

**MINISTRY OF HEALTH & FAMILY WELFARE
GOVERNMENT OF INDIA, NEW DELHI**

Tender No. MoHFW/PMSSY/JNMC-ALIGARH/ALIGARH/HLL/ID/2014/04

**Request for Proposal (RFP)
*for***

**Up-gradation of Jawaharlal Nehru Medical College, Aligarh Muslim University,
Aligarh (U.P) under PMSSY-II
“Package-4: Development of Horticulture & Landscaping Works”**

THE COMPLETE TENDER DOCUMENTS CONSIST OF THE FOLLOWING:

- **Volume-III (SCC & Technical Specifications)**



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(May, 2014)

**Up-gradation of Jawaharlal Nehru Medical College, Aligarh Muslim University,
Aligarh (U.P) under PMSSY-II
“Package-4: Development of Horticulture & Landscaping Works”**

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SECTION 1

SPECIAL CONDITIONS OF CONTRACT (S C C)

Up-gradation of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh (U.P) under PMSSY-II “Package-4: Development of Horticulture & Landscaping Works”

1. Scope of Contract

The scope of work comprises of development of horticulture & landscaping works for Up-gradation of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh (U.P) under PMSSY-II works etc.

The scope of work also includes design, supply of necessary materials, preparation of samples of horticulture & landscaping works etc. for approval before execution by Engineer in Charge.

2. Drawings

(a) Tender Drawings(Architectural Plans only for information)

The tender drawings are for Tender Purpose only and are intended as a guide to the Bidder / Contractor and give general layout of buildings and general information of the structures and general positions of utilities, services only. Contractor's quoted rate for any item should not be based on any measurement, quantity, and specification from these drawings. Any claim raised by the contractor in this regard shall not be valid in this contract and shall not be accepted by the Client.

(b) Issue and custody of drawings & specifications: None

The contractor shall keep safe custody of the drawings and other documents issued to him in connection with the work.

3. Disruption of Progress

- (a). The Contractor shall give 4 weeks written notice to the Engineer-in-charge whenever planning or progress of the Works is likely to be delayed or disrupted due to non-issue of any drawing or order by the Engineer-in-charge. The notice shall give details of the drawing or order required explaining why and by when it is required and if any delay or disruption is likely to be suffered on that account.
- (b). If by reason of any failure or inability of the Engineer-in-charge /Consultant to issue drawings/ order/ clarifications within 4 weeks of such notice the Contractor and the contractor suffers delay, then the Engineer-in-charge, shall record the facts for any extension of time under respective clause of the agreement. Notwithstanding anything stated above, the Contractor shall not be eligible for any financial compensation arising out of the above.
- (c). No compensation whatsoever shall be payable to the contractor for any damage by rains, lightening, wind, storm, floods, tornadoes, earthquakes, or any other natural calamities during execution of work and no claim on this account will be entertained such damages.

4. Further Drawings and Instructions

The Engineer-in-charge may in his absolute discretion and from time to time contractor issue any drawings and instructions, which shall be deemed to be a part of scope of the Contract.

5. Contractor's General Responsibilities

(a). Execution of works:

The Contractor shall, subject to the provisions of the Contract, and with due care and diligence, execute and complete the Works & remedy any defects therein in accordance with the Contract. The Contractor shall provide all labour, including the supervision thereof, materials, and Machineries and all other things, whether of a temporary or permanent nature, required in and for such execution, completion and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.

(b). Adequacy, stability and safety:

The Contractor shall be fully responsible for the adequacy, stability and safety of all site operations and methods of construction/installations, the contractor shall ensure that all safety norms are followed as per contractual and other statutory requirements.

(c). Temporary works and arrangements:

The Contractor shall furnish to the Engineer-in-charge /Consultant full particulars i.e. site location and area required including drawings, etc. of all temporary works necessary for the execution of the works and shall give adequate time to the Engineer - in- Charge for his approval.

(d). Storage, Cleaning

The Contractor shall at all the times during construction keep the Site clean and free from all debris and unwanted materials on a daily basis as per instructions of the Engineer-in-charge.

Storage of materials shall be in an organized manner and in proper compartments as directed by the Engineer - in- Charge. Storage on suspended floors shall not be permitted unless specifically approved in writing by the Engineer-in-charge /Consultant for specific materials in specific locations and in approved manner. The Engineer-in-charge / Consultant shall be furnished with load details, if requested, before seeking approval for storage.

Regular cleaning operations shall be undertaken to remove all dust, debris, waste materials etc. A cleaning schedule shall be maintained.

Contractor shall make his own arrangement for storage of those materials, which can be accommodated at site. Contractor shall be fully responsible for safe custody of the same. Materials shall be considered as "Delivered at Site" only after the physical presence of materials at site are verified by the Engineer-in-charge /Consultant. Storage of materials / equipment else where shall not be considered as "Delivered at Site."

Any expenditure incurred by the Contractor in fulfilment of his obligations under this sub-clause shall be deemed to have been included in the financial bid and subsequent contract.

6. Watching & Lighting

The Contractor shall throughout the execution and completion of the Works and the remedying of the site and the Works and the remedying of any defects therein have full regard for the safety of all persons entitled to be on the site and keep the site and the Works in an orderly state to avoid any accident or danger and provide safety measures, lights, guards, fencing and

barricades where ever necessary or required by the Engineer-in-charge /Consultant, or by any duly constituted authority, for the execution and for the protection of the Work, and/or for the safety and convenience of the public or others and take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to person or property of the public or others resulting from pollution, noise and other causes etc. at his own cost.

7. Care of Works

From the commencement to the certified completion of the whole of works, the contractor shall be responsible for the care, safety and maintenance of the works executed under the contract thereof and of all temporary works. In case of any damage/ loss or injury shall happen to the works or to any part thereof or to any temporary works from any cause whatsoever save and except the expected risks as defined in sub-clauses of Clause 12, the contractor shall at his own cost repair and make good the same, so that on completion the works shall be in good order and condition in conformity to every respect with the requirements of the contract. The contractor shall also be liable for any damage to the works occasioned by him including his subcontractors in the course of any operations carried out by him for the purpose of completing any outstanding work and complying with his obligations under clause 33 hereof. In case of failure on the part of the contractor the damage/ loss/ injury shall be made good by the client at the risk and cost of the contractor.

8. Force Majeure:

Any failure or delay in the performance by either party hereto of its obligations under his Contract shall not constitute a breach thereof or give rise to any claims for damages if, and to the extent that it is caused by occurrences beyond the control of the party affected, namely, acts of God, floods, explosions, wars, riots, storms, earthquakes, insurrection, epidemic or other natural disasters. The party so affected shall continue to take all actions reasonably within its power to comply as far as possible with its obligations under this Contract. The affected party shall promptly notify the other party after the occurrence of the relevant event and shall use every reasonable effort to minimize the effects of such event and act in all good faith with due care and diligence.

9. Contractor's Superintendence

(a). The contractor shall be solely responsible for the means, methods, techniques sequence and procedure of construction. The Contractor shall be responsible to see the completed work complies accurately with the Contract requirements. The Contractor shall provide all necessary superintendence during the execution of the Works as per contractual provisions.

(b). Contractor's Senior Representative for Execution & Coordination of Works

The Contractor shall ensure his presence at site all times during working hours throughout the course of the Contract or depute a Competent representative who shall be empowered to receive instructions from the Engineer - in- Charge in respect of all matters likely to arise in connection with the execution & coordination of the works at the site Contractor's Representative shall have the power to take joint measurement and sign the measurement books / bills. Any direction, explanations, instructions or notices given by the Consultant/ Engineer-in-charge to such representative shall be held to be given to the Contractor. In case of absence of said Representative other alternative representative should also be mentioned having same powers.

The contractor under normal circumstances would not be allowed to replace the key personnel during the execution of the contract. However, for any reasons, due to unavoidable circumstances if it becomes necessary in the interest of the project to replace

any one / all the above key personnel the contractor must submit the CV of the new personnel (having qualification and experience as per requirement of the contract) to Engineer-in-Charge/ Consultant for their approval.

(c). Contractor's Employees

The Contractor shall employ competent technicians who are qualified, skilled and experienced in their respective fields to ensure proper supervision, quality & output of the work they are required to supervise. No child labour shall be employed on the work. All the skilled semi-skilled and unskilled labour shall work under the sole guidance of the contractor/his representative.

(d). Removal of Contractor's Employees

The Contractor shall on the direction of the Consultant/Engineer-in-Charge immediately remove from the work any person employed thereon by him who may, in the opinion of the Consultant/ Engineer-in-Charge has misconduct himself and such person shall not be again employed on the works without the permission of the Engineer-in-charge/ Consultant.

(e). Unauthorized Persons

No unauthorized persons shall be allowed on the site. The contractor shall provide complete security arrangement for the campus during construction to avoid trespassing. The Contractor shall ensure all such persons are kept out and shall take steps to prevent trespassing. However the contractor will make sure to provide free access at any time for Engineer-in-charge/Client/Consultant to the site and other working places.

10. Compliance with Statutes, Regulations, Etc.

The contractor shall conform to the provisions of all statutes, ordinance, laws, acts of the legislature relating to the works, and to the regulations and by-laws of any local or other duly constituted authority and of any water, electric supply and other companies and/or authorities with whose systems the structure is proposed to be connected. The Contractor shall keep the Client / Engineer-in- charge/ Consultant indemnified against all fines or penalties or liability of every kind for breach of any such statutory ordinance, law act of the legislation, regulations, and byelaws as aforesaid.

The contractor shall before making any variations from the drawings or specifications that may be necessitated by such regulations, give to the Engineer- in-charge/Consultant written notice, specifying the variation proposed to be made and the reasons for making it and apply for instructions thereon. The contractor will not execute any work without written permission from the Engineer-in- charge/ Consultant

The contractor shall bring to the attention of the Engineer-in-charge/Consultant any specific requirement of the local authorities or any notice required for execution by virtue of such acts, regulations or bye-laws of such authority, or public office. All fees that may be chargeable in respect of these works shall be reimbursed by the client/consultant on production of authorised receipts.

11. Setting out

The contractor shall be responsible for the true and proper setting-out of the Works in relation to original points, lines and levels or reference issued by Engineer-in-charge/Consultant in drawing or in writing and for the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of works and for the provision of all necessary instruments, appliances and labour in connection therewith. If, at any time during the progress of the works, and during defects liability period, any error shall appear or arise in the position,

levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do by the Engineer-in-charge/ Consultant and / or Client or his authorised representative shall at his own cost, rectify such error to the satisfaction of the Engineer-in-charge. The checking of any setting out or of any line or level by the Consultant shall not in any way relieve the Contractor of his responsibility for the correctness thereof. The Contractor shall carefully protect and preserve the benchmarks; sight-rails, pegs and other things used in setting-out the Works. Any rectification works required should be done by the Contractor at his own cost.

12. Quality of Materials, Workmanship and Test

- (a). All the materials used in the work shall be subjected to the mandatory tests as prescribed in the specifications detailed in Schedule F of the General Condition of Contract and other specifications referred to in the contract and workmanship shall be the best of the respective kinds described in the Contract and in accordance with the Engineer-in-charge / Consultant's instructions and shall be subjected from time to time to such tests as the Engineer-in-charge / Consultant may direct at the place of manufacture or fabrication or on the Site or at an approved testing laboratory. The source of supply and / or manufacturing within/ out side India may be inspected by the Engineer-in-charge/ Consultant/ any representative as nominated by the client. The expenditure on this account is deemed to be included in the rate quoted.

The contractor shall upon the instruction of the Engineer-in-charge /Consultant 's representative furnish him with documentation to prove that the materials & goods comply with the requirements of contract and for requirement stated above. The Engineer-in-charge /Consultant may issue instruction in regard to removal of material from site or any work, if these are not in accordance with the contract. The contractor shall provide such assistance, instruments, machinery, labour and materials as are required for examining, measuring, sampling, testing of material or part of work.

The Engineer-in-charge/ Consultant may carry out Third Party Quality Assurance /Audit by an independent agency/ individual/firm/institute at any time. The agency will be permitted and offered all support related to site inspection by the Contractor. Observations / discrepancies noticed by third party quality assurance/audit shall be attended by the contractor at his own cost.

(b). Samples

- i) All samples of materials and /or items of works in adequate numbers, sizes, shades & pattern as per specifications shall be supplied free of charge by the contractor without any extra charge. All other expenditure required to be incurred like conveyance for taking the samples for testing at the laboratory, packing, etc, shall be borne by the contractor. If the test results do not confirm to the specifications and standards laid down, the materials shall be rejected, the contractor shall remove such materials from site. The laboratory for testing of samples shall be decided by the Engineer – in charge, whose decision shall be final and binding.
- ii) Contractor shall submit Samples to the Engineer-in-charge/Consultant for approval. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site, detailed literature / test certificate of the same shall be provided instead to the satisfaction of the Engineer-in-charge /Consultant. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalogue numbers and the use for which intended and otherwise as the Engineer-in-charge /Consultant may require to review the submittals for the limited purposes required by paragraph (d) below. The numbers of each sample to be submitted will be as specified in the Specifications, or as shall be specified by the

Engineer-in-charge/Consultant.

iii) Submittal Procedures

- (a). Before submitting each Sample, Contractor shall have determined and verified all materials with respect to intended use, fabrication, shipping, handling, storage, assembling and installation pertaining to the performance of the Work and All information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programmes incident thereto.
- (b). Each submittal will bear a specific written indication that Contractor has satisfied Contractor's obligation under the Contract Documents with respect to Contractor's review and approval of that submittal.
- (c). At the time of each submission, contractor shall give the Engineer-in-charge/Consultant specific written notice of such variations, if any; that the sample submitted may have from the requirements of the contract document. Such notice shall be separate from the submittal and in addition shall cause a specific notation to be made on each sample submitted for review and approval of each such variation

iv) Review and Approval:

- a. Sample shall be reviewed and approved only to determine if the items covered by the submittals will, after installation or incorporation in the work, conform to the information given in the contract documents and be compatible with the design concept of the completed project functioning as a whole as indicated by the contract documents, drawings.
- b. Review and approval will not extend to means, methods, techniques, sequences or procedures of construction. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make corrections required by Engineer-in-charge/Consultant and shall submit as required new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for and by the Engineer-in-charge/Consultant on previous submittals.
- c. Above referred review and approval Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Document unless Contractor has in writing called the Engineer-in-charge/Consultant's attention to each such variation at the time of submission as specified above and received written approval of each such variation by specific written notation thereof incorporated in or accompanying the Sample approval; nor will any approval by Engineer-in-charge / Consultant relieve Contractor from responsibility for complying with the requirements of contract.
- d. Only when the samples are approved in writing by the Consultant, the contractor shall proceed with the procurement and installation of the particular material / equipment. The approved samples shall be signed by the Consultant for identification and shall be kept on record at site office until the completion and acceptance of the work and shall be available at the site for inspection / comparison at any time. The contractor shall keep with him a duplicate of such samples to enable him to process the matter.
- e. For items of works where the samples are to be made at the site, the same

procedure shall be followed. All such samples shall be prepared at a place where it can be left undisturbed until the completion of the project.

- f. The Engineer-in-charge shall communicate his comments / approval to the Contractor to the samples at his earliest convenience. Any delay that might occur in approving of the samples for reasons of its not meeting with the specifications or other discrepancies, inadequacy in furnishing samples of best qualities from various manufacturers and such other aspects causing delay on the approval of the materials / equipment's etc., shall be to the account of the contractor. In this respect the decision of the Engineer-in-charge shall be the final.
- v) On delivery of the supplies of materials for Horticulture & landscaping works at the site, the contractor shall specifically arrange to get the supply inspected by the Engineer-in-charge /Consultant and compared with the approved sample and his specific obtained before using the same in the work.

13. Absence of Specifications

If the nomenclature of any item do not contain particulars of materials and works which are necessary for its proper execution, all such materials shall be supplied and item shall be executed by the Contractor without extra charge over the quoted rates and If the Contractor requires any information, he shall request in writing well in advance to commencement of the particular work to the Engineer-in-charge /Consultant who will clarify the issue within a reasonable time.

14. Obtaining Information's related to Execution of work

No claim by the Contractor for additional payment will be entertained which in consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the works, nor will any misunderstandings or the obtaining of incorrect information or the failure to obtain information relieve him from any risks or from the entire responsibility for the fulfilment of the contract.

15. Access for Inspection

Persons nominated by Engineer-in-charge /Consultant shall at all reasonable times have free access to work and/ or to the workshops, factories or other places where materials are lying or from which they are being obtained and the Contractor shall extend necessary service to Engineer-in-charge / Consultant and their representatives every facility necessary for checking measurements, inspection and examination and test of the materials and workmanship.

16. Examination of Work before covering up- Not Applicable

17. Assignment

The contractor shall not, without the prior consent of the Engineer-in-charge / Consultant assign the Contract or any part thereof, or any benefit or interest therein or there under, otherwise than by:

- A change in favour of the Contractor's bankers of any money due or to become due under the Contract, or
- Assignment to the Contractor's insurers (in case where the insurers have discharged the Contractor's loss or liability) of the Contractor's right to obtain relief against any other party liable.

The Contractor shall not sub-contract the whole of the Works. Also, the Contractor shall not

subcontract any part of the works without the prior consent of the Engineer-in-charge/ Consultant, except where otherwise provided under the Contract. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be fully responsible for the for the quality of the work executed and acts omission and commission, defaults and neglects of any Subcontractor, his agents, servants or workmen as if these were the acts, defaults or neglects of the Contractor, his agents, servants or workmen. Such Permission may be granted only for the specialized work etc and the decision of Engineer-in-charge/ Consultant shall be final.

18. Claims

The contractor shall submit to the Engineer-in-charge monthly statement giving full details of claims for any additional payments for extra or additional / substituted work ordered by the Engineer-in-charge /Consultant which he has executed during the preceding month, to which the contractor may consider himself entitled supported with analysis of rates being claimed.

19. Secured Advance

- I. Secured advance on materials, which are admissible as per Clause 10 (B) (i) of the General Conditions of Contract and brought to site for use in the work, shall be paid only after:
 - a. Receipt of satisfactory test result from the laboratory.
 - b. Engineer in charge has personally verified that the material brought at site of work for use in the work conforms to the sample approved by him.
- II. Secured advance shall be shall be recovered according to consumption of material in the work. Contractor shall have to sign an Indenture Bond before release of the advance.
- III. The materials shall virtually stand Hypothecated to Client/HLL but contractor shall be fully responsible for watch & ward/ security of materials for which Secured Advance has been paid by client/HLL.
- IV. Any infringement and / or breach of the above specifications and conditions etc, shall render the contractor liable to action under various clause of the contract and such action as stipulated in the conditions therein.

20. (a) Inspection & Testing during manufacture

The Client / Engineer-in-charge / Consultant shall be entitled to inspect, examine and test during manufacture the materials and workmanship and check the progress of manufacture of all fabrication materials to be supplied under the contract on the contractor's premises during working hours, and if part of the said materials is being manufactured on other premises, the contractor shall obtain for the Client / Engineer-in-charge / Consultant permission to inspect the same at such premises. This inspection, examination or testing shall not relieve the contractor from any obligation under the contract.

(b) Dates for Inspection & Testing

The dates of Inspection & Testing shall be mutually agreed by the Engineer-in-charge / Consultant and the contractor.

(c) Facilities for Testing at Manufacturer's Works

Where the contract provides for tests on the premises of the contractor or of any sub-contractor the contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be required and as may be reasonably demanded to carry out such tests.

(d) Certificate of Testing

As and when fabrication materials shall pass the tests referred in this clause, the Engineer-in-charge /Consultant shall furnish to the contractor a certificate in writing to that effect.

(e) Rejection

If as a result of such inspection, examination or test of the works (other than a Test on Completion the Engineer-in-charge /Consultant shall decide that such material is defective or not in accordance with the contract he shall notify the contractor accordingly stating in writing his observations and reasons thereof. The contractor shall with due diligence make good the defect and ensures that the material complies with the Contract. Thereafter, if required by the Engineer-in-charge/Consultant, the tests shall be repeated under the same terms and conditions till satisfactory results are made available.

(f) Delivery of Materials

The contractor shall be responsible for all materials brought at site for the purposes of the contract. Unless the Engineer-in-charge/Consultant directs, no material shall be brought to the site which is not required for execution of the work.

(g) Inspection & Testing and Re-inspection

All deficiencies revealed by testing and inspection shall be rectified by the contractor at his own expense and to the satisfaction and approval of the Engineer-in-charge/Consultant. Rectified components shall be subject to re-testing till desired results are obtained.

(h) Inspection Reports

The contractor shall provide the Engineer - in- Charge /Consultant with five copies of reports of all inspection and tests.

21. Physical and Virtual Completion of Work

When the whole of the Work is physically and virtually complete and has satisfactorily passed required tests that may be prescribed under the Contract:-

- (a). The contractor shall give a written notice to this effect alongwith an under taking to rectify any defects that may be found during inspection. The Engineer - in- Charge / consultant shall jointly inspect the work with the contractor within 30 days of receipt of such notice.
- (b). The Engineer-in-charge / Consultant shall inspect the works are completed to see if they are in such a condition so as to be put to its proper or other intended final use and / or occupied without any short comings and no major or minor items of works are remaining which in the opinion of the Engineer-in-charge/ Consultant will cause undue difficulties in satisfactory use/ occupation of the works.

22. Provisional Acceptance and Certificate of completion

(a) Provisional Acceptance and Issue of Certificate of Physical Completion of work

The work shall be deemed to have been physically completed and provisionally accepted after fulfilment of all the following by the Contractor.

- i) Physical completion of all works and obtaining all required approvals from the statutory authorities as required for occupation and use of the works and handing over such certificates to the Engineer-in-Incharge
- ii) Submitting As-Built Drawings, Catalogues, Brochures, and Data Sheets, manuals in the form as directed by Engineer in Charge
- iii) Issue of Certificate of Physical Completion by the Engineer-in- Incharge /Consultant.

(b) Certificate of Final Completion

The contract shall not be considered as completed until a Certificate of Final Completion has been issued by the Engineer-in-charge/ Consultant stating that the Works have been completed to his satisfaction and remedying / rectifying of defects have been satisfactorily completed.

The composite work shall be treated as complete when all the components of the work are complete. The Certificate for Final Completion of the Composite work shall be recorded by the Engineer-in-charge / Consultant after obtaining / recording of completion certificate of all the components.

The Engineer-in-charge/ Consultant shall give the Certificate for Final Completion as per the following, whichever is later:

- Twenty-eight days after the expiration of the Defects Liability Period

OR

- If different Defect Liability Periods shall become applicable to different sections or parts of the Works, the expiration of the last such period

OR

- As soon thereafter as any works ordered during such period have been completed to the satisfaction of the Client.

Provided always that the issue of the Certificate of Final Completion shall be a condition precedent to payment or return to the Contractor the security deposit and / or Performance security in accordance with the conditions set out in the contract.

23. The contractor shall give performance test of the entire work as per standards specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the tests.
24. The contractor shall maintain in perfect condition all works executed till the completion of the entire work allotted to him. Where phased handing over of completed portion of the work is required by the Engineer – in – charge, the provisions mentioned for completion of entire work will apply to each phase.

25. Defect after completion**(a). General**

Any defect, shrinkage, settlement or other faults that may appear within the “Defects Liability Period” which in the opinion of the Client / Engineer-in- charge/ Consultant are due to materials or workmanship not in accordance with the contract, shall be rectified as per the directions in writing of the Client / Engineer-in- charge/ Consultant to the Authorized representative of the contractor within such reasonable time as shall be specified therein by the contractor, at his own cost. In case of default, the Client / Engineer-in-charge /Consultant/ may employ any person’s to amend and make good such defects, shrinkage, settlements or other faults and all expenses consequent thereon or incidental thereto shall be borne by the contractor. Such damages, losses and expenses shall be recoverable from the bills due or may be deducted from any money due to or that may become due to the contractor. If no amount is available to the credit of contractor, the Client / Engineer-in-charge/Consultant / may recover the amount from the dues of the contractor with any other government/department.

(b). Execution of work of repair etc.

Any defects, shrinkage, settlement or other faults which may appear or be noticed within the defect liability period, and arising in the opinion of the Engineer-in-charge/Consultant from materials or workmanship not having in accordance with the contract, shall upon the direction in writing of the Engineer-in-charge's / Consultant's representative and within such reasonable time as shall be specified therein and without any delay, be amended and made good or replaced by the contractor at his own cost.

(c). Cost of Execution of Work of Repair, Etc.

All such works shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer-in-charge/Consultant, be due to the use of materials or workmanship not in accordance with the Contract, or due to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract.

(d). Contractor's personnel to be at site

During the defects liability period the contractor shall depute at least one of his authorized representative at site along with required tradesmen to attend the defects to the satisfaction of Client/ Engineer-in-charge/ Consultant.

26. Works by Other Agencies

The Client/ Engineer-in-charge/Consultant reserves the right to use premises and any portion of the site for the execution of any work not included in this contract which it may desire to have carried out by other persons simultaneously, and the contractor shall allow the reasonable facilities for the execution of such work, but shall not be required to provide any plant or material for the execution of such work except by special arrangement with the other agency. Such work shall be carried out in a manner so as not to impede the progress of the works included in the contract, the contractor shall not be responsible for any damage or delay which may happen to or occasioned by such work.

The contractor shall co-operate with other agencies working in the same project, and coordinate his plans and time schedules so that there will be no interference. The Contractor shall forward to the Engineer-in-charge /Consultant all correspondences and drawings exchanged. Failure to check plans for conditions will render the Contractor responsible for bearing the cost of any subsequent changes found necessary or damages done.

The Client/ Engineer-in-charge /Consultant shall not entertain any claim on account of the Contractor affording necessary facilities to execute the work simultaneously with other agencies executing the works for the same project.

27. Dues not paid by the Contractor

The contractor shall pay all dues or fees to Statutory authorities and Electric and Water supply authorities & Lift licensing authority etc. within due period and indemnify the Client and the Engineer-in-charge /Consultant from any claims or compensations or penalties or damages arising out of non-payment of any such dues or fees. However, in case some dues or fees are not paid by contractor / and or claims for compensations or penalties etc. are raised by the Statutory authorities, the Client may deposit the required amount or any or all of the above and recover or deduct the same from any money payable to the contractor by the Client or any other means available to the Client such as bank guarantee.

28. Urgent Repairs

If, by reason of any accident, or failure, or other event occurring to or in connection with the works, or any part thereof, either during the execution of the works, or during period of

Defects Liability any remedial or other work or repair, shall, in the opinion of the Engineer-in-charge/ Consultant/Client be urgently necessary for the safety of the Works and the Contractor is unable or unwilling to do such work or repair despite notice, the Engineer-in-charge/ Consultant/ may employ and pay other persons to carry out such work or repair as the case may be and may consider necessary. If the work or repair so done by the other agency is the work which, in the opinion of the Engineer-in-charge/Consultant the Contractor was liable to do at his own expense under the Contract, all expenses incurred by Other agency in so doing shall be recoverable from the Contractor by the Engineer-in-charge/Consultant, or may shall be deducted by the Engineer-in- charge/ Consultant from any monies due or which may become due to Contractor.

29. Boreholes & Exploratory Excavation:- Deleted

30. Fossils, Etc.:-

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall be the property of the Government.

31. Plant Temporary Works & Materials:

(a.) Plant, etc. Exclusive use for the Works

All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and the Contractor shall not remove the same or any part thereof except for the purpose of moving it from one part of the Site to another, without the consent, in writing of the Engineer-in-charge /Consultant, which shall not be unreasonably withheld.

(b.) Removal of Plant etc.

Upon completion of the Works, the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor, within 10 days of obtaining the completion certificate/ Virtual completion of the work.

32. Operations and Maintenance Manual:- Deleted

33. Reports by Contractor

(a.) The Contractor shall submit activity charts, indicating the duration of various subheads of the work, for the complete work within 15 days of award of work for approval by the Engineer - in- Charge /Consultant. On the basis of approved bar charts contractor shall submit Progress Charts by the 4th day of every month.

(b.) The Contractor shall submit Monthly Progress Report in triplicate in format approved by Engineer-in-charge /Consultant. Failure to submit reports may result in holding up or delay in Payment of bills.

(c.) Monthly Progress Photographs:- The Contractor shall arrange at his own cost to maintain a progress record of the works by taking postcard size colour photographs (preferably digitized photographs) 6 Nos. or more per month per block as directed by the Engineer-in-charge / Consultant during the constructions stages and after completion and shall supply three sets at no extra cost. The Contractor will be required to submit monthly reports on the progress of his work as per the format approved by the Engineer-in-charge /Consultant.

- (d.) The Contractor shall prepare Weekly Reports of planned and actual progress of work and subsequent week's scheduled work. These will also include material procurement status. These reports shall be submitted to the Engineer-in-charge /Consultant & shall be reviewed in Weekly Co-ordination Meetings.
 - (e.) The Contractor shall file daily category-wise labour report to the Engineer-in- charge / Consultant. The report shall indicate scheduled requirement against actual strength.
 - (f.) The contractor shall maintain daily weather record. Daily maximum and minimum temperature and corresponding, humidity shall be recorded and charted. Rainy days shall be recorded when the rain lasting more than one hour hampers the work. Any other inclemency in weather shall be recorded. The records shall be regularly shown to the Engineer-in-charge /Consultant and his signature obtained.
- 34.** Every care has been made to include all the aspects/ terms and condition in these documents. However, during execution, if any issue arises, which has not been included in these documents then standard norms / rules & regulations/ terms & conditions as prevalent in CPWD shall be followed which shall be binding on both the parties.

35. Technical Examination

The Client/ Engineer-In-Charge/ Consultant shall have the right to cause Audit and Technical Examination of the works and the final bills of the contractor including all supporting vouchers, abstracts, etc. to be made as per payments 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 contractor under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over payment and it shall be lawful for the Client/ Engineer-in-charge/ Consultant to recover the same from the security deposit or Performance Security of the contractor or from any dues payable to the contractor. If it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid. The work comes under the purview of CVC and as such all orders and instructions are applicable to this work.

In the case of any audit examination and recovery consequent on the same the contractor shall be given an opportunity to explain his case and the decision of the Client shall be final. Payment on this account will be recovered from the contractor.

In the case of Technical Audit, consequent upon which there is a recovery from the contractor, recovery shall be made with orders of the Client whose decision shall be final. All action under this clause shall be initiated and intimated to the contractor within the period of twelve months from the date of completion.

36. Miscellaneous

(a.) Safety Regulations

Contractor shall be fully responsible for the safety of his Employees / Visitors / Contract Labour / Sub-Contractors Labour. The Contractor shall provide first-aid box readily available at site. The Contractor shall provide all safety measures as per labour safety rules applicable

(b.) Labour Laws

The Contractor shall strictly adhere to all labour laws prevailing in the region. The contractor shall make timely payment of wages of his labour and the wages paid to the labour shall be equal to or more than the minimum wage prevailing at the time of payment. The Contractor shall comply with all applicable labour legislation, maintain

labour records including payment made to the workers and obtain licence for engaging workers for the work as required under the labour laws.

(c.) By-Laws of Statutory Authorities

The Contractor and his labour shall not violate municipal /sanitation /health or any other byelaws.

(d.) Tax Deduction at Source

All Taxes and surcharge as applicable on date shall be deducted from the amount due to the Contractor towards the value of the work done. TDS certificate thereof shall be issued to the Contractor.

(e.) General Lighting and Securities

The Contractor shall, throughout the execution, completion and remedying of the defects, provide and maintain at his own cost all lights, guards, fencing, warning signs and watch post, when and where necessary or directed by the Engineer-in-charge / Consultant or by any duly constituted authority for the protect for the safety and convenience of the workers / public / or others.

(f.) Delay in starting the work

No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land, encroachment or in the case of clearance of works, on account of any delay in according sanction to estimates in issue of drawings, decisions etc. However, the extension of time shall be granted as per relevant conditions of Contract.

(g.) Site instruction book

For the purpose of quick communication between Engineer-in- charge / Consultant and the Contractor or his representative, site instruction book shall be maintained at site as described below:

Any communication, relating the works may be conveyed through instructions in the site instruction book. Such a communication from Engineer-in-charge / Consultant to the Contractor shall be deemed to have been adequately served in terms of the contract once the entries are made and signed by the authorised representative of the contractor. For this purpose the contractor should authorise one of his employees on the site instruction book itself. Site instruction book shall have machine numbered pages and shall be carefully maintained and remain under custody of Engineer-in-charge / Consultant/Client the contractor can also avail of the site instructions book for urgent communication with Engineer-in-charge/ Consultant. Any instruction which Engineer-in-charge / Consultant may like to issue to the Contractor may be recorded by the Engineer-in-charge / Consultant in site instruction book.

37. Co-ordination Meetings

The Contractor shall be required to attend co-ordination meetings with the Engineer-in-charge / Consultant / Client and the other Contractors during the period of Contract as intimated by the Engineer-in-charge / Consultant / Client. All costs incidental to such interaction shall be to the Contractor's account and no claim will be entertained by the Engineer-in-charge / Consultant / Client on this account.

38. Site Management:

(a) Contractor's Working Area

Suitable working space will be provided by the Engineer-in-charge/Consultant /Client to the Contractor as per site conditions and availability. The Contractor may have to carry out some cutting / filling work for making this area workable. The cost of all such Works shall be deemed to have been included in the contract price quoted for the Works and no payment shall be made on this account.

Before commencement of the work, the contractor shall obtain approval of the Engineer-in-charge the location of cement godown, steel stacking and fabrication yard, site office and shall from time to time take instructions from the Engineer – in- charge regarding collection and stacking of materials at the site.

No excavated earth or building material shall be stacked on areas where other buildings, roads, services or compound wall or any other structure are to be constructed.

(b) Contractor's Temporary Structures

The Contractor may, at his own expense and subject to the approval of the Engineer-in-charge / Consultant /Client and statutory authorities, construct temporary structures for its site office, stores; Workshop etc. in the working area allocated to him as above and remove the same on completion of Works. The Contractor shall furnish such details of his Temporary Works as may be called for by the Engineer-in-charge/Consultant /Client and the Contractor shall satisfy the Engineer-in-charge/Consultant as to their structural safety. Temporary structures, found unsafe or inefficient shall be removed and replaced in a satisfactory manner.

(c) Contractor's Labour Camp

The Contractor shall make arrangements at his own expense for labour camp / accommodation for labour and staff to be employed for execution of the work and their conveyance to Site. No workers/ staff shall be allowed to stay within the Site except with the specific approval of the Engineer-in-charge/Consultant /Client. Proper ID Cards shall be got approved /authorized by the contractor from the Engineer-in-charge/ Consultant / Client to authorise the Contractor's staff and workers to enter the Site.

(d) Procurement of Various Materials

The Engineer-in-charge/Consultant / Client will not supply any materials required for execution of the Works under this Contract. The Contractor must, therefore, make his own arrangements for timely procurement of various materials including steel and cement. Prior approval of each and every material including steel cement, aggregate, bricks etc or any other fittings & fixtures shall be taken by the contractor from the Engineer-in-charge / Consultant. Samples for all the materials to be used in the work shall be got approved from Engineer-in-charge /Consultant before their bulk procurement. Samples approved shall be kept in the sample room till the completion of the work. However in case of delay in procurement of various materials by the contractor resulting into likely delay in completion of work, the Engineer-in-charge /Consultant /Client may procure the required materials directly and the cost of the same will be recovered from the contractor.

(e) Water Supply & Power Supply

The Contractor shall make his own arrangement for water supply at Site for drinking as well as construction purposes & Power Supply at his own cost. Non-availability of power supply and /or water from whatever source shall not entail any additional claims or extension of Contract period in this account.

(f) Site office:- Deleted

(g) Temporary Fencing:- Deleted

(h) Deleted

(i) Restriction in work areas.

- (a). The contractor must see the site of the work, its approaches carefully before tendering, No claim of any sort shall be entertained on account of any site conditions. If any approach from main road is required or existing approach is to be improved and maintained, for cartage and materials by the contractor, the same shall be done by the contractor his own cost.
- (b). Some restrictions may be imposed by the Hospital authorities or its security staff etc. On the working and/or movement of labour, materials etc. The contractor shall follow all such restrictions / instructions and nothing shall be payable on this account.
- (c). In case the contractor is not permitted to erect the huts for labour at the site of work, the contractor will have to make his own arrangement to provide such accommodation elsewhere and nothing extra shall be paid for this.
- (d). The contractor shall obtain approval of the Hospital authorities to erect the hutments for labour etc. at the site of work; denial of approval shall not affect the construction activities.
- (e). The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards such as day and night boards, speed limit boards, red lights and providing barriers. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of the work.

39. Payment of water charges in connection with water used for construction purpose and for drinking purpose by the contractor's labour:-

Both the water charges (if any) incidents to water used by the Contractor for construction purpose and for the drinking purpose for his labours residing in the site of work shall be borne by the Contractor / agency under the following cases:

- i. In case of temporary water connections from municipal mains: - Water charges (including the water used for construction purpose and drinking purpose of the contractor's labours) have to be borne by the contractor / agency.
- ii. Water used from other source: - Prior permission for using the water for construction purpose and drinking purpose of the contractor's labours has to be obtained from Municipal Corporation / local body by the contractor / agency. Water charges if any and other charges for use of water from other sources for construction purposes/for drinking purposes of the contractor's labours have to be borne by the contractor / agency.
- iii. Any infringement and / or breach of the above shall render the contractor liable to action under various clauses of the contract and such actions stipulated in the conditions therein.

SECTION - 2

TECHNICAL SPECIFICATIONS

Up-gradation of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh (U.P) under PMSSY-II “Package-4: Development of Horticulture & Landscaping Works”

1. Scope of Work

The scope of work comprises of development of Horticulture works for Up-gradation of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh (U.P) under PMSSY-II works etc.

The scope of work also includes design, development of Horticulture works, preparation of samples etc. for approval before Execution by Engineer in Charge, furnishing all labour, materials, equipment and appliances necessary and required for execution of the work.

2. The work shall in general conform to the Latest CPWD Specifications for the works with up to date correction slips, as applicable, and, Technical Specifications included in the tender documents, wherever applicable. Wherever any aspect of design / construction / material standards is not covered under the above mentioned specification, relevant standards shall be referred to in the order of precedence which shall be as follows. In the case of discrepancy between the Schedule of Quantities, the Specifications and /or the Drawings, the following order of preference shall be observed –

- a. Description of Schedule of Quantities
- b. Particular specification and Specific Condition, if any.
- c. Drawings
- d. CPWD Specifications
- e. Indian Standard Specifications of BIS/ NBC/ IRC/ BS/ ASTM/ DIN

3. Excavation

The top excavated soil shall be collected, stacked, preserved for use in landscaping / horticulture works. Surplus top excavated soil may be given to the nurseries or put to use in other Horticulture works.

4. Good Earth

- i. Good Earth: The soil shall be suitable for gardening fertile, natural topsoil of locality and shall free from any foreign material i.e. stone, brick bats, plants and their roots and will not be delivered in muddy conditions.
- ii. Good earth delivered at site shall have pH value 6.5-7.5 otherwise sufficient quantity of Limestone or Gypsum (approx 5kg/cum) will be added to topsoil to bring it to a pH value of 6.5-7.5 after soil test from any laboratory.

5. Manure, Insecticide & Fertilizer

- i. Manure shall be well decayed free from any harmful chemical etc. and will be free of weeds, straw leaves or other inorganic material.
- ii. All inorganic fertilizer and chemical insecticides will be in company sealed packing.
- iii. All inorganic fertilizer and chemical insecticides will be in company sealed packing.
- iv. Oilcake: Neem oil cake shall be recently produced free from any adulterations and packed in company sealed bags.

6. Trees and Plants

- i. Plants shall be typical of their species and variety, have normal growth habits, well developed branches, densely foliage with vigorous and fibrous root system.
- ii. Plants shall be free from diseases and injuries.
- iii. All plants shall be acclimatized to local climate conditions of the project. In case of non-availability of species or sizes specified substitution may be made upon request by contractor if approved by the Engineer- in - charge.
- iv. Shrubs shall be well formed with a crown typical of species and variety & well establish in poly bag or earthen pot as specified.
- v. All plants shall be minimum length as specified and will be measured before planting with branches in normal position.
- vi. Creepers shall have at least 3 runners and, shall be well established in poly bag or earthen pot as specified.

7. GROUND PREPARATION

- i. Planting/ lawn area leveled and dressed to finish grades, filling as needed or removing surplus dirt and floating areas to a smooth levels and slope to drain or as per direction of Engineer –in -Charge.
- ii. Well decayed Farm yard manure (FYM) or Sludge will be spread of 1-inch (25mm) thick layer of dressed ground and mixing with the top 6-inches of soil for grassing & ground cover areas.
- iii. Fertilizer and insecticide shall be spread on areas to be planted as recommended.

Name of fertilizer	Qty./m ²	Qty/acre
Neem Oil Cake	150gm/m ²	600 kg
Bone Meal	150gm/m ²	600 kg
MOP	20gm/m ²	80 kg
DAP	25gm/m ²	100 kg

8. GRASSING

(a) Preparation

- i. During period prior to planting the ground shall be maintained free from weeds.
- ii. Grading and final levelling of the lawn shall be completed at least three weeks prior to the actual sowing. Clods of excavated earth shall then be broken upto the size not more than 75mm in any direction. The area shall then be flooded with water and after 10 days and within 15 days of flooding, weeds that re-germinate shall be uprooted carefully. The rubbish arising from this operation shall be removed and disposed of in a manner directed by Engineer. Regular watering shall be continued until sowing by dividing the lawn area into portion or approx 5 mts. Square by constructing small bunds to retain water. These 'bunds' shall be level just prior to sowing of grass plants. At the time of actual planting of grass, it shall be ensured that the soil has completely settled.

- iii. Slight unevenness, ups and downs and shallow depressions resulting from the settlement of the flooded ground, in drying and from the subsequent weeding operations, shall be removed by fine dressing the surface to the final levels by adding suitable quantities of good earth brought from outside, if necessary as directed by the Engineer. In fine dressing, the soil at the surface and for 40mm depth below shall be broken down to particles of size not exceeding 6mm in any direction.

(b) SOIL:

The soil itself shall be ensured to satisfaction of Engineer to be a good, fibrous loam, rich in humus.

(c) SOWING THE GRASS ROOTS :

- i. Grass roots (Cynodon dactylon or a local approved by the Engineer) shall be obtained from a grass patch, seen and approved beforehand.
- ii. The grass roots stock received at site shall be manually cleaned of all weeds and water sprayed over the same after keeping the stock in a place protected from sun and dry winds.
- iii. Grass stock received at site may be stored for a maximum of three days. In case grassing for some areas is scheduled for a later date fresh stock of grass roots shall be ordered and obtained.

(d) EXECUTION

- i. Small roots shall be debbled about 15 cms (or at other spacings as per BOQ item) apart into the prepared grounds. Dead grass and weeds shall not be planted.
- ii. Grass areas will only be accepted as reaching practical completion when germination has proved satisfactory and all weeds have been removed.
- iii. All planting is to be done in moderately dry to moist (not wet) soil and at times when wind does not exceed a velocity of 8 kilometre per hours.

(e) MAINTENANCE OF LAWN:

- i. As soon as the grass is approximately an inch high it shall be rolled with a light wooder, roller in fine, dry weather and when it has grown to 2 to 3 inches above the ground, weeds must be removed and regular cutting with the scythe and rolling must be begun. A top dressing of announce of guano to the square yard on well decomposed well broken sludge manure will help on the young grass. The scythe must continue to be used for several months until the grass is sufficiently secure in the ground to bear the mowing machine. It should be possible to use the inch above the normal level of the first two or three cuttings. That is to day the grass should be cut so that it is from 1 to 2 inches in length, instead of the $\frac{1}{2}$ to $\frac{3}{4}$ of an inch necessary for mature grass.
- ii. In absence of rain the lawn shall be watered every ten days heavily, soaking the soil through to a depth of at least 25 cms.
- iii. 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.

iv. Any shrinkage below the specified levels during the contract or defects liability period shall be rectified at the contractor's expense.

v. 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.

(f) ROLING

A light roller shall be used periodically, taking care that the lawn is not too wet and sodden. Rolling should not be resorted to, to correct the levels in case certain depressions are formed due to watering

(g) EDGING:

The contractor shall establish a neat edge where planting areas meet grass areas with spade or edging tool immediately after all planting, including lawn planting, is completed. Particular care shall be exercised in edging to establish good flowing curves as shown on the plans or as directed by the Engineer. Edging must be cut regularly and shall be maintained by the contractor.

(h) FERTILIZING:

The lawn shall be fed once a month with liquid manure prepared by dissolving 45 grams of ammonia sulphate in 5 litres of water or as per direction of Engineer – in Charge.

(i) WATERING:

Water shall be applied daily during dry weather. Watering whenever done should be thorough and should wet the soil at least up to a depth of 20 cms to eliminate air pockets and settle the soil.

(j) WEEDING: Prior to regular mowing the contractor shall carefully remove rank and unsightly weeds.

(k) All materials shall be of approved quality as approved by Engineer – in Charge.

(l) All materials shall be of approved quality as approved by Engineer – in Charge. The required materials for maintenance of lawn / grassed area such as fertilizer, earth manure, seeds, insecticides, T&P etc will be provided by the contractor as and when required. All major & minor T&P required for maintenance like lawn mower/power mower/lamower (Diesel/Petrol). Phawras, Khurpas, scutuer, hedge shear, Jhabow, spray pump, Garden pipe etc. are to be provided by the contractor at site of work at his own cost to the entire satisfaction of Engineer-in-charge. The rates quoted by the contractor shall be inclusive of cost of labour and T&P.

9. GENERAL MAINTENANCE:

- (a) General maintenance of landscape horticulture work will include, watering, manuring, lawn mowing, weeding, sweeping, pruning of trees, hedges and shrubs etc. plant protection to control the insect, pest and diseases.
- (b) Lawn will be mowed once in a week to control proper height of grass. Weeding of lawn shall be done before mowing continuously to mark the lawn free from weed. Top dressing with the mixed of good earth, manure, bone meal (1kg/10m²) and neem oil cake (1kg/10m²) once a year should be applied (half inch/12mm thick layer), followed by heavy watering in the month of August-September before the beginning of cold season to maintain the lawn healthy and lush green.
- (c) In the winter season especially October to February application of Urea 40 kg/acre will be done for proper growth during cold climate.
- (d) Continuous irrigation will be applied on alternate day during summer and twice a week during winter or as and when required upon weather conditions, to wet the soil up to a depth of 10 cms. In winter, dewdrops are a great help to grass and it is always advisable to take the full benefit by brushing the dew into the lawn with a broom or bamboo stick.
- (e) Cutting and trimming of hedges, ground cover and Topiary will be done once a fortnightly to look neat and clean during all the seasons. Manuring shall be done twice a year for healthy growth.
- (f) Trees and Shrubs plants also require proper maintenance by weeding, hoeing, watering, manuring and make of saucer to retain the water. Manuring will be carried out by application of the following fertilizers every 15 days from the beginning of monsoon till the end of winter:
 - i) Sludge or Well rotted FYM – 0.05cum or 1 tassa
 - ii) DAP – 25-50 gms
 - iii) Neem oil cake – 100 - 250 gms
 - iv) Bone meal – 100 - 250 gms
- (g) Adequate watering of all garden features with hosepipe or sprinkler system will be done. Washing with clean water of trees, shrubs and other plants regularly to remove the dust and improve the photosynthesis process.
- (h) Watering shall be done early in the morning or late in the evening. Excessive watering is damaging to plants therefore will not be over watering. Watering will not be carried out in strong sun light.
- (i) The Horticulture / landscape contractor shall maintain all planted area within the landscape contract boundaries until the period of **one year after the completion of plantation**. Maintenance shall include replacement of dead trees/ plants. Watering, weeding, cultivating, control of insects, fungicide and other disease 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 area neat in appearance.

10. PRUNING & REPAIRS:

Upon completion of planting work on the landscape , 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 the results of transplanting operations. Pruning shall be done in such a manner as not to change the natural habit or special shape of the trees. In general, one third to one fourth branching structure of the plants to be removed to compensate the loss of roots during transplantation by thinning or shortening branches but no leaders shall be cut. All pruning shall be done with sharp tools in accordance with instructions of the consultant. Pruning cuts shall be painted with recommended paints.

11. **TREE GUARDS:** Where tree guards are necessary, care should be taken to ensure that they do not impede movement or restrict growth.
12. **NURSERY STOCK:** Planting should be carried out as soon possible after reaching 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 should be unpacked, the bundles opened up and each group of plants heeled in separately and clearly labelled place. If for any reason the surface of the roots becomes dry the roots should be thoroughly soaked before planting.
13. **PROTECTIVE FENCING:** According to local environment shrubs may have to be protected adequately from vandalism until established.
14. **COMPLETION:** On completion the ground should be formed over and left tidy.
15. **RATE:** The rates quoted for the horticulture items listed in BOQ shall provide for the cost involved in all the operations described above.