Request for Expression of Interest (REOI)

Consultancy Services for Planning, Architecture, Detailed Design and Resident Construction Supervision (Site 3: Faisalabad JB/ 08)

(PK-URBAN UNIT, PUNJAB- 506811-CS-CQS)

Program Management & Implementation Unit (PMIU) Punjab Affordable Housing Program

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PUNJAB AFFORDABLE HOUSING PROGRAM

REQUEST OF INTEREST
CONSULTANCY SERVICES PLANNING,
ARCHITECTURAL, DETAILED DESIGN & RESIDENT CONSTRUCTION
SUPERVISION OF PAHP SITES.

CORRIGENDUM

The Request for Expression of Interest (REOI) was published in the press on August 14, 2025, vide IPL No. 4083 and REOI documents were uploaded on website of Punjab Affordable Housing Program (PAHP) with the last date of submission on 27th August 2025 (11:00 AM). Following amendments are made in the REOI documents:

- The last date of submission of Expression of Interest (EOI) may be read as 8th September 2025 (11:00 AM).
- The revised Evaluation Criteria and REOI documents can be downloaded from PAHP website https://pahp.gop.pk/procurements.html

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https://www.instagram.com/pmiu_pahp/

IPL- 4308

REQUEST FOR EXPRESSION OF INTEREST
(Consultancy Services – Firm's Selection)

Country:	**Pakistan**
Name of Program:	**Punjab Affordable Housing Program (PAHP) Loan**
Credit No.:	**7043 - PK**
Assignment Title:	**Consultancy Services - Planning, Architecture, Detailed Design and Resident Construction Supervision (Site 3: Faisalabad JB/ 08).**
Reference No.:	**PK-URBAN UNIT, PUNJAB- 506811-CS-CQS**

1. The Government of Punjab has received Credit No. 7043 - PK from the International Development Association (IDA) towards the cost of the Punjab Affordable Housing Program (PAHP). The Program is being implemented through a Program Management & Implementation Unit (PMIU) under the Housing Urban Development and Public Health Engineering (HUD&PHE) Department with Urban Sector Planning & Management Service (Pvt.) Ltd. (The Urban Unit - Government of Punjab) and PHATA (Punjab Housing and Town Planning Agency) as co-implementing agencies. The PMIU-PAHP intends to hire Consultancy Services for Planning, Architecture, Detailed Design and Resident Construction Supervision for **Site 3: Faisalabad JB/ 08**

2. The consultancy services ("the Services") for conducting Planning, Architecture, Detailed Design and Resident Construction Supervision, ensuring full consistency with the TORs and Shortlisting Criteria that can be found at: **https://pahp.gop.pk/procurements.html**

3. The PMIU – PAHP invites reputed Architectural & Planning firms to express their interest in providing the said services. Interested firms should provide information demonstrating that they have the required qualifications and relevant experience to perform the services. The EOI needs to include the following information for shortlisting of firms as per the details given in the criteria.

- Registration with Registrar of Firms / Securities Exchange Commission of Pakistan (SECP) **(Letter of incorporation would be required).**
- Firm(s)/joint venture(s) name, address, copy of the Registration Certificate with relevant professional bodies of the Government, supported by latest / updated renewal, country of operations (if the firm is registered and operating in several countries), Memorandum / Article of Association / Partnership Deed or Joint Venture Agreement (if applicable)
- Registration with the relevant tax authorities for applicable taxes for National (Pakistani) firms (active taxpayer).
- At-least ten (10) years of experience & past performance of firm(s) / joint ventures in preparing town / urban planning, architectural work, detailed design and resident construction

supervision on assignments of comparable scale and complexity (copies of notification of award / Contract agreements / completion certificates with full address and contact information of their employers) as per the format attached.

- History of litigation (if any) in courts or any arbitration proceedings.
- Affidavit confirming that: (a) applicant firm(s)/joint venture(s) have never been blacklisted by any government department/ agency/ international financial institution. (If ever blacklisted, then provide the case history and status of the firm regarding this decision). (b) All the information provided by the applicant firm/joint venture is correct.
- The Firms / JV should demonstrate sufficient HR / managerial capacity and technical expertise in the areas covered in the TORs. *Quality Management Systems' Certifications for the firm will be an added advantage.*

4. Key experts will not be evaluated at the shortlisting stage. Applicants are requested to provide only relevant and complete information specific to proposed services and avoid submitting generic promotional literature. Incomplete / generic information will not be considered. The Client reserves the right to withdraw from the hiring process at any time and interested firms are responsible for all costs incurred arising out of, or in relation to this request.

5. The attention of interested Consultants is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank's "Procurement Regulations for 1PF Borrowers" July 2016 (revised 2020), setting forth the World Bank's policy on conflict of interest. (https://www.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework)

6. Consultants may associate with other firms to enhance their qualifications but should indicate clearly whether the association is in the form of a joint venture and/or a sub- consultancy, In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected. The maximum number of partners in a joint venture (JV) shall not exceed three (3).

7. The Consultants will be selected to conduct Services in accordance with the Consultant's Qualification Based Selection (CQS) method set out in the World Bank Procurement Regulations 2020.

8. A meeting with potential consulting firms will be held on **August 20, 2025, at 1100 Hours** to respond to queries regarding the assignment. Further information can be obtained at the address given below during office hours (9:00 am to 5:00 pm) on all working days till the submission of EOI.

9. Expressions of interest must be delivered in written form to the address below on or before **September 08 , 2025, by 1100 hours (revised in line with issued corrigendum).**

Program Director
Program Management & Implementation Unit (PMIU)
608 - Shaheen Complex, Egerton Road, Lahore
Ph: 042-99205318 Ext: 268 Fax: 042-99205323 https://pahp.gop.pk/procurements.html
Email Address: rni.pahp@punjab.gov.pk

Qualification Criteria

Shortlisting of Consultants will be based on the criteria given below regarding applicant's Mandatory Documents, General and Relevant Experience & Managerial Capabilities as demonstrated by the Applicant's responses. EOI Applications will be evaluated based on the following criteria:

1. Eligibility Criteria

The firm and JV partners (if any) are required to submit the following mandatory documents for shortlisting:

- Registration with Registrar of Firms / Securities Exchange Commission of Pakistan (SECP) **(Letter of incorporation would be required).**
- Firm(s)/joint venture(s) name, address, copy of the Registration Certificate with relevant professional bodies of the Government, supported by latest / updated renewal, country of operations (if the firm is registered and operating in several countries), Memorandum / Article of Association / Partnership Deed or Joint Venture Agreement (if applicable)
- Registration with the relevant tax authorities for applicable taxes for National (Pakistani) firms (active taxpayer).
- At-least ten (10) years of experience C past performance of firm(s) / joint ventures in preparing town / urban planning, architectural work, detailed design and resident construction supervision on assignments of comparable scale and complexity (copies of notification of award / contract agreements / completion certificates with full address and contact information of their employers) as per the format attached.
- History of litigation (if any) in courts or any arbitration proceedings.
- Affidavit confirming that: (a) applicant firm(s)/joint venture(s) have never been blacklisted by any government department/ agency/ international financial institution. (If ever blacklisted, then provide the case history and status of the firm regarding this decision). (b) All the information provided by the applicant firm/joint venture is correct.
- The Firms / JV should demonstrate sufficient HR / managerial capacity and technical expertise in the areas covered in the TORs. *Quality Management Systems' Certifications for the firm will be an added advantage.*

2. Firm Evaluation Criteria

No.	Criteria & Score	Max. Score
A	**Site Planning**	**24**
A1	**Low-cost / affordable housing layout planning (past 15 years)**	**16**
	Alternative for smaller sites (<200 kanals), such as Layyah	
A1.1	Projects ≥20 kanals: 1 pt / project, max. 3 projects	3
A1.2	Projects ≥100 kanals: 2 pts / project, max. 5 additional projects	10
A1.3	Thereof at least 2 National AND at least 2 International projects	3
A2	**Innovation in Inclusive & Green Site Planning (any project size)**	**8**
A2.1	***Inclusive & green infrastructure: up to 2 pts / project, max 3 projects*** For each project, explain in ≤400 words and on ≤2 pages plus drawings and/or other evidence for e.g., low-carbon materials, sustainable drainage retaining ≥95% stormwater.	4
A2.2	***Inclusive & green plotting: up to 2 pt / project, max 2 projects*** For each project, explain in ≤400 words and on ≤2 pages plus drawings and/or other evidence for e.g., mix of single and multi-family, or a ratio of the largest over the smallest residential lot of 3:1 or higher	4
B	**Residential Architecture**	**24**
B1	**Low-Cost Housing Design (past 15 years)**	**8**
	Experience in similar low-cost single-family housing projects	
B1.1	Projects ≥10,000 sq.ft. residential floor area: 1 pt / project, max. 5 projects	5
B1.2	Projects ≥50,000 sq.ft. residential floor area: 1 pt / project, max. 3 additional projects	3
B2	**Low-Cost Multi-Story Residential / Mixed-Use Design (past 15 years)**	**8**
	Experience in similar low-cost multi-family multi-story housing (apartment) projects	
B2.1	Projects ≥10,000 sq.ft. residential floor area: 1 pt / project, max. 5 projects	5
B2.2	Projects ≥50,000 sq.ft. residential floor area: 1 pt / project, max. 3 additional projects	3
B3	**Innovation in Inclusion & Green Housing Design**	**8**
B3.1	B1 projects with proof of design for user-driven improvements, such as expansion/infill of starter homes: 1 pt / project, max. 3 projects	3
B3.2	B2 projects with proof of design for user-driven improvements, such as expansion/infill of starter apartments: 1 pt / project, max. 3 projects	3
B3.3	Green housing projects with proof of design for low-carbon materials, energy/water efficiency, etc.: 1 pt / project, max. 2 projects **For each project, explain in ≤400 words and on ≤2 pages plus drawings and/or other evidence.**	2
C	**Engineering**	**16**
C1	**Infrastructure engineering**	**8**
C1	Relevant experience in engineering designs of infrastructure development (roads, water supply, sewerage, drainage, wastewater treatment, rainwater harvesting, solar system, etc.), as per section A.	8

C2	**Building engineering**	**8**
C2	Relevant experience in engineering design (Structural and MEP) of buildings in Pakistan, as per section B.	8
D	**Resident Construction Supervision**	**16**
D1	**Infrastructure Resident Construction Supervision**	**8**
D1	Relevant experience in resident construction supervision of infrastructure development, as per section A and subsection C1.	8
D2	**Building Resident Construction Supervision**	**8**
D2	Relevant experience in resident construction supervision of building development, as per section B and subsection C2.	8
E	**Innovation in Proposal**	**20**
E1	**E1: Innovation in Proposal**	**20**
	Explain your specific approach for the procured site in no more than 2,000 words, including your strategy for planning the site (cf. Section A), designing the housing prototypes (cf. Section B), and engineering infrastructures and building (cf. Section C). *Also show how you will minimize costs (balancing with livability, sustainability, resilience, and safety) and maximize revenue (balancing with affordability and inclusion) for achieving financial, technical and sociocultural feasibility.*	

Notes:

a. Minimum 40% marks required in each of the five categories (A, B, C, D and E).
b. Overall qualifying marks would be 65.
c. Consultants must submit their most relevant projects for each category on the attached format.
d. A single project may qualify for more than one category.
e. These relevant projects will be evaluated sequentially, based on the order of submission.
f. Projects submitted without the required documentary evidence will not be considered for evaluation.

SUMMARY OF RELEVANT EXPERIENCE

									*Category…….	
Sr. No	Name of Project	Location (District, Province)	Client	Total Cost of Project (PKR Million)	Timelines		Total Duration in Months	Total Cost of Services (PKR Million)	Major Scope of Services (Planning, Architecture, Detailed Design, Resident Construction Supervision etc.)	Other Detail
					Start Date	End Date				

*Category in line with evaluation criteria

Consultant's Relevant Experience

[*Using the format below, provide information on each assignment for which your firm, and each associate for this assignment, was legally contracted either individually as a corporate entity or as one of the major companies within an association, for carrying out consulting services similar to the ones requested under this assignment.*]

Assignment name:	Approx. value of the contract (in PKR):
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total № of staff-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in PKR):
Start date (month/year): Completion date (month/year):	№ of professional staff-months provided by associated Consultants:
Name of associated Consultants, if any:	Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Manager, Team Leader, CRE etc.):
Total developed area of Project (Kanals):	Toal covered area of Building (SFT):
Narrative description of Project:	
Description of actual services provided by your staff within the assignment:	

Note: Need to be supported by copies of notification of award / contract agreement / completion certificate

DOCUMENT CHECK LIST

1. EOI package containing the following:
    a. Original copy of Expression of Interest ☐
2. Letter of EOI Application ☐
3. Letter of intent to form a Joint Venture / Consortium and the MOU (if required) ☐
4. Power of Attorney for signing of proposal ☐
5. Power of Attorney for lead member of consortium (if required) ☐
6. Applicants' details need to include the following:
    a. Copy of Registration with Securities & Exchange Commission or Registrar of Firms; / Relevant registration Authority ☐
    b. Registration Certificate (name of relevant professional institutions) along with the latest renewal letter ☐
    c. Copy of Registration with respective relevant Tax Authorities ☐
    d. History of Litigation (if any) in courts or any arbitration proceedings ☐
    e. An affidavit confirming that Applicant is not blacklisted by any Government Department / Agency / International Financial Institution ☐
    f. Undertaking that all the information provided by the Applicant / JV is correct. ☐
7. Completed Formats for Consultant's relevant Experience ☐
8. List of staff available with the firm to demonstrate HR capacity in line with TORs ☐
9. Quality Management Systems' Certifications for the firm (if any) ☐

Applicants' Seal Stamp

Punjab Affordable Housing Program

Consultancy Services for Planning, Architecture, Detailed Design and Resident Construction Supervision

(Site 3: Faisalabad JB/08)

Terms of Reference

Program Management & Implementation Unit (PMIU)

Punjab Affordable Housing Program (PAHP)

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1. Background

The Punjab Affordable Housing Program (PAHP) is a World Bank funded hybrid program comprising the two instruments - Program for Results (PforR) and Investment Project Financing (IPF) - with a total cost of USD 250 million over 5 years (2022-2027). The Program Development Objective is to support the Government of Punjab in strengthening its housing institutions and systems, enhancing the quantity & quality of affordable housing supply. The Program is being implemented by the Urban Unit, and Punjab Housing & Town Planning Agency (PHATA) through the Program Management & Implementation Unit (PMIU), with the Housing, Urban Development & Public Health Engineering Department (HUD&PHED) bearing the overall responsibility of the program.

2. Objectives

The main objectives of this consultancy are to provide comprehensive services not limited to but including detailed planning, architectural, structural, and all associated engineering designs (pavements, plumbing, water supply, sewerage, drainage, wastewater treatment, mechanical, and electrical), resident construction supervision, and oversight of land and infrastructure development and housing construction for affordable housing scheme.

3. Project Site

The site is located in Faisalabad, at coordinates 31°29'00.6"N 73°03'22.3"E and encompasses two parcels of land on either side of road, with a total area of approximately 120 Kanals. This strategically positioned land is in close proximity to the city's urban centre, near Awais Qarani Road, enhancing its accessibility and development potential.

Figure 1: Site Location Map

4. Scope of Services

The scope of services is to be performed and successfully completed by the Consultants to the satisfaction of the Client and in accordance with the provisions of the Contract.

The Consultants shall provide professional and technical expertise for proper execution of required services, including but not necessarily limited to the following outputs in Phase A and B:

Phase A: Detailed Lay-out, Architectural and Engineering Design

a. Output 1. Inception Phase & Inception Report

Kickoff Workshop

Facilitation of a kickoff workshop with key stakeholders, to elaborate:

i. Project vision, objectives, principles, and targets.
ii. Planning methodology.

Inception Report

The report should not exceed 10-20 pages, including illustrations, tables, references, and any necessary annexes. (Report should be site specific instead of providing generic information)

ii. Description of project vision, objectives, principles, and targets.
iii. Description of planning, design, engineering & supervision methodology.
iv. Description of proposed key design features, including but not limited to:
    a. Planning principles for climate resilience and density
    b. Considerations for unit design options
v. Methodology for compliance with PAHP Environmental and Social (E&S) Safeguard requirements and site-specific E&S Assessment.
vi. Include workplan for each phase reflecting each activity as per agreed timeline.
vii. Use of software for multiple design tasks should be elaborated.

Baseline Sectoral Studies

Include a summary (section of the main report) with 4-10 pages of text, plus tables and illustrations, etc.; the actual reports are to be annexed; any other material is to be annexed but only if considered relevant.

i. **Topographic survey**
ii. **Geotechnical investigations**
iii. **Hydrological studies** (incl. drainage study, groundwaters, electrical resistivity survey etc.)
iv. **Climatic study** (wind, precipitation, temperatures, solar, etc.)

v. **Traffic Impact Assessment** (prioritizing green and inclusive mobility)
vi. **Trunk infrastructure screening** and gap analysis (existing status vs project need), to connect the site to all critical infrastructures
vii. **Other items/sectors** deemed critical for project success.

The Consultants shall further consider and embed existing reports and materials, such as land records, preliminary social and environmental assessments, etc., provided by the Client.

Base Map

Capturing all relevant elements of baseline sectoral studies for the site. The basemap shall not be limited to the site boundary but also contain relevant information on surroundings (e.g., villages, canals, roads, other land uses), to inform the synergistic integration of site and surroundings.

a. Output 2. Feasibility and Concept Development

Preliminary Feasibility of Housing Solutions

4-10 pages of text, plus financial tables and illustrations, etc.; any other material is to be annexed only if considered relevant.

i. **Local market sounding with:**
   a. Assessment of feasible land uses (residential and non-residential, incl. employment-generating land uses) on the future/urbanized site
   b. Assessment of feasible housing options (by urban form), with focus on density and low-cost
   c. Assessment of feasible population densities
   d. Assessment of typical/feasible housing characteristics (e.g., unit sizes, urban form, infrastructure access) for the envisaged market segments, including typical observations from informal/unplanned markets that may better represent some of the target groups.[1]
   e. Socio economic survey for understanding beneficiaries.
   f. Assessment of typical/feasible incremental housing development process/phases, starting small/basic and expanding/improving over time.
      - What are useful starter products (reg. size, structure, infill, finishings, utilities, and overall standards) across different income segments?

[1] Note that adjacent rural neighborhoods may be less indicative of demand, due to being developed on low-value land before urbanization. Therefore, the assessment is to focus on higher-density low-income urban settlements, including those where informally employed citizens live. The observed characteristics may indicate the standards for the initial provision, while any design shall include a strategy (technical and financial) for improving/upgrading the initial provision.

- How to develop these starter products into fully adequate housing solutions, over time?

ii. **Development of Housing Prototypes responsive to demand**

a. **Conceptual Architectural Designs:** Physical design and standards of priority housing solutions (land + starter infrastructure + starter housing) that are responsive to identified supply and identified demand. Minimum 4 different prototypes for multi-unit apartment buildings, and minimum 6 different prototypes for individual (e.g., row) housing for each level of road, explained through text and figures (drawings, sketches, photos)

b. **Preliminary Costing** of the price points for identified housing solutions/prototypes (incl. land, infrastructure, and housing, with adequate margins to ensure feasibility for all stakeholders involved, e.g., covering contingency, design and management, construction finance, and surplus).

c. **Affordability Analysis** (supply-demand-match), cross tabulating supply (i.e., housing solutions//prototypes with price points in columns) with demand (i.e., affordable price points across target segments in rows): for which table cell is the respective housing solution affordable to the respective target segment – or what is the cost-affordability gap?

The Client may provide a template financial model. If so, the Consultants may propose amendments to the template, subject to approval by the Client, and shall make the necessary inputs, eventually.

Note: the baseline data from market sounding will be robust, while precision and technical depth of the programmatic housing solutions/prototypes may be preliminary at this stage. (Regarding the latter, it is critical to put all methodological components in place already so that the data for the demand-responsive supply and affordability check can be refined in each submission, progressively.)

Preliminary Planning Layout with Infrastructure Networks

The report should not exceed 10 pages, including illustrations, financial tables, illustrations, and any necessary annexes if considered relevant.

The Consultants shall prepare at least 3 housing scheme planning scenarios (Livability, affordability, resilience, sustainability, etc.) satisfying the needs of the Client. These scenarios may be needed to identify a preferred combination of infrastructure development (network length, and standards/costs) and revenue including:

i. **Preliminary bill of quantities** for infrastructure network length and land use distribution for the given land parcel based on a reference project, case study, or

textbook solution provided by the Client (to be discussed during the inception workshop), to inform downstream financial planning/analysis.

ii. **Preliminary costing** (macro-level; with more details in later outputs), with:
   a. Site mobilization cost, including:
      - Current site value, considering market values across the site
      - Off-site trunk infrastructure (gap) costs, as above
      - Social Safeguards costs
      - Environmental Safeguards costs
      - Site clearance and preparation cost (e.g., removal of existing structures and plants, if any; filling/grading of the site)
   b. Infrastructure network development cost, including blue-green networks, ideally disaggregated by the road hierarchy
      - Public open spaces cost
      - Public amenities cost
      - Other hard cost, if any
      - Appropriate margins (e.g., contingency, design and management, financing costs), to cover all costs and risks not yet included and ensure feasibility for all stakeholders involved.

iii. Potential revenues
   a. from saleable serviced land, based on land use distribution (% targets) and price points across land uses, ideally disaggregated by the road hierarchy. (Different residential segments should be treated as different land uses located on different road levels.)
   b. Other revenue, if any

iv. Potential surplus/loss
   a. based on preliminary estimates of revenue and costs.

The Client may provide a template financial model. If so, the Consultants may propose amendments to the template, subject to approval by the Client, and shall make the necessary inputs, eventually.

Other Tasks/Items Identified Critical for Project Success

The Consultants or Client may identify other activities, to be amicably settled.

Deliverable: Report on Feasibility, Conceptual Designs, and Preliminary Costing

The report should not exceed 2-4 pages, including illustrations, financial tables, illustrations, and any necessary annexes if considered relevant.

i. Feasibility of vision, objectives, and targets
ii. Identification of key parameters, decisions, tools, strategies to achieve feasibility.
iii. Forward-looking outline of next steps

b. Output 3. Draft Concept Design & Draft Feasibility Report

The report should not exceed 10 pages, including illustrations, financial proforma, tables, and any necessary annexes if considered relevant.

Based on the previous Output 2, and feedback/further information received, the Consultants shall develop one or more combined spatial-and-financial and combined site-and-housing scenario and optimize it iteratively for livability/sustainability/resilience, financial feasibility, and social affordability/inclusivity based on own findings as well as feedback by the Client, until it satisfies the Client. (Only if the optimized scenario does not satisfy the Client, the Consultants shall develop alternative scenarios until the approval of Client.)

Introduction / Context

Introduction/context may include the project concept and key results of the previous Output, drawing primarily from the executive summary and forward-looking conclusion.

Concept Housing Development

This item shall refine/detail the previous output.

Preliminary Feasibility of Housing Solutions , considering all approved findings and feedback received. In addition, the Consultants shall ensure the applicability of green and sustainable building design and climate resilient construction materials and technologies for affordable housing. Incorporate appropriate design ideas and materials recommendations from the PAHP Design Competition proposals and those provided by the Client. Comply with social-inclusive and culture-responsive design protocols (to be provided by the Client).

Architectural design

i. **Spatial prototyping of residential land uses, including mixed-use buildings.** Develop a minimum of ten (10)[2] prioritized housing solutions (packages of subdivisions=lots, services, and homes, designed for incremental development) to be responsive to the target segments of demand (based on market sounding in point 4.2.1).
    a. For each solution, consider a progressive development plan for incremental housing solutions, with initial provision (i.e., starter core home) designed for horizontal and/or vertical expansion, infill of slabs and/or walls, or simply upgrading of finishings over time. To balance project objectives (e.g., livability and affordability), what is the minimum starter provision versus which costs

[2] E.g., two prototypes each to be placed on the parcels along the five lower road categories, excluding the parcels along the main road that are likely to hold other land uses.

and responsibilities can be reasonably shifted to the future, to reduce the entry cost to the formal housing market?

b. Ensure applicability of green and sustainable building design and climate resilient construction materials and technologies for affordable housing.
c. Incorporate appropriate design ideas and materials recommendations as per market research.
d. Comply with social-inclusive and culture-responsive design protocols.

Financial design and analysis

i. **Costing and pricing of residential land uses** (housing solution prototypes), as above: land (plot size/dimensions), initial infrastructure (standard/cost) and incremental improvement steps, starter housing provision (e.g., core house, G+2 & G+3) and incremental improvement steps, with sufficient margins to ensure feasibility for all stakeholders.
ii. **Residential affordability analysis**, cross-tabulating demand (target income segments and affordable price points, potentially updated) and supply (updated as per the previous item), determining/minimizing any affordability gap with and without subsidies (as per client's specifications).

Concept Layout and Infrastructure Development

Consultants are required to incorporate PAHP Planning Standards, recommendations from the PAHP Design Competition, and comply with social-inclusive, culture-responsive and climate-resilient planning and design protocols (provided by the Client).

Physical planning

i. **Concept road network**, with hierarchies of roads and in conformity with PAHP planning standards, avoiding placement of new roads near the site boundary (so that revenue-generating land uses will enjoy these infrastructures on both sides).
ii. **Concept cluster map**, showing large parcels ("clusters" for optional further subdivisions/plotting). The cluster depth shall be informed by the preferred lot depth of identified housing solutions to locate on any road category.
iii. **Concept density plan**, with densities being responsive to location access within the hierarchical road network, prioritizing higher densities on larger roads.
iv. **Concept land value potential plan**, identifying land value potential across the site, subject to location access, density potential, infrastructure standards within the hierarchical road network, as below.[3]

[3] Notably, to support a diverse mixed-use mixed-income community, a wide range of land values is desirable; here, the typical location-based value differences can be reinforced through graded densities and (incremental) service standards.

v. **Concept distribution of public spaces** (i.e., open spaces and amenities providing a public function, be they truly public or private), avoiding parcels with higher land value potential to not forego the related revenue. (This may require strategic choice of location, and/or adjustments in the road network and partition map.)

vi. **Concept green-blue-social network**, synergistically integrating green-blue networks within streets and with other public spaces (e.g., social amenities).[4]

vii. **Concept infrastructure sector plans**, with standards varied by the road network hierarchy.[5] Sectors include but may not be limited to multi-modal mobility, stormwater/green-blue networks, water, sewage, electricity/streetlights, ICT, etc.[6] For each sector, minimum two standards shall be developed[7] and assessed cost (averaged out per running meter of road).

   a. Consolidated/Regular: status quo that PHATA/the market typically provides
   b. Initial/Basic: more basic than the status quo but future-proofed (i.e., designed/ready for upgrading), considering national and international best practices such as, Khuda Ki Basti or World Bank Sites and Services projects.[8]

Financial planning/feasibility

Develop concept financial proforma: i.e., budgets with the following information, based on bills of quantities derived from the housing and site plans above:

i. **Full costs**, furthering **Error! Reference source not found.**with specific bill of q uantity and unit costs, as per the design (e.g., infrastructure length and standards. The proforma shall also budget appropriate margins (contingency, design and management, financial interest, surplus) to ensure feasibility.

[4] Generally, streets and other public functions should be developed with green-blue networks. (This helps minimizing additional land use allocations that would reduce the revenue. Only if required, e.g., to accommodate environmental requirements, additional areas may be mobilized. If so, these areas should avoid consuming higher value lands, by strategic location choice and/or road network adjustments.)

[5] Higher-level roads shall have relatively higher standard, and lower-level roads shall have relatively lower standards, with the option to upgrade (both but especially) the lower-level roads later (future-proved infrastructure development with planned phases).

[6] These infrastructures should be accommodated within the right of ways and public spaces (green open spaces and amenities, be they truly public or private, as above), preferably. Only if needed, additional lands may be consumed — if so, ideally avoiding higher value lands, as before.

[7] As far as infrastructure and road networks align, sketches of the right of way and illustrative ground plans may provide all the needed data (especially, the bill of quantities). For sections, it is critical to illustrate how all infrastructures are integrated above and below ground within the (potentially narrow) right of way, without causing conflict between them (e.g., between nature-based solutions / tree roots and water pipes or home foundations of adjacent properties) while showing how an initially basic provision can be upgraded without relocating elements within the road section (e.g., a tree planted for into a road with initially highly basic services may not be shifted later when the services will be upgraded).

[8] E.g., for the lower network levels, such as lanes and ghalis, the initial network cost may be avoided through off-grid solutions, such as community water taps at the entrance to the lane/ghali from the next higher road, from which the community can later extend a local network.

ii. **Revenues**, furthering with specific bill of quantity and unit revenue, as per the sketched design (e.g., proposed land use distribution and unit revenue)

iii. **Surplus/loss**, based on revenues less full costs.

Note: especially 4.3.2. Concept housing development and 4.3.3. Concept layout and infrastructure development are to be iteratively optimized, so that they fit together while achieving (spatial, social, environmental, financial, fiscal, etc.) project goals.

Concept Development of Non-Residential Land Uses

i. **Architectural prototyping of other land uses.** Develop a simple massing study of other land uses, particularly the commercial project components for cross subsidies and social amenities/other public functions

ii. **Financial analysis**, with costing and pricing of other land uses, revenues, and surplus/loss.

iii. **NOC Requirements.** The consultant should provide details of NOC required for the execution of Works at this stage. Shifting of utilities if any and all other related hurdles should be mentioned if any to avoid any delay for construction.

Other Tasks/Items Identified Critical for Project Success

The Consultants or Client may identify other activities, to be amicably settled. (Any bidder should include any additional task as an optional offer.)

c. Output 4. Final Concept Design & Feasibility Report

The Consultants will finalize the feasibility report, following the approval of the previous Output and incorporating feedback/further information received.

Consolidated Introduction

The introduction should not exceed 10 pages, including illustrations, tables, and any necessary annexes.

Consolidating introduction, forward-looking conclusion, and executive summary of the previous Output, clearly explaining the selected scenario.

Integrated architectural, financial, social, and environmental design:

i. **Finetuning the preferred housing solutions** and/or developing additional housing solutions (reacting to feedback received, e.g., to become more inclusive of any target segments by following international best practice).

ii. **Developing variations of the preferred prototypes.** Such variations may generally be developed by varying the size of each prototype.[9]

[9] For example, lots may be varied with wide (e.g., 40ft), medium (e.g., 30ft) and narrow width (e.g., 20ft), while the depth should not be varied (so that any partition of any given depth can simply be subdivided with different width).

Final Concept Layout and Infrastructure Development

No specific page limit, but conciseness is requested, as per the previous Output.

Update / consolidate the preferred scenario from Output 4.3.3 Concept Layout and Infrastructure Development and incorporate feedback received, such as building in design elements from other scenarios and/or additional elements (e.g., from national or international cases/best practices identified). More generally, feedback received is to be tested for feasibility and, if feasible, incorporated.

Consolidated Development of Non-Residential Land Uses

Update / consolidate /detail the previous output, as may be needed.

Note: 4.4.2. and 4.4.3. (as well as 4.4.4. possibly) are to be iteratively optimized to fit each other while achieving project goals.

Other Tasks/Items Identified Critical for Project Success

The Consultants or Client may identify other activities to be added and amicably settled.

Forward-Looking Conclusion

The conclusion should not exceed 10 pages, including illustrations, financial tables, and any necessary annexes if considered relevant.

Executive Summary

The conclusion should not exceed 2-4 pages, including illustrations, financial tables etc.

d. Output 5. Draft Detailed Design & Draft Bidding Documents

Upon the approval of the previous outputs by the Client, the Consultants shall immediately proceed with the preparation of the detailed design and bidding documents of the project, which shall initially be submitted in draft form.

The Detail Design shall comprise detailed and fully coordinated Design Report, Backup Calculations, Bidding Drawings, Specifications and other Documents including but not limited to the following:

i. Preparation of architectural drawings, making structural calculations and preparing all structural, mechanical, sanitary, plumbing, drainage, electrical drawings, technical specifications, detailed cost estimates or such other particulars as may be necessary for the preparation of bills of quantities and bidding documents.
ii. Architectural designs and details including 3D exterior elevation renderings

Similarly, flats may be varied by partitioning building into large (e.g., 600sqft for 3BR), medium (e.g., 450sqft for 2BR), and units (e.g., 300sqft for 1BR).

iii. Water Supply System
iv. Sewerage System and Wastewater Treatment
v. Storm Water Drainage
vi. Electrical Power Supply System with layouts
vii. Design of Buildings and Public Infrastructure
viii. Firefighting Works and System
ix. Landscaping, Parks and Green Spaces
x. Material Specifications (Civil. M&E all others required) and Design Calculations
xi. Quality control Manual
xii. Preparation of Bidding Documents
xiii. Miscellaneous and allied details

e. Output 6. Final Detailed Design & Final Bidding Documents

Following the approval of Detailed Design, the Consultants shall prepare and submit the Final Design and Bidding Documents incorporating the Client's review/comments of the previous output and the final Bills of Quantities

i. Final Design and Bidding Documents
ii. Preparation and approval of PC-I Document
iii. Detailed Cost Estimate, Detail Engineering/architectural/structural Drawings issued for bidding/construction and assistance to obtain Technical Sanction
iv. Assistance to get relevant NOCs
v. Services during Bidding, Bid Evaluation and Award of Contract
vi. Planning and scheduling construction works (Primavera / MS Project) and issuance of Construction drawings (IFC)

Phase B. Resident Construction Supervision

The Consultants shall supervise, coordinate, manage, administer and timely deliver the Project's construction from initiating to closing. This phase of the project is subdivided into Output 7 and 8.

f. Output 7. Detailed Resident Construction Supervision & Related Verification Reports

The Consultants are required to provide full-time Resident Supervision, Quantity Surveying and Project Management Consultancy Services in accordance with the Consultancy Services Agreement (CSA), and all relevant notices or circulars or directions issued (or will be issued) by the (PMIU-PAHP).

The Consultants shall review and assist PMIU-PAHP with the coordination and the construction of the Project from a qualitative perspective, safety and logistical issues. All

communication, coordination and management of issues related to quality, time and cost shall be the responsibility of the Consultants. The Consultants will, as part of their professional diligence, be expected to identify and report on such items if their observations indicate that important issues affecting the success of the Project may have been overlooked. Final Authority over time and money will however be of the PMIU-PAHP. The Consultants' staff for the Contract and Supervision Services will supervise the work, make recommendations to the PMIU-PAHP on contractual issues as and when requested, and perform quality control reviews as well as advise and assist on cost-related issues. Any input, assistance, collaboration or coordination that may be required to or provided by other Consultants, shall not absolve the Consultants from his obligations.

Details attached in Annex-A.

g. Output 8. Services during Defects Liability Period & Final Report, upon Project Closing

Details attached in Annex-A.

Timeline and Payment Schedule

The delivery timeline and payment schedule are outlined in the following tables for design and planning services along with construction supervision services, respectively.

Table 1: Phase A — Design & Planning Timeline & Payment Schedule

Deliverables (Outputs)	Timelines*	Payment**
Submission and acceptance of Output 1: Inception Report	02 weeks	20%
Submission and acceptance of Output 2: Feasibility and Concept Development[10]		
Submission and acceptance of Output 3: Concept Design & Draft Feasibility Report	04 weeks	10%
Submission and acceptance of Output 4: Final Concept Design & Feasibility Report	06 weeks	
Submission and acceptance of PC-I	08 weeks	10%
Submission and acceptance of Output 5: Draft Detailed Design & Draft Bidding Documents	10 weeks	10%
Submission and acceptance of Output 6: Part A-Final Detailed Design & Final Bidding Documents	12 weeks	30%
Submission and acceptance of Output 6: Part B- IFC Drawings	16 weeks	

[10] Output 1 and 2 can run in parallel: i.e., sectoral studies can start immediately after contract signing.

Deliverables (Outputs)	Timelines*	Payment**
Technical Assistance during Output 7 (construction supervision)[11]	-	20%
Subtotal	**16 weeks**	**100%*** **

Table 2: Phase B — Construction Supervision Timeline & Payment Schedule

Time based contract will be signed for Resident Construction Supervision Phase

Staffing and Team Composition

h. Key Personnel for Detailed Lay-out, Architectural and Engineering Design

Table 3: Key Personnel Required for Detailed Lay-out, Architectural and Engineering Design

Sr. No.	Staff	Staff Months	Mandatory Qualification with Experience
	Key Experts		
1.	Team Lead	02	Master's or higher Degree in Architecture / City and Regional Planning with 15 years of relevant experience. Additional qualification in Project Management will be an added advantage. The individual must be registered with the relevant Professional Body.
2.	Urban Planner (02 Nos)	04	Bachelor or higher Degree in Urban Planning with 10 years of relevant experience. The individual must be registered with the relevant Professional Body.
3.	Architect (02 Nos)	04	Bachelor or higher Degree in Architecture with 10 years of relevant experience. The individual must be registered with the relevant Professional Body.
4.	Civil / Transportation Engineer	02	Bachelor or higher Degree in Civil/Transportation Engineering with 10 years of relevant experience. The individual must be registered with PEC.
5.	Structural Engineer (02 Nos)	04	Master's degree or higher in Civil/Structural Engineering with 10 years of relevant experience. The individual must be registered with PEC.
6.	Electrical Engineer (01 Nos)	02	Bachelor or higher Degree in Electrical Engineering with 10 years of relevant experience The individual must be registered with PEC.
7.	Public Health Engineer (01 Nos)	02	Bachelor or higher Degree in Civil/Public Health Engineering with 10 years of relevant experience

[11] The architect/design engineers shall assist the supervision staff to respond to RFIs, the approval of technical submittals, acceptance of construction and as-built drawings. This payment will be released upon the substantial completion of the project.

[12] This payment will be released upon issuance of Completion Certificate.

			The individual must be registered with PEC.
8.	Environmental Engineer	01	Bachelor or higher Degree in Civil/Environmental Engineering with 10 years of relevant experience The individual must be registered with PEC.
9.	Contracts Engineer	01	Bachelor or higher Degree in Civil/ Architectural Engineering with 10 years of relevant experience The individual must be registered with PEC.
10.	Horticulture expert/landscape architect	01	Bachelor or higher in Architecture/Architectural Engineering or any relevant degree with 05 years of relevant experience. The individual must be registered with the relevant Professional Body.
	Non-Key Experts		
11.	Data analyst	01	Bachelor's degree or higher in Economics / Finance with 10 years of relevant experience.
12.	CAD Expert (04 Nos)	12	Diploma of Associate Engineering with 10 years' relevant experience.
13.	Quantity Surveyors (04 Nos)	12	Diploma of Associate Engineering with 10 years' relevant experience.

i. Key Personnels for Resident Construction Supervision

Sr. No.	Staff	Staff Months	Mandatory Qualification & Experience
	Key Staff		
1.	Project Manager / The Engineer	03	Bachelor or higher Degree in Civil Engineering with 15 years of relevant experience The individual must be registered as 'Professional Engineer' with PEC.
2.	Resident Engineer	12	Bachelor or higher Degree in Civil Engineering with 12 years of relevant experience. The individual must be registered as 'Professional Engineer' with PEC.
3.	Planning Engineer	12	Bachelor or higher Degree in Civil Engineering / Construction Management/Project Management/ Engineering Management with 8 years of relevant experience. The individual must be registered with PEC.
4.	Assistant Resident Engineer (Civil)	10	Bachelor or higher Degree in Civil Engineering with 08 years of relevant experience. The individual must be registered with PEC.
5.	Assistant Resident Engineer (MEP)	10	Bachelor or higher Degree in Mechanical/Electrical Engineering with 08 years of relevant experience. The individual must be registered with PEC.
6.	Architect	03	Bachelor or higher degree in Architecture/ Architectural Engineering with 10 years of relevant experience The individual must be registered with the relevant body

7.	Health Safety & Environment Manager / (E&S)	12	Bachelor in any relevant discipline with 8 years of relevant experience (NEBOSH Certified)
8.	Material / Quality Control Engineer	12	Bachelor or higher Degree in Civil /Geo Technical Engineering or Master in Geology with 08 years' relevant experience. The individual must be registered with PEC.
9.	Contract Management Specialist	03	Bachelor or higher Degree in Civil/Mechanical/Electrical Engineering or any relevant discipline with 10 years of relevant experience. The individual must be registered with PEC.
10.	Horticulture expert/landscape architect	01	Bachelor or higher in Architecture/Architectural Engineering or any relevant degree with 05 years of relevant experience. The individual must be registered with the relevant Professional Body.
	Non – Key Experts		
11.	Electrical Inspector	12	Diploma of Associate Engineering with 08 years of relevant experience.
12.	Quantity Surveyor	12	Diploma of Associate Engineering with 12 years of relevant experience.
13.	Surveyor(s) (2 Nos)	12	Diploma of Associate Engineering with 12 years of relevant experience
14.	Civil Inspectors (04 No)	48	Diploma of Associate Engineering with 12 years of relevant experience

j. Key Personnels for Defect Liability Period

Sr. No.	Staff	Staff Months	Mandatory Qualification & Experience
1.	Resident Engineer	02	Bachelor or higher Degree in Civil Engineering with 12 years of relevant experience. The individual must be registered as 'Professional Engineer' with PEC.
2.	Material/ Quality Control Engineer	02	Bachelor or higher Degree in Mechanical/Electrical Engineering with 08 years of relevant experience. The individual must be registered with PEC.
3.	Quantity Surveyor	02	Diploma of Associate Engineering with 12 years of relevant experience.

Further Provisions

k. Reporting Requirements

The Consultants will be reporting to the Program Director, Program Management Implementation Unit (PMIU) for PAHP.

l. Timelines and Period of Contract

The duration of the planning and design assignment (post signing of agreement) is expected as in the Table1: Phase A – Design & Planning Timeline and Payment Schedule.

The duration of Resident Construction Supervision is expected to be completed in the duration of 12 months after the commencement of work.

m. Client's Responsibilities

The Client will provide relevant documents (listed below) to the Consultants and will facilitate meetings with relevant stakeholders. The Consultants are to comply with all these documents/standards/protocols at all phases of the project.

i. PAHP Program Appraisal Document (PAD)
ii. PAHP Planning Standards
iii. Outcomes of the PAHP Design Competition
iv. Base work of housing prototypes
v. Design and planning guidelines
vi. Stakeholder Engagement Plan
vii. Site specific environmental and social assessment
viii. Environment and Social Systems Assessment
ix. Environment and Social Compliance Framework
x. Location plan
xi. Any other relevant document to the assignment

n. Technical Assistance

The Consultants shall render any required technical assistance to the Client during the execution of the project and shall resolve any issues emanating from the physical planning, detailed design and resident construction supervision carried out by them. All such assistance shall be rendered to the contractor or the project supervisory Consultants on specific request of the Client.

o. Professional Liabilities of Consultants

The following will be the Professional Liabilities of the Consultants:

i. The Consultants selected and awarded a contract shall be liable for consequences of errors or omissions on the part of the Consultants.
ii. The extent of liability of the Consultants shall form part of the contract and such liability shall not be less than their remunerations nor shall it be more than twice the remunerations.
iii. The Client will demand insurance on behalf of the Consultants to cover the liability of the Consultants and necessary costs shall be borne by the Consultants.

iv. The Consultants shall be held liable for all losses or damage suffered by the procuring agency on account of any misconduct/negligence by the Consultants in performing the consulting services

p. Intellectual Property Rights

i. All documents, reports, designs, research work and all the deliverables prepared by the Consultants shall become and remain the property of the Client.

ii. Any future use of these documents and software by the Consultants shall not be made without permission of the Client.

q. Penalties

The Consultants will be subject to any penalties outlined in the contract agreement if they fail to meet the scheduled targets.

Procurement

r. Selection Method

The Consultants will be selected to conduct services in accordance with the **Consultant's Qualification Based selection (CQS)** method as set out in the World Bank Procurement Regulations 2020.

s. Type of Contract

All payments to the Consultants shall be made in accordance with the provisions of the contract and shall be based on the following form of contracts:

Lump-Sum form of contract: for Physical planning / Layout planning, Architectural, Engineering work and Detailed designing,

Time-Based Contract: for Resident Construction Supervision and Defects Liability Period.

t. Documentation Requirements

The required documentation includes but not limited to:

i. Inception Report
ii. Geo-technical Investigations & Final Report
iii. Topographic Survey
iv. Hydrological Study Report
v. Electrical Resistivity Survey
vi. Environmental & Social Compliance Plans
vii. Preliminary Design Report
viii. Environment & Social Compliance Report
ix. Physical Planning / Layout Planning / Master Planning

x. Detailed Design of Infrastructure and Services
xi. Detailed Architectural Drawings
xii. 3D Exterior Elevation renderings
xiii. Detailed landscape / Green- blue network
xiv. Detailed Structural Design, Design Calculations and Software models
xv. Detailed MEP Design and Design Calculations
xvi. Detailed Design Report
xvii. PC-I Document and subsequent revisions
xviii. Planning and scheduling of construction works (Primavera / MS Project)
xix. Detailed Cost Estimates and Technical Sanction
xx. Detailed Bill of Quantities and Bidding Documents
xxi. Construction Drawings
xxii. Daily, Weekly & Monthly Progress Report
xxiii. Power point presentations on a weekly basis.
xxiv. As-Built Drawings
xxv. Operations & Maintenance Manuals
xxvi. Punch lists
xxvii. Completion Report

Annex - A

Detailed Scope of Services & Reporting Requirements

The Consultants shall be fully responsible for confidentiality, correctness and accuracy of the reports, documents, drawings, specifications and other deliverables prepared as part of the Services.

Phase A: Detailed Lay-out, Architectural and Engineering Design

A.1. Output 1. Preliminary data collection, and project feasibility report

The Consultants shall collect relevant data and ascertain, in conjunction with the Client, any other third parties, the Project requirements. These shall include but not limited to the following:

i. Client's Project brief, and site data supplied by the Client, data collected by the Consultants from Authorities having jurisdiction.
ii. Project execution strategy.
iii. Budget and time schedule limitations.
iv. Site Information, such as:
    a. Climatic and environmental data.
    b. Boundary limits.
    c. Location of nearby utilities structures (major).
    d. Statement on general and specific codes and zoning requirements.
    e. Any available data on the subsoil conditions in adjacent plots.
    f. Extent of infrastructure.
    g. Site constraints.

The Consultants shall contact appropriate Agencies, utility and service providers and other Authorities having jurisdiction, to obtain relevant data related to the Project and Project site, and to determine the location and capacity of public facilities and services.

A.1.1. Topographic Survey

Carry out a detailed Topographical Survey to determine and record the exact layout of Site and adjacent areas (roads, structures, etc.), physical features, site levels, location of existing roads, services (above and belowground), existing structures (if any) and all other pertinent information and conditions relevant to the Project site.

A.1.2. Geotechnical Investigations

Carry out a Geotechnical Investigation, by a specialized sub-contractor that is approved by the Client. The investigations shall provide detailed information on the nature of the sub-strata, superficial deposits, ground water, seismic analysis and recommendations

on the foundation design required for the project. Site investigations shall be carried out in accordance with the latest relevant ASTM Standards. A minimum outline of Geotechnical investigation work will be approved by the Client.

A.1.3. Electrical Resistivity Survey (ERS)

ERS is required to be carried out at the above-mentioned project area to estimate the quality and quantity of the underground water and the configuration of the water bearing aquifer. Vertical Electrical Sounding (VES) shall be used to an estimated depth of about 300 meters by deploying appropriate arrays / electrode configuration, with minimum number of probes are not less than 60.

A.1.5. Hydrological Study

The Consultants shall submit the detailed hydrologic study report for the project after successfully finishing / accomplishing the task. The following Hydrologic Criteria should also be mentioned in the design report: Design rainfall, Runoff calculation method(s), detention discharge and storage calculations, design storm recurrence intervals etc.

A.1.5. Traffic Impact Assessment

The Consultants will evaluate the likely consequences of the development with respect to transportation issues and will submit the Traffic Impact Assessment Report.

A.1.6. Environment & Social Management including Climate Studies

The Consultants shall consider and embed existing reports and materials related to Initial Environmental / Social Examination (IESE) / Environmental / Social Impact Assessment (ESIA) / Environmental / Social Management Plan (ESMP) according to the requirement of Environmental & Social Framework and Environment Protection Department for the execution of project.

A.1.7. Project Design Brief

The Consultants shall prepare a brief Report of the Project and establish standards for space requirements in compliance with planning standards and regulations. The Consultants may recommend variations to the planning regulations which are justified and add value to the planning for the project. Such variations would be subject to Client's/relevant Authority's approval.

The Consultants shall, in close collaboration with the Client, finalize the Project Design Brief with the objective of developing the Site and including but not limited to the following:

i. Review of local municipality rules and regulations applying to the site and their application.

ii. Operational requirements, in collaboration with the Client.
iii. Facilities requirements and relations between them.
iv. Interfaces with existing or proposed facilities.
v. Extent of the infrastructure, landscape and external works.
vi. Review of all applicable local authority's regulatory requirements.

A.2. Output 2, 3, & 4. Concept Design and Feasibility Report

The Consultants shall develop the Concept Design and Feasibility Design Report. All designs will be subject to review and approval by the Client. This shall be deemed to include all relevant aspects of residential planning.

i. It is the responsibility of the Consultants to obtain all pertinent information and other data as shall be necessary and to carry out all surveys needed to perform the Services.
ii. The Consultants shall manage the program for the delivery of this phase taking into full consideration the Services to be provided by all other Consultants (if any).

A.2.1. Engineering Concept Design Report

Based on the approved feasibility and conceptual report, the Consultants shall prepare the Concept Design Report which will include the basic infrastructure design, engineering studies and design and appropriate site plans which take into account the Data Analysis. The studies shall form the basis for a Concept Design Report for the project. The report shall include but not limited to the following elements:

i. Conceptual site and landscape plans.
ii. Concept design of all infrastructure works like roads, sewerage, drainage, water supply, STP if required, Electrical, Sui Gas, etc.
iii. Concept financials / Cost Estimates.

The Consultants must develop a Cost Estimate and Cash Flow based on the concept designs.

After the Client's written approval of the Concept Design, the Consultants shall, based upon the approved Concept Design, prepare a Preliminary Design that will define the area in terms of final space layout, construction materials, finishes, equipment and specialist's equipment. The Consultants shall:

i. Manage the program for the delivery of this task.
ii. Hold initial meetings to review the Design Infrastructure Development works documentation.
iii. Develop the approved exterior designs, taking into account the Client's design review comments and recommendations, including Authorities requirements.
iv. Hold discussions with relevant statutory authorities and departments.

v. Prepare general arrangement drawings for electrical, infrastructure, landscape plan, section covering all areas of design.
vi. Estimate loads and formulate concept/preliminary design philosophy for infrastructure including HV distribution.
vii. Make preliminary submissions of all available information to the relevant authorities.

The Consultants shall accommodate in the preliminary design any environmental considerations that may be required.

The Consultants shall update the Cost Estimate and accordingly shall prepare PC-I for the Project.

A.2.2. Preliminary Design, Layout & Drawings

The Preliminary Design drawings to appropriate scales will include the following:

Site plan showing access routes, parking areas, existing and proposed contours, plantings areas, and Project limit lines.

A.2.3. Infrastructure and Utilities

Preliminary design and drawings for infrastructure and utilities including Value Engineering exercises of alternative materials and design solutions of the following systems:

i. Site development, site survey and existing conditions
ii. General arrangement and layout drawings
iii. Water supply system
iv. Sewerage system & STP
v. Surface drainage system & Rainwater harvesting system
vi. Power and low current distribution networks
vii. Roads, accesses, pathways etc.
viii. Storm water network
ix. Roads (L Sections, X Sections)
x. Road's lighting system
xi. Gate and access
xii. Any other drawings and systems as viewed necessary.
xiii. Initial load and distribution calculations

The Consultants shall not proceed with the Preliminary Design unless the Architectural and Engineering Concepts are approved by the Client.

A.2.4. Outline Specifications

The Consultants shall submit an outline/draft specifications for all components of the Project which will include materials specifications. The outline specifications will be submitted with the preliminary design report in a separate bound document.

A.2.5. Review of Layout Plan of the Scheme

The Consultants will review the detailed Layout Plan of the scheme as per the prevailing byelaws. The Consultants will collect the requirements of the Client and will prepare the plan accordingly to meet all the requirements. The Consultants may recommend the alternate requirements and may propose changes if these are more beneficial for the project, but Client will have the authority to accept or reject such proposals.

A.3. Output 5. Draft Detailed Design & Draft Bidding Documents

The Consultants shall immediately proceed with the preparation of the detailed design and tender documents of the project, which shall initially be submitted in draft form.

During preparation of this output:

i. The Consultants shall prepare detailed design documentation comprising location, assembly and component drawings, schedules, specifications, bills of quantities.
ii. The Consultants shall prepare comprehensive particular specifications covering all aspects of the work, noting the requirements of Client.
iii. All drawings shall be fully coordinated across the disciplines and shall be signed and checked accordingly by the Consultants.
iv. The Consultants shall obtain all required permits and shall consult with all services authorities, relevant governmental departments, and secure approval certificates and no objection certificates as required.
v. The Consultants shall prepare and submit weekly progress reports of design activities, comprising actual and planned status of completion.
vi. The Consultants shall prepare comprehensive conditions of particular applications for the construction contract keeping requirements of Client in view.
vii. The Consultants shall review the cost plan prepared and revise in line with the Detail Design drawings and specifications incorporating approximate quantities.

The detailed design shall comprise detailed and fully coordinated Bidding Drawings, Specifications and other Documents etc.

A.3.1. Draft Final Specifications

The Consultants shall prepare and submit, in previously approved formats, specifications for all project components. These shall include quality control/assurance requirements, product detail, technical specifications and execution and workmanship requirements.

A.3.2. Draft Bills of Quantities

The Consultants shall prepare and submit in previously approved formats and in accordance with the previously approved method of measurement, Bills of Quantities for the Construction Contract.

A.3.3. Draft Tender and Contract Conditions

The Consultants shall advise the Client and review when requested the following draft Bidding and Contract Documents. These documents include but are not necessarily limited to:

i. Instructions to Bidders
ii. Form of Tender and Appendices to Tender
iii. Bill of Quantities (BOQs)
iv. General Conditions of Contract
v. Particular Conditions of Contract
vi. Terms of Reference (TOR)
vii. Special Stipulations
viii. Technical Specifications
ix. Drawings
x. Any other documents required by the client

A.3.4. Draft Cost Estimate(s)

The Consultants shall prepare and submit a Cost Estimate for the project, supported by fully priced Bills of Quantities. If the Cost Estimate exceeds the approved budget of the project, the Client shall have the right to instruct the Consultants to amend, without any additional fees, Design to ensure that the Design Cost Estimate does not exceed the Approved Budget, since Consultants have continuously updated the cost estimates throughout the previous Design Phases. Detail total cost analysis will include the following:

i. Construction costs including civil/MEP work.
ii. Land development costs include external preliminary services.
iii. Inflation costs to be catered for the duration of project.
iv. Project Contingency.
v. Cost of any fees including demand notes for organization such as WAPDA, WASA etc.

The Consultants shall carry out a review of the specifications and drawings prepared to Confirm or otherwise conformance with the materials and products on which the Approved Budget is based. The Consultants shall also advise the Client of any nonconformance together with the estimated cost effect.

For the Preliminary and Detail Design Phase, the Consultants shall submit 04 sets of each drawing (One original and 03 copies, all duly bound in hard shape) and required number of copies of other documents and PC-I. Soft copy of final Design and Drawings, in original (CAD/Revit file) as well as in PDF format, shall be submitted in USB and Online data storage link. The Consultants shall place their endorsement (sign and stamp) on all plans, designs, drawings, estimates, reports, USB and Online data storage link and any other engineering data furnished by them.

A.4. Final Detailed Design & Final Bidding Documents

Upon the approval of the draft engineering design and working drawings the Consultants shall prepare the final drawings and cost estimates after incorporating the comments of the Client and will get it approved from the competent forum / authority.

Following the approval of Detailed Design, the Consultants shall prepare and submit the Final Design and Bidding Documents and during the construction incorporating the Client's review / comments and the final Bills of Quantities.

The Consultants shall allow for early enabling works Bidding packages, based on his finalized design and that the Client may request to accelerate the construction work program or may request for revision in master plan / designs due to any unforeseen circumstances.

A.4.1. Final Design and Bidding Documents

Final Design and Tender Documents shall comprise but not limited to:

i. Volume 1 – Conditions of Contract

- Instructions to Bidders
- Form of Agreement
- Form of Tender Bond
- Form of Performance Bond
- Form of Tender and Appendix to Tender
- Conditions of Contract comprising:
    - Part I - General Conditions of Contract
    - Part II - Conditions of Particular Application
    - Part III- Environment & Social Management Plans

- Special Provisions

The foregoing shall be bound by the Consultants into one document and provided with a printed cover. A copy of the Standard Conditions/Forms of Contract as specified by Punjab PPRA shall be used by the Consultants.

ii. Volume 2 – Specifications

These documents (if more than one volume) shall be prepared by the Consultants; each shall be bound and provided with a printed cover.

iii. Volume 3 – Drawings

Final drawings shall be prepared by the Consultants to size (A2/A1) and listing.

iv. Volume 4 – Bills of Quantities

This document shall be prepared by the Consultants, bound and provided with printed cover by the Consultants.

v. Final Design Report

The Consultants shall submit a Final Design Report summarizing all phases of the design.

A.4.2. Preparation and approval of PC-I Document

The Consultants shall prepare and submit the PC-1 document to the competent forum with prior approval of client/PMIU and provide support in addressing and resolving any objections raised during the review process. The Consultants shall accommodate any changes required to be made in subsequent revisions of original PC-1 during the execution of the project and resubmit the revised PC-1 to the competent forum/ authority.

A.4.3. Detailed Cost Estimate and assistance with Technical Sanction

The Consultants shall assist in getting Technical Sanctions approved and provide all the necessary backup data to the competent authority.

A.4.4. Assistance with relevant NOCs

The Consultants shall be assisting the Client in obtaining required NOCs from the relevant departments and authorities.

A.4.5. Services during Bidding Process and Award of Contract

i. Prequalification of Contractors

The Consultants shall make recommendations and assist the Client in selecting the preliminary list of contractors (for the various packages, if applicable) to submit an expression of interest in bidding for the project. The Consultants shall prepare draft proposals for pre-qualification criteria and procedures, to be submitted, discussed and approved by the Client.

The Consultants shall undertake the pre-qualification of the contractors (for the various construction packages, if applicable). The Consultants shall submit a comprehensive report to the Client recommending a short list of contractors to tender for the Project. The short listing of contractors shall be based on pre-determined criteria which shall be fully discussed and agreed in advance with the Client.

The Contractor Pre-qualification shall be based on the quantum of work and its commitments with regard to capacity and available technical and financial resources.

ii. Services during Bidding Process

The Consultants shall review all Bidders' queries and prepare appropriate responses in consultation with the Client in a timely manner so as not to delay the bidding process, for the Client's approval before issuance to Bidders. All addenda will only be issued with the Client's approval. All correspondence with Bidders shall be copied to the Client.

The Consultants shall draft the contracts while considering the availability of land and propose and include clauses in the bidding documents to protect the interest of the Client from anticipated claims by the Contractors in this regard.

The Consultants shall, subject to the approval of the Client, prepare any addendum to the Bidding Documents if required. The addendum shall be issued to all Bidders for incorporation into their Bid Offer in a timely manner so as not to delay the program.

The Consultants shall attend pre-bid meetings and bid openings. The Consultants shall evaluate Bidders' technical and financial bids and shall prepare a Bid Evaluation Report with analysis and recommendations.

iii. Award for Construction Contract

The Consultants shall:

- Assist the Client in the discussions with the bidders throughout the process till Contract Award.
- Prepare the required number of "Approved for Construction" (AFC) drawings and other contract documents for the construction contract. The AFC drawings shall incorporate all revisions and addenda issued since issue of the tender.

Phase B. Resident Construction Supervision

This phase of the project is subdivided into two distinct phases: Output 7: Detailed Resident Construction Supervision & related Verification Reports, and Output 8: Services during Defects Liability Period (DLP/DNP) & Final Completion Report, upon project closing. A detailed description of the tasks of each of the aforementioned phase is presented hereafter.

A.5. Output 7. Detailed Resident Construction Supervision & related Verification Reports

A.5.1. General

i. The Consultants shall, if appointed by PMIU-PAHP, undertake the duties assigned to 'the Engineer' and/or 'the Engineer's Representative' in the Conditions of Contracts between PMIU-PAHP and the Contractor(s) for the Project. The word "Contractor(s)" includes but is not limited to any General Contractor(s), Specialist Contractor(s), and any other contractors or Consultants engaged by PMIU-PAHP for completion of the Project. These duties, responsibilities and obligations shall include the duties and functions assigned to either 'the Engineer' and/or 'the Engineer's Representative' (as the case may be), under the Construction Contracts except for the duties excluded as per the Conditions of the contracts signed between PMIU-PAHP and the Contractors (referred herein as the "Construction Contracts"). The Consultants shall obtain "specific approval" from the Employer/Client before taking any action with regard to the following:

   a. Consenting to the sub-letting of any part of the Works under "Subcontracting"
   b. Certifying additional cost determined under "Not Foreseeable Physical Obstructions or Conditions".
   c. Any action relating to "Performance Security" and "Insurances".
   d. Any action relating to "Suspension"
   e. Any action relating to "Extension of Time for Completion"
   f. Any action relating to "Liquidated Damages for Delay" or Payment of Bonus for Early Completion of Works
   g. Issuance of "Taking Over Certificate"
   h. Issuing or Instructing a Variation, except:
      - In an emergency, as stated below, and
      - If sum of all such variations during the Contract Period would increase the Contract Price by less than the ceiling amount
   i. Fixing rates or prices for variations

j. Extra Payment as a result of the Contractor's Claims under any of the conditions of Construction Contract or otherwise in connection with the Construction Contract
k. Release of Retention Money to the Contractors
l. Issuance of "Final Payment Certificate(s)"
m. Issuance of "Defects Liability Certificate(s)"
n. To use "Termination Clause" of the Conditions of Contract.
o. Any other limitation(s) indicated in Construction Contract(s) or requirements specified by the Employer/Client at any time during the CSA.

ii. The Consultants shall have no authority to relieve the Contractor(s) of any of the obligations under the Construction Contract(s).

iii. Advise PMIU-PAHP and the Contractors on all matters regarding the requirements and interpretation of the Construction Contract Documents.

iv. Provide the services of staff in accordance with the CSA.

v. Provide complete site supervision services involving, but not limited to, full inspection of materials on site and at materials batching/manufacturing/supply plants, equipment, goods, machinery, and all other manufactured goods, monitoring the schedule, arranging trade tests and samples for testing, evaluating and interrogating all necessary testing, and verify accurate calibration of equipment and staff. Conduct full inspection, check and verify requirements of the contractors temporary and permanent works-in-progress, including review and approval of shop drawings, and all works items and components finished both on-site and off-site prefabrication yards etc. to confirm and audit works construction quality to specifications, drawings and Contractual requirements. Inspection of the Works, amongst other inspection requirements, shall cover all the stages of construction and in particular pre and post stages for all embedded and covered works, excavations, foundations, reinforcement quality and placement, piling, MEP, finishing, architectural, structural, HVAC, Fire Fighting & IT (if required) etc. Responding to the contractors' clarification requests (Requests for Information-RFIs) in liaison with the designer, as required.

vi. The Consultants may propose any alterations to the design necessitated by the site conditions throughout the Contract Duration. Such alterations shall be submitted to the designer (PMIU-PAHP) for review and approval.

vii. The Consultants shall comply with the provisions of the Specifications regulations, terms and conditions, standard procedures and requirements stipulated within the documents of CSA and the Conditions of Construction Contracts.

viii. The Consultants shall exercise all reasonable skills, duty of care and due diligence in the performance of the Services and shall carry out his duties and obligations as set out in the Agreement.

A.5.2. Resident Supervision

i. The Site Supervision Services to be carried out by the Consultants shall involve, but not limited to, the following for the duration of the Construction Contracts. The Consultants shall provide the necessary supervisory staff during the period of implementation in executive and supervisory capacities in respect of the construction contracts.

ii. The Consultants shall be appointed to act as "the Engineer" and/or the "Engineer's Representative" for the implementation of the Project. If the Consultants desire to appoint a specific individual to act as "the Engineer"/ the "Engineer's Representative", it will be subject to approval by PMIU-PAHP and PMIU-PAHP may require the Consultants to replace the individual if he fails to perform to the satisfaction of PMIU-PAHP. The Consultants shall be fully and independently responsible for all actions of the appointed individuals.

iii. It will be the responsibility of the Consultants to supervise all operations on behalf of PMIU-PAHP and to ensure that the work of the Contractors is carried out in a proper workmanship and expeditious manner and in accordance with the contract documents. During the course of providing Services, the Consultants shall be obligated to abide by and adhere to any standard operating procedures as may be specified by PMIU-PAHP.

   a. The Consultants shall issue notice to proceed with the Contractor as per the general conditions of contract in coordination with the PMIU-PAHP.
   b. Supervise the Setting-out of the buildings within the site as per the Master Plan.
   c. Review, scrutinize and approve all Shop drawings submitted by the Contractors.
   d. Review, approval and monitoring of Contractors' construction method statements, risk assessments, shop drawings, project execution plan, project quality assurance & quality control plan, inspection and test plans and the like.
   e. Review, approval and monitoring of the Contractors' site management plans and diversions and their maintenance.
   f. Inspection of all temporary and permanent works, materials, manufactured goods, Plant & Equipment arranging sampling and testing as appropriate, Factory Acceptance Testing (FAT), rejection sub-standard/non- conforming works and materials, enforcing construction to

highest qualitative specification, ensuring appropriate Consultants supervision resources present on site for duration of the Construction Contracts.

g. Review and approval of Contractors' materials submittals in accordance with the Specifications and the procedure specified by PMIU-PAHP.
h. Review and approval of Contractors proposed sub-contractors and make recommendations to PMIU-PAHP.
i. Attending and reviewing FAT of the Equipment including preparation of FAT Plan, physically attending pre-shipment inspection at Original Equipment Manufacturer (OEM) factory, vet the manufacturing against approved design, drawings, specifications and boundary conditions, certify the executed tests, identify punch lists & oversee its completion and issuance of the FAT Reports in the template approved by PMIU-PAHP.
j. Evaluate and monitor added value requirements and in particular undertake value engineering evaluations of Contractors' proposals (if any).
k. Reviewing, analyzing, approving and monitoring the Contractors' Work programme, their updates and revisions, procedures for cost control, change control, risk management, document management and reporting, advising on logic, misnomers, rescheduling requirements all in accordance with industry best practices.
l. Keeping complete records of Project documents which include but are not limited to: records of work executed (daily and contemporaneously), Test Results, Drawings, Material Inspection Reports and other similar documents. Such records should be kept in both hard copy and electronic format and must be furnished to PMIU-PAHP, as needed.
m. Advising PMIU-PAHP in the event of persistent failure by a contractor to comply with the Construction Contract Documents and in the event of unsatisfactory rate of progress and poor quality of the Works.
n. Reviewing and recommending alteration proposals for proposed changes and preparing Site Instructions as directed by the Engineer and/or PMIU-PAHP, as the case may be.
o. Reviewing and assessing Contractors' submittals regarding correction of non-conforming works.
p. Evaluation and recommendation of the cost of Contractors' design/alteration proposals and variations.
q. Reviewing the Contractors' Project Specific Plans in accordance with their contractual requirements.

r. Review, evaluation, approval, implementation and regular monitoring of the Contractors' site Health, Safety & Environment (HSE)/ E&S guidelines and Quality Assurance / Quality Control procedures & processes and advice for improving standards, as directed by PMIU-PAHP. This also includes reviewing and ensuring compilation of the HSE file / E&S instrument and Quality Assurance Records.
s. Presentations and reports to PMIU-PAHP and higher authorities.
t. Coordination with other authorities, outside agencies and departments within or outside PMIU-PAHP, as directed/required by PMIU-PAHP.
u. Periodic checking of the principal survey points and line and level of works to ensure work is carried out as per the Contract Documents.
v. Evaluation, verification, scrutiny, certification and approval of monthly interim payment requests by the Contractors. The Consultants will ensure and certify the running /interim Certificates for progressive payments based on BOQ rates and final payment to the Contractor that the Works executed by the Contractor has been completed in all respects. The Consultants shall ensure certifying the monthly statements and final statements within the times specified in the respective Construction Contracts and forward the same to PMIU-PAHP for arranging payment.
w. Preparation of, and review/evaluation/recommendation of, Variation Orders including determination of Unit Rate(s) and justification for the variation Items.
x. Review, evaluation and recommendation of Contractors' claims.
y. Advising PMIU-PAHP on the contractual matters, as and when requested.
z. Advising PMIU-PAHP, at appropriate time, whenever any contractual action or obligation is due or about to become due on part of the PMIU-PAHP.
aa. Reviewing Contractors' Guarantees, Securities and Insurances and keeping a track of expiries thereof.
bb. Participation, as necessary, at dispute resolution/ arbitration proceedings.
cc. Adhering and ensuring compliance with standard policies, guidelines, manuals (such as QA/QC manual etc.), procedures and forms approved by PMIU-PAHP for Project Management purposes.
dd. Arranging for the commissioning of permanent Works including electrical and mechanical installations and arranging and supervising all required commissioning/acceptance tests including Tests on Completion, by all concerned parties.
ee. Evaluation at Practical/Substantial Completion and issuance of Taking Over Certificate(s), Maintenance Certificate(s), Defects Liability

Certificate(s) and Performance Certificate(s), as applicable, after approval of PMIU-PAHP.

ff. Preparing lists of defective and incomplete works (snag lists) and arranging for maintenance work during the maintenance or defects liability or defects notification periods and arrange final inspections.

gg. Producing, agreeing and managing procedures for handover to operation and maintenance in accordance with applicable contracts

hh. Final account including analysis and recommendation on all claims.

ii. Reviewing and revising Contractors' As-built Drawings and Records reflecting in detail as-built conditions and preparing all Documents to allow the Government to operate and maintain the works. Delivering the aforesaid documents to PMIU-PAHP after scrutiny and within the time to be indicated by PMIU-PAHP Project Team.

jj. All the above responsibilities shall cover the entire Project Duration starting from the Commencement Date till the issuance of the last Taking Over Certificate.

kk. PMIU-PAHP reserves the right to assign any of the duties of the Consultants, as indicated herein, to any other individual or firm as deemed appropriate. Such a decision shall be taken by PMIU-PAHP at its sole discretion.

A.5.3. Project Controls

i. The Consultants shall be responsible for controlling the time and cost of the Project. The Consultants shall closely monitor the Progress of Works, cashflow requirements, etc. in accordance with the requirements of the Construction Contracts. The Consultants shall obtain and maintain all necessary software/ computer programs, licenses and documents associated with complying to such requirements.

ii. The Consultants shall use Primavera P6 / MS project for all planning, scheduling & monitoring needs and advise the Contractors to use the same application.

iii. Within 07 days of receipt of the Contractors' updated work programs (every month), the Consultants shall review and analyze the same and forward it to PMIU-PAHP. The Consultants shall also provide their comments/recommendations to PMIU-PAHP for recovering any delays or lags in the planned progress of the Project. After consultation with PMIU-PAHP, the Consultants shall follow up with the Contractors for compliance with such recovery schedules.

iv. The Consultants shall be responsible for review, evaluation, scrutiny and analysis of the Contractors' Extension of Time Claims (using Primavera P6/MS Project) and submit their detailed recommendations with delay analysis to PMIU-PAHP, duly supported by cogent justifications.

v. The Consultants shall review the Project Execution Plan (PEP), to be prepared by the General Contractor, for the Project detailed methodologies and project control systems.

A.5.4. Quality Control & Assurance

i. The Consultants shall, as a minimum, provide the following services as part of quality control and assurance:

   a. Supervising testing activities in the Contractors' laboratory to ensure that tests are properly carried out.
   b. Collate test results and issue a copy thereof to PMIU-PAHP.
   c. Monitoring and witnessing of the Contractors sampling and testing to ensure compliance with testing procedures and reporting any non-compliances (NCRs).
   d. d) Recommending Corrective Actions for the NCRs and ensuring that all NCRs are closed as per the recommended corrective actions in a timely manner.
   e. Periodic checking of calibration & certification, as applicable, of all laboratory equipment.
   f. Reviewing materials testing results to ensure compliance with Specifications. Recommendations to the Engineer and PMIU-PAHP regarding how corrective action is implemented in the case of unacceptable results, and how borderline materials are dealt with.
   g. Sample taking jointly with Contractors' staff for required independent testing.
   h. Reviewing of all independent laboratory test results submitted by the Contractors as part of the material approval process.
   i. Witnessing of all tests required as part of the commissioning of the work.
   j. Ensuring compliance with the Consultants' own staff and by the Contractors of the Health, Safety & Environment (HSE) Specification requirements as per the ESCF and the Contract Documents and applicable laws.

A.5.5. Post-award Costing & Quantity Surveying

i. For the provision of these services the Consultants shall employ the industry's best Quantity Surveying practices in compliance with the requirements of PMIU-PAHP:

ii. The Scope of Services is outlined herein and in particular, the Consultants should note that it is responsible for the activities listed below. This list is non-exhaustive and may be amplified or added to, at the discretion of the PMIU-PAHP, as necessary:

a. The Consultants are to note that adherence to the approved budget is of paramount importance and regular cost planning exercises shall be required throughout the post contract phase to ensure that the awarded contract sum is not exceeded.
b. The Consultants is to forewarn PMIU-PAHP immediately he considers that the budget is being exceeded and is to offer suggestions and recommendations to rectify the situation.
c. Evaluation of works and recommendation for payments. This includes, without limitation, verification, scrutiny, certification and approval of monthly interim payment requests by the Contractors. The Consultants will ensure and certify the running/interim certificates for progressive payments based on contractual rates thereby confirming that the Works executed by the Contractor have been completed in all respects. The Consultants shall ensure certifying the monthly statements and final statements within the times specified in the respective Construction Contracts and forward the same to PMIU-PAHP for arranging payment.
d. The Consultants shall prepare Final Accounts incorporating all Variation Orders, Site Instructions and remeasured items which shall be completed within 30 calendar days of the completion certificates for Works being issued by the Engineer after approval of PMIU-PAHP. The format of the Final Accounts shall be subject to the approval of PMIU-PAHP.
e. Monthly check on works completed.
f. Preparation of Monthly schedules of works completed to form the basis of agreement for interim payments.
g. Evaluation and preparation of contract variation orders including “In-Principle” determination of the Variation and the "valuation” of the Variation.
h. Maintain records of materials delivered to site and collect delivery invoices.
i. Maintain daily records of Plant, Equipment, Machinery and manpower of the Contractors.
j. Attending and making measurements and computation of quantities of the completed works as per requirements of the Construction Contracts and those of PMIU-PAHP's, computing quantities and costs of the balance works or any work which is about to be covered and maintain permanent records of all such measurements as basis for progressive payments to the Contractors and keep the measurement documents and records in safe custody.

k. Providing Cost to Complete as and when requested (at least on quarterly basis) by PMIU PAHP. This shall include, without limitation, cost forecast, price adjustment projections, potential variations & claims, balance work etc.
l. Reviewing and verifying Cashflow projections prepared by the Contractor(s).
m. Preparing revision(s) in PC-I, as may be required by PMIU-PAHP.

A.5.6. Project Management Services {"PMS")

i. The Consultants shall be fully and ultimately responsible to manage the Project as per the best industry practices.
ii. The Project may be executed in various work packages which may be awarded to different contractors. These interfaces, if not well managed, may negatively impact the cost and schedule of the Project. Hence, the Consultants shall be responsible for the interface management and the integration of work packages.
iii. The obligations in this context shall include, but will not be limited to, the following:
    a. Managing coordination of all elements of the Project i.e., coordinating tasks, resources, stakeholders, and any other project elements
    b. Identifying and managing interface risks between the stakeholders
    c. Anticipating interface issues or scenarios that can or will impede progress, and have advance measures in place to avoid situations that could negatively impact PMIU-PAHP's projected completion goals and budget
    d. Convening regular meetings between stakeholders to identify and manage new interfaces and issuing collaborative interface reports to capture particular interface workings or outcomes and mutual distribution of work requirements as per respective contracts
    e. Identifying and assessing mutual dependencies and sequencing the Works in a manner to avoid any delays, rework, extra work or any oversight. Managing coordination and sequencing among Civil MEP & External Development works as the case may be.
iv. The Consultants shall be responsible for preparing, update (monthly/fortnightly/weekly) and revise a Master Baseline Schedule using Primavera P6/MS Project. The Master Baseline Schedule would be an Integrated Project Schedule (IPS), in which all tasks, activities, resources, stakeholders, work packages, disciplines, phases, processes, etc. must be taken into account. The IPS should be prepared within the first month after commencement and it should be revised, as and when needed, particularly whenever a new stakeholder joins the Project. The IPS should be so designed that it provides complete information regarding the below:

a. Independent Progress Status of various work packages
b. Mutual dependencies of various stakeholders
c. Status of key milestones
d. Overall progress status of the Project Completion Date and budget
e. Earned Value Measurement Parameters (Schedule Performance index-SPI, Cost Performance Index-CPI, Schedule Variance-SV, Cost Variance-CV etc.)

v. PMIU-PAHP' s Project Management team, at its discretion, may identify further requirements to the Consultants for preparation, revision and updating of the IPS.

A.5.7. Inspection of Drawings and Documents

The Consultants are required to employ computerized methods in carrying out the work all surveys, drawings or documents produced by the Consultants shall be recorded in digital form; the Consultants shall provide PMIU-PAHP with copies of these records in a format approved by PMIU-PAHP. Drawings shall be in a format suitable for input to the latest version of AutoCAD/Revit and agreed in advance with PMIU-PAHP.

A.5.8. Ownership

All data, drawings and documents prepared under this project shall, after being approved by the PMIU-PAHP, become the property of PMIU-PAHP. Such data, drawings and documents shall not be subsequently altered without the prior permission of PMIU-PAHP.

A.5.9. As-Built Drawings and Records

The Consultants' responsibilities with regard to reviewing and approving of As-built drawings and records are as follows:

i. The Consultants shall review, revise and approve the Contractors' drawings reflecting in detail the As-built conditions of the project. All final approved As-built documentation shall be stamped and signed "Approved As-Built Records" by the Consultants accordingly.
ii. On conclusion of reviewing, revising and on final approval by the Consultants of the Contractors' As-built drawings and documentation, the Consultants shall put together a complete 'As-built Documentation Package' for the project and deliver it to PMIU-PAHP.
iii. The 'As-built Documentation Package' shall be reviewed by the Consultants and include the following documents, without limitation. The Consultants shall obtain these documents from the Contractors in required number of copies:

a. Five prints of every drawing to be issued by the Consultants, Contractors, Specialist Sub- Contractors and Suppliers, marked up to show the whole of the Works as built.
b. The copies of all manufacturers' manuals issued in connection with the Works.
c. Two copies of every report, piling record, test result, site instruction, or correspondence issued or received in connection with the Site Monitoring of the Works.
d. All Utility Services approvals from all relevant agencies, if applicable.
e. As-built surveys.
f. Complete Room Data Sheets and Inventory of fixtures, fittings, equipment, tools, spares, plants, ancillaries etc. supplied, installed, erected and commissioned at the Project.
g. Soft (MS Word, Excel, Power point, PDF and CAD/REVIT) files for the above documents, as applicable.

iv. All of the above shall be replicated in digital form in the appropriate electronic format/software, etc. and be submitted to PMIU-PAHP.

v. The Consultants shall maintain an independent record of all data pertaining to the As-built records and shall ensure that the Contractors maintain their data and information up to date. The Consultants shall ensure that access to the Contractors' files is available to PMIU-PAHP at any time.

vi. The staff deployed by the Consultants, based either on the site or supported by main or sub offices, shall be fully conversant with the preparation of digital designs and As-built records of the type specified in the contract for the works.

vii. The Consultants' site staff shall be responsible for checking all data gathered by the Contractors in the development of the database for the preparation of the As-built drawings, and for conducting checks of actual works for the determination of the accuracy of the data collected and approve and stamp the drawings prepared by the Contractors.

viii. As built drawings shall be prepared in the latest version of AutoCAD/Revit and shall be in a suitable format for use of PMIU-PAHP

ix. The Consultants shall ensure that as-built drawings and records are produced as the work progresses and that a final and complete set of as-built drawings are provided within time to be specified by PMIU-PAHP.

x. On completion of his Services, the Consultants shall deliver to PMIU-PAHP in digital form on CD/USB/Online Drive the complete file system for the project, fully indexed and cross referenced, together with original drawings provided for the purpose of execution.

A.5.10. Review Period

The Consultants are expected to provide reviews, feedback and approvals to the Contractors (and PMIU-PAHP) in a timely manner to allow the execution of the Works in an expeditious manner and without delay. Unless otherwise specified in the Construction Contracts or specifically required by PMIU-PAHP on a case-to-case basis, the Consultants shall not consume more than seven (07) calendar days, in total, to review any of the documents/submittals/claims etc. that will be submitted to the Consultants. PMIU-PAHP may reduce this period from seven (07) days to three (03) days, at its sole discretion, depending upon requirements of the Project.

A.5.11. Site Supervision Staff Resources

A.5.11.1. General:

i. The Consultants shall be responsible for the provision of suitably qualified staff to carry out the services to the standard required by PMIU-PAHP. The site staff positions that will be required during the delivery of the services are indicated in these TORs/CSA. The Consultants' resourcing will be subject to the approval of PMIU-PAHP.

ii. All the Key Personnel shall be interviewed by PMIU-PAHP, and the Consultants must obtain PMIU-PAHP's approval prior to mobilizing any of them at the Site.

iii. The Consultants shall ensure that all Key Personnel hold a valid Pakistan Engineering Council (PEC} License at all times.

iv. PMIU-PAHP shall have full authority to disqualify any staff on technical grounds or if one is not performing his duties to the satisfaction of PMIU-PAHP.

v. If the Project is not completed within the original "Time for Completion" due to the delays on the Project, the remuneration for the extended period will be paid based on the original billing rates stipulated in CSA. The original billing rates shall be deemed to be fixed for the original as well as the extended period, unless stated otherwise in the conditions of the contract. However, the team definition may be re-adjusted by PMIU-PAHP as per budget requirements.

A.5.11.2. Working Hours for Staff engaged Full Time:

i. All staff who are engaged full-time shall be based on the Site.

ii. The minimum working hours for Consultants' site staff shall be eight (8) hours per day, six (6) days per week, excluding break time and as work may dictate usually from Monday to Saturday inclusive. The days of absence, other than the gazette holidays and weekly one day of rest, shall not be payable.

iii. The Consultants shall take into account the 'Time for Completion' and the nature of the construction Works and that it may be necessary for the Contractors to work outside normal hours or in more than one shift and/or on weekends, as may be

required at Site. The Consultants shall therefore adjust their staff rotation in attendance accordingly or as may be directed by the PMIU-PAHP, to ensure uninterrupted supervision of work activities. PMIU-PAHP shall be kept informed of any such changes in working hours. No additional payments shall be made for such occurrences and costs thereof shall be deemed to be covered in the Consultants' rates. The remuneration must include any costs related to Consultants' office support as well.

iv. The said staff is prohibited to carry out any work, tasks or provide service for the Consultants other than that work, tasks or services directly related to the project or as directed by PMIU-PAHP.

v. PMIU-PAHP may, at its sole discretion, increase / decrease or reduce, the level and/or duration of supervision, by increasing or decreasing the Consultants' staff using the monthly rates quoted in the fee offer.

A.5.11.3. Site Staff Engaged on Intermittent Input Basis:

i. These provisions shall apply on the Staff required on intermittent input basis, if separately indicated in the ensuing parts of these Terms of Reference.

ii. The mobilization and amount of actual attendance required is the responsibility of the Consultants and the intermittent input stipulated in CSA shall be deemed to be sufficient to carry out the functions and duties necessary for completion of the Project as per these TORs. If in the opinion of the Consultants, more than the specified period is required to carry out the services and complete the Project, the Consultants must allow for such additional costs as necessary in his CSA Price.

iii. The actual attendance of such staff shall be as when the staff attends the Site during Time for Completion for the purpose of carrying out the services as per terms of the CSA and TORs. The Consultants must provide a schedule showing proposed utilization of intermittent staff input for concurrence of PMIU-PAHP.

A.5.11.4. Staff Mobilization and/or Unauthorized Absence from the Site:

i. The Consultants shall mobilize its staff within fourteen (7) calendar days of the Notice to Commence Services to be issued by PMIU-PAHP. Depending on Site requirements, PMIU-PAHP may also require the Consultants to progressively mobilize its staff as per the work requirements.

ii. In case of failure to mobilize the required staff fourteen (14) calendar days from the instruction of PMIU-PAHP, the Consultants may be subjected to a deduction of the amount of the rate fixed for such member(s) of staff, for the entire duration of the delay.

iii. If the Consultants fails to mobilize its staff within a further fourteen (14) days, PMIU-PAHP may appoint suitably qualified individuals to its discretion and may back-charge the actual expenses to the Consultants.

iv. In case of resignation/departure of any of the Consultants' staff, the Consultants shall be obliged to provide a suitable replacement. For smooth transition, project knowledge sharing and continuity of services, the Consultants shall ensure that there should be an overlap of at least fourteen (14) days between the predecessor and his successor.

A.5.11.5. Attendance Requirements:

i. The Consultants shall maintain a daily attendance record for the staff deployed on site and shall provide the records to PMIU-PAHP on monthly basis. The attendance record shall be retained by the Consultants and made available for audit as and when required. Invoice for monthly payments, time spent in offices or sites must be supported by a 'Monthly Timesheet' transcribed from the 'Daily Attendance Record' maintained in the site offices.

ii. Full deduction shall be made for the unauthorized absence of staff. For deduction purposes, the daily rate shall be calculated by dividing the Monthly Rate by no. of days in the corresponding month.

iii. For vacation periods, the Consultants shall provide a replacement of similar qualifications to ensure continuity of service. The Consultants shall inform PMIU-PAHP in not less than four (4) weeks advance about staff vacations of anticipated long periods of absence. Replacements shall only be placed after their approval by PMIU-PAHP. The alternative staff shall be required to overlap with the relevant permanent staff for at least seven (7) days.

iv. The Consultants shall ensure that during vacations or long periods of absence of the designated and approved staff; suitable alternative staffing arrangements are made in agreement with PMIU-PAHP. The replacement staff shall have prior knowledge of the project and have similar qualifications and experience to ensure continuity of service.

v. The Consultants' staff, where necessary, shall be required to attend all site and other project meetings throughout the currency of the CSA, including the Period of Maintenance.

vi. In case, if the Consultants fail to perform the Services to the satisfaction of PMIU-PAHP, an appropriate deduction may be applied by PMIU-PAHP, and recovery thereof shall be made from any monies due to the Consultants. Such action shall be without prejudice to any other recourse(s) that PMIU-PAHP may adopt under the CSA.

A.5.12. Other Considerations:

i. The Consultants office shall provide necessary Head/Sub office support to the Engineer, referred in the fulfilment of their obligations during the Time for Completion and during the maintenance/Defects Liability/Notification period of the Contracts being supervised. Unless stated otherwise in the conditions of CSA, the costs of any assistance, input and/or travelling of the Consultants' head office staff shall be deemed to be covered in the price of CSA.

ii. For the duration of the CSA, PMIU-PAHP may, at its sole discretion, assign up to two (2) engineers to the Site to work alongside the Consultants' Site staff. The dates, duration and agenda of such a secondment shall be agreed in advance with the Consultants. The seconded staff shall be at PMIU-PAHP's payroll however the Consultants shall be responsible for adjusting these engineers in its office alongside its project team.

iii. The Consultants will assist PMIU-PAHP in settlement of Audit Paras and Objections raised (if any) and prepare replies related to the Project and provide all the relevant documents/papers/letters etc. to support the replies and shall intimate the PMIU-PAHP accordingly. The Consultants shall be responsible for providing support, cooperation, input, documentation and replies during audit(s) conducted by PMIU-PAHP's internal or external auditors.

iv. The Consultants shall coordinate with the end user of the Project to meet any specific requirements of the project, as may be required by PMIU PAHP.

v. All documents, reports, designs, research work and all deliverables prepared by the Consultants shall become and remain the property of the PMIU-PAHP. Any future use of these documents and software by the Consultants shall not be made without the permission of PMIU-PAHP.

vi. The Consultants are advised to take account of and include the costs relating to running expenses of the Site Office for the entire period specified in the CSA.

vii. PMIU-PAHP may require the Consultants to abide by and adhere to any standard operating procedures as may be specified by PMIU-PAHP. This may also include the requirement of using a specified electronic system for performing any of the Services.

A.5.13. Reporting Requirements:

The Consultants will keep PMIU-PAHP continually informed on the progress of the works and all budgetary & financial matters pertaining to the project, by submitting the following reports without limitation:

i. Weekly progress reports including: information on measurements of works executed, equipment and material supplied to site, used and/or stored - quality

tests on earthworks, concrete works, steel works, sewage and water supply, construction materials and equipment - Safety Measures - labor force - variation orders if any - payments made to the Contractor - acceptance tests of structures problems encountered and recommendation made by the Consultants - photographs recording (electronic/digital) the progress of work and other information as required by PMIU-PAHP.

ii. Monthly progress reports, indicating the progress made since the submission of the previous report and commenting on the progress to date in relation to the program and whether completion of the works is likely to be advanced or delayed. The Consultants shall obtain PMIU-PAHP's approval on the template of the Monthly Progress Report.

iii. All presentation materials using Microsoft Power Point when asked to. He is expected to give several presentations relating to the works to PMIU-PAHP officials, Government officials, and other officials. He is also expected to assist in presentations to be given by PMIU-PAHP.

iv. Project Completion Report upon completion of work and/or Consultants' assignment.

v. The Consultants are required to submit all project reports, drawings and documents in the format approved by PMIU PAHP and recorded on computer media using software and formats standardized and approved by the PMIU-PAHP. Costs associated with all items to be provided shall be deemed to be covered in the overall price submitted by the Consultants.

vi. In case, if the Consultants fails to adequately meet reporting requirements and/or he fails to perform up to the satisfaction of PMIU-PAHP and/or if the Project is adversely affected due to the Consultants' inadequate project management, an appropriate deduction may be applied by PMIU-PAHP and recovery thereof may be made from any outstanding monies of the Consultants. Such action shall be without prejudice to any other recourse(s) that PMIU-PAHP may adopt under the CSA.

A.5.14. Payments Terms:

i. A payment of 10 % shall be retained from each Invoice of the Consultants which shall be released as per following Schedule:

ii. 4 % upon submission of Project Taking Over Documents and PMIU-PAHP acceptance thereto.

iii. 4 % upon submission of As-built Documents & Records and PMIU-PAHP acceptance thereto.

iv. 2 % upon Project Completion Report and PMIU-PAHP acceptance thereto.

A.5.15. Consultants' Liability:

Notwithstanding anything contained herein or stated elsewhere in the CSA, the Consultants shall remain completely responsible for all of the obligations stated in the CSA & these TORs and any failure or breach by the Consultants shall entitle PMIU-PAHP to recover the financial losses from any outstanding monies of the Consultants.

A.5.16. Professional Liability:

Professional liability, as stands in the prevalent conduct and practice of Consulting Engineers prescribed by the PEC, shall be as follows:

i. The Consultants selected and awarded the contract shall be liable as a consequence of errors or omissions on the part of the Consultants.
ii. The Consultants shall also be liable for the consequences of their actions and/or all kinds of technical and contractual advice which it may give to PMIU-PAHP under the CSA.
iii. The Consultants shall be held liable for all losses or damage suffered by the procuring agency on account of any misconduct by the Consultants in performing the consulting services.

A.5.17. Important Notes:

i. The Consultants are advised to take account of and include the costs relating to running expenses of the Site Office for the entire period specified in the CSA. For this purpose, the Consultants, in his offer, should specify a monthly fixed cost to be reimbursed by PMIU-PAHP on monthly basis. Separate costs should be indicated for the Construction Supervision and Defects Liability Phase.
ii. The Contractors will be obligated to provide and maintain a furnished office with standard facilities at Site for the Consultant's Resident Supervision Staff. However, the Consultants shall be responsible for arranging computers, laptops etc. for its staff. The Consultants shall be responsible to engage office boy(s) for providing general office support services to its staff.
iii. The Consultant's Price should include the costs related to the travelling needs of its staff. The Consultants shall provide the following vehicles at Site as a minimum. PMIU-PAHP may, at any time, require the Consultants to provide evidence of the availability of such vehicles at Site:

Table 4: Vehicles for use of Consultants' Site Staff

Sr. No.	Cost should cover	Quantity/No.	Vehicle Specifications
1	Providing, Operating, Insuring and Maintaining specified vehicle (including Fuel, Oil, Lubricants, Drivers etc.) for exclusive use of Consultants' Site Staff and its travelling for any activity related to the Project.	02	1000 cc Car

A.5.18. Reporting requirements

Prepare daily, fortnightly and monthly progress reports, indicating the progress made since the submission of the previous report and commenting on the progress to date in relation to the program and whether completion of the works is likely to be advanced or delayed. Pursuant to the relevant conditions of contract, the Consultants shall submit the following reports by the 06th day of each consecutive calendar month as a result of detailed supervision of the project. The Reports will outline in written and graphical form for the various phases and the order of performance of the works in sufficient detail so that the progress of the project can easily be evaluated.

Table 5: Details of Progress Reports

Sr. No.	Description of Report	No. of Copies	
		Soft*	Hard**
1.	○ Monthly and weekly Physical and Financial Reports with commentary including but not limited to the following minimum items: ○ Comparison of actual and planned progress (MS Project/ Primavera). ○ Earned value reports. ○ Quality assurance and Quality control Documents and test reports along with updated registers, duly signed and stamped by the contractor's representative and the Resident Engineer. ○ Anticipated risks, delays, causes of delays, their financial implications on the project and recommendations for remedies thereof. ○ Resources utilization. ○ Activity (ies) expenses, expenses' details and summary thereof. ○ Detailed item-wise (quantity and cost) comparison of PC-I, Agreement BOQ, actual achieved to date and likely to be done for completion of project. ○ Monthly reports pertaining to utilization of secured advance materials. ○ Monthly reports pertaining to recoveries of advance payments. ○ Quarterly reports pertaining to Cost to Complete. ○ Weekly presentations in a format approved by the client/PMIU (PowerPoint) ○ Summaries of material testing ○ Any other relevant report may be asked for by the Client/PMIU at any stage if deemed necessary.	01	03

*Soft copies of project planning, scheduling & tracking shall be provided in MS Project/ Primavera (latest version) subject to prior approval of the client.

**Hard copy shall be in a format approved by the client/PMIU, duly signed and stamped by the Resident Engineer.

A.6. Output 8. Services during Defects Liability Period & Final Report, upon Project Closing

i. Defect Liability Period shall begin upon latest Taking Over among the Construction Contract(s) and will continue for the stipulated number of days as per the corresponding Construction Contract.

ii. Perform periodic maintenance inspection visits during the defect liability period; visits will be conducted by the different disciplines' engineers.

iii. To assess defects and/or construction damage(s) and warranty status on systems.

iv. Prepare and submit visit reports with progress on attendance of Punch List.

v. Recommend the release of Retention Money at the end of DLP for Client's approval.

vi. Check, recommend and certify the final payment certificate/ completion certificate at the completion of the project for Client's approval.

vii. Preparing a Final Completion Report in a format agreed upon with the Client. This will summarize all the relevant aspects of the Project implementation, and specific recommendations on routine maintenance, highlighting locations requiring special care and attention. A suitable selection of the project photographic records / evidence shall be reproduced and included in the Final Completion Report.

viii. Staff to be deployed during the Defects Liability Period shall be in accordance with Table 6 provided below and the staff input will be intermittently spread over the Defects Liability Period.

Table 6: Details of Key Personnel Required Output 8

Sr. No.	Staff	Staff Months	Mandatory Qualification & Experience
1.	Resident Engineer	02	Bachelor or higher Degree in Civil Engineering with 12 years of relevant experience. The individual must be registered as 'Professional Engineer' with PEC.
2.	Material/ Quality Control Engineer	02	Bachelor or higher Degree in Mechanical/Electrical Engineering with 08 years of relevant experience. The individual must be registered with PEC.
3.	Quantity Surveyor	02	Diploma of Associate Engineering with 12 years of relevant experience.