

PAKISTAN
WATER AND POWER DEVELOPMENT AUTHORITY

DASU HYDROPOWER PROJECT

**MUTAHIDA KOHISTAN GRAND
JIRGA SCHEMES**

BIDDING DOCUMENT

NCB NO: DASU-MKJ-CDR

CONSTRUCTION WORKS

“CONSTRUCTION OF DUBAIR ROAD (PACKAGE-1

Volume 2

Section VII

WORKS REQUIREMENTS

Volume 2(a) Specifications

- Part-A Specific Provisions
- Part-B Technical Provisions

Volume 2(b)

- Drawings

**GENERAL MANAGER/ PROJECT DIRECTOR
DASU HYDROPOWER PROJECT
DASU, PAKISTAN
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BIDDING DOCUMENTS

Main Contents

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VOLUME 2

Works Requirements (Section VII)

Volume 2(a)

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Volume 2 (a)

SPECIFIC PROVISIONS

DASU HYDROPOWER PROJECT
CONSTRUCTION OF DUBAIR ROAD (PACKAGE-1: RD 0+00 to 2+021)
GENERAL SPECIFICATIONS

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Abbreviations

Wherever in these specifications or in other contract documents the following abbreviations and terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

AASHTO	American Association of State Highway and Transportation officials
ASTM	American Society for Testing of Materials
AWG	American Wire Gauge
AWPA	American Wood Preservers Association
CESMM	Civil Engineering Standard Method of Measurement
BS	British Standard Code of Practice
ACI	American Concrete Institute
FHWA	Federal Highway Administration
PCA	Portland Cement Association
Wt.	Weight
lb.	Pound
AWS	American Welding Society
Gallon	U.S. Gallon
In.	Inch
JMF	Job Mix Formula
ft.	Foot
Yd.	Yard
L	Litre
mm	Millimetre
cm	Centimetre
m	Meter
km	Kilometre
m ²	Square Meter
cm ²	Square Centimetre
m ³	Cubic Meter
ha	Hectare
kg	Kilogram
Ton	Metric Ton (1000 kg)
°C	Degree Centigrade
°F	Degree Fahrenheit

GENERAL SPECIFICATIONS

1. GENERAL

1.1 REFERENCE TO OTHER SPECIFICATIONS

Throughout the Specifications and Schedules references are occasionally made to other Sections. All such references are intended solely for the convenience of those using the documents, and the absence of a reference in no manner excludes the application of every other part in the Specifications which may, in the opinion of the Engineer, have any bearing upon the point in question. The Contract Documents shall be read and applied as a whole.

2. SCOPE OF WORKS UNDER THE CONTRACT

The project is the Construction of Dubair Road (Package-1: RD 0+00 To 2+021 Km).

The scope includes carrying out a detailed topographic survey to ensure proper alignment with site conditions, followed by the construction of a flexible pavement carriageway. The works also cover the construction of road including earthwork, surface course pavement, one bridge, two causeways, two slab culverts and associated retaining and breast walls and drainage works, all to be executed in accordance with the approved tender drawings and applicable standard specifications.

3. LOCATION AND ACCESS TO THE SITE

Dubair Road is located in Lower Kohistan, approximately 20 km from Besham and 22 km from Pattan. The location plan is provided in Volume-2(b): Drawings. The road originates from the KKH Bridge and extends towards Dubair Kalay, serving as an important access route for the local communities in the area. The overall road length is 19.3 km; however, this package covers the initial 2.0 km section, commencing from the KKH Bridge. The proposed works under this package are aimed at improving connectivity, facilitating safer transportation, and enhancing access to social and economic services for the residents of the project area.

Without limiting any of Contractor's obligations or responsibilities under the Contract, the Contractor will be deemed to have obtained all necessary information pertaining to and to have complied with all regulations and procedures governing the use of national and international facilities such as public transport, handling and storage facilities, including roads, and the like for the due fulfilment of the Contract. Where access is not available, all construction materials will be carried out to the sites by workforce

4. FACILITIES PROVIDED BY THE EMPLOYER

The Contractor shall be fully responsible for extending, expanding or upgrading any facility provided by the Employer as the Contractor considers to be necessary, and subject to the Engineer's consent, including any additional maintenance which this may require. This responsibility shall include liaison with the relevant authorities and bearing all respective charges without additional payment.

In all cases the Contractor shall take all necessary precautions to ensure that the facilities are used in a proper, controlled and orderly manner and that resources supplied are not wasted.

5. FACILITIES AND SERVICES PROVIDED BY THE CONTRACTOR

5.1 GENERAL

The Contractor shall provide in timely and maintain the facilities and services specified in this clause for the execution of the Contract.

If a facility is maintained and operated by the Contractor, all of the Contractor's charges for such maintenance and operation shall be deemed to be included in the rates and prices in the Bill of Quantities, unless otherwise provided for in the Contract. The Contractor shall at the end of the Contract, dismantle and remove from the Site all buildings and related facilities.

The Contractor shall then submit to the Engineer for drawings to be established by the Contractor under this Clause, at least twenty-eight (28) days before each such facility is to be established.

The Contractor shall be responsible for keeping all areas of the Site for which he is responsible, including temporary facilities, buildings, services, etc., in a neat, clean, sanitary and orderly condition and to the satisfaction of the Engineer at all times.

After dismantling and removing from the Site all buildings and related facilities provided, which are no longer required as agreed by the Engineer, the Contractor shall reinstate the ground to the satisfaction of the Engineer.

The Contractor shall provide at his own expense all professional, administrative, supervisory and technical staff and all labour, communications, chemicals, test equipment, transport, plant, equipment, materials, furniture, tools, instruments, fuel spare parts and the like required for the proper and efficient operation of the services.

5.2 SITE AND ROADS

The Contractor is fully responsible for his own access and when he uses public roads, he shall observe regulations stipulated by relevant authorities concerned.

Any activities, such as obtaining permission for entering for surveying and investigation, land acquisition and compensation, and construction of the roads which access to borrows, spoils, stockpiles, etc. located outside the Project boundary shall be made at full responsibility and cost of the Contractor.

The Contractor shall be responsible for the construction and maintenance of access to all areas of the Site, to all Site offices, and for all haulage and other construction accesses required for carrying out the Works. These accesses shall be treated to avoid any dust nuisance, graded monthly and maintained whenever necessary or as directed by the Engineer.

When temporary construction roads constructed by the Contractor are no longer required the Contractor shall, unless otherwise approved or directed by the Engineer, plough to break up hardened surfaces, remove all imported material and reinstate the surface to the satisfaction of the Engineer. Unless otherwise specified, no separate payment will be made for Access on Site.

The Contractor shall also independently liaise with local traffic authorities, including Traffic Police for specific permits or approvals for transport of particular items of goods, materials, oversized or heavy loads which may require special escort or speed restrictions.

5.3 UTILITIES SUPPLY

The Contractor shall be fully responsible for the provision of electricity, water, gas and

other services he may require for the performance of the Contract.

5.4 CONTRACTOR'S RESIDENTIAL AREA

The Contractor shall provide and maintain associated facilities like Power Supply, Water Supply System, Sewerage System, Road Network, telecommunication, camps for his residential area.

Construction details shall be to the approval of the Engineer with materials and workmanship in conformance with the appropriate specifications and code of practice.

The Contractor shall be entirely responsible for the design, provision, construction, maintenance and removal of all accommodation and related facilities within the accommodation area proposed for such use by the Contractor.

Any generator plant for power supply shall be adequately silenced and located so as to keep the noise level at the nearest housing or office area below 65 dB.

The Contractor shall provide, operate and maintain a potable water supply for the duration of the Contract and shall provide connections and reticulation for potable water to his own facilities. The quality of the potable water shall comply with the World Health Organization (WHO) quality criteria.

The Contractor shall also make all arrangements necessary for the distribution of potable water for the due fulfilment of the Contract to his various offices, buildings and other Site facilities. For each such facility, this supply shall be maintained for the duration of the work or use of the area.

5.5 LIGHTING

Night working shall only be undertaken upon the specific approval of the Engineer. The Contractor shall provide and maintain in good condition, adequate high powered flood lighting for all portions of the work on which he is occupied, as approved by the Engineer.

If, in the opinion of the Engineer, the resulting illumination is not adequate for the safe and efficient execution of the work, additional lighting shall be provided by the Contractor without additional payment. Failing this further such work will be prohibited until the lighting is satisfactory. All lights will have shades on them directing light to ground and not allowing light escape to sky to protect migratory birds from mis-navigation.

5.6 MEDICAL FACILITIES & FIRST AID

The Contractor shall provide, maintain and operate a First Aid station at or close to the areas of the Site where most of the work is being carried out. The First Aid post shall be suitably equipped with medical supplies and at minimum one of the Contractor's employees at each working area Sites shall retain a first aid qualification.

The Contractor shall designate one or more qualified staff experienced in construction projects to supervise the first aid facilities, to control the implementation of the Health and Safety policy defined by the Contractor and consented to by the Engineer.

The Contractor shall make arrangements to transfer cases to suitable hospitals or clinics whenever necessary.

The cost of providing medical facility and First Aid is deemed to be included in other work items.

5.7 FIRE CONTROL

The Contractor shall take all reasonable precautions against outbreaks of fire and ensure that a nucleus of persons trained in the use of fire-fighting equipment is available in each section of work on each shift.

The Contractor shall provide and maintain at the Site fire extinguishers at each working area.

No open fires will be permitted in working areas or elsewhere within the Contractor's control. Grass and other vegetation in the vicinity of all buildings shall be cut at regular intervals to reduce fire hazards.

In the event of a fire, the Contractor shall mobilise all nearby personnel, and shall do everything possible to extinguish the outbreak.

The Contractor will be deemed to have included for providing such fire control in his rates and prices.

5.8 SECURITY

The Contractor shall institute and operate an effective security system on a 24h/day basis at all the areas comprising the Site. He shall co-operate with the local Police and comply with the Engineer's requirements on all matters relating to Security of the Works and persons entering the Site. Such a system shall include appropriate identification procedures for all persons, vehicles, etc., entering and leaving.

The Contractor shall be responsible for providing and maintaining in proper operation the security system for the duration of the Contract, including personnel, equipment, access control buildings, guard shelters, turnstiles, barriers, identification systems, administration, management, etc.

The Contractor shall also institute emergency evacuation procedures at each working area. The Contractor shall also prevent firearms being brought on to Site.

The cost of providing security is deemed to be included in other work items.

5.9 PROGRESS PHOTOGRAPHS

Colour photographs showing the progress of the Works shall be taken by the Contractor at monthly intervals including ones taken from some constant views determined by the Engineer or selected by the Contractor and agreed by the Engineer. Digital camera with facility of time and date imprinted in picture to be used.

Photographs shall not be less than 120 mm x 80 mm and shall be inscribed with the location, taking date, identification number and title with a brief description. Four (4) prints of each photograph will be required to be submitted to the Engineer each month as a part of the Monthly Progress Report. All negatives or a disk of CD in the case of digital photograph shall be numbered and kept on Site by the Contractor. On completion of the Works, the negatives or CDs shall be handed over to the Employer.

All such photographs, negatives, CDs shall be the property of the Employer.

5.10 ASSISTANCE FOR THE ENGINEER

The Contractor shall provide the Engineer with such assistance as he may require during working hours at all times including weekends.

When so requested by the Engineer the Contractor shall supply for the use of the Engineer such equipment and facilities as the Contractor may have available, at Daywork rates or other rates to be negotiated as necessary. The Contractor shall also

supply skilled labour, semi-skilled labour and unskilled labour for which there are payment items in the Bill of Quantities. Semi-skilled labour shall be deemed to include light vehicle drivers, survey assistants, checkers, messengers, cleaners, and the like.

5.11 TRANSPORT OF PERSONNEL

The Contractor shall be responsible for, and make provision for the safe vehicular transport of all personnel between their residences and their work areas, and vice versa. Personnel may only be transported on flatbed trucks or similar vehicles if acceptable side restraints and adequate seating is provided. Weather proof covers shall be used at all times. The prevention of overloading of vehicles shall be rigidly enforced by the Contractor and suitable crush barriers shall be provided at loading points.

Pedestrian access on road surfaces shall not be permitted and suitable sidewalks shall be constructed and clearly demarcated.

5.12 ENVIRONMENTAL MONITORING AND TESTING DURING CONSTRUCTION

Environmental monitoring and testing will be undertaken during the construction phase of the proposed sub-project. The results of analyses are compared with the National Environmental Quality Standards (NEQS). Unit of payment shall be in quantity of each sample according to unit rate tendered by the Contractor in the Bill of Quantities.

For Provisional Sum items, three quotations will be required vetted by Supervision Consultant and approved by Employer. The Contractor shall be paid on the basis of amount specified against the respective item in the General Bill which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified obligation including, but not limited to, submission of the monthly monitoring report and proper implementation of the measures. Provided that if, in the opinion of the Engineer, the monthly monitoring report is not submitted and/or proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

5.13 MEDICAL SCREENING FOR WORKERS

Medical screening of all the worker will be ensured to control the communicable disease of most concern during construction phase, like STDs such as HIV/ Acquired Immunodeficiency Syndrome (AIDS), COVID-19, will be prevented by successful initiative typically involving health awareness; education initiatives; training health workers in disease treatment; immunization program and providing health service. Unit of payment shall be in quantity of each worker according to unit rate of medical test tendered by the Contractor in the Bill of Quantities.

5.14 PROVISION OF SAFETY SIGNBOARDS, SAFETY CONES, WARNING TAPES ETC.

Provision of safety signboards, safety cones, warning tapes etc. will be ensured by the contractor at active construction site to reduce the OHS related issues to workers, visitors and local community. The costs shall be included in the Provisional sum prices of the various safety items used for the construction project in the Bill of Quantities.

For Provisional Sum items, three quotations will be required vetted by Supervision Consultant and approved by Employer. The Contractor shall be paid on the basis of amount specified in the General Bill which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified obligation. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

5.15 MATERIAL STORAGE, HANDLING AND USE MANAGEMENT

The provision of tarpaulins, safe handling of chemicals and hazardous material, chemical encasement (if required) will be ensured by the contractors. Moreover, the inspected fire extinguishers will also be installed at these material handling areas to control any fire emergency. The costs shall be included in the Provisional sum prices of the various safe material handling items in the Bill of Quantities. Moreover, Unit of payment shall be in quantity of each fire extinguisher according to unit rate tendered by the Contractor in the Bill of Quantities.

For Provisional Sum items, three quotations will be required vetted by Supervision Consultant and approved by Employer. The Contractor shall be paid on the basis of amount specified against the respective item in the Bill of Quantities which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified obligation. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

5.16 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The provision of dust masks, safety shoes, helmet, jackets, safety goggles, gloves, first aid box, ear plugs will be ensured to each worker and visitor at site by the contractor to reduce the OHS related issues to workers and visitors. Unit of payment shall be in quantity of each PPE provided at site according to unit rate tendered by the Contractor in the Bill of Quantities.

For Provisional Sum items, three quotations will be required vetted by Supervision Consultant and approved by Employer. The Contractor shall be paid on the basis of amount specified in the General Bill which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified obligation. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

5.17 ENVIRONMENTAL TECHNICAL ASSISTANCE AND TRAINING PLAN

An Environmental and Technical Assistance Program (TAP) is to be carried out before the implementation of the project. Environmental awareness and appropriate knowledge of environmental protection is critical to the successful implementation of the ESMMP. A suitable training program will be implemented by the contractor to train the staff who will be involved in the construction phase of the subproject. The costs shall be included in the Provisional sum prices of the various training program not limited to the training on environmental laws and regulations, daily monitoring and supervision, social awareness, lecture relating to OHS which are mandatory for the construction project and included in the Bill of Quantities

5.18 TREE PLANTATION

To enhance the environmental sustainability and as an enhancement measure, trees will be planted by the contractor. The trees will be planted in nearby areas which will be suitable for the local species. The contractor shall ensure the participation of local forest department for this activity. Unit of payment shall be in quantity of each plant along with its maintenance cost according to unit rate of plant tendered by the Contractor in the Bill of Quantities.

6. CONSTRUCTION MATTERS

6.1 CONTRACTOR'S METHODS AND MATERIALS

Unless otherwise confirmed in writing, acceptance of the Bid will not signify acceptance of the Contractor's Equipment, proposed methods of construction, Temporary Works or materials, nor will it in any way relieve the Contractor of any of his responsibilities under the Contract. Further it will not be accepted as a basis for claiming additional compensation where the proposed methods of construction or the proposed materials do not comply with the Specifications and/or for reasons of inadequacy or of non-viability are not capable of fulfilling the Contract in accordance with the specifications or the Contract Programme.

The Specifications deals with the quality of materials, workmanship, etc. but the actual methods of construction are not generally specified. The construction of the Works will involve dealing with a number of special engineering problems. The accuracy of the Works, the high standard of workmanship demanded under the Specifications, the safety of the workmen employed and the speed of construction will depend on the correct handling of these problems by the Contractor. Although responsibility for these matters rests with the Contractor, it is essential that there shall be full liaison between him and the Engineer with regard to construction methods and materials to be employed.

Unless otherwise directed, the Contractor shall submit to the Engineer for consent full details concerning the methods, equipment and materials proposed for each section of the work or installation. These shall be referred to as Method Statements and the details as necessary and confirmed to the Engineer not later than twenty-eight (28) day before the programmed commencement of work in the area concerned. Initial activities shall be based on as agreed in writing by the Engineer.

The Engineer will consent to or comment on the proposals within twenty-one (21) days of receipt.

The Engineer's consent will not be unreasonably withheld provided the methods, equipment and materials proposed may be expected to produce an acceptable end result, but any approval, consent, acceptance, agreement, etc. by the Engineer shall not relieve the Contractor of his responsibilities for safety, adherence to the programme, compliance with the Specifications and Drawing or any other requirements in fulfilment of the Contract.

After operations have been commenced, it is possible that modifications to the construction methods originally agreed upon will be found desirable and such modifications will be made from time to time by agreement in writing between the Engineer and the Contractor, and subject to the Engineer's approval. The Engineer's approval on the Contractor's method statement and/or the revised method statement during construction stage shall not release the Contractor from his obligation and responsibilities under the terms and conditions of the Contract.

If, however any equipment, appliances, types or quality of Temporary Works such as scaffolding, forms, safety provisions, etc., are in the opinion of the Engineer, either unsafe or unsuitable for accurate and efficient construction, the Engineer will instruct the Contractor to replace or modify the item or items concerned, whether or not the Contractor is in agreement with such opinion, and the Contractor shall forthwith make the required alterations without any additional payment and claim.

The Contractor shall remedy at his own costs any damages to or defects in any parts of the Works which are attributed to the Contractor's construction method, equipment, materials and workmanship, in accordance with the Contract and the Engineer's instructions.

The Contractor is totally responsible for all costs associated with locating, establishing and operating his own Quarry Site as a source of all site requirements for stone and aggregates etc.

Where an alternative design is initiated by the Contractor, he shall be responsible for timely obtaining any required design criteria from the Engineer as necessary.

6.2 PROGRAMMING REQUIREMENTS

6.2.1 General

The preparation of up-to-date programmes which are realistic and adequately detailed and upon which the requirements for the issue of drawings for the Engineer's approval will be based and progress monitored is a primary requirement of this Contract. To achieve this, the Contractor shall employ adequate support staff and systems who will be responsible for the preparation and updating of programmes and progress reports.

6.2.2 Bid Construction Schedule

The Bidder shall submit a programme (Form TP-4) to define the duration of construction of the various sections of the Works and shall take into account any non-working days. Such programme shall be designated the «Bid Construction Schedule».

The Bid Construction Schedule shall be based on the Contractor's own comprehensive plan, programme and resource usage with appropriate development of method statements for construction of the Works. The Contractor shall ensure that the Bid Construction Schedule meets the requirements of the Contract notwithstanding anything that may be indicated in or inferred from the Engineer's Programme. The Bid Construction Schedule shall be based on network logic relationships between activities. The programme shall be computerised, using Microsoft Project, Primavera or equivalent conventional construction planning computer software suitable for use on a PC.

The entire programme shall be suitable for future expansion by addition of more detailed programme activities for construction of the Works, for monitoring progress and changes therein, planning of critical activities and generation of progress and planning reports during execution of the Works.

6.2.3 Contract Programme

The detailed programme to be submitted pursuant to Clause 30 of the Conditions of Contract shall be based on updating and expanding the Bid Construction Schedule and shall be designated with the title of «Contract Work Execution Programme» and revision number with date.

The submission shall include as a minimum of:

1. The network drawing,
2. Tabular listings of early starts and finishes, late starts and finishes, free and total floats,
3. Computer generated bar charts,
4. Periods required for work carried out by sub-contractors,
5. Information on shutdown periods, vacation day and other non-working time periods, and
6. Schedule of equipment and plant and manpower mobilisation schedule.

Until such time as the Contract Programme has been accepted by the Engineer, all

work shall be executed and monitored against the Bid Construction Schedule.

The Contract Programme shall clearly show the interrelationship of all activities in the programme. In addition, resource statements including labour and equipment types and numbers and planned outputs shall be submitted to substantiate each activity duration. The Contractor shall also submit excavation and construction summation graphs for each section of the Works against which progress will be monitored.

The format of all outputs and reports from the Contract Programme shall be as agreed with the Engineer.

During execution of the Contract, the Contractor shall monitor the construction activities relative to the Contract Programme (or the Bid Construction Schedule, as applicable) and shall submit a report detailing the results of the monitor on a monthly basis as a part of the Monthly Progress Report. All variances from said programmes (as applicable) shall be promptly reported and the future impact of such variances shall be determined and analysed by the Contractor, using network logic, and necessary corrective measures established, subject to the consent of the Engineer, but it shall not release the Contractor from his obligation and responsibility of the Contract under the terms and conditions of the Contract.

6.2.4 Progress Meetings

The Contractor will be required to attend regular site meetings with the Engineer where the progress of construction will be reviewed. Such meetings will normally be held monthly and may be attended by representatives of the Employer.

The Contractor shall also attend weekly meetings with the Engineer and provide prior to each meeting as required by the Engineer detailed programmes showing separately the various activities of the Contractor anticipated over the forthcoming two-week period as well as the progress achieved over the preceding week relative to the programme applicable to that period.

The minutes of the meetings shall be prepared by the Engineer and shall be deemed, after approval by the other participants, to be written confirmation of the declarations, instructions and decisions taken during the meeting.

6.3 QUALITY MANAGEMENT

6.3.1 System and Procedures

The Contractor shall be solely responsible for the quality and testing of materials, workmanship and production processes in the Contract.

To this end the Contractor shall institute and operate a Quality Management plan, in order to satisfy the specifications relevant to each operation pursuant to the Works in terms of the Contract which details:

1. Quality control procedures
2. Personnel responsibilities
3. Procurement procedures
4. Testing procedures
5. Equipment and calibration
6. Frequency testing, calibration, etc.
7. Hold points in production for inspection
8. Rejection and rectification procedures

9. Documentation and communication

6.3.2 Approval of System

Within twenty-eight (28) days after the Start Date of Work and based on the general outline and any amendments thereto requested prior to acceptance of the Bid, the Contractor shall submit comprehensive details of the systems as proposed, making use wherever possible of diagrams, charts, organograms, etc. in preference to lengthy description, all for the approval of the Engineer. Such details shall be updated from time to time as appropriate or as directed by the Engineer.

The Contractor shall commence the operation of the Quality Management plan without delay and in accordance with the Engineer's approval of the general outline and documentation examples as accepted with the Bid and shall thereafter modify the system, from time to time in accordance with the further details as approved by the Engineer.

6.3.3 Provision of Materials and Equipment

1. All materials and equipment intended to be incorporated in the Works shall be subject to approval by the Engineer prior to order by the Contractor.
2. No Plant or part thereof shall be shipped to the work site before it has been approved by the Engineer.

3. Proprietary Brands:

Where the Specification refers to materials of a particular brand name the Contractor may offer an equivalent for the Engineer's approval but the Engineer is under no obligation to accept the alternative and no claims will be entertained if the alternative is not accepted.

4. Testing of Materials

Unless otherwise stated in the Specifications or accepted by the Engineer, all testing shall be carried out and interpreted in strict accordance with the methods specified in the relevant AASHTO / ASTM Standards or other international or national standards specified in the Technical Specifications or approved by the Engineer.

6.3.4 Competence of Workmen

The competence of personnel required to undertake operations involving particular skills, affecting the quality of the Works, shall be demonstrated to the Engineer. Suitable means of identification of different skills and training levels of workmen by way of badges or such like shall be instituted.

Workman shall only receive their practical training on those parts of the Works as agreed by the Engineer.

6.3.5 Inspection

Whenever the regular period for carrying on work is to be changed, the Engineer's consent shall be requested and the Engineer shall be given notice in sufficient time, to rearrange staffing for proper inspection. The Engineer shall be given notice of any other proposed changes to normal working times at the weekly progress meetings or as necessary to cope with emergencies.

6.4 APPROVAL OF MATERIALS AND EQUIPMENT

6.4.1 Submission of Samples and Data

The Contractor shall furnish all information as to quality, weight, constituent substances, dimensions, levels, strength and description of the materials, equipment and work, as may be designated by the Engineer and which the Contractor proposes to incorporate in the Works, and shall give the Engineer such other particulars as may be required.

Before placing any order for materials for incorporation in the Works, the Contractor shall submit to the Engineer for information and consent the names of the firms supplying materials giving the origin, manufacturer's specification, quality, weight, strength and description. When requested, the Contractor shall provide such samples of the materials together with the manufacturer's test certificates as the Engineer requires. The samples ordered or specified shall be delivered to the Engineer on the Site, allowing sufficient time for the Engineer to inspect and/or test the samples before the material is required in the Works. The Engineer may request the Contractor to execute such tests on the submitted samples without separate cost.

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's instructions.

Items submitted shall be properly labelled to indicate the Project Contract number, Contractor's source of supply, manufacturer Contract Item number, and other data required by the Specifications.

The results of the tests shall generally indicate:

1. Sample identification numbers.
2. Sample origin.
3. Part of the Works represented by the sample.
4. Sampling date.
5. Description of tests with reference to the relevant standards.
6. Test results.
7. Date of tests.
8. Reference of laboratory undertaking the tests.
9. Conclusion (Satisfactory or Unsatisfactory).

6.4.2 Certificates of compliance

In the case of standard labelled stock products of standard manufacture material which have a record of satisfactory performance in similar work over a period of not less than two (2) years, the Engineer may accept a statement from such manufacturer attested by the certified laboratory certifying that the product conforms to the applicable Specifications.

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's instructions.

In the case of materials for which such practice is usual, the Engineer may accept the manufacturer's certified mill and laboratory certificate.

If a demonstrable satisfactory service record is available for a material, certain specified tests may be waived by the Engineer.

The Engineer may accept a certificate from a commercial testing laboratory, satisfactory

to him, certifying that the product has been tested within a period acceptable to the Engineer and that it conforms to the requirements of the Specifications.

The Contractor shall provide to the Engineer a list of Sub-Contractors and vendors with whom orders are to be placed for materials or equipment which will be incorporated directly into the work of the Contract.

Copies of material or equipment orders and list of stock material or equipment shall be provided to the Engineer. All orders and stock lists shall state the Standard Specification under which the material is to be furnished, pertinent drawing and part numbers if any, and the required delivery date, and shall state that the material is subject to inspection and testing by the Engineer.

6.4.3 Acceptance of materials

The approval by the Engineer of any material or equipment shall in no way relieve the Contractor of any of his responsibilities for meeting all of the requirements of the Specifications and shall not prevent subsequent rejection if such material or equipment is later found to be defective or not conforming to the Specifications.

6.5 CONTRACTOR'S RETURNS

Records and returns shall be reported to the Engineer in a format acceptable to the Engineer.

6.5.1 Weekly Report

The Contractor shall keep accurate records detailing work carried out for the Works and shall submit them as Weekly Report to the Engineer prior to the weekly progress meeting as required by the Engineer or at such other times as the Engineer may require. The records shall include the following for each section of the Works separately in sufficient detail to establish the man-hours and equipment-hours expended:

1. Extent of work done,
2. The number of each category of workmen and supervising staff,
3. The numbers and types of Contractor's Equipment used,
4. The duration and cause of any significant delays due to breakdown of any Contractor's Equipment,
5. Any other events relevant to progress of the Works.

Notwithstanding the foregoing, the Engineer may employ members of his own staff to record some or all of the above data in addition to the Contractor's records. The Contractor shall also provide such further information as may be requested by the Engineer. All such information shall be shared with the employer's representative for his record.

6.5.2 Monthly Progress Report

The Contractor shall submit Monthly Progress Report at the beginning of each following month presenting the records and issues with respect to each month in question. The monthly report shall be comprehensive for the progress reported period and should only consist of a consolidated summary of the previous work carried out, avoiding repetition of the details already provided during the previous monthly progress reports. The contents of the Report shall include, but not limited to the following items and details:

1. Record of major events in the execution of the Works including Temporary Works

together with monthly construction progress photographs.

2. The Contractor's latest organization and change from previous month, if any.
3. Schedule of current number of all staff on Site for each category showing increase and decrease from the previous month.
4. List of equipment currently owned on Site showing increase and decrease from the previous month.
5. Principal materials consumed, ordered and being stocked on Site.
6. Plant operation records.
7. Delivery or removal plan of equipment during the following month.
8. Record of accident(s) with number and descriptions.

The reporting forms of each item shall be subject to the prior agreement of the Engineer.

6.5.3 Daywork and Similar Records

In accordance with Clause 55 of the Conditions of Contract records shall be kept daily of labour, materials and equipment where there is an agreement to pay by Dayworks. Such records shall be valid only when signed by the Contractor and the Engineer.

In cases where there is any dispute or uncertainty on payment procedure, sheets of work records shall be prepared by the Contractor and signed daily by both the Contractor and the Engineer as an agreed record of work done provided that such records shall not imply any commitment concerning payment. These sheets shall be annotated «For record purposes only».

7. STANDARDS, TECHNICAL DOCUMENTS SUBMISSION AND APPROVAL

7.1 STANDARDS

Abbreviations and definitions, standard codes for sampling and testing and frequency of testing has been described in detail in Technical Specifications.

Except if otherwise specified, where such standards are mentioned, the latest revision or edition on the 28 day before Bid Submission shall apply.

When the Contract Documents contain particular specification or more restrictive specification than required in Standards and Codes listed above, the Contract Documents will always prevail.

In case of lack of precise requirements in the Specifications and even if no reference to any standard listed in Technical Specifications, these standards shall be used as a reference.

Where requirements are specified by reference to a standard, it is not the intention to restrict the requirements solely to that standard. The Contractor may propose to the Engineer an equivalent standard other than that specified, in which case he shall submit the proposed standard and all other information required and shall submit written proof that his proposed standard is equivalent in all significant respects to the standard specified. All submissions shall be made in English language.

If required, the Contractor shall supply a copy of these standards and regulations in English language.

Where a manufacturer is named in the Specifications, other manufacturers' products will also be acceptable, provided that the designated material or workmanship is of

equivalent or better.

7.2 TECHNICAL DOCUMENTS

7.2.1 Bid Drawings

The Bid Drawings referred to in the Specifications are those listed in Volume 2(b) "Drawings".

7.2.2 Shop Drawings

"Drawings" referred to in the Specifications shall mean all drawings, calculations, samples, patterns, models, operation and maintenance manuals and other technical information of a like nature submitted by the Contractor and approved by the Engineer.

The Shop Drawings shall be prepared by the Contractor with signature of the Contractor's authorized person(s) together with an electronic soft copy from time to time.

The Permanent works shall be executed in accordance with the Construction Drawings. Where the Contractor's Equipment and Temporary Works may have an effect or impose forces on any part of the Permanent Works, the Contractor shall submit in advance details for approval of such items, including the magnitude and direction of such forces, together with any other special construction requirements.

7.3 TECHNICAL DOCUMENTS SUBMISSION

7.3.1 General

All Drawings and Documents to be submitted by the Contractor (if any) for the Engineer's approval shall be in English language, and all dimensions shall be in Metric system. Symbols shall be in accordance with approved Standards. All Drawings submitted for approval shall conform to ISO paper sizes A0 to A4. Title block and numbering shall be of approved by the Engineer. Design reports, calculations, specifications, lists, manuals and other documents shall be prepared in A4 size.

7.3.1 Drawings and Documents to be submitted

The Contractor shall prepare and submit to the Engineer the following Drawings and Documents for approval:

1. Master list of drawings and documents to be provided by the Contractor.
2. Drawings of construction facilities as required for the fulfilment of the Contract in accordance with the Specifications.
3. Drawings of Temporary Works for the construction of Permanent Works.
4. Drawings of the performances in the construction of Permanent Works as necessary for showing the construction methods.
5. Detailed bar bending and cutting list based on drawings of concrete reinforcement.
6. Shop drawings of miscellaneous metal works.
7. Other drawings necessary for the performance of each part of the Works in accordance with the Contract.

7.4 APPROVAL OF DRAWINGS AND DOCUMENTS

Detailed procedure for submission of the drawings and documents prepared by the

Contractor for the Engineer's approval and the approval of the Engineer to those drawings and documents shall be in accordance with the Conditions of Contract.

All materials ordered, or works performed, prior to the approval of the relevant designs shall be at the Contractor's risk.

The Contractor shall bring to the attention of the Engineer any variation in the Contract in the document submitted for approval.

All the drawings, details, bill of materials and any other information or documents furnished by the Contractor shall become the property of the Employer and shall be non-returnable. The Employer will have the right to use this property.

All correspondence shall be dated, numbered and distributed in accordance with a procedure agreed with the Engineer.

8. HEALTH AND SAFETY

8.1 GENERAL

The Contractor shall take full responsibility for the prevention of unhealthy or unsafe conditions and practices and for the promotion of healthy and safe working practices at the Site, as such conditions and practices may affect his employees and any other persons while present at the Site, and nothing specified herein will relieve the Contractor of any obligation or responsibility whatsoever in this regard.

The Contractor shall provide suitable personal protective goods, such as but not limited to, helmet, footwear, gloves, ear protector, goggles, dust mask, hi-vis jacket to all workers. The Contractor shall conduct safety induction training before starting the work.

The Contractor shall maintain and submit to the Engineer such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

8.2 HEALTH AND SAFETY POLICY

Pursuant to Clause 18 of the Conditions of Contract the Contractor shall implement a Health and Safety Policy, which shall be in force throughout the duration of the Contract.

The arrangements for implementing the Health and Safety Policy shall be not less than those required by the Laws and Regulations of World Bank and Pakistan.

The Health and Safety Policy shall define

1. The duties of the Safety Officer and his deputy including the proportion of their working time to be spent on health and safety duties.
2. The arrangements in place to support and implement it. Such items as safety meetings, safe working procedures, occupational hygiene, and education and training shall be outlined.
3. The policy shall discuss active and on-going participation of employees in helping to achieve the objectives.
4. Notification, investigation and recording of accidents.
5. Code of practice to be used to ensure healthy and safe working conditions and the management of hazardous conditions.
6. The arrangements for the frequency and occasions of routine and special meetings of the Health and Safety Committee, the keeping of records, rights and access to information and the right to amend the committee constitution by the committee in

agreement with the Engineer.

7. The arrangements for disseminating information, training and supervision to ensure the codes of practices.

For the purpose of implementing the Health and Safety Policy, the Contractor shall constitute a duly empowered committee which shall convene monthly under the chairmanship of the Engineer and which shall include, but not be limited to:

1. The Environment and Social (ES) Officer and his deputy
2. Representatives of supervisory staff
3. Representatives of the various categories of workmen

The composition of the committee shall be to the approval of the Engineer. The Engineer may order that a new committee be reconstituted if in his opinion the committee is not carrying out its duties with due diligence.

The Engineer may at any time order that the Health and Safety Policy be altered completely or in part or may be added to. The Engineer may also serve on the Contractor a Notice of Contravention of the Health and Safety Policy. Such a notice will specify the nature of the contravention, and the time limit for rectification. In the event of failure to comply with a Notice of Contravention the Engineer may arrange for work to be done to rectify the cause or order removal or suspension of the offending persons from Site, as appropriate, at the Contractor's expense.

The Contractor may appeal to the Engineer for modification of the terms of any Notice of Contravention before the expiry of the notice. Upon such appeal the Engineer in his sole discretion may modify, withdraw or confirm the notice.

The Code of Practice shall be in accordance with the Contract and shall be based on a recognised standard and shall be of no less a standard than that of Safety and Health in Building and Civil Engineering Work of the International Labour Office (Geneva).

8.3 ENVIRONMENT AND SOCIAL (ES) OFFICER

The Contractor shall appoint ES Officer who shall be responsible for ensuring that the health and safety policy is adhered to. The ES shall graduate at least a bachelor course of environmental sciences/engineering and have experiences of minimum 03 years in health and safety works in construction. He or she shall obtain a vocational qualification issued by NEBOSH (National Examination Board in Occupational Safety and Health), IOSH (Institution of Occupational Safety and Health) or an equivalent institution.

The ES Officer or his deputy shall be available on a 24h/day basis and shall carry out regular and random checks of all parts of the Site where work is taking place.

Particular attention shall be given by the ES Officer to aspects such as, but not limited to, blasting procedures, removal of construction material, orderly storing and stacking of construction equipment and materials, personal protective goods and general cleanliness. In addition, the ES Officer shall accompany the Engineer on weekly safety inspections of the Works and shall take due account of his requirements concerning matters of safety. Payment for the Environmental, Social, Health and Safety (ESHS) Officer and Occupational Health and Safety (OHS) Supervisor shall be made on a monthly basis upon submission of certified timesheets detailing the actual hours worked during the month, along with documentary evidence of salary disbursement and other supporting records as required by the Engineer.

8.4 EPIDEMICS AND HAZARDOUS SUBSTANCES

In the event of any outbreak of illness of a highly contagious or epidemic nature the

Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government of Pakistan, or the local medical or sanitation authorities for the purpose of dealing with and overcoming the same. The Contractor shall carry out medical screening related to HIV/AIDS of all workers before start of works.

The Contractor shall identify and keep records of all hazardous equipment, materials, or other substances and any other health hazards in his undertaking of the Contract. Newly created hazards or new hazardous equipment, materials or other substances brought on to Site shall be added to the record. The Contractor shall draft new or adapt and modify existing codes of practice appropriate to the said hazards.

The Engineer shall be granted access to such records at all times.

The Contractor shall conduct and document at least weekly inspections of the storage areas for equipment, transport vehicles and hazardous materials and substances, especially for spillages and leaks. The Contractor shall take adequate precautions and make adequate provisions, to the satisfaction of the Engineer, to prevent such spillages of toxic materials and substances from entering natural stream or areas outside the Site.

8.5 SAFETY OF PUBLIC

Where the Public could be exposed to danger by any of the Site activities, the Contractor shall provide suitable measures such as, but not limited to, blasting procedures, barricade of construction area, implementation of Environmental Code of Practices (ECPs) related to safety, flagmen, barriers and/or warning signs in English, Pashto, Shina and Urdu, all to the approval of the Engineer.

8.6 STORAGE AND USE OF EXPLOSIVES

Blasting shall be avoided at the extent possible, but where it is unavoidable, proper precautions such as but not limited to, controlled blasting and sand bags/blasting mats shall be used to minimize dust emissions (and also to control fly rock) shall be taken by the Contractor for the protection of persons, the work, and property.

Explosives shall be stored, transported, handled and used in accordance with the best practice as approved by the Engineer and in accordance with the provision of the law. The Contractor shall comply with all special rules and regulation that may be made by the authorities having jurisdiction, and the requirements of the Engineer regarding construction and storage in magazines, precautions on blasting and the like. The Contractor will indemnify the Employer against all claims for damage caused by blasting.

Explosives and detonators shall not be transported in the same vehicle.

Explosives shall be stored in suitable magazines in approved location. Detonators shall be kept in a separate magazine. The magazine shall be plainly marked with large letters EXPLOSIVES-DANGEROUS in English, Urdu and any other relevant languages, and shall be locked and guarded at all times. Keys to unlock the magazines shall be kept only by magazine keepers. Each magazine shall have around it a cleared area suitably barricaded with a security fence.

Each magazine keeper shall be competent, trustworthy, and familiar with the handling, transportation, care, and storage of explosive and detonators, and shall be responsible for maintaining the cleared area around the magazine. No magazine keeper shall be allowed to work more than ten hours in any twenty-four-hour period and shall not be required or allowed to perform any other duty that will interfere with his duties as a magazine keeper.

8.7 WARNING OF BLASTING

The Contractor shall install and operate a siren of sufficient volume to be easily heard above the general site noise from all points within a radius of 1 km of surface blasts.

The Contractor shall present to Employer, the surrounding villages, police station and military office nearest to the site, a weekly schedule of his blasting operations in a written form. When the schedule will be changed, he shall inform the modified schedule to the same not later than twenty-four (24) hours before the first ignition of the day.

The Contractor shall submit details of his blasting procedures to the Engineer for consent and shall ensure that such procedures are adhered to at all times.

8.8 PROVISION AND MAINTAINING OF PERSONAL PROTECTIVE GOODS FOR WORKERS

The payment will be made when those major personnel protective goods are provided and serviceable:

- ☐ Helmet, footwear, gloves, ear protector, goggles, dust mask, etc.

Payment for maintenance and replacement of protective goods shall be paid on the basis of Provisional Sum amount entered against the respective item in the Bill of Quantities which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified insurance. Provided that if, in the opinion of the Engineer, proper safety policy and provision of adequate protective wears are not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

9. ENVIRONMENTAL CONSIDERATIONS

9.1 GENERAL

This section of the General Specifications specifies the Contractor's particular environmental obligations.

Needless disfigurement of the amenities of the area as well as needless adverse effect on the environment during construction must be avoided and special care shall be taken by the Contractor to prevent permanent damage.

The Contractor shall conduct all operation in accordance with the measures mentioned in the checklist and Environmental Codes of Practice (ECPs).

Nullah/ streams shall be protected from direct or indirect spills of pollutants. In the event of a spill prompt action shall be taken to clear polluted or affected areas.

The Contractor shall be responsible for any compensation due or reinstatement in respect of any damage caused by the Contractor to areas outside the Site and no separate payment will be made in this regard.

The Engineer will notify the Contractor in writing of any observed noncompliance with relevant laws, regulations and other elements of Contract. The Contractor shall, after receipt of such notice, inform the Engineer of proposed corrective actions and take such actions, at his own cost, immediately when approved. If the Contractor fails to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extension shall be granted to the Contractor for any such suspensions.

The Contractor shall provide and maintain at his own cost the personnel and facilities necessary for a fulfilment of the requirements of the Environment Protection.

9.2 ENVIRONMENTAL CODES OF PRACTICE (ECP)

The Contractor should be aware and inform his Site Employees that the contractor for the “**Construction of Dubair Road Package-1**” shall be implementing and monitoring Environmental Codes of Practice on Site in compliance with the requirements of the World Bank Agreement. The same contractor shall also be responsible for preparing the Environmental Health & Safety Policy.

The Environmental Codes of Practice and Monitoring for the works as provided in Appendix A to General Specifications, for reference purpose only, shall be undertaken by the contractor. It includes:

- Waste Management
- Fuels and Hazardous Goods Management
- Water Resources Management
- Erosion and Sediment Control
- Air Quality Management
- Noise and Vibration Management
- Road Transport and Road Traffic Management
- Construction Camp Management
- Workers Health and Safety

The Contractor shall make his employees aware of the above-mentioned codes of practice. The ECPs will form the part of the contract documents and will be used as monitoring tool for compliance. It is mandatory for the contractor to include these ECPs in their subcontracts. Violation of the compliance requirements will be treated as non-compliance leading to the corrections or otherwise imposing penalty on the contractor. Contractor and subcontractors are requested to refer the checklist for likely environmental and social impacts of the subproject for further information on corrective actions.

9.3 SUBMITTALS

The Contractor shall submit the Environmental Health & Safety (EHS) Policy within twenty (20) calendar days after the Commencement Date. Any construction operation shall not begin until this policy has been approved by the Engineer.

The approval by the Engineer shall not relieve the Contractor of any of his responsibility for the Environment Protection pursuant to his construction operations. Furthermore, the Engineer shall have the right to require the Contractor to improve the approved Environmental Policy whenever it is deemed necessary in the opinion of the Engineer.

9.4 STAFF

The Contractor shall designate an Environmental and Social (ES) Officer to be responsible for implementation of ECPs and provision of checklist and communicate with the Employer and the Engineer. The specialist should have relevant experience and fluent in the English language.

10. ARCHAEOLOGICAL / HISTORICAL SITE ACTIVITIES

The Contractor shall ensure that his work activities comply with Antiquities Act, 1975 of Pakistan and Clause 19 of the Conditions of Contract in case of accidental discovery of

any historical or archaeological site/remains within or in the vicinity of the subproject area.

11. DEALING WITH WATER

11.1 GENERAL

Except as otherwise specified, Diversion, Dewatering and Care of Water, the Contractor shall bear all risks from water, whether from the main river, a local water course, an underground spring or any other source or cause.

The Contractor shall properly deal with and dispose of all water to ensure the Works are kept sufficiently dry at all times for their proper execution. For this purpose, he shall construct such Temporary Works as may be necessary to divert streams, rivers, sub-surface water and flood waters to minimise damage, inconvenience or interference. He shall also provide, operate and maintain in sufficient quantity such pumping equipment, pipes and other equipment as may be necessary. He shall also provide any sumps, furrows, and other temporary works as may be necessary to minimise damage, erosion, inconvenience or interference. Such operations shall continue for the duration of the Contract and shall at all times be subject to the agreement of the Engineer with regard to sufficiency of measures taken and environmental protection. All discharges of water to streams and river shall follow National Environmental Quality Standards (NEQS) of KPK.

11.2 SURFACE WORKS

11.2.1 Surface Excavations

The Contractor shall take all necessary steps to ensure that water entering any surface excavation does not endanger the stability of the surface excavation at any time. Fill and cut slopes shall be promptly repaired whenever damaged by surface water.

The Contractor shall ensure, at his expense, that no concentrations or accumulations of water occur either within or around or above the area of any open excavation which may affect the safety of the excavation.

If permanent slopes on which permanent or temporary protections are designated in the Drawings or instructed by the Engineer and the Contractor fails to provide such protections after excavation of the slopes, any damages to the slopes by surface water shall be rectified and repaired by the Contractor at his own expenses.

The Contractor shall maintain excavations such that pounding of rain water is prevented by suitably sloping surfaces where possible and the construction of channel and sumps. Where excavations are not self-draining, sufficient pumps shall be installed to keep the water level in such sump 0.5 m below the lowest excavated surfaces for as long as required for construction of the Works. Standby pumps and generators shall be readily available in case of breakdowns.

11.3 WATER CONTROL DURING CONCRETING

All water which would flow into an area to be concreted shall be diverted clear of the area. Water arising within the area to be concreted shall be dealt with and piped clear of the area as directed by the Engineer.

12. DEALING WITH AIR, NOISE AND VIBRATION

The Contractor shall perform his equipment operation and activities or processes with

appropriate methods to control, prevent or otherwise minimize a discharge of air contamination.

Dust particles pursuant to production and preparation of materials shall be controlled at all times. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, spoil areas, and other work areas within or outside the Site free from particulate which would cause a hazard or a nuisance to persons and/or damage crops, orchards, cultivated field and dwellings. A discharge of dust into the atmosphere shall be controlled during excavation processing, handling and storing cement and concrete aggregates by sprinkling of water on land.

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise, vibration and/or other disturbances. The Contractor shall indemnify the Employer from any liability for damages due to noise, vibration and/or other disturbances caused by his construction operations and also from all claims relating to such liability. The construction works producing a high level of noise and/or vibration shall be performed only at time and places approved by the Engineer.

Equipment and vehicles shall be maintained and operated at all times in such a condition as not discharge excessive exhaust gases due to poor engine adjustments or other inefficient operating conditions. The Contractor shall likewise ensure that all equipment and machinery are in proper working condition so as to minimize the amount of noise and vibration generated. The Engineer may require, at his discretion, the Contractor to replace any equipment, machinery or vehicles emitting excessive exhaust gases, noise and/or vibration.

Odours shall be controlled by the Contractor at all times for any construction activity, processing and preparation of materials.

13. INSURANCE AGAINST INJURY TO PERSONS AND DAMAGE TO PROPERTY

The contractor shall insure against injury to persons and damage to property (Third Party Liability) including that of Employer arising out of execution of works or in carrying out the contract in accordance with Clause 13 of Conditions of Contract.

Payment for Insurance against injury to persons and damage to property shall be paid on the basis of Provisional Sum amount entered in the Bill of Quantities which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified Worker. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

14. INSURANCE FOR WORKS & CONTRACTOR'S EQUIPMENT

The Contractor shall insure in the joint names of the Employer and the Contractor against all loss or damage from whatever cause arising, in accordance with Clause 13 of Conditions of Contract and in such manner that the Employer and the Contractor are covered for the period stipulated in particular conditions and also covered during Defect Liability Period for loss or damage arising from a cause, occurring prior to commencement of Defect Liability Period. Payment for Insurance for works and contractor's equipment shall be paid on the basis of Provisional Sum amount entered in the Bill of Quantities which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified Worker. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

15. INSURANCE FOR CONTRACTOR'S PERSONNEL

The Contractor shall insure his personnel under relevant Clause, insurance for Contractors' personnel, against Liability for claims, damages, losses and expenses arising from injury, sickness, disease or death of Contractor's Personnel and also cover the Employer and the Engineer against such Liability of the Contractor.

Payment for Insurance for contractor's personnel shall be paid on the basis of Provisional Sum amount entered in the Bill of Quantities which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified Worker. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

16. PRICE ADJUSTMENT

Payment for the Provisional Sum items listed in the Bill of Quantities and Price Schedules will be made in accordance with the requirements of relevant Clause of the General Conditions of Contract.

The Contractor shall be paid on the basis of amount specified against the respective item in the Bill of Quantities.

17. LOCAL INDIRECT TAXES

Payment for the Provisional Sum items listed in the Bill of Quantities and Price Schedules will be made in accordance with the requirements of relevant Clause of the General Conditions of Contract. The Contractor shall be paid on the basis of amount specified against the respective item in the Bill of Quantities.

18. GEOTECHNICAL INVESTIGATIONS

The entire work shall be carried out in accordance with the requirements of the General Bidding Documents for Geotechnical Investigations available at NESPAK website (www.nespak.com.pk). The field testing and sampling must be carried out under the supervision of the Consultant's representative and must conform to the guidelines outlined in the relevant ASTM standards. Laboratory testing shall be conducted at NESPAK's approved testing laboratories. Furthermore, the Contractor shall provide the coordinates and ground level at the location of test pits using total station with reference to a permanent local bench mark. Three Quotations will be required vetted by Supervision Consultant and approved by Employer.

The Contractor shall be paid on the basis of amount specified against the respective item in the Bill of Quantities which amount shall be deemed to include all of the Contractor's costs incidental to providing and maintaining the specified obligation. Provided that if, in the opinion of the Engineer, proper implementation of the measures is not being provided then the Engineer may withhold payment until a satisfactory level of implementation is provided by the Contractor.

19. DAAB PAYMENT

Payment for the Provisional Sum items listed in the Bill of Quantities and Price Schedules will be made in accordance with the requirements of relevant Clause of the General Conditions of Contract.

Appendix A

to General Specifications



PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY
DASU HYDROPOWER PROJECT / MUTTAHIDA KOHISTAN JIRGA
SCHEMES

CONSTRUCTION OF DUBAIR ROAD – LOWER KOHISTAN

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)
BIDDING INPUT

JULY 2026



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1 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

1.1 GENERAL

An Environmental and Social Management Plan (ESMP) has been prepared for all the packages of Dubair Road and Ranolia Road, Lower Kohistan. Detailed environmental and social screening, legislative requirements, description of baselines conditions, detailed environmental and social impacts and environmental and social mitigation and monitoring plan have been provided in the main ESMP document. This bidding document input has been prepared for the Package 1 of Dubair Road (0+000 to 2+021 RD).

1.2 SUBPROJECT SCREENING

Considering the activities under the subprojects would mainly consist of road construction adjacent to the existing road with modified conditions/human settlements nearby and need of the project based on community requirements, the level of environmental and social impacts is likely to be moderate. The proposed subprojects are classified as “Category B” as per the World Bank Operational Policy (OP) 4.01 since no irreversible, long-term and significant adverse impacts are foreseen to take place as a result of its implementation. The detailed screening of the subproject has been provided in the ESMP. The location of the subproject has been shown in **Figure 1.1** while the specific section of Package 1 is shown in **Figure 1.2 & 1.3**.

1.3 NEED FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

The findings of Category B projects result in preparation of ESMP¹. ESMP is an instrument that details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures².

1.4 ENVIRONMENTAL AND SOCIAL SAFEGUARDS PROCESSING STEPS

Implementation of environmental and social requirements will follow the following steps.

- Step 1: Subproject Screening and Preparation of ESMP
- Step 2: Inclusion of E&S Specifications and Environmental Management Plan in Contractor(s) bidding documents
- Step 3: Compliance and Monitoring

This ESMP will be the part of Request for Proposals packages/ Bid Documents and its compliance will be mandatory. The ESMP cost will be included in the overall subprojects implementation cost. The Contractors will be required to prepare the site-specific Construction Environmental and Social Management Plans (CESMPs) for the subprojects. The CESMPs will then be embedded into the civil works contracts and therefore will be legal binding on the Contractors. The CESMPs must be submitted to the Project Management Unit (PMU)/Construction Supervision Consultant (CSC) for review and clearance before signing of the Contracts or before mobilization on site, whichever is earlier.

¹ (Source: OP 4.01, Annex C – Environmental and Social Management Plan)

² (Source: OP 4.01, Annex A – Definitions).

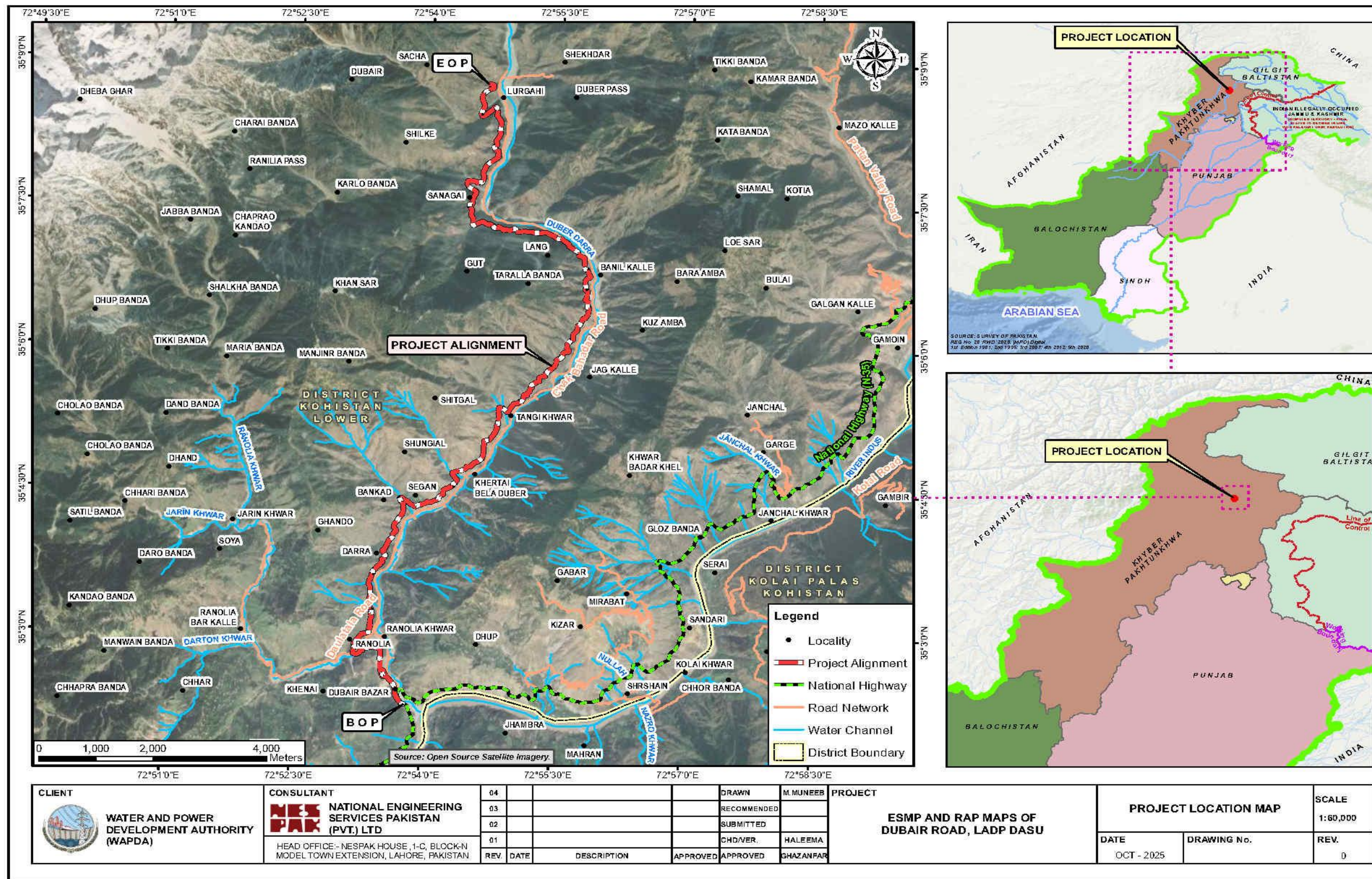


Figure 1-1: Location Map of the proposed Dubair Road subproject

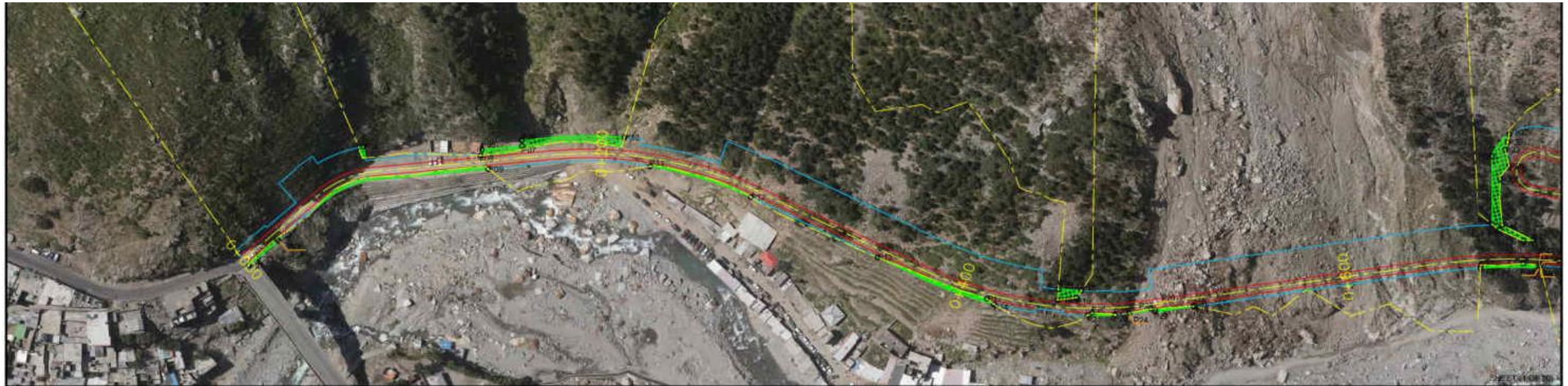


Figure 1-2: Location Map of the proposed Package 1 (A Part)



Figure 1-3: Location Map of the proposed Package 1 (B Part)



1.5 KEY NATIONAL AND PROVINCIAL LAWS, REGULATIONS AND POLICIES

Government of Pakistan and Government of Khyber Pakhtunkhwa have promulgated laws and regulations to safeguard the environment. At national level Ministry of Climate Change is the responsible authority & at provincial level Khyber Pakhtunkhwa Environmental Protection Agency (KP-EPA) is responsible for promulgation & implementation of environment related laws. Besides environmental statutes, a number of laws governing the social performance of the project also exist, e.g., Land Acquisition Act.

Post the adoption of the 18th Constitutional Amendment in 2011, the subject of environment was devolved, and the provinces have been empowered for environmental protection and conservation. Subsequently, the provincial Government amended PEPA 1997 as Khyber Pakhtunkhwa Environmental Protection Act 2014, and KP-EPA is responsible for ensuring the implementation of provisions of the Act in Khyber Pakhtunkhwa's territorial jurisdiction. KP-EPA is also required to ensure compliance with the National Environmental Quality Standards (NEQS) and establish monitoring and evaluation systems. This law will enforce the implementation of environmental legislations at provincial level and will be responsible for issuing No Objection Certificates (NOCs), if required. Other national and provincial laws, regulations and policies applicable to the subproject are as under (but not limited to):

- National Conservation Strategy, 1992;
- The Khyber Pakhtunkhwa Environmental Assessment Rules, 2021;
- National Environmental Quality Standards (NEQS), 2010;
- National Environmental Policy (NEP), 2005;
- National Water Policy, 2018;
- Land Acquisition Act, 1894 Including Later Amendments:
- Antiquities Act 1975;
- Guideline for Solid Waste Management, 2005;
- Building Code of Pakistan, Seismic provisions, 2007;
- National Disaster Risk Reduction Policy, 2013;
- National Forest Policy 2015;
- Employment of Child Act, 1991;
- The Protection against Harassment of Women at the Workplace Act, 2010;
- National Action Plan for COVID-19 Pakistan;
- The Khyber Pakhtunkhwa occupational Safety and Health Act, 2022;
- Khyber Pakhtunkhwa Wildlife & Biodiversity Act, 2015;
- Khyber Pakhtunkhwa Forest Ordinance 2002;
- Khyber Pakhtunkhwa Antiquities Act, 2016;
- Khyber Pakhtunkhwa Climate Change Policy 2016;
- Culture Policy, Khyber Pakhtunkhwa, 2018; and
- Khyber Pakhtunkhwa Commission on Status of Women.

1.6 APPLICABLE INTERNATIONAL CONVENTIONS

Pakistan is signatory to a number of international conventions and agreements on biodiversity conservation, environmental protection, and sustainable development. The major conventions and agreements that are relevant to the subproject are the following (but not limited to):



- Convention on Biological Diversity, 1997;
- The Convention on Conservation of Migratory Species of Wild Animals, (1981);
- United Nations Framework Convention on Climate Change, (1994); and
- Sustainable Development Goals (SDGs).

1.7 APPLICABILITY OF WORLD BANK SAFEGUARD POLICIES

The development objectives of the World Bank safeguard policies are based on sustainability, transparency, fairness, accountability, governance, informed decision making, rights, participation and meaningful consultation for investment projects financed by the World Bank. Among total twelve safeguard policies, there are six environmental, two social, and two legal policies with their detailed Bank procedures can be found on the World Bank website. The disclosure and access to information policy is applicable to all investment projects and programs funded by the World Bank. Based on available information the applicability of World Bank policies is summarized below:

WB Safeguard Policies Triggered by the Project	Triggered		Explanation
	Yes	No	
<u>Environmental Assessment</u> (OP/BP 4.01)	[√]	[]	The ESMP in hand is fully committed to the requirements determined in the WB Safeguard Policy. The environmental works carried out by the consultants on behalf of project proponents have been essentially guided by these rules as enunciated in the OP 4.01.
Physical Cultural Resources (OP/BP 4.11)	[√]	[]	The possible discovery of archaeological sites or random findings during the excavation and earthworks may occur. In such case, this OP will trigger.
Involuntary Resettlement (OP/BP 4.12)	[√]	[]	This OP is triggered as project interventions will require land from public or private land holders.
Forests (OP/BP 4.36)	[√]	[]	This OP is triggered as the subproject will result into cutting down of trees.

Other relevant World Bank guidelines and policies include the following:

- Guidance Note on Labour Influx
- Environmental, Health & Safety Guidelines
- World Bank Group Gender Strategy (2024-2030)

1.8 Subproject Overview

1.8.1 Land Acquisition

Permanent land acquisition will be required for Dubair Road package 1. The land acquisition will be carried out in accordance with the Resettlement Action Plan (RAP) for Dasu Hydropower Project (DHP) and Land Acquisition Act, 1894. WAPDA shall be responsible for land acquisition of the proposed facilities' sites while consultants have to prepare a detailed plan namely Resettlement Action Plan (RAP) or Abbreviated RAP.



1.8.2 Water Requirement

Contractor will be responsible to arrange water for construction works. The water consumption is estimated to be 4,800³ gallons/day for 60 construction workers during construction phase of the proposed Project. However, the quantity of water required for construction shall be recorded by the Contractor.

1.8.3 Wastewater Generation

The wastewater generation is estimated to be 2,840⁴ gallons/day for 60 construction workers during construction phase of the proposed Project. However, the quantity of construction wastewater generated (if any), shall be recorded by the Contractor.

1.8.4 Solid Waste Estimation

The solid waste generation is estimated to be 24⁵ kg/day for 60 construction workers during construction phase of the proposed Project. However, the quantity of construction waste generated, shall be recorded by the Contractor.

1.9 INSTITUTIONAL ARRANGEMENTS for the Implementation of ESMP

The overall responsibility for the implementation of the subprojects rests with the Project Management Unit (PMU), headed by the Project Director (PD). Within the PMU there will be an Environment and Social Unit (ESU) - responsible for implementing the ESMMP. The ESU, headed by the Chief Engineer (CE)/Director General (DG) Social Safeguards will include representatives of all actors responsible for ESMMP implementation (see **Figure 1.4**).

The ESU will consist of three sub-units (Environment and Social, and Occupational Health and Safety - OHS) with the following staff:

- Deputy Director – Environment and Social
- Assistant Director – Environment and Social
- Assistant Director – OHS

The Director E&S with the assistance of Deputy Director-E&S will endorse and support the implementation of the ESMMP and associated policies and documentation. The Director E&S will be responsible to ensure appropriate resources are made available to implement the ESMMP and to support established systems, procedures and E&S objectives.

1.10 INSTITUTIONAL RESPONSIBILITIES

Institutions responsible for executing and monitoring the E&S aspects of the subprojects during construction phase are:

³ WASA Average Daily Per Capita Water Consumption (80 gallons/day)

⁴ *Design Criteria of Public Health Engineering for Water Supply, Sewerage and Storm Water Drain (Domestic sewage generation = 80% of water consumed/day)*

⁵ *Pakistan – Waste Management Report, 2018 (Mansehra District: 0.4 kg/capita/day)*



Project Management Unit (PMU) would be responsible for:

- Liaising with the Construction Supervision Consultant (CSC), and ensuring that they perform their responsibilities effectively and adequately;
- Liaising with relevant stakeholders regarding E&S matters; overseeing the implementation of ESMMP requirements;
- Ensuring the Implementation of ESMMP;
- Monitoring and evaluation of environmental and social impacts and risks associated with the subprojects;
- Preparing progress reports on the status of implementation of the ESMMP;
- Conduct monthly meetings with the E&S staff of CSC and Contractors on the progress of ESMMP implementation, issues associated with implementation, non-compliance issues, and recommended course of action. Document the minutes of the meetings and present them in the progress reports;
- Imposing penalty and/ or require corrective action in case of non-compliance;
- The Assistant Director – E&S will be mainly responsible for liaising with CSC on the field level for the implementation of ESMMP and preparing weekly compliance reports;
- The Assistant Director – Ecology will be responsible for coordinating with District Forest and Fisheries departments (and other relevant agencies), and participating in landscaping plans for the quarry and spoil disposal areas; and
- The Assistant Director – OHS will be responsible for liaising with CSC for the implementation and supervision of occupational health and safety issues at the work areas.

Construction Supervision Consultant (CSC) would be responsible for:

- Liaising with relevant stakeholders regarding E&S matters; overseeing the implementation of ESMMP requirements;
- Ensuring the Implementation of ESMMP;
- Issuing non-compliance notices to the Contractors;
- Reviewing ESMMP every three months and updating, if required;
- Reviewing environmental monitoring/testing reports by the third-party Contractor (Labs);
- Preparing corrective action plan in case of non-compliance;
- Conducting E&S and OHS trainings;
- Assisting ESU in addressing and resolving environment-related complaints and grievances;
- Responding to E&S and OHS incidents reported; and
- Reviewing and assisting in preparation of progress reports.

Contractor will be responsible for:

- Appointing dedicated Environment Social Health and Safety (ESHS) Officer at the site for the implementation of ESMMP in the field, particularly the mitigation measures;
- Preparing Construction Environmental and Social Management Plan (CESMP) describing the mechanism to comply with the ESMMP and get it approved from CSC and PMU prior to mobilization;



-
- Training of its staff in the environmental/social aspects; and
 - Implementing of E&S mitigation measures during construction stage.

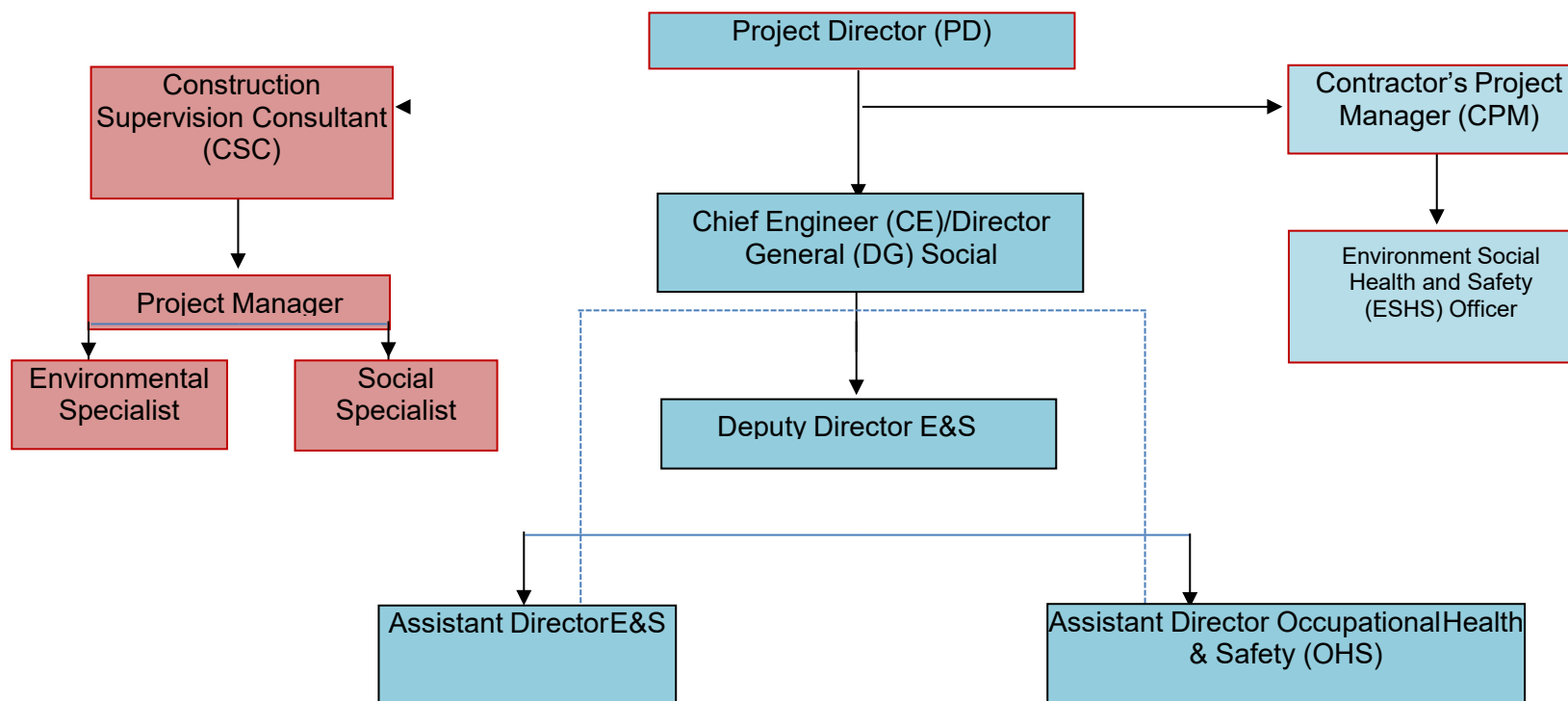


Figure 1-4: LADP Organization Chart for Safeguards Implementation



1.11 REPORTING AND FEEDBACK MECHANISM

The Contractor's ESHS Officer will manage the daily activities to be conducted in compliance with the ESMMP and will be responsible for weekly reporting. CSC would be responsible for preparing monthly inspecting and monitoring report and submit to the PMU. Project Director - PMU will prepare quarterly compliance report and submit to WB (see **Table 1.1**).

Table 1-1: Reporting Requirements

Reporting Responsibility	Reporting Requirement	Report Submitted To
Contractor	Weekly Compliance Report	CSC
Contractor	Monthly Progress Report	CSC
CSC	Monthly Monitoring Report	PMU
PMU	Quarterly Compliance Report	WB

1.12 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

The Environmental and Social Management and Monitoring Plan provide the framework for the implementation of the mitigating measures and E&S management and monitoring. **Table 1.2** shows impacts, mitigations, means of monitoring, estimated cost and the responsible organizations for the implementation of the mitigation measures during the design and construction phases.



Table 1-2: Environmental Mitigation and Monitoring Plan

Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
PRE-CONSTRUCTION/DESIGN STAGE							
1.	Land Acquisition and resettlement	The land acquisition will be carried out in accordance with the Resettlement Action Plan (RAP) for Dasu Hydropower Project (DHP) and Land Acquisition Act, 1894. A separate Abbreviated RAP (ARAP)/ Resettlement Action Plan (RAP) is also prepared for the project. All applicable provisions of LAA 1894 will be strictly complied with during the determination and payment of compensation. Proper measures need to be taken to safeguard the livelihoods of the affectees apart from the compensation.	Subproject Area	Verification of compensation and GRM	Before start of Work	Client/Contractor	District Government
2.	Temporary Land Acquisition	- It is the foremost option to establish the construction camps (if required) at the acquired land to eliminate the issues of land leased etc. however, if this option is not feasible than the land for above mentioned facilities will be selected and leased prior to the start of construction phase. - Land for above mentioned facilities will be directly rented from the private landowners by	Subproject Area	Rental Agreements	Before start of Work	Client/Contractor	District Government



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		the Contractors. Rental terms will be negotiated to the satisfaction of the concerned landowners and the agreement will be in local language to make the process clear.					
3.	Construction Material Extraction/ Use related E&S Impacts	- An efficient worksite management plan can help the contractor to reduce the water demand, wastewater and solid waste volumes to the lowest levels. - The efficient and well maintained equipment and machinery will be used; - Reuse of construction waste materials may be adopted wherever possible	Subproject Area	Visual Observations	Throughout the pre-construction/ design stage	Design Consultant/ Contractor	Client
4.	Seismic Hazard	The proposed structure should be designed to withstand moderate to high earthquakes. For seismic hazard analysis, updated structural and seismic evaluations should be consulted. Moreover, geo-technical investigations must be conducted prior to construction phase	Subproject Component Locations	Design Documents / Engineering Survey Results	Before start of Work	Design Consultant/ Contractor	Client
5.	Social conflicts due to influx of external workforce	Prior information to the local public which will likely address such concerns.	Survey sites/in the Subproject area	Public Consultation	Before start of work	Design Consultant/ Contractor	Client
6.	Landslide	Minimum clearance of vegetation will	Subproject Area	Design	Before start	Design	Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
	Hazards	be considered in design. Engineering measures will be incorporated in design to increase slope stability.		Documents / Topographic Survey Results	of work	Consultant/ Contractor	
7.	Impact on Existing Utilities	It will be preferred that all required works related to the protection of and avoidance of interference with existing utilities will be considered in the design of proposed subproject. In case any utility will be disturbed, it will be restored as soon as possible in consultation with the concerned department. In case of any private utility disturbance, fair compensation will be paid to the affectee.	Subproject Area	CESMP/Detailed Design Documents	Before start of work	Design Consultant/ Contractor	Client
8.	Site Selection of Construction Camp/Site Office	• Preference will be given to avoid the requirement of construction camp by hiring the labors locally. • If the installation of construction camp is unavoidable, then the Contractor will finalize the location with the consent of the Supervision Consultant before mobilization to the site. • The Contractor will identify the location of construction camp away from sensitive areas like densely populated area, schools, healthcare facilities and mosques to minimize the disturbance for locals.	Subproject Area	CESMP/Detailed Design Documents	Before start of work	Design Consultant/ Contractor	Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
9.	Site Selection of Stockpile Areas, Storage Areas and Disposal Areas	- The disposal site will be sited in locations which will have suitable capacity to accept the disposal volumes, proximity to the spoil sources, unlikely to flood, preferably owned by the government and not located close to major inhabitation. - The location of dumping site will be finalized by the Contractor with the consent of the Engineer. If private land will be acquired for storage of machinery, materials and disposal area on temporary basis. The Contractor will be liable to compensate the land owner and will restore the land in its prior condition before demobilization.	Subproject Area	CESMP/Detailed Design Documents	Before start of work	Design Consultant/ Contractor	Client
10.	Site Selection of Sources of Materials/ Borrow Areas	- Priority will be given to purchase construction materials from market. If it is deemed necessary to bring materials from quarry site, these would to be located away from population centers, drinking water intakes and streams, cultivable lands and in structurally stable areas. - The Contractor will include in the design specifications and on plan drawings the locations of	Subproject Area	CESMP/Detailed Design Documents	Before start of work	Design Consultant/ Contractor	Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		camp site, storage area, disposal area and quarry site.					
CONSTRUCTION STAGE							
11.	Soil Erosion and Degradation	Good engineering practices will help to control or minimize the soil erosion both at the construction sites and in peripheral areas. All the disturbed areas need to be protected against soil erosion by stripping and stockpiling of all the available topsoil for later re-vegetation. Special slope protection measures will be adopted in the sensitive areas and along the shoulders of roads. Site restoration plan for the Subproject will be strictly followed.	Construction Sites	Good engineering practices	Throughout Construction Phase	Contractor	CSC/Client
12.	Soil Contamination	•The Contractor will be required to instruct and train itsr workforce in the storage handling and management of materials and chemicals that can potentially cause soil contamination; •Material Safety Data Sheets (MSDS) will be strictly followed during handling and storage of chemicals; •Soil contamination due to concrete transportation and solid waste will be minimized by placing all containers in casings.	Construction Sites, Borrow Pits, Spoil Disposal Sites, Contractor Camp	Good engineering practices, MSDS	Throughout Construction Phase	Contractor	CSC/Client
13.	Climate Change	WHO, NEQS, IFC	Construction	Good engineering	Throughout	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
	and GHG Abatement	guidelines/standards whichever stringent one applicable to gaseous emissions generated by construction vehicles, equipment and machinery shall be enforced during construction works. Alternative energy resources shall be considered where possible. Plantation development as per the tree plantation/reforestation plan is highly recommended for the sequestration of CO ₂ and vehicle maintenance protocol will be adopted.	Sites	practices	Construction Phase		
14.	Ambient Air Quality	•The existing quarries will be used to borrow the aggregate materials; •Concrete batching plants will be equipped with dust control equipment such as fabric filters or wet scrubbers to reduce the level of dust emissions; •Ensure the proper and periodic tuning of the vehicles; •Dust emissions from trucks will be reduced by a regular sprinkling of water for keeping the dust settled at least twice a day; •Regular water sprinkling of the site or use of chemical dust suppressants will be carried out to suppress excessive dust emission(s) which will mitigate	Construction Sites, Access Roads, Contractor Camp, Nearby Communities	Instrumental Monitoring, Visual Observations	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		health effects on locals including children, the elderly, and individuals with pre-existing health conditions. Improved air quality, leading to improve visibility conditions will reduce the probability of accidents •Haul-trucks carrying sand aggregate and other materials will be kept covered with tarpaulin to reduce the dust pollution; •Turn off the engines for all vehicles, while parked on the site; •Regular monitoring of air quality in accordance with monitoring protocols of WHO, NEQS, IFC guidelines/standards whichever stringent one.					
15.	Noise and Vibration	Following will be ensured by the Contractor in addition to the Environmental and Social Codes of Practices: •Reduce noise by adding damping materials, mufflers, or other retrofits to existing machinery. •Blasting activities shall be restricted to day time only and with prior approval from CSC and the Client. The community will also be notified prior to each such activity. Proper protocol for blasting shall be followed at site.	Construction Sites, Access Roads, Contractor Camp, Nearby Communities	Instrumental Monitoring	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		•Place noisy equipment behind purpose-built barriers (plywood, concrete blocks, commercial sound-absorbing panels) that are longer than they are tall and positioned close to the source or receiver. •Plan noisy activities to limit exposure, rotate workers, and shut off equipment when not in use; use administrative controls like scheduling pavement-breaking during off-peak times. •Keep equipment well-served to prevent loose parts, and delineate NPZs where noise exceeds 90 dB(A), restricting access and requiring hearing protection for those who must enter.					
16.	Wastewater Generation at Construction Camps	•To dispose the liquid waste generated from the construction activities, the following steps will be taken by the Contractor: •Domestic and chemical effluents from the construction camp will be disposed by the development of on-site sanitation systems i.e. septic tanks. •Proper monitoring to check the compliance of WHO, NEQS, IFC guidelines/standards whichever	Construction Sites, Access Roads, Contractor Camp	Instrumental Monitoring, Visual Observations	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		stringent one will be carried out; and • Sewage from construction camps will be disposed of after proper pre-treatment and processes such as soakage pit.					
17.	Solid Waste Generation at Construction Camps	• All the solid waste from the camps will be properly collected at source and disposed of through proper solid waste management system. The Contractor will coordinate with local representatives and administration concerned department for the disposal of solid waste; • The concerned department must develop a plan of action for transporting the waste to the disposal site for final disposal. It is the responsibility of the concerned department to ensure that the disposal site is properly lined to prevent the leachate from contaminating the groundwater; • Secondly, the disposal site must be located away as far as practical from populated areas and regions that have a high density of Wildlife; • Toxic waste will be handled, stored, transported and disposed separately;	Construction Sites, Contractor Camp	Implementation of CESMP	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		• The waste will be properly sealed in containers with proper labels indicating the nature of the waste; and • Solid waste will be segregated at source so that it can be re-used or recycled.					
18.	Waste Generation at Construction Site	• Waste Management Plan will be developed to implement an efficient and responsive solid waste management system during construction phase.	Construction Sites	Good engineering practices	Throughout Construction Phase	Contractor	CSC/Client
19.	Borrow Pits	• Necessary permits will be obtained for any borrow pits from the competent authorities. • In borrow pits, the depth of the pits will be regulated so that the sides of the excavation will have a slope not steeper than 1:4; • Soil erosion along the borrow pit will be regularly checked to prevent/mitigate impacts on adjacent lands; • In case borrow pits are filled with water, measures have to be taken to prevent the creation of mosquito-breeding sites; and • Borrow pits will be used for construction waste, but during the excavation, top 20 cm soil cover will be preserved for vegetation after					



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		the filling of the pits. This is the best way to restore the flora of that area.					
20.	Impact on Surface Water	As a mandatory step, all the effluents will be disposed as per the requirements of WHO, NEQS, IFC guidelines/standards whichever stringent one. Moreover, to reduce the risk of surface and groundwater contamination, good management practices will be adopted to ensure that fuels, chemicals, raw sewage and wastewater effluent are disposed of in a controlled manner.	Construction Sites	Good engineering practices and compliance with NEQS	Throughout Construction Phase	Contractor	CSC/Client
21.	Community Health and Safety	• Proper control on construction activities, restrict entry of labor with different transmittable diseases, adopt mitigations for dust, noise & vibration impacts and create awareness about road safety will be ensured. • Traffic Management Plan and appropriate road safety measures will be implemented to avoid traffic accidents, jams/public inconvenience	Construction Sites, Contractor Camp, Access Roads	Implementation of applicable OHS provisions	Throughout Construction Phase	Contractor	CSC/Client
22.	Occupational Health and Safety	Safety precautions for the construction workers, Training of workers in construction safety procedures and use of Personnel Protective Equipment (PPE) will mitigate this impact.	Construction Sites, Contractor Camp, Access Roads	Implementation of applicable OHS provisions	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
23.	Social Impacts	• Local labor especially from nearby communities will be given preference for the construction works; • Careful planning and training of work force to minimize disturbance to the local people; • Familiarize outside labourers on local etiquettes; • Community unrest can be avoided by properly implementing a grievance redress mechanism. • Public notification through print or electronic media during the entire construction phase to avoid any inconvenience in accessibility to the locals; and • Adequate training of especially for the transitive workforce of the station (involved both in the construction process and in the commissioning) to regard the customs of the area so that the locals do not feel insecure. • Proper check-up of skilled and unskilled workers before their hiring; • Labour camp will be away from the residential area and workers' management plan will be formulated by Contractor to	Construction Sites, Contractor Camp	Implementation of CESMP	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		minimize the adverse impacts on local communities and workers; •Trainings, awareness and campaigns will be conducted for workers and surrounding communities on awareness and prevention of HIV/AIDs and COVID-19; •Workers will be educated for personal hygiene and the sanitation concerns, leading to communicable and non-communicable diseases; •Water will not be allowed to stagnate even if clean, and measures will be taken to cover the area; and •Insecticides will be periodically sprayed.					
24.	Traffic related Impacts	•Movement of vehicles carrying construction materials and equipment/machinery will be restricted during the daytime. •Traffic Management Plan will be implemented to avoid traffic accidents, jams/public inconvenience. •Measures of soil erosion and dust emission (as mentioned earlier) will be followed	Construction Sites, Contractor Camp, Access Roads	Implementation of TMP as a part of CESMP	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
25.	Natural and Man-Made Disasters	•An Emergency Response Plan (ERP) for earthquakes and manmade disasters will be developed by the Contractor in coordination with WAPDA/CSC and will implement. •The workers shall be trained and facilitated to cope with such disasters. Minor incidents and near misses will be reported, and preventive measures will be formulated accordingly.	Construction Sites, Contractor Camp, Access Roads	Implementation of ERP as a part of CESMP	Throughout Construction Phase	Contractor	CSC/Client
26.	Gender Based Violence (GBV)	•Awareness will be created among the females at individual and community levels about the construction sites; •The Contractor will make sure that no discrimination is made on the basis of gender while hiring of workers; •Raise awareness among the communities of the potential risks of GBV, and establish response services in the communities that can respond to instances of GBV (particularly those related to issues of labour influx); •Contractor will take proper measures to address and resolve issues relating to harassment,	Construction Sites, Contractor Camp	Implementation of CESMP and Gender Consultations	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		intimidation, and exploitation, especially in relation to women.					
27.	Influx of Labor	• Labor camp(s) will be established away from residential population; • Preference will be given to the local people to work with contractor, and contractor will hire maximum labour force from the Subproject Area because this will reduce the labour influx; • An effective GRM will be established for the Subproject to resolve all issues related to the community. Thus, progress regarding resolving the issues will be monitored closely.	Construction Sites, Contractor Camp	Implementation of CESMP	Throughout Construction Phase	Contractor	CSC/Client
28.	Impact of Migrant Workers	To mitigate such issues and risks, contractor will comply with national and international labor standards, including fair wages, reasonable working hours, and occupational safety. Provision of confidential, accessible mechanisms for reporting and resolving complaints & grievance, ensuring protection against retaliation will be ensured. Employer will provide safe, hygienic, and dignified accommodations with adequate facilities and educate migrant workers on their rights, safety protocols through specified	Construction Sites, Contractor Camp	Implementation of CESMP	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		trainings, and access to support services in their language. Independent monitors will be carried out to assess working and living conditions of migrant workers and enforce compliance. Promote community engagement programs to reduce isolation and foster inclusion whoever the issues of labor influx will be also considered in parallel while promoting community engagement					
29.	Flora	•Cutting of trees and disturbance shall be avoided, as far as possible so, that negative effects on the process of natural regeneration of species are minimized and possible alternate route must be considered for proposed road, in which minimum ecological and environmental losses are expected; •A tree plantation program shall be formulated with the recommendations and technical support of concerned Forest Department. •Loss of trees shall be compensated by a ratio of 1:10.	Construction Sites, Contractor Camp, Access Roads, Borrow Pits, Spoil Disposal Areas	Implementation of Tree Plantation Plan	Throughout Construction Phase	Contractor	CSC/Client
30.	Fauna	•Care shall be taken during construction activities for avoiding purposely or chance killing of animals;	Subproject Area	Visual Observations	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		• If found any wild species and habitat during construction, that must have dealt carefully and local wildlife department officials will be called; • Special measures will be adopted to minimize impacts on birds such as avoiding noise generating activities during the critical period of breeding. • Hunting, poaching and harassing of wild animals shall be strictly prohibited, and Contractor shall be required to instruct and supervise its labor force accordingly and clear orders will be given in this regard; • Noise produced by the construction activities may be kept to acceptable level as per WHO, NEQS, IFC guidelines/standards whichever stringent one.					
31.	Fisheries	• The contractor will be instructed to avoid the wastewater and the chemical spills into the fresh water; • The awareness campaign among the labor is mandatory to avoid damages to the fisheries; and • Labor will be aware of relevant fisheries and wildlife acts. Disturbance to the fisheries (if reported) during breeding season	Subproject Area	Visual Observations and Compliance with NEQS	Throughout Construction Phase	Contractor	CSC/Client



Sr. No.	Impacts	Proposed Mitigation Measures	Monitoring Site/ Location	Means of Monitoring	Monitoring Frequency	Responsibility	
						Implementation	Supervision
		will be avoided to conserve the natural resources of the region.					



1.13 NON-COMPLIANCE OF THE ESMMP

The implementation of the proposed ESMP involves inputs from various functionaries as discussed earlier. The contractor will be primarily responsible for ensuring implementation of the mitigation measures proposed in the ESMP, which will be part of the contract documents. The provision of the environmental mitigation cost will be made in the total cost of project, for which contractor will be paid on the basis of monthly compliance reports. However, if the contractor fails to comply with the implementation of ESMP and submission of the monthly compliance reports, deductions will be made from the payments to the contractor claimed under the heads of environmental components.

The Consultant will verify any violations of the ESMP, as well as any corrective actions required. If there will be any serious non-compliance of ESMP, following steps will be considered:

Step 1. PMU, CSC and Contractor to work out mitigations together and record the facts and the decision implemented.

Step 2. A more serious infringement is observed and PMU/CSC notifies the Contractor of the issues in writing, with a deadline by which the problem must be rectified. All costs will bear by the Contractor.

Step 3. PMU shall order the Contractor to suspend part, or all, of the works. The suspension will be enforced until the offending parties, procedure, or equipment is corrected and/or remedial measures put in place if required. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

Step 4. Breach of contract - One of the possible consequences of this is the removal of a Contractor and/or equipment and/or the termination of the contract. Such measures will not replace any legal proceedings that PMU/CSC may institute against the Contractor.

1.14 CONTRACTOR'S OBLIGATION AND MANAGEMENT

The contractor will be primarily responsible for ensuring the implementation of the mitigation measures proposed in the ESMP. The requisite content of this ESMP or complete ESMP will be incorporated in bidding document and will become a part of the contractor's contract documents. The provision of the environmental and social mitigation cost will be made in the total cost of Subproject, for which the contractor will be paid on the basis of monthly compliance reports and actual work done at site along with resource loading. In addition to this the contractor will be responsible for the preparation and implementation of site specific ESMP also called as CESMP, along with all the sub-plans with prior approval from SC and WAPDA. The contractor will ensure the availability of the E&S staff as mentioned above at site from the start of the Subproject (at mobilization stage) and organogram will be dually approved from SC and WAPDA. The contractor shall prepare following sub-plans as a part of its CESMP (but not limited to):

- Occupational and Community Health and Safety Plan;
- Emergency Response Plan;
- Traffic Management Plan;
- Site Restoration Plan; and
- Waste Management Plan.

The guideline plans for the Emergency Response Plan and Site Restoration Plan have been provided as **Annex-B** and **Annex-C** respectively.



1.15 E&S Codes of Practice

The Contractor will seek to develop and implement the E&S Codes of Practice (Refer **Annex-D**) for its staff and employees in order to ensure that the intrusion of workers in the Subproject area does not result in any social and environmental and social issues between the workers and locals which can harm the Subproject by causing unnecessary delays. These codes will be reviewed and approved by SC prior to start of the construction activities.

1.16 ENVIRONMENTAL TESTING

Environmental testing will be undertaken before and during the construction phase. The results of analyses are compared with the National Environmental Quality Standards (NEQS). A plan of monitoring for the subproject is given in **Table 1.3**.



Table 1-3: Plan for Environmental Testing during Construction Phase

Components	Parameters	No. of Samples per package	Frequency	Responsibility	Duration
Air Quality	All NEQS parameters	02	Quarterly	Contractor	24 hours
Drinking Water Quality	All NEQS parameters	02	Quarterly	Contractor	-
Wastewater Quality	All NEQS parameters	02	Quarterly	Contractor	-
Noise Level	Day and Night	02	Quarterly	Contractor	24 hours



1.17 Environmental Technical Assistance and Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. WAPDA shall play a key role in this respect and arrange the trainings.

An Environmental and Technical Assistance Program (TAP) is to be carried out before the implementation of the Subproject. Environmental awareness and appropriate knowledge of environmental protection is critical to the successful implementation of the ESMMP. A suitable training program is proposed to train the staff who will be involved in the construction phase of the subproject.

The objective of the TAP will help in establishment of appropriate systems, and to train WAPDA staff for managing environment. The TAP representative will organize training courses/lectures for requirements of WAPDA and contractor staff to train them. The detail of this training program along with cost is presented in **Table 1.4**.

Table 1.4: Personnel Training Program/ TA Services

Sr. No.	Scope	Responsibility	Staff/ Participants	Schedule	Duration
1	• General awareness about the Subproject and Subproject area; • Environmental and social aspects of the Subproject; • Mitigation measures; • Environmental Management Plan	Contractor	WAPDA staff (Project Supervisors and management staff), contractor staff	At the end of the detailed design stage (Prior to start The Subproject activities)	1 day
2	• General awareness about the Subproject and Subproject area; • Environmental and social aspects of the Subproject; • Community issues	Contractor	Subproject Team	Prior to start of the Subproject activities	1 day
3	• Environmental Management Plan • Implementation mechanism • Liquid and solid waste disposal • Cultural values • PPEs • Health and safety Issues	Contractor	Construction Workers	Prior to start of the Subproject activities	1 day
4	• Road safety principles • Speed limits • Waste disposal practices	Contractor	Drivers, Construction Workers	Prior to start of the Subproject activities	1 day



1.18 ESMMP BILL OF QUANTITIES

The Summary of E&S compliance bill of quantities for subproject is presented in **Table 1.5**.

Table 1-5: Summary of Environmental and Social Compliance Budget

Sr. No.	Items	Description	Cost (PKR)
1	Medical screening for workers	Per employee	-
2	ESHS Management including Personal Protective Equipment (dust masks, safety shoes, helmet, jackets, safety goggles, gloves, ear plugs etc.), First Aid Arrangements (First Aid Box, Ambulance, Trained First Aider), Handling and Disposal of Solid/ Hazardous Waste, Camp Management, Fire Extinguishers, Safety Sign Boards, Safety Cones, Safety Tapes and ESHS trainings.	Monthly Provisional Sum	-
3	Cost of Tree Plantation	Plantation of Trees Provisional Sum	-
4	Environmental Testing Cost	As per Table 1.3	-
5	Cost for hiring of staff for ESMMP implementation	01 ESHS Officer and 01 OHS Supervisor per package	-
Grand Total PKR			-

1.19 GRIEVANCE REDRESS PLAN

The key objective of the GRP is to establish procedures for filing any grievances and disputes on social and environment safeguards and other entitlement issues arising out of the implementation of SRMP.

The scope and mandate of Grievances Redress Committees (GRCs) to be established under the Plan shall include any grievances or disputes related to policy and/or measures in Dasu Hydropower Project (DHP) social and environmental plans.

A four-tier “bottom up” system of GRC has been established in the DHP, starting with Village Level GRC, (ii) Union Council Level GRC, (iii) District-Level GRC and (iv) Subproject Level Independent GRC to be led by a retired civil judge.

The mechanism described under GRP will be used for the subproject and will be accessible to the affected persons and communities for redressing their grievances and issues related to social and environmental impacts. For the proposed subproject, representatives of the affected persons, representatives of the communities, Project Manager, Social Safeguard Specialist from the contract, Resident Engineer (RE), Social Safeguard Specialist of consultant and Director (S&R) will be included to address day to day grievances related to the subproject. In case if there will be women hired for the subproject by the Contractor/CSC/PMU, a separate GRM for females shall be developed and implemented.

ANNEXES

ANNEX – A

CHECKLIST OF LIKELY ENVIRONMENTAL AND SOCIAL IMPACTS OF SUBPROJECT

CHECKLIST OF LIKELY ENVIRONMENTAL AND SOCIAL IMPACTS OF SUBPROJECT

Name of Subproject: Construction of Dubair Road Package 1
Number of Subproject:
Proposing Agency: Water and Power Development Authority (WAPDA)
Subproject Location: Dubair Valley, Lower Kohistan District, Khyber Pakhtunkhwa
Subproject Objective: The objective of the subproject is to provide the facility of a good transport route for the valley.
Infrastructure to be Constructed: The main subproject components will be road construction.
Proposed Date of Commencement of Work: After necessary approvals

TECHNICAL DRAWING/SPECIFICATIONS REVIEWED (CIRCLE ANSWER): **YES** NO

SUBPROJECT RELATED ISSUES

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
A.	Zoning and Land Use Planning					
1.	Will the subproject affect land use zoning and planning or conflict with prevalent land use patterns?			✓		The subproject components will be installed after acquiring the land through proper mechanism following the fair compensation. Furthermore, best engineering mechanisms shall be ensured in the design phase to minimize the impact on existing land use.
2.	Will the subproject involve significant land disturbance or site clearance?			✓		The subproject will involve new construction. Site clearance will involve cutting or uprooting trees/shrubs and other vegetation and debris removal. Earthwork will involve the removal of topsoil and/or unconsolidated rock. Excavation will be carried out for new construction and allied structures. The following mitigation measures will be carried out: Excavated material will be reused in the construction, wherever possible. The excess material (spoils) that cannot be reused will be transported to the disposal site. It will be ensured that none of the excess material is dumped into the nearby surface water bodies. A suitable location for spoil disposal will be identified by the Contractor with the consent of the Engineer. The spoils will be placed in layers and will be suitably compacted.

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
						Adequate drainage and dust control measures will be carried out at the disposal site. All disposal sites will be sited in locations which are not affected by floods.
3.	Will the subproject land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?	✓				
B.	Utilities and Facilities					
4.	Will the subproject require the setting up of ancillary facilities?		✓			The Contractor will identify the need and location of construction yard/material storage area and construction camp. The mitigation measures that will be applied to potential environmental, social, health and safety (ESHS) impacts will also be used at the ancillary facilities.
5.	Will the subproject make significant demands on utilities and services?		✓			The Contractor will be responsible to provide proper infrastructure facilities such as water supply and sanitation facilities within the labor camp to avoid burden on local resources.
6.	Will the subproject require significant levels of accommodation or service amenities to support the workforce during construction (e.g., contractor will need more than 20 workers)?		✓			If necessary, the Contractor will avoid the requirement of construction camp by hiring the labors locally. The contractor will accommodate the outside workers in a rented house. If camp will be needed, proper mitigation measures and appropriate criteria shall be adopted.
C.	Water and Soil Contamination					
7.	Will the subproject require large amounts of raw materials or construction materials?		✓			The Contractor will purchase construction material (cement, sand, aggregates, fuel) from the market.
8.	Will the subproject generate large amounts of residual wastes, construction material waste or cause soil erosion?		✓			The demolition, clearing and excavation processes will generate the considerable amount of spoil material. The construction waste will also be produced in small amounts which will be immediately cleared from the site and will be disposed at the spoil disposal sites (see point 2 for mitigation measures applied at the spoil disposal sites).

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
9.	Will the subproject result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?		✓			During the construction phase, storage and handling of some construction materials (stones, sand, gravels, fuel) may pose a risk of soil and water contamination. The following mitigation measures will be carried out: Fuel will be stored on concrete-floored, bunded, facility, covered to provide shade and prevent the ingress of rain. Spill kits will be readily available at material storage sites to deal with accidental spillage. Maintain construction site in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
10.	Will the subproject lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?	✓				
11.	Will the subproject lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?		✓			During demolition, site clearance and other construction works, the excavated material (if not appropriately managed) may enter into the nearby surface water bodies. The following mitigation measures will be implemented: Prevention of dumping of excavated material in stream/nullah. Remove material immediately from the construction site. Locate stockpiles at an appropriate distance from the water bodies.
12.	Will the subproject involve the use of chemicals or solvents?		✓			During the construction of road, small quantities of chemicals may be used in concrete production. They will be handled in a way similar to other hazardous materials such as fuels (see measures given in point 9)
13.	Will the subproject lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?			✓		Some trees may be cut in construction of subproject components. The mitigation measures will include successful plantation of native species. The lost trees will be replaced at a ratio of 1:10
14.	Will the subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc.,					The Contractor will purchase construction material (cement, sand, aggregates, fuel) from the market.

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
	encouraging for mosquito breeding and other disease vectors?	✓				
D.	Noise and Air Pollution Hazardous Substances					
15.	Will the subproject increase the levels of harmful air emissions?		✓			Construction activities particularly earthworks, movement of construction machinery, and the use of aggregates and cement will produce airborne dust. In addition, gaseous emissions due to the combustion of diesel from vehicles, diesel generator sets, etc. will cause some air pollution. The following mitigation measures will be implemented: The Contractor will water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. All vehicles used during construction activities will be kept in good working condition and be appropriately tuned. Construction vehicles carrying materials will be covered with tarpaulin sheets to avoid spilling.
16.	Will the subproject increase ambient noise levels?			✓		During the construction, excavations activities will increase the ambient noise and vibration levels. The following mitigation measures will be implemented: Sandbags will be used to minimize the fly rocks and dust. No night time construction activities will be carried out. Blasting activities shall be restricted to day time only and with prior approval from CSC and the Client. The community will also be notified prior to each such activity. Proper protocol for blasting shall be followed at site.
17.	Will the subproject involve the storage, handling or transport of hazardous substances?		✓			Hazardous material that would be used during the construction are fuels, paints, solvents and chemical additives for concrete. The following measures will be implemented for storage and handling of fuels at the site: Fuels and chemicals will be stored on concrete- floored, bunded, facility, covered to provide shade and prevent the ingress of rain. Chemicals will be stored on an impervious base and handled carefully to avoid any spills. Trained workers will be used in the handling of hazardous

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
						material, and MSDS sheets will be made available at the site. Spill kits will be readily available at material storage sites to deal with accidental spillage. Used chemicals and their containers will be considered as a hazardous waste and will be sold to the vendors. Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use.
E.	Fauna and Flora					
18.	Will the subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?	✓				
19.	Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?	✓				
20.	Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise- related problems?	✓				
F.	Destruction/Disruption of Land and Vegetation					
21.	Will the subproject lead to unplanned use of the infrastructure being developed?	✓				
22.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?	✓				
23.	Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?	✓				
24.	Will the subproject lead to landslides, slumps, slips and other mass movements in road cuts?	✓				
25.	Will the subproject lead to erosion of lands					

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
	receiving concentrated outflow carried by covered or open drains?	✓				
26.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?	✓				
27.	Will the subproject lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?	✓				
G.	Cultural Property					
28.	Will the subproject have an impact on archaeological or historical sites, including historic urban areas?	✓				
29.	Will the subproject have an impact on religious monuments, structures and/or cemeteries?	✓				
30.	Have Chance Finds procedures been prepared for use in the subproject?	✓				The “chance find procedures” will be incorporated in the contract documents.
H.	Expropriation and Social Disturbance					
31.	Will the subproject involve land expropriation or demolition of existing structures?		✓			No existing structure is anticipated to be removed or demolished. However, Permanent land acquisition may be required for construction of road. The land acquisition will be carried out in accordance with the Resettlement Action Plan (RAP) for Dasu Hydropower Project (DHP) and Land Acquisition Act, 1894.
32.	Will the subproject lead to induced settlements by workers and others causing social and economic disruption?	✓				
33.	Will the subproject lead to environmental and social disturbance by construction camps?		✓			If necessary, the Contractor will avoid the requirement of construction camp by hiring the labors locally. The contractor will accommodate the outside workers in a rented house.
34.	Will the subproject pose community health & safety and OHS risks?		✓			Construction works such as excavations may pose risk to nearby communities and workers. The following measures will be implemented to deal with safety of workers and community: The contractor will barricade the construction area.

	A. ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures
						The Contractor will provide Personal Protective Equipment (PPE relevant to work) to all workers. All workers will undergo safety induction training before starting the work. The contractor will carry out job hazard analysis for the construction activity to identify potential hazards that may arise from the proposed works or working conditions to the project workers: and implement necessary control measures. Environmental and Social Code of Practices (ESCPs) will be the part of the Contract Document.

Site Related Issues

	Issues	Yes	No	Don't Know	Mitigation Measures
1.	Does the subproject require land acquisition?	✓			Land acquisition will be required for construction of the subproject. The land acquisition will be carried out in accordance with the Resettlement Action Plan (RAP) for Dasu Hydropower Project (DHP) and Land Acquisition Act, 1894. In addition, the Contractors will require land for establishment of material storage area, which will be acquired by the contractor on a temporary basis. The Contractor will negotiate with the landowners on rental and lease terms, and will make a legal contract. The Contractor will clear all the debris from the site before handing over to the owner after completion of the lease terms.
2.	Will the subproject negatively impact livelihoods?		✓		The land which is proposed for the project facilities is not being used for any kind of livelihood activities.
3.	Is the subproject located in an area with designated natural reserves?		✓		
4.	Is the subproject located in an area with unique natural features?		✓		
5.	Is the subproject located in an area with endangered or conservation-worthy ecosystems, fauna or flora?		✓		
6.	Is the subproject located in an area falling within 500 meters of national forests, protected areas, wilderness areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?		✓		
7.	Is the subproject located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?		✓		

	Issues	Yes	No	Don't Know	Mitigation Measures
8.	Is the subproject located close to groundwater sources, surface water bodies, water courses or wetlands?	✓			The water source for project area is main stream; however the project activities will not affect the downstream users. The contractor will implement pollution prevention measures to prevent contamination of the water resources during rehabilitation/construction of road, allied structures and other construction activities.
9.	Is the subproject located in an area with designated cultural properties such as archaeological, historical and/or religious sites?	✓			
10.	Is the subproject in an area with religious monuments, structures and/or cemeteries?		✓		
11.	Is the project located in an area from where people have been displaced?		✓		
12.	Is the project located in an area where IDPs are temporarily settled?		✓		
13.	Is the project in a politically sensitive area?		✓		
14.	Is the subproject in a polluted or contaminated area?		✓		
15.	Is the subproject located in an area of high visual and landscape quality?		✓		
16.	Is the subproject located in an area susceptible to landslides or erosion?	✓			Landslide may take place during floods. In order to avoid landslide risk, the Contractor will maintain natural angle of cut slopes to avoid land slide hazards and construct retaining structures.
17.	Is the subproject located in an area of seismic faults?		✓		
18.	Is the subproject located in a densely populated area?		✓		
19.	Is the subproject located on prime agricultural land?		✓		
20.	Is the subproject located in an area of tourist importance?		✓		
21.	Is the subproject located near a waste dump?		✓		
22.	Does the subproject have access to potable water?	✓			

	Issues	Yes	No	Don't Know	Mitigation Measures
23.	Is the subproject located far (1-2 kms) from accessible roads?		✓		
24.	Is the subproject located in an area with a wastewater network?		✓		
25.	Is the subproject located in the urban plan of the city?		✓		
26.	Is the subproject located outside the land use plan?		✓		

Signed by Safeguard Focal Person: Name:

Title:

Date:

Signed by Project Manager: Name:

Title:

Date:

INVOLUNTARY RESETTLEMENT SCREENING CHECKLIST

Name of Enumerator: _____ Date: _____
 Province: Khyber Pakhtunkhwa (KP) District: Lower Kohistan
 Project: Construction of Dubair Road Package 1
 Sector: Mutahida Kohistan Jirga Schemes
 Project Categorization: A **B** C1

Potential Impacts	Yes	No	Expected	Remarks
Does the subproject involve any physical construction work, i.e. rehabilitation, reconstruction or new construction? Specify in "remarks" column.	☒	☐	☐	The scope of subproject is construction of new road along with basic facilities.
Does the sub-project involve impacts on land?	☒	☐	☐	The project will have impact on land and assets within COI.
Potential impacts				
Land	☒	☐	☐	The land which will be acquired is vacant.
Government or state owned land free of occupation (agriculture or settlement)	☐	☐	☒	
Private land	☐	☐	☒	
Residential	☐	☒	☐	
Commercial	☐	☒	☐	
Agriculture	☐	☐	☒	
Communal	☐	☐	☒	
Others	☐	☒	☐	
Land-based assets:				
Residential structures	☐	☒	☐	
Commercial structures	☐	☒	☐	
Community structures	☐	☒	☐	
Agriculture structures	☐	☒	☐	
Public utilities	☒	☐	☐	Construction activities may damage the existing utilities and disconnect supply to the users. The Contractor will accurately locate the existing utilities before work commences which can be disrupted by the rehabilitation works. The Contractor will repair all damaged utilities at the earliest to avoid social issues
Others	☐	☒	☐	

Potential Impacts	Yes	No	Expected	Remarks
Agriculture related impacts				
Crops and vegetables		✓		
Trees	✓			Some trees may be cut in construction of subproject. The lost trees will be compensated at a ratio of 1:10
Others		✓		
Affected Persons (APs)				
Number of APs			✓	Will be identified after the revenue survey
Males			✓	
Females			✓	
Titled land owners		✓		
Tenants and sharecroppers		✓		
Leaseholders		✓		
Agriculture wage laborers		✓		
Encroachers and squatters		✓		
Vulnerable APs		✓		
Others		✓		
Section 2				
Others		✓		
Are there any tribal people, indigenous or other minority groups affected by land acquisition or project activities If "Yes" check the following items		✓		
Indigenous groups				
Tribal People				
Minority groups				

ANNEX – B
GUIDELINE EMERGENCY RESPONSE PLAN

GUIDELINE EMERGENCY PREPAREDNESS AND RESPONSE PLAN

PURPOSE

The purpose of this Emergency Response Procedure is to provide measures and guidance for the establishment and implementation of emergency preparedness plans for the subproject. The aim of the Emergency Response Procedure is to:

- i. Ensure all personnel and visitors to the office/job sites are given the maximum protection from unforeseen events.
- ii. Ensure all personnel are aware of the importance of this procedure to protection of life and property.

EMERGENCY PREPARATION AND RESPONSE MEASURE SCOPE

The emergency management program is applied to all subproject elements and intended for use throughout the subproject life cycle. The following are some emergencies that may require coordinated response.

- i. Construction Accident
- ii. Road & Traffic Accident
- iii. Hazardous material spills
- iv. Structure collapse or failure
- v. Trauma or serious illness
- vi. Sabotage
- vii. Fire
- viii. Environmental Pollution
- ix. Loss of person
- x. Community Accident

RESPONSIBILITIES

The detailed roles and responsibilities of certain key members of the Emergency Response team available to assist in emergency are provided in **Table 1** below.

Table 1: Emergency Response Team

Action Group	Responsibility
Emergency Coordinator	▪ Overall control of personnel and resources. ▪ The Emergency Coordinator will support and advise the Site Safety Supervision as necessary. ▪ Serves as public relations spokes persons, or delegates to some staff member the responsibility for working with news media regarding any disaster or emergency. Also assure proper coordination of news release with appropriate corporate staff or other designated people.
Site Safety Supervision (Emergency Commander)	▪ Overall responsibility for activating emergency plan and for terminating emergency actions. ▪ Be alternative of emergency response chairpersons. ▪ Disseminates warnings and information as required to ensure all people in the immediate area have been warned and evacuated

Action Group	Responsibility
	either by alarms or by word of mouth. ▪ Supervise the actions of the Emergency Response Team to ensure all persons are safe from the danger. ▪ Notify outside authorities if assistance is required. ▪ Carries the responsibility for coordinating actions including other organizations in accordance with the needs of the situation. ▪ Ensure maximum co-operation and assistance is provided to any outside groups called to respond to an emergency. ▪ Establish and appoint all emergency organization structure and team. ▪ Assures adequate delegation of responsibilities for all key positions of assistants on the subproject to assist with any foreseeable emergency. ▪ Ensure resources available to purchase needed emergency response equipment and supplies. ▪ Assures that all persons on the Emergency Response Team aware and fully understand their individual responsibilities for implementing and supporting the emergency plan. ▪ Establish the emergency drill schedule of all identified emergency scenarios, track the status and evaluate the emergency. ▪ The Emergency Commander shall ensure that senior management personnel have been reported of the emergency as soon as practical after the event.
Security Team	▪ Ensure that the exit route is regularly tested and maintained in good working order. ▪ Maintain station at the security gate or most suitable location to secure the area during any emergency such that only authorized personnel and equipment may enter, prevent access to the site of unauthorized personnel. ▪ Assist with strong/activation of services during an emergency. ▪ Ensure vehicles and obstructions are moved to give incoming emergency vehicles access to the scene, if ambulance or emergency services are attending the site, ensure clear access and personnel are located to direct any incoming emergency service to the site of emergency.
Rescue & Medical Team	▪ Protect the injured from further danger and weather. ▪ Provide treatment to the victim(s) to the best of their ability by first aid and then transfer to hospital. ▪ Remain familiar with the rescue activities and rescue apparatus. ▪ Assist outside medical services personnel when they arrive
General Administration Team	Response to support any requested general facilities for assisting Emergency Response Team in their work.
Government Relation Team	▪ Coordinate with local government on a matter of concerned in the emergency response plan to liaise with local officers in their affair for support Emergency Response Team. ▪ Coordinate emergency plan with the government authorities, local community.

Action Group	Responsibility
Environment Team	In case of emergency related to the environmental pollution such as the chemical spill, oil spill into the ambient, the environment team will support the technical advice to control and mitigate the pollution until return to the normal situation.
Department Heads	▪ Call up of personnel into the safe location for protective life and property. ▪ Take immediate and appropriate action while Emergency Response Team is being mobilized. ▪ Keep in touch with the Emergency Commander ▪ Control and supervise operators and contractors on the implementation of this procedure, with consultation with Safety Team as necessary. ▪ Provide and maintain emergency equipment of their responsible areas.
Other Staff and Employees	▪ All other staff and employees will remain at their workstations or assembly point unless directed otherwise from Emergency Response Team. ▪ Each supervisor will ensure that all members of his work group are accounted for and keep in touch with each of their Department Head.

PROCEDURE

Emergency situation and injuries to person can occur at any time or place either on subproject site or elsewhere. The most two common types of emergencies on site are fire and serious accident.

Figure 1 Emergency Procedures for Fire

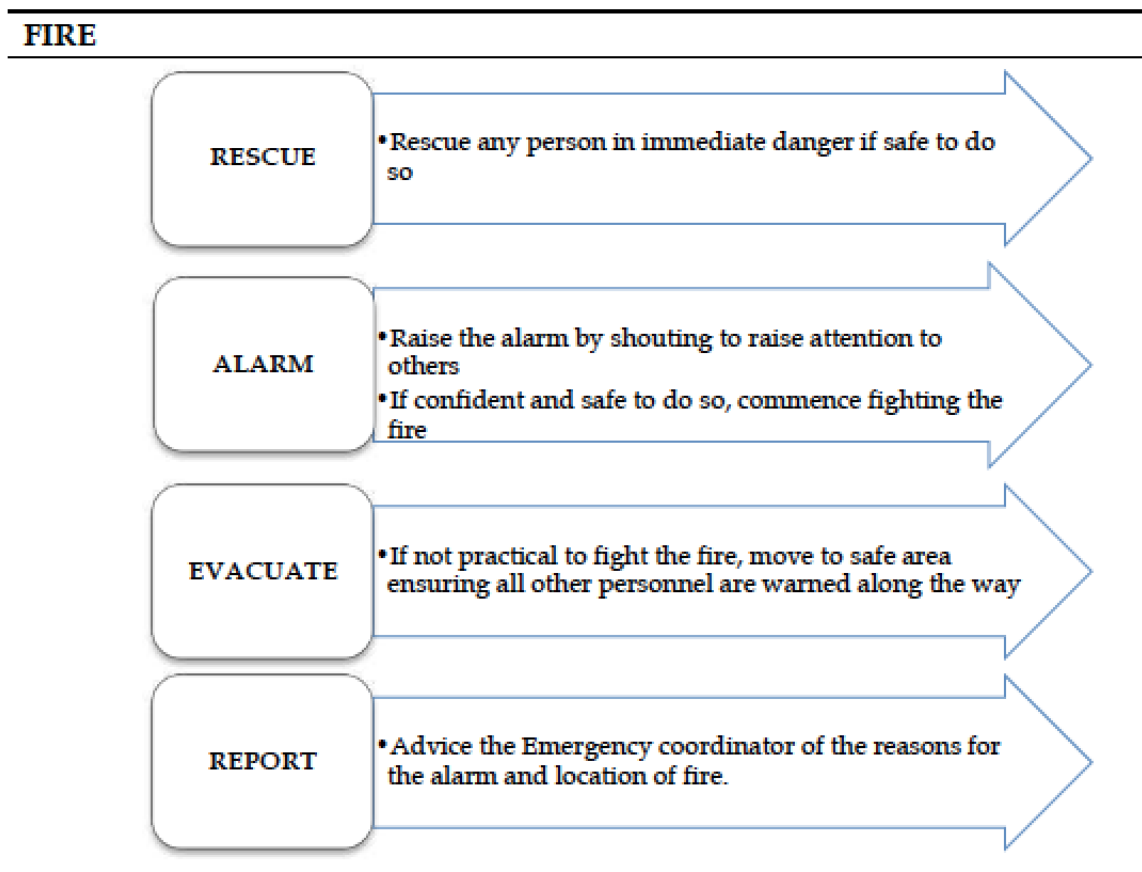


Figure 2 Emergency Procedures for Serious Accident

ACCIDENT

In the event of injuries of persons, the first person on the scene should take the following action:

If a hazard exists consider your own safety then if possible remove the hazard or the injured person.

Assess the patient by checking for Airway, Breathing, Pulse and obvious

Report directly to First Aid or Security Centers, when raising the alarm you must clearly give the following information;

- Your name and the detail of accident
- The location of the injured person(s)
- The number of persons injured
- The extent of the injuries, if known
- What known hazards are in the area

Make the injured person as comfortable as possible

Treat the obvious injuries

Reassure the injured person

COMMUNICATION WITH AUTHORITIES / PRESS AT SITE

In the event of an accident or incident, only senior staff is permitted to give factual information to the authorities for resource of liability exposure. The press must be avoided politely, at all costs, with the terse comment that "the matter is under investigation and relevant information when available will be provided by our Head Office" Do not ever give your opinion or story.

FIRST AID PERSONS

Upon advice of medical emergency, make immediate assessment to response required and if necessary, advise security to summon ambulance or medical assistance, the qualified first aid attendant should also,

- Provide treatment to the victim(s) to the best of his/her ability.
- Ensure the safety of victims by ceasing any work activity in the area.
- Protect the injured from further danger and weather.
- Assist medical services personnel when they arrive.

GENERAL ADMINISTRATION TEAM

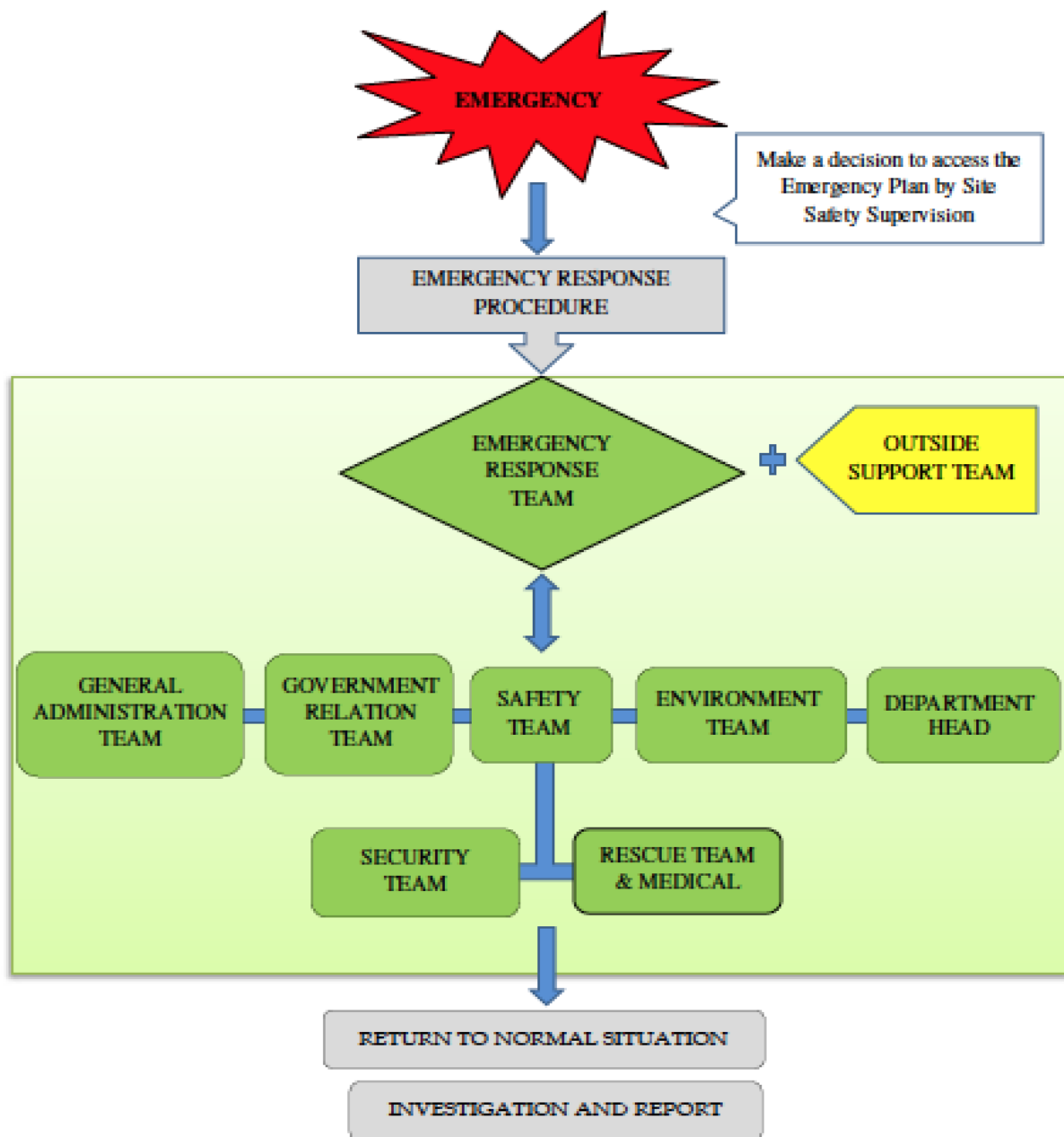
Upon advice of medical emergency, maintain contact with first aid personnel and summon ambulance if required.

SECURITY TEAM

- If ambulance or emergency services are attending the site, ensure clear access and personnel are located to direct vehicle closest to the scene.
- Prevent access to the site of unauthorized personnel (press, etc.).

EMERGENCY COORDINATOR

- The Emergency Coordinator shall assist emergency personnel at the scene as required through allocation of company resources.
- The Emergency Coordinator shall ensure next-of-kin are properly notified as soon as possible and give whatever company support and assistance is necessary to assist them bundle the situation
- The Emergency Coordinator shall ensure that senior management personnel are advised of the emergency as soon as practical after the event.



Note: Name of contact person and call number from Owner/ Contractor to be determined.

INCIDENT AND ACCIDENT REPORT

Section A: Identification Data										
Report No:		Date of Reported:			Reporter:		Sign:			
Job Title:					Company Name:					
Section B: Violence Rate										
Accident Violence: ☐ 01-Death ☐ 02-Serious Injury ☐ 03-Lost Time Injury ☐ 04-First Aid ☐ 05- Not Injury ☐ 06-Near Miss Property Damage Cost: ☐ 1-2,000 USD ☐ 2,001-10,000 USD ☐ 10,001-50,000 ☐ > 50,001										
Section C: Environmental Impact										
Affected area		☐ Construction area			☐ Public area					
Receptor		☐ None			☐ Workers		☐ Community			
Type of pollution		☐ Physical			☐ Chemical		☐ Biological			
Toxicity		☐ Non-toxic			☐ Low - toxic		☐ High - toxic			
Return to Normal		☐ 1 day			☐ 1 day to 1 week		☐ ≥ 1 week			
Cumulative impact		☐ Non-cumulative			☐ Cumulative					
Section D: Injured/Illness Employee										
1.Name:		Sex:	Date of Birth:			Age:	Regular Job Title:		Experience:	
		☐ Male ☐ Female	Month	Day	Year				In this job title Years Weeks	In this Project Years Weeks
Site:		Company:		Reference:			Phone No:		Social Security Number	
Part of Body Injured or Affected:					Nature of Injury or Illness:					
☐ Head ☐ Hands ☐ Face ☐ Nose					☐ Laceration ☐ Amputation ☐ Puncture ☐ Fracture					
☐ Eyes ☐ Legs ☐ Teeth ☐ Neck					☐ Strain & Sprain ☐ Burns ☐ Contusion ☐ Dry Heat Friction					
☐ Trunk ☐ Toes ☐ Elbow ☐ Shoulder					☐ Hernia ☐ Foreign Body ☐ Chemical ☐ Contamination					
☐ Back ☐ Ankle ☐ Wrist ☐ Foot					☐ Skin (Occupational) ☐ Rash ☐ Irritation					
☐ Arms ☐ Thump ☐ Fingers ☐ Internal										
Remark:					Remark:					
Section D: Injured/Illness Employee										
2.Name:		Sex:	Date of Birth:			Age:	Regular Job Title:		Experience:	
		☐ Male ☐ Female	Month	Day	Year				In this job title Years Weeks	In this Project Years Weeks
Site:		Company:		Reference:			Phone No:		Social Security Number	
Part of Body Injured or Affected:					Nature of Injury or Illness:					
☐ Head ☐ Hands ☐ Face ☐ Nose					☐ Laceration ☐ Amputation ☐ Puncture ☐ Fracture					
☐ Eyes ☐ Legs ☐ Teeth ☐ Neck					☐ Strain & Sprain ☐ Burns ☐ Contusion ☐ Dry Heat Friction					
☐ Trunk ☐ Toes ☐ Elbow ☐ Shoulder					☐ Hernia ☐ Foreign Body ☐ Contamination ☐ Chemical					
☐ Back ☐ Ankle ☐ Wrist ☐ Foot					☐ Skin (Occupational) ☐ Rash ☐ Irritation					
☐ Arms ☐ Thump ☐ Fingers ☐ Internal										
Remark:					Remark:					
Section E: Accidents/incident Details										
Date Accident/Incident Occurred:			Time Accident/Incident Occurred:				Exact Location of the Accident / Incident:			

Details of the actual Job Being done at the time:		
Details of Accident / Incident / What actually happened?		
Section F: Accident Cause (Basic cause mark X / Contributing cause, if any mark O)		
UNSAFE CONDITIONS 1 ☐ Inadequately Guarded 2 ☐ Unguarded 3 ☐ Defective Tools, Equipment, or Substance 4 ☐ Unsafe Design or Construction 5 ☐ Hazardous Arrangement 6 ☐ Unsafe Illumination 7 ☐ Unsafe Ventilation 8 ☐ Unsafe Clothing 9 ☐ Insufficient Instruction 10 ☐ Lack of system of work Why was the unsafe act committed? _____	UNSAFE ACTS 1 ☐ Operating Without Authority / Training 2 ☐ Operating at Unsafe Speed 3 ☐ Marking SHE Device Inoperative 4 ☐ Using Unsafe Equipment or Equipment Unsafely 5 ☐ Unsafe Loading, Placing, Mixing 6 ☐ Taking Unsafe Position 7 ☐ Working on Moving or Dangerous Equipment 8 ☐ Distraction, Teasing, Horse Play 9 ☐ Failure to use Personal Protective Devices 10 ☐ Lack of effective instruction or supervision Why did the unsafe condition exist? _____	
Section G: Guide to Corrective Action (Base on the cause checked above, I am taking the following corrective action)		
UNSAFE ACT ☐ Stop the Behaviour ☐ Study the job ☐ Instruct (tell-show-try-check) ☐ Follow Up ☐ Enforce	UNSAFE CONDITION ☐ Remove ☐ Guard ☐ Warn ☐ Supervisory Training	If Supervisor can't handle, then recommend to ☐ Site Engineer, or ☐ Site Manager, or ☐ Project Manager, or ☐ Safety Committee
Detail below any immediate remedial actions that have been taken:		
Detail below any corrective and preventative actions that could be taken to prevent future re-occurrence:	Responsible	Completion Date

Section H: Witness Statement			
Witness Name		Interviewer Name	
Section I: Reviewed & Recommend by			
Recommendation: 			
Reviewed By:	Position:	Signature:	Date:
Remarks : If Accident or Incident happened with lost time injury and affected to the publicity must further report to Safety Department; : First Aid Cases will not applicable to this form; : The accident report shall submit to Safety Department within 3 days : Attached the photograph or sketch the location of accident / incident;			

SUGGESTED CONTENTS OF EPRP

The Contractor should prepare the EPRP based on the guidelines provided in the above sections. The suggested structure of the EPRP is listed below:

1. Purpose
2. Applicable Scope
3. Preparation Basis
4. Emergency Response System
 - 4.1 Generals
 - 4.2 Emergency Response System
 - 4.3 Responsibilities
5. Major Safety Risks
6. Precautionary Measures
 - 6.1 Training and Exercise
 - 6.2 Hazard Source Monitor
 - 6.3 Alert Action
 - 6.4 Management Measures
7. Control Measures
 - 7.1 Response
 - 7.2 Response Procedures
 - 7.3 Emergency Response
 - 7.4 Emergency Completion and Restoration
8. Emergency Response Report and Settlement
9. Supporting Measures
 - 9.1 Communication
 - 9.2 Emergency Team
 - 9.3 Funding for Emergency
 - 9.4 Provisions and Resources
10. Records

ANNEX – C
GUIDELINE SITE RESTORATION PLAN

Restoration and Rehabilitation Plan

1.0 Introduction

After the completion of construction phase of the proposed subproject, it is the responsibility of the Contractor to restore the site that has been disturbed due to construction activities. It is accepted that restoration may take many years to achieve.

2.0 General Quarry Planning and Progressive Rehabilitation

A well-considered quarry development plan prior to starting work, or when opening up new areas will greatly reduce the effort required to achieve appropriate leading practice environmental and safety outcomes for quarry rehabilitation and closure.

The selection of a site, sequencing of quarrying and rehabilitation, and final land-use should all be carefully planned prior to commencement of work at a quarry or borrow pit.

2.1 Progressive Rehabilitation

Progressive rehabilitation refers to the rehabilitation of completed parts of a quarry while extractive operations continue in other parts of the quarry. As new quarry sections are opened, worked out areas should be progressively rehabilitated to avoid increasing the total disturbed area of a quarry. Overburden and topsoil can be stripped from areas being opened up and placed directly onto worked out areas which are being rehabilitated. This will avoid double handling of materials and prevent degradation of the topsoil.

Progressive rehabilitation helps to minimize the visual impact of a quarry, control dust and erosion. It also assists in fostering good landowner and community relations.

Recommended progressive rehabilitation practices are:

- Agree on the final land form and use of a site with the relevant landowner.
- Rehabilitate in accordance with the intended final use of the land.
- Final faces of shallow borrow pits should be battered to a 1:3 (vertical: horizontal) or shallower.
- Plan and develop the quarry in stages towards terminal areas so that progressive rehabilitation works can commence as soon as possible (As shown in **Figure 1**).
- Once the final landform is established, re-vegetate areas to stabilize the landform and to give the vegetation maximum time to establish while the quarry is still in operation.

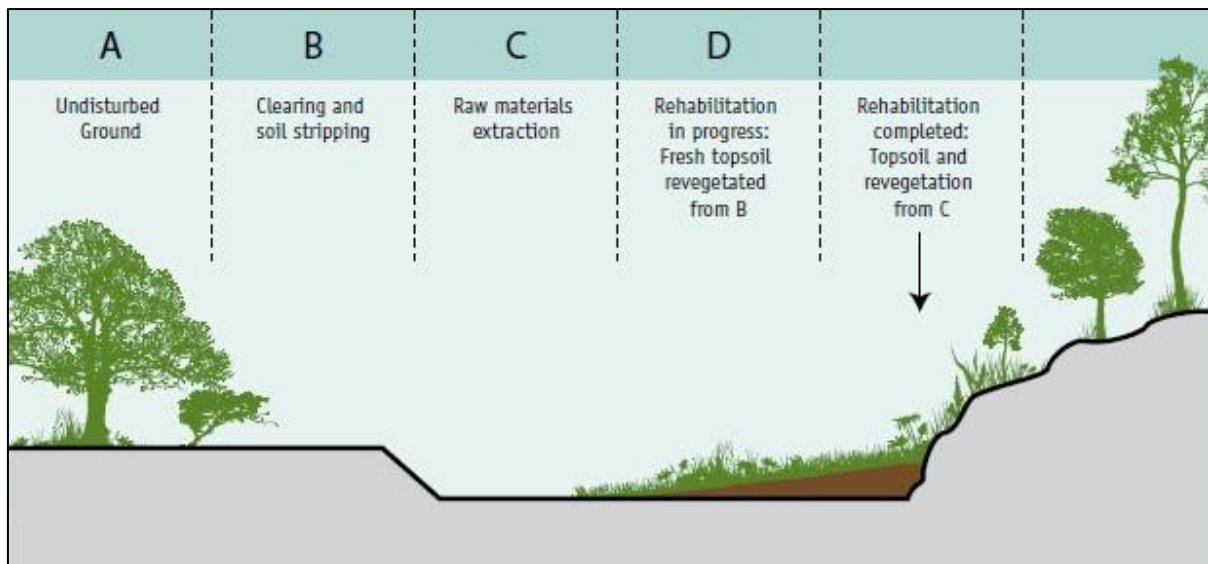


Figure 1: Progressive rehabilitation to manage potential impact on visual amenity

2.2 Re-vegetation

Establishing a self-sustaining cover of vegetation is the best way to stabilize disturbed sites in the long term. Re-vegetation also minimizes the visual impact of quarries. Generally, the vegetation type which existed before the disturbance, or a similar vegetation type will regenerate most successfully.

Prior to the commencement of a quarrying activity the type of re-vegetation should be agreed with the landowner, and should be consistent with the proposed final land-use.

Some indigenous plant species may not thrive in areas where soil conditions are substantially different after quarrying. If this is the case, and the objective is to re-establish vegetation, which fulfils the function of the original native vegetation, then some species from outside the quarry area, may have to be introduced. Care must be taken to avoid introducing a species, which could become an unacceptable fire hazard, invade surrounding areas of native vegetation or become agricultural weeds.

Where agriculture is the planned land-use then the species planted should be those commonly used for pasture or crops known to be successful on soils of similar texture, drainage status, pH and fertility. Suitable legumes should always be considered for their ability to improve soil fertility.

3.0 Rehabilitation of Affected Areas

Rehabilitation will be done in accordance with the ESMMP of the proposed subproject site. There are many areas affected by construction and maintenance activities that require rehabilitation such as borrow pits, stockpile sites, campsites and sidetracks.

3.1 Borrow Pits

Borrow pits are areas either in a road reserve or adjacent land holdings that have been used to extract materials such as gravels and soils. They can vary considerably in size, depending on the quantity of material taken and the borrow pits' reserve body of remaining material. The variable size, shape and nature of borrow pits preclude very specific recommendations; however the following general conditions apply:

- Before extraction commences, licenses and permits should be checked and limits of disturbance and/or clearing must be clearly marked out on the site before any ground disturbing activity takes place; and
- At the completion of extraction, the former borrow pit must be made stable and safe. This usually requires the sides of the pit to be reshaped with gentle safe grades. All disturbed areas associated with borrow pits must be retopsoiled, seeded, fertilized and mulched (if appropriate) as part of the restoration plan. Main Roads has been discouraging the conversion of borrow pits to stock watering points.

3.2 Stockpile Areas and Construction Camp Sites

Stockpile areas and construction campsites should be developed in a similar fashion to borrow pits. Limits of disturbance and/or clearing must be clearly marked out on the site using posts or flagging tape before any ground disturbing activity takes place.

Vehicle wash-down areas should be constructed as a separate area to ensure contaminants are contained and removed at the close of the site.

3.3 Sidetracks

Sidetracks may create a much greater impact than the actual construction site itself. If sidetracks are justified, limits of disturbance must be clearly marked out on the site before any ground disturbing activity takes place.

Rehabilitation of sidetracks requires removal and disposal of fill materials used for temporary approaches, abutments, crossings or embankments. All remaining areas must be reshaped to blend back in with preexisting landforms.

4.0 Monitoring

To achieve continuous improvement and ensure the activities specified in contracts are being adhered to, regular monitoring will be undertaken with emphasis placed on the continuity between site characteristics and the adjacent landscapes.

Restoration of sites disturbed by construction activities is unlikely to ever mimic the original landscape. Performance of the contractor can usually be gauged by comparing adjacent

landscapes. Low continuity between these landscapes usually indicates that no attention has been given to site stability.

ANNEX – D
Environmental and Social Code of Practices

ENVIRONMENTAL AND SOCIAL CODE OF PRACTICES (ESCPS)

Introduction

The objective of the Environmental and Social Code of Practices (ESCPS) is to address all potential and general construction related impacts during implementation of the subproject. The ESCPS will provide guidelines for best operating practices and environmental management guidelines to be followed by the contractor for sustainable management of all environmental issues.

The Contractor shall make his employees aware of the codes of practice. The ESCPS will form the part of the contract documents and will be used as monitoring tool for compliance. It is mandatory for the contractor to include these ESCPS in their subcontracts. Violation of the compliance requirements will be treated as non-compliance leading to the corrections or otherwise imposing penalty on the contractor. Contractor and subcontractors are requested to refer the ESMP for likely environmental and social impacts of the subproject for further information on corrective actions.

ESCP 1: Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	The Contractor shall - Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to CSC for approval. - Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. - Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. - Segregate and reuse or recycle all the wastes, wherever practical. - Prohibit burning of solid waste - Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route - Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. - Provide refuse containers at each worksite. - Request suppliers to minimize packaging where practicable. - Place a high emphasis on good housekeeping practices. - Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary - Storage of all wastes before transportation and final disposal.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	The Contractor shall - Collect chemical wastes drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. - Store, transport and handle all chemicals avoiding potential environmental pollution. - Store all hazardous wastes appropriately in bunded areas away from water courses. - Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. - Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at approved locations. - Construct concrete or other impermeable flooring to prevent seepage in case of spills

ESCP 2: Fuels and Hazardous Goods Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuels and hazardous goods.	Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.	The Contractor shall Prepare spill control procedures and submit the plan for CSC approval. Train the relevant construction personnel in handling of fuels and spill control procedures. Store dangerous goods in bunded areas on a top of a sealed plastic sheet away from watercourses; and also under a rainwater shed (to prevent contact with rainwater). Refueling shall occur only within bunded areas. Make available MSDS for chemicals and dangerous goods on-site. Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by KP EPA or sold to KP EPA registered vendors. Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored and personnel trained in the correct use. Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. Put containers and drums in permanent storage areas on an impermeable floor that slopes to a safe collection area in the event of a spill or leak. Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials. Return the gas cylinders to the supplier. However, if they are not empty prior to their return, they must be labeled with the name of the material they contained or contain, information on the supplier, cylinder serial number, pressure, their last Hydrostatic test date, and any additional identification marking that may be considered necessary.

ESCP 3: Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous Material and Waste	Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage	The Contractor shall Follow the management guidelines proposed in ESCPs 1 and 2. Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways, storm water systems or underground water tables
Discharge from construction sites	Waste waters from construction sites and work camps. The construction works will modify groundcover and topography changing the surface water drainage patterns of the area including infiltration and storage of storm water.	The Contractor shall Minimize the amount of exposed soil at any one time (only clear vegetation immediately before construction is about to begin) Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site Divert runoff from undisturbed areas around the construction site Stockpile materials away from drainage lines Prevent all solid entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting and transport to an approved waste disposal site or recycling depot Collect, transport and discharge the septic tank waste from the construction camps in the nearby municipal waste water treatment plants Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This shall be done in every exit of each construction vehicle to ensure the local roads are kept clean.
Soil Erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor shall Ensure that sealed roads used by construction vehicles are swept regularly to remove sediment. Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds)

ESCP 4: Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	The Contractor shall Prepare a program for prevent/avoid standing waters, which CSC will verify in advance and confirm during implementation Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there Rehabilitate road drainage structures immediately if damaged by contractors' road transports. Build new drainage lines as appropriate and required for wastewater from construction yards connecting to the available nearby recipient water bodies. Ensure wastewater quality conforms to the relevant standards provided by NEQS, before it being discharged into the recipient water bodies. Ensure the internal roads/hard surfaces in the construction yards/construction camps that generate has storm water drainage to accommodate high runoff during downpour and that there is no stagnant water in the area at the end of the downpour. Construct wide drains instead of deep drains to avoid sand deposition in the drains that require frequent cleaning. Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion Protect natural slopes of drainage channels to ensure adequate storm water drains. Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. Reduce infiltration of contaminated drainage through storm water management design
Ponding of water	Health hazards due to mosquito breeding	Do not allow ponding of water especially near the waste storage areas and construction camps Discard all the storage containers that are capable of storing of water, after use or store them in inverted position

ESCP 5: Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Storage of Hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor shall Strictly manage the wastes management plans proposed in ESCP1 and storage of materials in ESCP2 Construct appropriate spill contaminant facilities for all fuel storage areas Establish and maintain a hazardous materials register detailing the location and quantities of hazardous substances including the storage, use of disposals Train personnel and implement safe work practices for minimizing the risk of spillage Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site Remediate the contaminated land using the most appropriate available method to achieve required commercial/industrial guideline validation results
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	The Contractor shall Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds

ESCP 6: Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, (ii) destruction of aquatic environment in nearby lakes, streams, and reservoirs caused by erosion and/or deposition of sediment damaging the spawning grounds of fish, and (iii) destruction of vegetation by burying or gullyng.	The Contractor shall Locate stockpiles away from drainage lines Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds Remove debris from drainage paths and sediment control structures Cover the loose sediments and water them if required Divert natural runoff around construction areas prior to any site disturbance Install protective measures on site prior to construction, for example, sediment traps Observe the performance of drainage structures and erosion controls during rain and modify as required.

ESCP 7: Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	The Contractor shall Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. Remove unwanted materials from top soil like grass, roots of trees and similar others. The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bunding of the soil layers, water penetration and revegetation
Transport	Vehicular movement outside right of way of existing roads or temporary access roads will affect the soil fertility of the agricultural lands	Limit equipment and vehicular movements to within the approved construction zone Construct temporary access tracks to cross concentrated water flow lines at right angles Use vehicle-cleaning devices, for example, ramps or wash down areas

ESCP 8: Topography and Landscaping

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Construction activities especially earthworks will change topography and disturb the natural rainwater/flood water drainage as well as will change the local landscape.	The Contractor shall Ensure the topography of the final surface of all raised lands (construction yards, approach roads, access roads, etc.) are conducive to enhance natural draining of rainwater/flood water; Keep the final or finished surface of all the raised lands free from any kind of depression that insists water logging Undertake mitigation measures for erosion control/prevention by grass-turfing and tree plantation, where there is a possibility of rain- cut that will change the shape of topography. Cover immediately the uncovered open surface that has no use of construction activities with grass-cover and tree plantation to prevent soil erosion and bring improved landscaping

ESCP 9: Air Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	The Contractor shall - Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. - Operate the vehicles in a fuel efficient manner - Cover haul vehicles carrying dusty materials moving outside the construction site - Impose speed limits on all vehicle movement at the worksite to reduce dust emissions - Control the movement of construction traffic - Water construction materials prior to loading and transport - Service all vehicles regularly to minimize emissions - Limit the idling time of vehicles not more than 2 minutes
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	The Contractor shall - Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors - Focus special attention on containing the emissions from generators - Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites - Service all equipment regularly to minimize emissions - Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations
Construction activities	Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard.	- Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. - Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted - Minimize the extent and period of exposure of the bare surfaces - Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to avoid during periods of high wind and if visible dust is blowing off-site - Store the cement in silos and minimize the

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		emissions from silos by equipping them with filters. Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations Crushing of rocky and aggregate materials shall be wet-crushed, or performed with particle emission control systems

ESCP 10: Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	The Contractor shall Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall Appropriately site all noise generating activities to avoid noise pollution to local residents Use the quietest available plant and equipment Modify equipment to reduce noise (for example, noise control kits, lining of truck trays or pipelines) Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. Install acoustic enclosures around generators to reduce noise levels. Fit high efficiency mufflers to appropriate construction equipment Avoid the unnecessary use of alarms, horns and sirens
Construction activity	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall Notify adjacent landholders prior any typical noise events outside of daylight hours (6 pm to 7 am) if the construction works are being carried out near residential areas Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions Employ best available work practices on-site to minimize occupational noise levels Install temporary noise control barriers where appropriate Notify affected people if major noisy activities will be undertaken, e.g. pile driving Plan activities on site and deliveries to and from site to minimize impact Monitor and analyze noise and vibration results and adjust construction practices as required. Avoid undertaking the noisiest activities, where possible, when working at night (6pm to 7 am) near the residential areas

ESCP 11: Protection of Flora

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Local flora are important to provide shelters for the birds, offer fruits and/or timber/fire wood, protect soil erosion and overall keep the environment very friendly to human-living. As such damage to flora has wide range of adverse environmental impacts.	The Contractor shall Reduce disturbance to surrounding vegetation Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation. Get approval from supervision consultant for clearance of vegetation. Make selective and careful pruning of trees where possible to reduce need of tree removal. Control noxious weeds by disposing of at designated dump site or burn on site. Clear only the vegetation that needs to be cleared in accordance with the plans. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill and construction of diversion roads, etc. Before excavation, mark the trees that must remain on the site and cannot be removed. Do not burn off cleared vegetation – where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping. Mulch provides a seed source, can limit embankment erosion, retains soil moisture and nutrients, and encourages re-growth and protection from weeds. Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from. Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil. Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. Ensure excavation works occur progressively and re-vegetation done at the earliest Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction Supply appropriate fuel in the work caps to prevent fuel wood collection

ESCP 12: Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding of animals	The Contractor shall Restrict the tree removal to the minimum required. Retain tree hollows on site, or relocate hollows, where appropriate Leave dead trees where possible as habitat for fauna Identify the trees that require specific attention (e.g the hollow bearing trees) and fell them in a manner which reduces the potential for fauna mortality. Felled trees will be inspected after felling for fauna and if identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow animals to move of their own volition.
Construction camps	Illegal poaching	Provide adequate knowledge to the workers regarding protection of flora and fauna, and relevant government regulations and punishments for illegal poaching.

ESCP 13: Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road-users.	The Contractor shall Prepare and submit a traffic management plan to the CSC for their approval before commencement of construction. Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs/ lights, and road signs. Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Pakistan Traffic Regulations. Install and maintain a display board at each important road intersection on the roads to be used during construction, which shall clearly show the following information in local language: Location: chainage and village name Duration of construction period Period of proposed detour / alternative route Suggested detour route map Name and contact address/telephone number of the concerned personnel Name and contact address / telephone number of the Contractor Inconvenience is sincerely regretted.
Construction vehicular traffic	Accidents and spillage of fuels and chemicals	Restrict truck deliveries, where practicable, to day time working hours (7 am to 6 pm). Restrict the transport of oversize loads. Operate road traffics/transport vehicles, if possible, to non-peak periods to minimize traffic disruptions. Enforce on-site speed limit

ESCP 14: Construction Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	The Contractor shall Locate the construction camps within the proposed site Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. Submit to the CSC for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters
Construction Camp Facilities	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	Contractor shall provide the following facilities in the campsites Housing facilities for all the non-local workers hired by the contractor Safe and reliable water supply. Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by wall or by location. The minimum number of toilet facilities required is one toilet for every ten persons. Treatment facilities for sewerage of toilet and domestic wastes Storm water drainage facilities. Both sides of roads are to be provided with shallow v drains to drain off storm water to a silt retention pond which shall be sized to provide a minimum of 20 minutes retention of storm water flow from the whole site. Channel all discharge from the silt retention pond to natural drainage via a grassed swale at least 20 meters in length with suitable longitudinal gradient. Paved internal roads. Ensure with grass/vegetation coverage to be made of the use of top soil that there is no dust generation from the loose/exposed sandy surface. Pave the internal roads of at least haring-bond bricks to suppress dusts and to work against possible muddy surface during monsoon.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Provide in-house community/common entertainment facilities. dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	The Contractor shall Ensure proper collection and disposal of solid wastes within the construction camps Insist waste separation by source; organic wastes in one pot and inorganic wastes in another pot at household level. Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. Dispose organic wastes in a designated safe place on daily basis. At the end of the day cover the organic wastes with a thin layer of sand so that flies, mosquitoes, dogs, cats, rats, are not attracted. One may dig a large hole to put organic wastes in it; take care to protect groundwater from contamination by leachate formed due to decomposition of wastes. Cover the bed of the pit with impervious layer of materials (clayey or thin concrete) to protect groundwater from contamination. Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Fuel supplies for cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the natural flora and fauna	The Contractor shall Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass. Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking. Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the subproject area, and relevant government regulations and punishments on wildlife protection.
Health and Hygiene	There will be a potential for diseases to be transmitted including COVID 19, heat stroke, malaria, exacerbated	The Contractor shall Provide adequate health care facilities within construction sites. Provide first aid facility round the clock. Maintain

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	by inadequate health and safety practices. There will be an increased risk of work crews spreading sexually transmitted infections and HIV/AIDS.	stock of medicines in the facility and appoint fulltime designated first aider or nurse. Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. Initial health screening of the laborers coming from outside areas Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work Provide COVID 19, heat stroke and HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices
Safety	In adequate safety facilities to the construction camps may create security problems and fire hazards	The Contractor shall Provide appropriate security personnel (police / home guard or private security guards) and enclosures to prevent unauthorized entry in to the camp area. Maintain register to keep a track on a head count of persons present in the camp at any given time. Encourage use of flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones. Provide appropriate type of firefighting equipment suitable for the construction camps Display emergency contact numbers clearly and prominently at strategic places in camps. Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors.
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	The Contractor shall Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed Give prior notice to the laborers before

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		demolishing their camps/units Reuse the demolition debris to a maximum extent. Dispose remaining debris at the designated waste disposal site. Handover the construction camps with all built facilities as it is if agreement between both parties (contractor and land-owner) has been made so. Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner. Not make false promises to the laborers for future employment in O&M of the subproject.

ESCP 15: Socio-Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near residential areas	Disturbance from construction activities (dust, noise, traffic, conflicts with contractor's work force etc.)	The Contractor shall Establish a system for receiving complaints from the community and address them (the community can also make complaints to the GRM established under the subproject) Shall ensure all the construction workers follows the following code of conduct: All workers are strictly forbidden to establish any kind of relationship with local women bring any unrelated women to the subproject site. All workers will avoid sexual harassment and child abuse. All workers must not leave the camps or work sites unless a written authorization is issued by the respective supervisor The contractors will advise and prohibit the local population and its authorities or representatives not to enter the subproject operation areas (camp sites, colonies, etc.) in order to minimize the potential risk of incidents related to the operations.
Construction activities near Religious and cultural sites	Disturbance from construction works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	The Contractor shall Communicate to the public through community consultation and newspaper announcements regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. Do not block access to cultural and religious sites, wherever possible Restrict all construction activities within the foot prints of the construction sites. Stop construction works that produce noise (particularly during prayer time) shall there be any mosque/religious/educational institutions close to the construction sites and users make objections. Take special care and use appropriate equipment when working next to a cultural/religious institution. Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given by the CSC/PMU. Provide separate prayer facilities to the construction workers. Show appropriate behavior with all construction workers especially women and elderly people Allow the workers to participate in praying during construction time Resolve cultural issues in consultation with local leaders and supervision consultants Establish a mechanism that allows local people to raise grievances arising from the construction process.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works so as to maintain effective surveillance over public health, social and security matters

ESCP 16: Worker Health and Safety

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc), (ii) risk factors resulting from human behavior (e.g. COVID 19, heat stroke, STD, HIV etc) and (iii) road accidents from construction traffic.	The Contractor shall Implement suitable safety standards for all workers and site visitors which shall not be less than those laid down on the international standards (e.g. International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own national standards or statutory regulations, in addition to complying with the national standards of the Government of Pakistan (Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas, Provide personal protection equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job Appoint an environment, health and safety manager to look after the health and safety of the workers Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works and establishment of construction camps so as to maintain effective surveillance over public health, social and security matters
Best practices	Child and pregnant labor	The Contractor shall not hire children of less than 16 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the national Labor Laws
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims	Provide health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations shall be easily accessible throughout the place of work Document and report occupational accidents, diseases, and incidents. Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice. Identify potential hazards to workers, particularly those that may be life-threatening and provide

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		necessary preventive and protective measures. Provide awareness to the construction drivers to strictly follow the driving rules Provide adequate lighting in the construction area and along the roads
Construction Camps	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	The Contractor shall provide the following facilities in the campsites to improve health and hygienic conditions as mentioned in ESCP 14 Construction Camp Management Adequate ventilation facilities Safe and reliable water supply Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Treatment facilities for sewerage of toilet and domestic wastes Storm water drainage facilities. Recreational and social facilities Safe storage facilities for petroleum and other chemicals in accordance with ESCP 2 Solid waste collection and disposal system in accordance with ESCP1. Arrangement for trainings Paved internal roads. Security fence at least 2 - 3 m height. Sick bay and first aid facilities
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	The contractor shall provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities shall be at least 6 m away from storm drain system and surface waters. These portable toilets shall be cleaned once a day and all the sewerage shall be pumped from the collection tank once a day and shall be brought to the common septic tank for further treatment. Contractor shall provide bottled drinking water facilities to the construction workers at all the construction sites.
Other ESCPs	Potential risks on health and hygiene of construction workers and general public	The Contractor shall follow the following ESCPs to reduce health risks to the construction workers and nearby community ESCP 2: Fuels and Hazardous Goods Management ESCP 4: Drainage Management ESCP 9: Air Quality Management ESCP 10: Noise and Vibration Management ESCP 13: Road Transport and Road Traffic Management
Trainings	Lack of awareness and basic knowledge in health care among the construction workforce, make them susceptible to potential diseases.	The Contractor shall Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria, heat stroke, COVID-19 and transmission of sexually transmitted infections (STI) HIV/AIDS. Train all construction workers in general health and safety matters, and on the specific hazards of their work. Training shall consist of basic hazard

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Commence the malaria, heat stroke, COVID-19, HIV/AIDS and STI education campaign before the start of the construction phase and complement it with by a strong condom marketing, increased access to condoms in the area as well as to voluntary counseling and testing. Implement malaria, COVID-19, heat stroke, HIV/AIDS and STI education campaign targeting all workers hired, international and national, female and male, skilled, semi- and unskilled occupations, at the time of recruitment and thereafter pursued throughout the construction phase on ongoing and regular basis. This shall be complemented by easy access to condoms at the workplace as well as to voluntary counseling and testing.

TECHNICAL SPECIFICATION

1. The KPK MRS and NHA CSR items as given in the BOQ shall be executed in conformance with the Technical Specifications issued by Khyber Pakhtunkhwa, Government of Pakistan for Market Rate System (MRS) Items and National Highway, Government of Pakistan for Composite schedule of Rates (CSR) Items respectively and whereof any such specification appearing in this document shall be deemed as null and void. The relevant specs no. for KPK MRS and NHA CSR are provided along with BOQ in Volume-1.
2. The Non-CSR items as given in the BOQ shall be executed in-conformance with the enclosed Technical Specifications.

TECHNICAL SPECIFICATIONS

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1 TECHNICAL SPECIFICATIONS

1.1 PVC PIPES

The PVC pipe/accessories shall be manufactured according to the standards as below.

- PS4607 Part-1: PVC conduits and accessories (metric units)
- BS3595: PVC pipes and accessories.

The PVC pipes and their accessories shall be of polyvinyl chloride (PVC) complying with above stated or equivalent other reputed standards. Manufactured smooth bends shall be used where pipe/conduit changes direction. Bending of conduit by heating or otherwise shall be allowed only at special situation with the approval of Engineer. The use of sharp bends or tees shall not be allowed. PVC pipes shall be placed underground across the road for future use. These pipes shall be surrounded by concrete which shall conform to provisions of section 401 and shall be paid extra under pay item No. 401a.

1.1.1 Measurement and Payment

Measurement shall be made for the number of running meters for PVC pipe acceptably supplied and installed by the Contractor. Payment shall be made for the number of running meters of PVC pipe measured as provided above, at the Contract unit price per running metre and shall constitute full compensation for supplying installing, connecting, earth excavation and backfilling to the satisfaction of the Engineer including all accessories.

1.2 WIRE MESH

The work shall comprise the supply, transportation, cutting, placing, fixing, anchoring, and securing of spot-welded steel wire mesh to serve as reinforcement for shotcrete applied on drainage channels, side drains, cut slopes, embankments, retaining structures, erosion protection works, and other locations shown on the drawings or directed by the Engineer.

1.2.1 Material

- Welded wire mesh shall be factory manufactured by electric resistance spot welding.
- Mesh opening: 75 mm × 75 mm (3" × 3")
- Wire size: 8 SWG (4.06 mm nominal diameter)
- Steel shall comply with ASTM A1064/A1064M (or equivalent BS 4483/ISO standard) for welded wire reinforcement.
- Minimum tensile strength: 485 MPa
- Minimum yield strength: 415 MPa
- Welded joints shall be uniform and capable of developing the required strength without separation during handling.
- Unless otherwise specified, the mesh shall be hot-dip galvanized after fabrication with a minimum zinc coating of 275 g/m², particularly for drainage and erosion protection works exposed to moisture.

1.2.2 Installation

1. The surface shall be cleaned of loose soil, rock fragments, vegetation, and other deleterious materials before installation. Mesh shall be securely fixed using:
 - Rock bolts,
 - Steel anchor pins,
 - Expansion anchors, or
 - Reinforcing dowels,
as shown on the drawings.
2. Maximum spacing of anchors shall generally not exceed 1.0 m × 1.0 m, unless otherwise directed by the Engineer.
3. The mesh shall be held away from the surface using suitable spacers to ensure it is embedded approximately at the middle third of the shotcrete layer.
4. Adjacent sheets shall overlap by not less than one full mesh (75 mm) or 300 mm, whichever is greater, and shall be securely tied using 16 SWG galvanized binding wire. Good practice for shotcrete reinforcement requires adequate overlap and secure lacing of adjacent sheets.
5. Mesh shall be taut and free from excessive sagging before shotcrete placement.

1.2.3 Shotcrete Cover

- Minimum concrete cover over the mesh shall be 25 mm, and shall be increased to 40–50 mm where the structure is exposed to severe weathering or water flow. Adequate cover is important for corrosion protection and proper encapsulation of the mesh.

1.2.4 Measurement and Payment

Measurement shall be made in square metres (m²) of wire mesh satisfactorily supplied, installed, fixed, overlapped, and accepted by the Engineer. Payment shall be made for the number of square meter of Wire Mash installed in full capacity measured as provided above, at the Contract unit price per running metre and shall constitute full compensation for supplying installing, connecting, earth excavation and backfilling to the satisfaction of the Engineer including all accessories.

1.3 SONIC INTEGRITY TEST

Sonic Integrity Test shall be executed in accordance with Standard Test Method for Low Strain Impact Integrity Testing of Deep Foundations ASTM Standard D5882 (Latest Edition).