nominal mix would be adopted for Cement concrete M-7.5 M-10 and M-15. Design mix shall have to be adopted for concrete of higher strengths.

iv) If any item of work found to be substandard by the Engineer-in-charge who is the opinion that the same is structurally adequate and can be accepted at a reduced rate, then in such cases, the Engineer- in-charge shall have to submit proposals for appropriate reduction of rates supported by an analysis, in justification thereof, though a D.O. Letter to the commissioner to obtain his approval expeditiously (ordinarily within 15 days). The approved analysis along with orders of the Chief Executive Officer shall have to be appended to the bills of the Bidder.

v) The Bidder shall have to be provided a ruled duplicate register at site named "Site Order Book" it shall be in the custody of departmental supervisory staff. The Engineer-in-charge or his authorized representative may record their instruction in this book, which shall be noted by the Bidder or his authorized representative for compliance.

vi) Ready mix concrete :The bidder shall have to supply the ready-mixed concrete on either of the following basis :

i) Specified strength based on 28-day compressive strength of 15 -cm cubes tested in accordance with IS : 456-2000.

ii) Specified mix proportion.

NOTE: Under special circumstances and as specified the strength of concrete in (a) above may be based on28-day or 7-day flexural strength of concrete instead of compressive strength of 15-cm cube tested in accordance with IS : 456-2000.

When the concrete is manufactured and supplied on the basis of specified strength, the responsibility for the design of mix shall be that of the manufacturer and the concrete shall conform to the requirements specified.

When the concrete is manufactured and supplied on the basis of specified mix proportions, the responsibility for the design of the mix shall be that of the purchaser and the concrete shall conform to the requirements specified.

Pipes: The length of pipes shall be measured in running meter nearest to a centimetre along the center line of the pipes over all fittings such as collars, bends, junctions etc. Fittings/specials shall not be measured separately.

UPVC PIPES : The pipes shall be round and shall be supplied in straight lengths with socketed ends. The internal and external surfaces of pipes shall be smooth, clean, free from groovings and other defects. The ends shall be cleanly cut and square with the axis of the pipe. The pipes shall be designed by external diameter and shall conform to IS:4985-1981 or IS:13592. The pipes shall be of Class-III; 6 Kg/sqm pressure rating or type B.

Fittings

Fittings shall be of the same make as that of pipes, injection moulded and shall conform to IS:14735.

List of mandatory Tests:

Material	Test	Relevant IS code of testing	Field/ Laboratory Test	Minimum Quantity of material work for Carrying out test.	Frequency of Testing
1	2	3	4	5	6
Cement concrete or reinforced cement concrete not leaner than M-15	Slump Test	IS: 1199	Field	15 Cum more	15 Cum or part there of frequently by Engineer In charge
Reinforced cement concrete	Cube strength	For Building IS; 456, for bridges/ Culverts IRC: 21-1987	Field	15 Cum in slab 5 cum on Columns.	15 Cum
Steel (arranged by the Bidder)	a)Tensile strength b) Bend test	IS: 1608 IS: 1599	Laboratory Laboratory	20 tonnes -do-	Every 20 tonne thereof, conforming to IS: 1786-1985 --do
Cement (arranged by the Bidder)	a) Test for Initial &Final setting. b) Test for determination of compressive strength of Cement.	IS: 4031-Part 5 IS: 4031 Part 6	Field Field	10 tonnes 50 tonnes	IS: 4031-1988 -do-
Sand	a) Silt content. b) Particle size distribution c) Bulking of sand	IS:2386 Part III IS: 2386 Part I IS: 2386 Part III	Field Field Field		Every 20 cum or part or more frequently as by the Engineer-in charge. Every 20 Cum or part or more frequently as by the Engineer-in charge. -do
Stone Aggregate	a) Percentage of soft or deleterious material.		Central visual inspection, laboratory test where required by the Eng.-in-charge Or as Specified.	0.00 Cum	As required Engineer-in charge.
Ready Mixed Cement (IS-4926) concrete	Cube test	IS 516 and as per 6.3.2 of IS 4926-2003	Lab	50 Cum	On eper every 50 cum of production or every 50 batches, whichever is greater frequency

RCC Spun Pipes (NP-3 class)	a) Water test and leak test at joints		visual inspection	Water test with minimum head 1.2m and maximum 1.8 m	Check for head drop in the pipe for duration of 2 hrs. Check for the leakages at Joints.
Water for construction purposes	Ph value Limits of acidity percentage of soilds choliorides suspended matter sulphates in organic soilids and organic soilds	IS 3025	Lab	Water from each source	Before commencement of work & there after mandatory- Once in 3 months from each source,Municipal supply - Optional
UPVC pipes	Entire drainage system shall be tested for water tightness and smoke tightness during and after completion of the installation. No portion of the system shall remain untested. Contractor must have adequate number of expandable rubber bellow plugs, manometers, smoke testing machines, pipe and fitting work tests,		Visual inspection	Water test with minimum head 1.2m and maximum 1.8	Check for head drop in the pipe for duration of 2 hrs. Check for the leakages at Joints.

Location of Proposed Smart Park in ABD in Faridabad City

ANNEXURE-H

AFFIDAVIT (SELF CERTIFIED)

(On company's Original Letter head)

I,Mr/Ms……S/o / D/o……..
Aged……..years……..……..……(Address……
……..)
(For and on behalf of ……..),

I hereby certify that ESIC does not apply for our Firm.

(……..)

Authorized signatory / for and on behalf of
……
(Affix seal)

ANNEXURE-I

POWER OF ATTORNEY

(On Rs. 100 Stamp Paper duly notarized on all pages)

Power of Attorney for Authorized Representative

The firm M/s……..authorize the following Representative to sign and submit the tender document, negotiate terms and conditions for the contract, to sign the contract, to deal with the _____, to issue and receive correspondence related to all matters of the tender "--------". We / M/s _____ undertake the responsibility due to any act of the representative appointed hear by.

For Partnership Firm's

S .No.	Name of All Partner	Signature of Partner with Seal
1		
2		
3		
4	Name and Designation of the person Authorized	
5	Attested Signature of the Authorized Representative	

For Limited Firm's

Name and Designation of the person Authorized	
Firm	
Address	
Telephone No.	
Mobile No.	
Authority By which the Powers is delegated	
Attested Signature of the Authorized Representative	
Name and Designation of person attesting the signatures	

PART B: Annexure 1 to 8

Annexure 1

<table>
<tr><td colspan="6">Qualification Information:-</td></tr>
<tr><td>1.1 (A)</td><td>Constitution or legal status of Bidder [attach copy]</td><td colspan="4"></td></tr>
<tr><td>(B)</td><td>Place of registration of Firm/ Company (in case of other than individuals)</td><td colspan="4"></td></tr>
<tr><td>(C)</td><td>Principal place of business:</td><td colspan="4"></td></tr>
<tr><td>(D)</td><td>Name of Power of attorney holder for Signing of the Bid. (bidder)[attach copy]</td><td colspan="4"></td></tr>
<tr><td rowspan="2">1.2</td><td rowspan="2">Total annual volume of civil engineering construction work executed and Payments received each year in the immediate five years preceding the year in which tenders are invited. (Attach certificate from Chartered Accountant)- indexed @ 10% (ten per cent) compounded per year</td><td rowspan="2">Financial Year</td><td colspan="3">(Rs. in crores)</td></tr>
<tr><td>Turnover in the year</td><td>Add for indexing</td><td>Total</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

- Proprietary firm. Partnership firm with the certificate of registration by registrar of firms & article and Memorandum of Association with Certificate of Incorporation.
- Mention and highlight the year, which the Bidder considers for evaluation by the committee.

Signature:

Bidder's Seal

ANNEXURE-2

BANKERS CERTIFICATE

This is to certify that M/s. _____is a reputed company with a good financial standing. If the contract for this work, namely_____(Name of the work) is awarded to the above firm, we shall be able to provide Over Draft/ Credit Facilities to the extent of Rs.---------- to meet the working capital requirements for executing the above contract.

Sd/- Senior Bank Manager,
Name of the Bank, Address:
…….....…….

Note: The original letter of credit shall be submitted in Envelope 'B' to the Employer without fail.

The solvency certificate should not be more than twelve months old. The solvency certificate shall be on Banks Letter Head (original) and duly signed by the Banks Designated Authority in Original. The solvency Certificate shall be as per the prescribed format.

ANNEXURE 3

FORM OF CERTIFICATE OF INCOME TAX TO BE SUBMITTED BY BIDDER TENDERING FOR WORKS COSTING RS. 2.00 LAKHS OR MORE.

1. Name and Title (of the company/firm(HUF) or individual) in which the applicant is assessed to Income Tax and Address for the purpose of assessment.

2. The Income tax Circle /Ward /District in which the applicant is assessed to income tax.

3. Following particulars concerning the last Income tax assessment made.

a) Reference No. (or GIR No.) of the assessment

b) Assessment year and accounting year. c) Amount of total income assessed.

d) Amount of tax assessed IT, ST, EPT, BPT,

e) Amount of tax paid IT, ST, EPT, and B.P.T.

f) Balance being tax not yet paid and reasons for such arrears.

g) Whether any attachment or certificate proceedings pending in respect of the arrears.

h) Whether the company or firm or HUF on which the assessment was made has been or is being liquidized wound up, dissolved, partitioned or being declared insolvent, as the case may be.

i) The position about latter assessment namely whether returns submitted under Section 22(1) or (2) of the Income Tax Act, and whether tax paid under, "Section 18A of the Act and the amount of tax so paid or in arrears.

4. In case there has been no Income tax assessment at all in the past, whether returns submitted under section 21(1) or (2) and 18-A(3) and if so, the amount of Income Tax returned or tax paid and the Income Tax Circle/ Ward/District concerned.

5. The Name and address of branch (es) verified the Particulars set out above and found correct subject to the following remarks.

Dated: ……..

Signature of I.T.I.

Circle/ Ward/ District

INFORMATION ON EXECUTION OF SIMILAR WORKS [REFER QUALIFICATION CRITERIA, S.NO.1]									
S. No.	Name of Project	Name of Employer	Value of contract	Contract No.	Date of Issue of Work Order	Stipulated Date of Completion	Actual Date of Completion	Value of work done	**Remarks** Remarks explaining reasons for Delay, if any; and the amount of deductions due to delay. Also mention if any claim or dispute is pending in any forum.
1	2	3	4	5	6	7	8	9	10

Note:

1. Attach relevant certificates from the Engineer in charge, not below the rank of Executive Engineer or equivalent.
2. Bidder may attach certified copies of work order(s) and completion certificate issued by the Engineer in Charge not below the rank of an Executive Engineer.
3. The Supporting documents (completion certificate etc) shall clearly indicate the value of work completed.

Signature:

Bidder's Seal

Work performed on all classes of Civil Engineering Construction Works over the last five years

S No	Name of Project	Name of Employer	Description of work	Value of contract (Rs.in Lacs)	Contract No.	Date of Issue of Work Order	Stipulated Date of Completion	Actual Date of Completion	Year wise value of work done as per certificate from the employer (Rs. In Lacs)					Remarks explaining reasons for Delay, if any; and the amount of deductions due to delay Also mention if any claim or dispute is pending in any forum.
1	2	3	4	5	6	7	8	**9**	10	11	12	13	14	15

Note: (i) *Attach relevant certificates from the Engineer in charge, not below the rank of Executive Engineer or equivalent.*

(ii) Bidder may attach certified copies of work order(s) and completion certificate(s) issued by Engineer in charge not below the rank of Executive Engineer

(iii) The Supporting documents (completion certificate etc) shall clearly indicate the value of work completed.

Signature :

Bidder's seal :

ANNEXURE-6

Existing commitments and ongoing works in all classes of construction works

S. No.	Name of Project	Description of work	Contract No &Year	Name & address of the employer	Value of contract	Date of Issue of Work Order	Stipulated Date of Completion	Stipulated period of completion in months	Anticipate d date of completion	Value of work done up to the date of issue of this N.I.T	Probable value of works balance to be completed	Anticipate d months required for completion of balance works	Value of claims or dispute if any, pending
1	2	3	4	5	6	7	8	9	10	11	1	13	14

Note: The Supporting documents (completion certificate etc) shall clearly indicate the value of work completed.

Information regarding current claims, arbitration, litigation the Bidder is involved in.

S. No.	Name of Other party(s)	Agreement No. Date year and Dept.	Brief of cause of claims, arbitration /dispute (give reference of contract details)	Where Litigation is pending (in the department /Court/arbitration) (mention Dept./Court/Arbitration)	Amount involved/ claimed

Can use separate sheets for each agreements if necessary.

ANNEXURE-8

Affidavit

I,……S/o……...Aged……..years…
……..……..……(Address……
…….)
(For and on behalf of ……..), do here by and herewith solemnly affirm / state on oath that: -

1. All documents and Information's furnished are correct in all respects to the best of my knowledge and belief

2. I have not suppressed or omitted any required/relevant information.

3. I hereby authorize the Faridabad Smart City Limited, Faridabad Officials to get all the documents submitted verified from appropriate source(s).

(……..)

Authorized signatory / for and on behalf of
……
(Affix seal)

SECTION 9: PRE CONTRACT INTEGRITY PACT

(To be submitted on Rs 100 Stamp Paper)

1. GENERAL

1.1. This pre-bid contract agreement (herein after called the Integrity Pact) is made on ……..day of the month ……..between the Faridabad Smart City Limited (FSCL) acting through Shri/Smt……. (Designation of the FSCL officer)(Hereinafter called the "BUYER" which expression shall mean and include, unless the context otherwise requires, his successors in the office and assigns) and the First Party, proposes to procure..... (Name of the Store/Equipment/ Work/ Service) and M/s. …….....represented by Shri ……..... (herein after called the BIDDER/Seller, which expression shall mean and include, unless the context otherwise requires, his successors an permitted assigns) and the Second Party, is willing to offer/ has offered.

1.2. WHEREAS the BIDDER is a Private Company/ Public Company/ Government Undertaking/ Partnership/ Registered Export Agency, constituted in accordance with the relevant law in the matter and the BUYER, performing its function as SPV under provision of Companies Act 2013.

2. OBJECTIVES:

NOW, THEREFORE, the BUYER and the BIDDER agree to enter into this pre-contract agreement, hereinafter referred to as Integrity Pact to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/ prejudiced dealings prior to ,during and subsequent to the Contract to be entered into which a view to:-

2.1. Enabling the BUYER to obtain the desired Stores/ Equipment/Work/Service at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

2.2. Enabling BIDDER to abstain from bribing or indulging in any corrupt practices in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing any corrupt practices and the BUYER will commit to prevent corruption, in any form, by its official by following transparent procedures.

3. COMMITMENTS OF THE BUYER

The BUYER commits itself to the following:-

3.1. The BUYER undertakes that no official of the BUYER connected directly or indirectly with the contract, will demand, take promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefits or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation , contracting or implementation process related to the contract.

3.2. The BUYER will, during the pre-contract stage, treat BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to the other BIDDERS

3.3. All the officials of the BUYER will report the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

3.4. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with the full and verifiable facts and the same *prima facie* found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

4. COMMITMENTS OF BIDDERS

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means an illegal activities during any stage of its bid or during any pre-contract or pre-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

4.1. The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the biding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

4.2. The BIDDER further undertakes that it has not been given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage, or inducement to any official of the BUYER or otherwise in procuring the Contract of forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.

4.3. The BIDDER further confirms and declares to the BUYER that the BIDDER in the original Manufacture/Integrator/Authorized government sponsored export entity of the stores and has not engaged in individual or firm or company whether Indian or Foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

4.4. The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payment he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

4.5. The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation contracting and implementation of the contract.

4.6. The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

4.7. The BIDDER shall not use improperly, for purpose of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposal and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

4.8. The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

4.9. The BIDDER shall not instigate or cause to instigate any third person to commit any of the acts mentioned above.

5. PREVIOUS TRANSGRESSION

5.1. The BIDDER declares that no previous transgression occurred in the last three years immediately before signing this Integrity Pact with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify Bidder's exclusion from the tender process.

5.2. If the BIDDER makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reasons.

6. EARNEST MONEY (SECURITY DEPOSIT)

6.1. Every BIDDER while submitting commercial bid, shall deposit an amount as specified in RFP as Earnest Money/ Security Deposit, with the BUYER through any of the following instruments:

6.1.1. Bank Draft or Pay Order in favour of …….

6.1.2. A Confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the ……on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.

6.1.3. Any other mode or through any other instrument (to be specified in the RFP).

6.2. The Earnest Money/ Security Deposit shall be valid up to a period of five years or the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and BUYER, including warranty period, whichever is later.

6.3. In the case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.4. No interest shall be payable by the BUYER to the BIDDER on Earnest Money/ Security Deposit for the period of its currency.

7. SANCTIONS FOR violations'

7.1. Any breach of the aforesaid provisions by the Bidder or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-

7.1.1. To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(S) would continue.

7.1.2. To forfeit fully or partially the Earnest Money Deposit (in pre-contract stage) and/ or Security Deposit/ Performance Bond (after the contract is signed), as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.

7.1.3. To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

7.1.4. To recover all sums already paid by the BUYER, and in case of the Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate while in case of a BIDDER from a country other than India with interest there on at 2 % higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract such outstanding payment could also be utilized to recover the aforesaid sum and interest.

7.1.5. To encash the advance bank guarantee and performance bond/ warranty bond, if furnished by the BIDDER, in order to recover the payments already made by the BUYER, along with interest.

7.1.6. To cancel all or any other contracts with the BIDDER and the BIDDER all be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

7.1.7. To debar the BIDDER from part on behalf of the participating in future bidding processes of the Government of Haryana for a minimum period of five years, which may be further extended at the discretion of the BUYER.

7.1.8. To recover all sums paid in violation of this Pact by BIDDER(S) to any middlemen or agent or broken with a view to securing the contract.

7.1.9. In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BIDDER, the same shall not be opened.

7.1.10. If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly is closely related to any of the officers of the BUYER or alternatively, if any close relative of an officer of the BUYER has financial interest/stake in the BIDDER'S firm, the same shall be disclosed by the BIDDER at the time of filling of tender. Any failure to disclose the interest involved shall entitle the BUYER to rescind the contract without payment of any compensation to the BIDDER.

The term 'close relative' for this purpose would mean spouse whether residing with the Government servant or not, but include a spouse separated from the Government servant by a decree or order of a competent court: son or daughter or custody the step son or step daughter and wholly dependent upon Government servant, but does not include a child or step child who is no longer in any way dependent upon the Government servant or of whose the Government servant has been deprived of by or under any law; any other person related, whether by blood or marriage, to the Government servant or to the Government servant's wife or husband and wholly dependent upon Government servant.

7.1.11. The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER, and if he does so, the BUYER shall be entitled forthwith to rescind the contract and all other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

7.2. The decision of the BUYER to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Monitor(s) appointed for the purpose of this Pact.

8. FALL CLAUSE

8.1. The BIDDER undertakes that it has not supplied/is not supplying similar product/ systems or subsystems at a price lower than that offered in the present bid in respect of any other Department of the Government of Haryana or PSU and if it is found at any stage that similar product/ systems or sub systems was supplied by the BIDDER TO any other Department of the Government of Haryana or PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

9. INDEPENDENT MONITORS

9.1. The BUYER will appoint Independent Monitors (hereinafter referred to as Monitors) for this Pact.

9.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

9.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

9.4. Both the parties accept that the Monitors have the fight to access all the documents relating to the project/ procurement, including minutes of meetings. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Sub Bidder(s) with confidentiality.

9.5. As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.

9.6. The Monitor will submit a written report to the designated Authority of BUYER/ Secretary in the Department/ within 8 to 10 weeks from the date of reference or intimation to him by the BUYER/BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

10. FACILITATION OF INVESTIGATION

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information of the relevant documents and shall extend all possible help for the purpose of such examination.

11. LAW AND PLACE OF JURISDICTION

This Pact is subject to Indian Law, the place of performance and jurisdiction shall be the seat of the BUYER.

12. OTHER LEGAL ACTIONS:

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the any other law in force relating to any civil or criminal proceedings.

13. VALIDITY

13.1. The validity of this Integrity Pact shall from the date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

13.2. If one or several provisions of this Pact turn out to be invalid; the remainder of this pact shall remain valid. In such case, the parties will strive to come to an agreement to their original intentions.

14. The parties hereby sign this Integrity Pact at ……..on …….

BUYER **BIDDER**