REQUEST FOR QUOTATION (RFQ)

FOR

"Design, supply & installation of green wall (mock up for Terminal 2)"

AT KEMPEGOWDA INTERNATIONAL AIRPORT, BENGALURU

Bangalore International Airport Limited
Kempegowda International Airport, Bengaluru
Devanahalli, Bangalore - 560 300

16 - January - 2019

REQUEST FOR QUOTATION (RFQ)

Bangalore International Airport Limited (BIAL), a company incorporated under the Companies Act, 1956, is the owner and operator of the Kempegowda International Airport, Bengaluru (KIAB) embarks on an ambitious airport enhancement programme which will increase KIAB capacity.

As part of BIAL's Airport expansion program, BIAL has decided to construct a mock-up facility to install & showcase all the major building systems, finishes and components proposed in T2. A mock-up of green wall system is proposed, as they are an integral component of the architecture of the proposed Terminal 2.

In this connection, BIAL invites quotations ("**Quotation**") from qualified, specialized contractors with expertise and a proven background in similar works ("Bidder") to design, supply & installation at Kempegowda International Airport, Devanahalli, Bangalore (hereinafter referred to as the **"Project"),** as detailed in Annexure A [**Scope of Work & Bill of Quantities**] attached to this RFQ.

Name and address of the entity seeking Quotation:
Bangalore International Airport Limited,
Project Office,
Kempegowda International Airport, Bengaluru
Bangalore 560 300
Web: www.bengaluruairport.com

Person responsible for any additional information:
Vice President & Head (Contracts & Procurement)
Bangalore International Airport Limited
E-Mail: projecttenders@bialairport.com

DISCLAIMER

1. The information contained in this RFQ document or subsequently provided to the Bidders, whether verbally or in documentary or any other form by or on behalf of Bangalore International Airport Limited (‘**BIAL**’) or any of its employees or advisers, is provided to the proposers on the terms and conditions set-out in this RFQ, and such other terms and conditions subject to which, such information is provided. Quotations are invited from Bidders who possess valid statutory registrations and who are capable of undertaking the said scope of Work.

2. This RFQ is neither an agreement, nor, an offer by BIAL to the Bidders or any to other person. The purpose of this RFQ is to provide the Bidders with the information, which may be useful to them, in the formulation of their Quotation. This RFQ includes statements, which reflect various assumptions and assessments arrived at by BIAL in relation to the scope of Work. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFQ may not be appropriate for all the persons, and it is not possible for BIAL, its employees or advisers to consider the objectives, technical expertise and particular needs of each party, who reads or uses this RFQ. The assumptions, assessments, statements and information contained in this RFQ, 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 RFQ, and obtain independent advice from appropriate sources.

3. Information provided in this RFQ to the Bidders 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. BIAL accepts no responsibility for the accuracy, inaccuracy, or otherwise for any interpretation or opinion on the law expressed herein.

4. BIAL, 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 RFQ or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFQ and any assessment, assumption, statement or information contained therein or deemed to form part of this RFQ or arising in any way in this award process.

5. BIAL 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 RFQ. It is the responsibility of the Bidders to make their own assessments in preparing their response to this RFQ, including its Quotation.

6. BIAL 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 RFQ.

7. Bidders shall bear all costs associated with or relating to the preparation and submission of its Quotation including, but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstration or presentation, which may be required by BIAL or any other cost incurred in connection with or relating to this RFQ. All such costs and expenses will remain with the Bidder, and BIAL shall not be liable in any manner whatsoever, for the same, or, for any other costs or, other expense, incurred by any Bidder, in preparation or submission of the Quotation, regardless of the conduct or outcome of the selection process.

8. BIAL reserves the right to accept or reject any or all Quotations; qualify or disqualify any or all Bidders without giving any reason, and is not obliged to correspond with any Bidder in this regard. Further, BIAL reserves the right to relax, change, review, revise or/and cancel the eligibility criteria and the RFQ process, at any time, without prior notice or without assigning any reason whatsoever. This invitation for RFQ does not give rise to any right in rem, and is not an offer or invitation to offer.

9. BIAL will not entertain any claim for expenses in relation to the preparation of any Quotation pursuant hereto.

10. BIAL at its absolute discretion, reserves the right, until the closure of the Quotation submission, to modify any proposed terms and conditions set-out in the RFQ as necessary, including but not limited to cancelling/withdrawing the RFQ, to meet its objectives and principles as set-out below in this section.

1. INTRODUCTION

Bangalore International Airport Limited, a company registered under the Companies Act, 1956, is the owner and operator of Kempegowda International Airport, Bengaluru. BIAL is committed to establishing the Airport as one of India's leading airports, in terms of quality and efficiency and set a benchmark for the future development of Indian airports and also services to its passengers.

BIAL intends to design, supply a mock-up of green wall system is proposed, as they are an integral component of the architecture of the proposed Terminal 2 at Kempegowda International Airport, Devanahalli, Bengaluru, as detailed in Annexure A [**Scope of Work & Bill of Quantities**] in this RFQ.

2. MINIMUM ELIGIBILITY CRITERIA

2.1 This RFQ is open to applicants which should be a company incorporated in India.

2.2 Joint ventures/consortiums are not permitted to participate in the bidding process.

2.3 Bidder(s) shall have minimum of three (3) years of experience in carrying out similar scope of Works. (Please attach copy of agreement, purchase order, completion certificate etc.)

3. KEY DATES

SL. NO.	EVENT DESCRIPTION	DATE
1	RFQ issue date	16-Jan-2019
2	Last date for receiving question regarding the RFQ	17.00 hrs IST on 18-Jan-2019
3	Pre-bid Meeting	Not Applicable
4	BIAL's response to questions regarding the RFQ	17.00 hrs IST on 19-Jan-2019
5	Last date for submitting Quotation (**"Submission Date"**)	17.00 hrs IST on 22-Jan-2019
6	Submission of passphrase	NA

4. VALIDITY

4.1 The Quotation shall be valid for a period of ninety (90) calendar days from the Submission Date (**"Quotation Validity Period"**).

4.2 Prior to expiry of the Quotation Validity Period, BIAL may request the Bidders for a specified extension in the period of validity. The request and the response thereto shall be made in writing. A Bidder agreeing to the request shall not be permitted to modify its Quotation, but shall be required to extend the validity of its Quotation and the Earnest Money Deposit (if any), correspondingly. All the terms of the RFQ shall continue to be applicable during the extended period of validity.

5. SUBMISSION AND COMMUNICATION

5.1 It is obligatory on the part of the Bidder to submit all information required as per this RFQ, failing which the Quotation shall be deemed incomplete and disqualified.

5.2 BIAL reserves the right to evaluate only those Quotations that are received in the required format, complete in all respects and in accordance with the instructions contained in this RFQ.

5.3 BIAL may, in exceptional circumstances and at its sole discretion, extend the Submission Date by issuing an Addendum/Corrigendum to the Bidders.

5.4 The Quotation shall contain no alterations or additions, except those required to comply with instructions issued by BIAL or as necessary to correct errors made by the Bidder, in which case such corrections shall be initialled by the authorized signatory of the Bidder and sealed.

5.5 Bidders shall submit their duly signed and sealed Quotation in hard copy, before Submission Date, by courier, registered post or by hand delivery, to BIAL at the following address:

Bangalore International Airport Limited.
BIAL Project Office,
Kempegowda International Airport, Bengaluru
Bangalore 560 300
Web: www.bengaluruairport.com

Attention:

Vice President & Head (Contracts & Procurement)
Bangalore International Airport Limited

The outer envelope should clearly mention the following details:

"Design, supply & installation of green wall (mock up for Terminal 2)" At Kempegowda International Airport, Bengaluru

5.6 In the event of any deviation in the Quotation submitted from this RFQ, the Quotation shall be liable to be rejected.

6. QUERIES REGARDING THE RFQ

Any discrepancies, omissions, ambiguities or conflicts in or among the documents forming part of the RFQ or any doubt as to their meaning, should be called to the attention in writing by e-mail to projecttenders@bialairport.com with subject **"Design, supply & installation of green wall (mock up for Terminal 2)" at Kempegowda International Airport, Bengaluru.**

7. ADDENDUMS / CORRIGENDUM

7.1 BIAL shall at its discretion choose to issue a clarification or modify the RFQ by issuing an addendum (the "**Addendum/Corrigendum**"). BIAL reserves the right to issue amendments to this document by issuing an Addendum/Corrigendum, at any stage, without liability and/or any obligation in inviting responses from the Bidders against such Addendum/Corrigendum. The Bidders shall disregard any oral instructions issued by any person, unless issued in writing by BIAL's authorized representative.

7.2 Any Addendum or Corrigendum issued, shall form a part of the RFQ and shall be notified to the Bidders.

7.3 In case of issuance of Addendum or Corrigendum, the Bidders who have already submitted their Quotations, need not resubmit their Quotation, but can submit the modification to the Quotation, if desired. If the Bidder, chooses not to modify their Quotation, pursuant to the Addendum or Corrigendum, it shall provide an undertaking to this effect to BIAL. Bidders who do not submit any modification and pursuant to the same do not submit the required undertaking shall be disqualified.

8. CONDITIONS AND BIDDER'S RESPONSIBILITIES

8.1 It is the sole responsibility of the Bidder to:

8.1.1 visit and examine the site of works and its surroundings at Bidders expense and obtain all information required for preparation of the Quotation. Permission for such visit will be organized on prior request to BIAL, with documents as required. No claim whatsoever shall be entertained for extra expenses or extension of time on the grounds that the information provided or collected is inadequate;

8.1.2 keep BIAL indemnified, from and against and in respect of damages, liabilities, losses, costs, charges, fees and expenses, including without limitation reasonable

legal fees and expenses, (i) brought against BIAL's representatives by any third party as a result of such investigation/ inspection by Bidder and or its Personnel(s); (ii) any damages losses arising out of theft of tangible/ intangible property (iii) any claim arising from the death, personal injury or for loss or damage to tangible property of BIAL arising out of any omission or commission of Bidder or its personnel(s);

8.1.3 examine and understand the RFQ documents including schedules, annexures and appendices and to verify their completeness;

8.1.4 promptly inform BIAL, in the event that there are any pages or documents obviously missing or erroneously inserted in the documents supplied or there are any concerns implied or related to but not specifically mentioned under this RFQ;

8.1.5 obtain and maintain permits for complying with all the laws, orders, regulations or other instructions issued by all statutory authorities in India for the purposes of bidding under this RFQ;

8.1.6 ensure that, the Bidder is liable for the entire bidding process and if shortlisted be liable for the performance of the scope of Work;

8.1.7 not alter its composition or legal status without prior written consent of BIAL. BIAL reserves the right to not to give its consent for any such aforesaid change in composition, if the same is prejudicial to the interest of BIAL.

8.2 By submitting the Quotation, the Bidder agrees that:

8.2.1 It shall protect BIAL from all claims for patented methods, processes, materials, inventions, and appliances in connection with the fulfilment of this RFQ and the Work, if awarded, at the Bidder's own costs and expenses;

8.2.2 Works to be performed shall meet all quality codes in accordance with "Good Industry Practices" and would be performed in compliance with all applicable laws;

8.2.3 The receipt of a Quotation by BIAL shall indicate that the Bidder understands the requirements and shall perform the Work proposed in accordance with the terms of this RFQ;

8.2.4 If the selected Bidder fails to meet any specified timelines, BIAL shall have the option of cancelling any and all purchase orders/work orders or agreements issued to the Bidder/entered into with the Bidder in connection with this RFQ;

8.2.5 All costs for preparation, submittal and/or delivery of the Quotation incurred by the Bidder shall be the sole responsibility of the Bidder and shall not be paid by BIAL.

9. AWARD PROCESS

9.1 Canvassing in any form, unsolicited letter and post bid correction will invoke summary rejection of the Quotation.

9.2 Any conditional Quotation may be rejected at the sole discretion of the BIAL. The Bidder shall comply with all the terms and conditions set out in the RFQ Documents and its annexures/appendices while submitting its Quotation.

9.3 BIAL reserves the right to negotiate with Bidders whose Quotation is being evaluated.

9.4 Pursuant to negotiations, BIAL shall at its discretion shortlist Bidder(s) to enter into a contract by issuing a Purchase Order/Work Order together with its terms adnd conditions with BIAL, valid for a period of 12 months from the date of issue of Purchase Order/Work Order. The rate shall be firm and fixed for the said period.

9.5 The shortlisted Bidder(s) shall be duly communicated in writing.

10. GENERAL

10.1 BIAL reserves the right to accept or reject any or all Quotations without assigning any reasons and is not obliged to correspond with the Bidders in this regard. Further, BIAL reserves the right to change/modify and/or cancel this process at any time without prior notice or without assigning any reasons whatsoever, and this shall be without prejudice to its right to re-tender at any time in the future and in such case, Bidders shall not have any claim arising out of such action.

10.2 Response by Bidders to this RFQ, shall be considered as unconditional acceptance of all the terms and conditions of this RFQ.

10.3 All documents and other information submitted along with the Quotation shall remain or become the property of BIAL.

10.4 The Bidder shall bear all costs associated with the preparation and submission of its Quotation.

10.5 BIAL shall not be liable or held liable for any loss, damage, expenses, costs or liability arising either directly or indirectly, out of this RFQ. Further, BIAL shall not be held liable for any damage or loss caused to the Bidder due to injury caused to the personnel of the Bidder.

10.6 Any notice to be made, must be in writing and may be given by email or post or by hand delivery to either party to address communicated from time to time.

10.7 Successful Bidder shall obtain at its cost necessary and applicable permissions from government departments/agencies are to be obtained prior to commencement of Work.

10.8 All precautions shall be taken to ensure no damage is caused to any property/equipment placed at the Work area or surrounding area at the Airport.

11. CONFIDENTIALITY

11.1 BIAL and the Bidder shall ensure the confidentiality of all documents supplied by either party.

11.2 The Bidder agrees that BIAL shall use the Quotation submitted by the Bidder for securing approvals and/or in case of any enquiry issued by a court of competent jurisdiction, if required.

11.3 Any BIAL's sensitive or proprietary information included in this RFQ such as specification, drawing, and related data shall remain BIAL's property, shall be kept confidential, shall be used only for the purpose of complying with this RFQ, and shall not be disclosed to any third party. Bidders shall be required to return or destroy (as instructed by BIAL) all copies of any sensitive or proprietary information provided to it during the bidding process

11.4 All data and information contained in or disclosed by this document is confidential and proprietary information of BIAL and all rights therein are expressly reserved. By accepting this material, the Bidder agrees that this material and the information contained therein is held in confidence and in trust and shall not be used, copied, reproduced in whole or in part, nor its contents revealed in any manner to others without the express written permission of BIAL.

12. VERIFICATION

BIAL reserves the right to verify all statements, information and documents submitted by the Bidder in response to, the RFQ or the bidding documents and the Bidder shall, when so required by BIAL, make available all such information, evidence and documents as may be necessary for such verification. Any such verification, or lack of such verification, by BIAL shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of BIAL thereunder.

13. MISREPRESENTATION/ FRAUD/ BREACH OF TERMS AND CONDITIONS

If the Bidder wishes to withdraw its Quotation (on its own account) after the Submission Date or it is discovered at any point of time that the Bidder has suppressed any fact or given a false statement or has misrepresented or committed act of fraudulent nature or has violated any of the terms of this RFQ, the Bidder may be disqualified forthwith if not yet appointed as the Contractor, either by issue of Purchase Order/Work Order or entering into an agreement , and if the selected Bidder has already been issued a Purchase Order/Work Order or has entered into an agreement as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFQ, be liable to be terminated, by a

communication in writing by BIAL to the selected Bidder without BIAL being liable in any manner whatsoever to the selected Bidder. In such an event, the Bidder shall not be entitled to any compensation whatsoever, or refund of any other amount, if any, paid by him. Further, the Bidder shall be debarred for a period of 3 (three) years from participating in any BIAL's works.

14. CONFLICT OF INTEREST

A Bidder shall not have a conflict of interest (the "**Conflict of Interest**") that affects the bidding process. Any Bidder found to have a Conflict of Interest shall not be considered for Purchase Order/Work Order or an agreement, as opined by BIAL at its sole discretion. A Bidder shall be deemed to have a Conflict of Interest affecting the bidding process if the Bidder, its member or associate (or any constituent thereof) and any other Bidder, its member or any associate thereof (or any constituent thereof) have common controlling shareholders (i.e., any shareholder thereof having a shareholding of more than twenty-five per cent of the paid up and subscribed share capital, or similar, of such Bidder, member or associate, as the case may be.

15. ASSIGNMENT

15.1 Any assignment by the Bidder of the RFQ or of any rights hereunder, in any manner, by operation of law or otherwise, without the prior written consent of BIAL, shall be void. Any such consent shall not relieve the Bidder from its obligations under the RFQ.

15.2 The Bidder shall not give, bargain, sell, assign or sublet or otherwise dispose the RFQ or any part thereof, or the benefit or advantage of being the Bidder or any part thereof to any third party.

16. LAW AND JURISDICTION

The Quotation shall be considered, governed by and interpreted in accordance with the laws of Republic of India. The courts in Bangalore shall have exclusive jurisdiction in relation to all matters arising out of this RFQ and the bidding process.

17. DOCUMENTS

The following documents form part of this RFQ:

(a) Scope of Work and Bill Of Quantities (BOQ)enclosed as Annexure – A
(b) RFQ Questionnaire as Annexure – B
(c) Covering Letter as Annexure - C
(d) Template of Appendix to WORK ORDER / PURCHASE ORDER enclosed as Annexure – D

ANNEXURE – A

Scope of Work & Bill of Quantities

Scope of Work includes but is not limited only to "Design, supply & installation of green wall (mock up for Terminal 2)" At Kempegowda International Airport, Bengaluru.

The Contractor needs to ensure all safety measures as per norms & as per site requirement.

BIAL Basic principles for mock up:

1. The scope defined is based on our requirements.
2. The integration all crucial inputs from experts like structural, Mechanical, Electrical, Irrigation, Lighting,
Planting verities suitable along with proper growth media and fertigation dosing through irrigation line.
3. This is for trial purpose till we meet the all the required parameter and this work order is not the guarantee for any future order or any claims.
4. The system needs to be hi-tech smart and IT enabled. No human meddling what so ever after installation.
5. All the systems to intelligent and all the Green walls to managed remotely and operation alarming information to be communicated to all designated persons of BIAL. System will be tested for 6 months for final approval.
6. Any variations in design or details to be prior approved by BIAL team.

1. Green wall Specification-

Supply and installation of the Green Wall system mock-ups to be provided should include:

- Structure and modules suitable in the defined space.
- Automatic Smart Irrigation, fertigation and drain within the green wall system.
- Suitable plants species as well as the growth media along with maintenance schedule.

A. Modular System / Felt system- 8 ft x 6 ft :
Providing & Installation of Modular green wall system to have modules with multi cavity, Each cavity not less than 64 Cubic inch space, With a dedicated water system, Properly and securely fixed on foldable GI section using tung and groove joinery, With module sizes of 600mmX150mmX125mm/Suitable size, Module easy to replace, If detached a sequential module it still need to operate for irrigation and drain , which should have moisture blanket , must have growth media which should last at least 5 years plus, The selected plant material should be suitable to local microclimate, easily manageable work in the available light intensity, System should have a proper automatic smart irrigation facility along with proper drain and fertigation system. The system should be IT enabled. The scope should also have testing period for 6 months to determine the exact plant pallet, irrigation, fertigation requirement, drainage and maintenance. Should include guarantee against all components if selected.

B. Modular Mini / Felt system- 8ft*6ft:

Providing & Installation of Modular green wall system to have modules with multi cavity, Each cavity not less than 34 Cubic inch space, With a dedicated water system, Properly and securely fixed on foldable GI section using tung and groove joinery, With module sizes of

300mmX112mmX100mm/Suitable size, Module easy to replace, If detached a sequential module it still need to operate for irrigation and drain , which should have moisture blanket, must have growth media which should last at least 5 years plus, The selected plant material should be suitable to local microclimate, easily manageable work in the available light intensity, System should have a proper automatic smart irrigation facility along with proper drain and fertigation system. The system should be IT enabled. The scope should also have testing period for 6 months to determine the exact plant pallet, irrigation, fertigation requirement, drainage and maintenance. Should include guarantee against all components if selected. Providing & Installation of Green wall system.

C. Living Wall / Felt system- 8ft*6ft:

Providing and installation of Living Wall System, comprising of PANEL: Pre grown Living wall panels, made of PPCP with UV protection, with 5 years warrantee against UV, of size 300 mm x 300 mm x 100mm, with inverted sloping 10 planting cells storing 100 ml water approximately each, as individual water reservoir for each planting cell and alternate slots for desired water movement, also including additional slots for root anchorage.

1. Growth media: Longevity enabled, sustainable inert growth medium, a mixture of organic and inorganic materials.
2. Plants: BIAL approved site specific plants, grown & transplanted in proper growth medium, in Living wall panels.
3. Irrigation: BIAL approved automatic smart irrigation system having 12 mm dia, thin wall PC inline having 1 LPH drippers @ 15 cm c/c distance, with required fittings & accessories.
4. All products to have guarantee and warranty for at least 5 years from installation and commissioning in T2 if selected.

D. Agro-pots and holders:
Providing and installation of Linear green System comprising of

1. Irrigation tray: Made up of PPCP of suitable height and width with inbuilt water reservoir, each agro pots fits in individual model. This Holder in turn can be fitted onto the wall or frame.
2. Pre-grown Agro pots: Made up of PPCP UV stabilized of size 150mmx 125mm x 125mm with bio blanket, should retain moisture and provide proper anchorage to roots.
3. Growth media: Longevity enabled sustainable inert growth medium, a mixture of organic and inorganic materials stable for next 5 years
4. Plants: BIAL approved site specific plants grown & transplanted in proper growth medium
5. Irrigation: Automatic smart irrigation system which operates on simple gravity. The stored water in the tray will be absorbed by the plant by the capillary action.
6. If approved all the products to have at least 5 years of guarantee and warranty.

E. Hanging Live Green on String System (6” & 10” DIA) 8FT*6FT:

Providing and installation o System comprising of
1. Wire rope assembly: System in SS with secured plant holding
2. Pre-grown assembly: Made up of PPCP UV stabilized of size 150mm Dia, with growing blanket having moisture retention and root supporting function.
3. Growth media: 5 years plus longevity enabled sustainable inert growth medium, a mixture of organic and inorganic materials.

4. Plants: Location and climate specific plants in proper growth medium along with transport to location.
5. Irrigation: automatic smart irrigation system
6. If approved guarantee and warranty for 5 years for all products.

A. Irrigation Unit: Selection, Supply, Installation & Commissioning

- Selection of suitable components for irrigation system of the Green wall, based on the Green wall Size, pot size, media used in pot, water requirement of plant, time require to saturate the soil, elevation difference, location & Type of water source.
- Standard approved irrigation components like 16mm Brown color plain lateral tube with thickness 1.2mm, PC dripper with suitable discharge based on pot size, all fitting like Tee, Elbow, Joiners etc., solenoid valve etc. (Rainbird/Hunter make) shall be used as proposed, designed and approved by Clients' Representative.
- All pipeline and fittings from pump station or water source up to Green wall and within the Green wall structure shall be of CPVC or UPVC of Class -5. Diameter of pipeline shall be based on the total flow of Green wall.
- Systems shall Include Online Booster Pump, Pump Panel and fertigation unit in the same line, as require for commissioning the irrigation systems with desired pressure and to supply liquid fertilizer in desire quantity.

In brief, the scope of work under this shall include but not limited to-

i) Supply, installation, testing and commissioning of Irrigation items (Pipe, Drip Tube & Fittings)
ii) Supply, installation, testing and commissioning of Online Booster Pump & Panel
iii) Supply, Installation, testing and commissioning of Fertigation unit

B. Irrigation Systems: Automation

Irrigation systems of Green wall shall be fully automized by using controller with Soil moisture and flow sensor.

- Operation of irrigation & drain systems shall be through remote sensing and through Internet of things.
- Selection of recommended or approved components for controllers, sensors, switches, drain pumps etc.
- Developing full-proof logic and methodology to achieve the following:

- Just enough discharge of water through irrigation systems to saturate the media in the pot. i.e. irrigation systems shall operate based on the soil moisture sensor signal.
- No water spillage, if any spillage ensuring 100% control over drain.
- Immediate action to be initiated by the system, with automatic alerts to the selected team members.
- Standby provision for the controllers. Status of desired Green wall or desired function to be made available in prescribed format to all stake holders.
- Selection of suitable components & designing the layout and methodology for installation of automated irrigation system. Selection of recommended approved

irrigation automation components like, Electronic items and Irrigation controller-switches, pumps, main controllers with stand-by units and other fittings, to achieve desired perfection in accurate irrigation.

In brief, the scope of work under this shall include but not limited to-

i) Supply, installation, testing and commissioning of Central Command unit
ii) Supply, installation, testing and commissioning of Electronic Controller Switch
iii) Supply, installation, testing and commissioning of Sensors and other components on each Green wall

2. Deliverable

a) As-built layout
b) Maintenance manual
c) Product catalogue for all material including fittings and supplier details

3. Practical Completion
   - Practical completion will be granted when the entire works described by the Contract has been handed over, documentation supplied and other contractual obligations fulfilled to the satisfaction of the Owner's Representative.
   - At the discretion of the Employer's Representative, practical completion may be granted subject to a defect list of minor rectification work to be carried out by the contractor.
   - If the minor rectification work is not carried out within 1 weeks of the granting of practical completion, then the date of practical completion will be extended until it is completed by contractor.

BIAL free supply during mock up;

1. Water
2. Electricity
3. Any approvals related to mock up installation
4. Support required which is beyond scope if any.

Drawings:

- LT- 8505- Typical Green Wall Details- Modular Pot System
- LT- 8506- Green Wall Wire System

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BILL OF QUANTITIES (BOQ)

Sl No	Description	Unit	Qty.	Rate	Tax (%)	Unit Rate (INR)	Amount
	Supply and installation of the Green Wall system mock-ups to be provided should include: *Structure and modules suitable in the defined space. *Automatic Smart Irrigation ,fertigation and drain within the green wall system. *Suitable plants species as well as the growth media along with maintenance schedule.						
A	**Modular System / Felt System- 8ft*6ft**						
	Providing and installation of modular bio Wall System with						
	Providing & Installation Of Modular green wall system Green-wall to have modules with multi cavity, Each cavity not less than 64 Cubic inch space, With a dedicated water system, Properly and securely fixed on foldable GI section using tung and groove joinery, With module sizes of 600mmX150mmX125mm/Suitable size, Module easy to replace,If detached a sequential module it still need to operate for irrigation and drain , which should have moisture blanket , must have growth media which should last at least 5 years plus, The selected plant material should be suitable to local microclimate, easily manageable, work in the available light intensity, System should have a proper automatic smart irrigation facility along with proper drain and ferigation system. The system should be IT enabled. The scope should also have testing period for 6 months to determine the exact plant pallet, irrigation ,fertigation requirement ,drainage and maintenance. Should include guarantee against all components if selected.	Sft	100				
B	**Modular Mini / Felt System- 8ft*6ft**						
	Providing and installation of modular Wall System, comprising of						

	Providing & Installation Of Modular green wall system Green-wall to have modules with multi cavity, Each cavity not less than 34 Cubic inch space, With a dedicated water system, Properly and securely fixed on foldable GI section using tung and groove joinery, With module sizes of 300mmX112mmX100mm/Suitable size, Module easy to replace, If detached a sequential module it still need to operate for irrigation and drain , which should have moisture blanket , must have growth media which should last at least 5 years plus, The selected plant material should be suitable to local microclimate, easily manageable, work in the available light intensity, System should have a proper automatic smart irrigation facility along with proper drain and ferigation system. The system should be IT enabled. The scope should also have testing period for 6 months to determine the exact plant pallet, irrigation ,fertigation requirement ,drainage and maintenance. Should include guarantee against all components if selected. Providing & Installation of Green wall system	Sft	50				
C	**Living Wall / Felt System- 8ft*6ft**						
	Providing and installation of Living Wall System, comprising of						
	PANEL : Pre grown Living wall panels , made of PPCP with UV protection, with 5 years warrantee against UV, of size 300 mm x 300 mm x 100mm, with inverted sloping 10 planting cells storing 100 ml water approximately each, as individual water reservoir for each planting cell and alternate slots for desired water movement, also including additional slots for root anchorage. 1. Growth media : Longevity enabled, sustainable inert growth medium, a mixture of organic and inorganic materials. 2. Plants : BIAL approved site specific plants, grown & transplanted in proper growth medium, in Living wall panels. 3. Irrigation : BIAL approved automatic smart irrigation system having 12 mm dia, thin wall PC inline having 1 LPH drippers @ 15 cm c/c distance, with required fittings & accessories. 4.All products to have guarantee and warranty for at least 5 years from installation ,commissioning in T2 if selected.	Sft	50				

4	**Agro-pots and holders (Rate only, valid till 2022)**						
	Providing and installation of Linear green System comprising of						
	1. Irrigation tray: Made up of PPCP of suitable height and width with inbuilt water reservoir, Each agro pots fits in individual model. This Holder in turn can be fitted onto the wall or frame. 2. Pre-grown Agropots: Made up of PPCP UV stabilized of size 150mmx 125mm x 125mm with bio blanket, should retain moisture and provide proper anchorage to roots. 3. Growth media: Longevity enabled sustainable inert growth medium, a mixture of organic and inorganic materials stable for next 5 years 4. Plants: BIAL approved site specific plants grown & transplanted in proper growth medium 5. Irrigation: Automatic smart irrigation system which operates on simple gravity . The stored water in the tray will be absorbed by the plant by the capillary action. 6. If approved all the products to have at least 5 years of guarantee and warranty.	Nos	350				
5	**Hanging Live Green on String System (6" & 10" DIA) 8FT*6FT (Rate only, valid till 2022)**						
	Providing and installation o System comprising of						
	1. Wire rope assembly: System in SS with secured plant holding 2. Pre-grown assembly: Made up of PPCP UV stabilized of size 150mm Dia, with growing blanket having moisture retention and root supporting function. 3. Growth media: 5 years plus longevity enabled sustainable inert growth medium, a mixture of organic and inorganic materials. 4. Plants: Location and climate specific plants in proper growth medium along with transport to location. 5. Irrigation: automatic smart irrigation system 6.If approved guarantee and warranty for 5 years for all products.	SFT	50				
	TOTAL						

ANNEXURE – B
RFQ QUESTIONNAIRE

1.	**BIDDER**	
1.1	Full Name	
1.2	Jurisdiction of Incorporation	
1.3	Registration Number	
1.4	Registered Address	
2.	**Incorporation Documents**	
2.1.	In case of a firm	
2.1.1.	Registration certificate	
2.1.2.	Registration Number (CIN)	
2.1.3.	Registered Address	
2.1.4.	Power of Attorney of Authorized Signatory (Certified true copy)	
2.1.5.	Tax Registration Details - VAT - Service Tax - Income Tax	
2.1.6.	Any other	
2.2.	In case of Company	
2.2.1.	Certificate of incorporation, Memorandum and Articles of Association, CIN	
2.2.2.	Board Resolution/Power of Attorney of Authorized Signatory (Certified true copy)	
3.	**Contact Person for this Proposal**	
3.1.	Name	
3.2.	Address for Courier	
3.3.	Office Phone	

3.4.	Mobile Phone	
3.5.	Fax	
3.6.	E-mail Address	
4.	**Bank Providing Tender, Other Bonds & insurances (as applicable)**	
4.1.	Name of Bank	
4.2.	Branch of Bank	
4.3.	Letter from Bidder's bank/insurance agent stating concurrence to provide necessary bonds/insurances if selected as the Consultant.	
5.	**Disclosure of Interests**	
	Please disclose here any beneficial financial interest which exists, or may exist, between yourselves and the following or their affiliates:	
5.1.	BIAL	
6.	**Certifications & Procedures**	
6.1.	Please attach your current corporate Quality Procedure, Safety Manual and certification(s) for:	
6.2.	Quality, eg. ISO 9000	
6.3.	Environmental Management, eg. ISO 14000	
6.4.	Other relevant certifications	
7.	**Assumptions in the proposed Proposal**	
	Identify here any provision(s) of the Proposal to which if there is a change, would materially increase/decrease your price:	
8.	**Authorized Representative Certificate**	

	Full name		Signature
	Position		
	Company		
	Date		

ANNEXURE - C

COVERING LETTER

[On Bidder's letter head]

[Location, Date]

To:
Vice President & Head -Contracts & Procurement
Bangalore International Airport Ltd.
BIAL Project Office,
Kempegowda International Airport, Bengaluru,
Devanahalli, Bangalore - 560 300

Dear Sirs:

Subject: Quotation in response to the Request for Quotation (RFQ) for **"Design, supply & installation of green wall (mock up for Terminal 2)" At Kempegowda International Airport, Bengaluru**.

1. Having read, carefully examined and understood the Request for Quotation including its annexure, other documents attached thereto and all subsequent addenda & clarifications issued pursuant thereto (collectively the "**RFQ**"), we hereby offer to execute the Works, in accordance with **Annexure A [Scope of Work & Bill of Quantities]** to this **RFQ** and the terms and conditions set forth in this RFQ.

2. We hereby agree and confirm that our Quotation has been prepared strictly in conformance with the instructions in the RFQ (including the forms set forth therein) and that we shall at all times act in good faith and abide by the terms and conditions of the RFQ during the bid Process.

3. We agree that we have inspected and examined the RFQ documents and have ascertained that they contain no inconsistencies, errors or discrepancies and have otherwise familiarized ourselves with all conditions of the RFQ which may affect our Quotation and all queries on other contractual matters have been addressed.

4. Without prejudice to the generality of the foregoing:

   (a) We undertake to keep our Quotation valid and open for acceptance without unilaterally varying or amending its terms during the Quotation Validity Period stated in the RFQ;

   (b) We agree that if our Quotation is accepted, we will be bound by the Purchase Order/Work Order issued by BIAL and the terms and conditions provided in

Annexure D, provide the necessary indemnities & insurances and obtain and provide the Performance Guarantee and Parent Company Guarantee (if applicable); all in accordance with the RFQ

(c) We agree to continue to keep in force a valid Earnest Money Deposit, if any as stipulated in the RFQ;

(d) We acknowledge and agree that the acceptance of our Quotation and award of Contract, and the cancellation or modification of the RFQ at any stage is at BIAL's sole discretion and any decision taken by BIAL in relation to the RFQ (including any award) is final and binding on us and we shall have no rights or claims arising out of or in relation to any decision of BIAL in relation to the RFQ or the selection process thereunder.

(e) We acknowledge and agree that BIAL is not bound to accept the lowest or any Quotation or offer that BIAL may receive.

5. We represent and warrant to BIAL that as of the date of submission of the Quotation and till the end of the Quotation Validity Period (as may be extended):

(a) the information furnished by us is complete, accurate, unconditional and fairly presented;

(b) we have the necessary technical and financial ability and adequate skilled and experienced resources for executing the Work if our Quotation is accepted;

(c) we are in compliance with all the terms and conditions of the RFQ;

(d) there is no information, data or documents which have not been disclosed which may prejudicially affect BIAL's evaluation or decision in relation to the award of Contract;

(e) we have all the necessary corporate and statutory approvals and authorizations to participate in this RFQ and to submit the Quotation as a binding offer in response to the RFQ, the Confidentiality Undertaking and all other documents that are required to be submitted pursuant to the RFQ, and to execute and perform the Contract (if awarded); and

(f) we or the personnel we intend to engage for this assignment are not disqualified from undertaking the assignment on account of security clearance by the Government of India, any relevant authority of the Government of India or by any international agency or other governments and that at all times we shall provide any information required to assess the same.

(g) we have factored in all costs and expenses for undertaking the scope of Work in accordance with the terms and obligations specified in the RFQ, in the

preparation of our Quotation and that the same is sufficient and reflects our no-regret offer in all respects.

In the event of occurrence of any events or circumstances that would render any of the foregoing representations and warranties untrue or invalid, we covenant to promptly notify BIAL of the same.

6. We further declare that we have not been declared ineligible for corrupt or fraudulent practices in any tendering process.

7. We undertake that we will intimate BIAL of any material change in facts, circumstances, status or documentation relating to us during the Quotation Validity Period (as may be extended in accordance with the RFQ).

8. This Quotation shall be construed, interpreted and governed, in all respects, by the laws of India, without reference to its conflict of law principles. The courts at Bengaluru will have exclusive jurisdiction in respect of all matters arising out of this Quotation.

9. We have agreed that [_____] **[Insert Authorised Signatory's name]** will act as our representative and has been duly authorized to submit the Quotation and authenticate the same, make amendments thereto and undertake such other actions as set out in the power of attorney / resolution of the board of directors / authorization attached with this Quotation, which will be binding on us.

10. We have provided details, in accordance with the instructions and in the form required by the RFQ and have attached the same as appendices to this Quotation. These *filled, signed and sealed* documents form an integral part of this Quotation are:

RFQ

(a) Scope of Work & Bill Of Quantities (BOQ) enclosed as Annexure – A
(b) RFQ Questionnaire as Annexure – B
(c) Covering Letter as Annexure - C
(d) Template of Appendix to WORK ORDER / PURCHASE ORDER enclosed as Annexure – D

And

(e) Power of Attorney
(f) Accepted and acknowledged RFQ

Yours sincerely,
For and on behalf of [name of Bidder]

Authorized Signature [In full and initials]:
Name and Title of Signatory:
Name of Bidder:
Address:
<Seal of Bidder>

ANNEXURE - D

TEMPLATE OF

Appendix to WORK ORDER / PURCHASE ORDER

(Enclosed separately as Annexure –E)