# NATIONAL HIGHWAY AUTHORITY, PAKISTAN

# Southern Link Road (SLR), Khyber Pass Economic Corridor (KPEC) Project

## Volume-2

## ANNEXURES-ESIA REPORT

**January 2024**

**CONSULTANTS:**

# Table of Content

# ANNEXURE I. ENVIRONMENTAL AND SOCIAL CODES OF PRACTICES (ESCP)

The ESCPs consist of environmental and social management guidelines and OHS practices to be followed by the contractors for sustainable management of all environmental, social, health and safety issues.

Contractors will prepare site specific management plans, namely Construction Environmental and Social Action Plan (CESAP) and Occupational Health and Safety Plan, in compliance with World Bank and Government guidelines and based on the guidance given in the ESCPs. The CESAP and OHS Plan will form the part of the contract documents and will be used as monitoring tool for compliance.

- ESCP 1: Waste Management
- ESCP 2: Fuels and Hazardous Goods Management
- ESCP 3: Water Resources Management
- ESCP 4: Drainage Management
- ESCP 5: Soil Quality Management
- ESCP 6: Erosion and Sediment Control
- ESCP 7: Topsoil Management
- ESCP 8: Topography and Landscaping
- ESCP 9: Quarry Areas Development and Operation
- ESCP 10: Air Quality Management
- ESCP 11: Noise and Vibration Management
- ESCP 12: Protection of Flora
- ESCP 13: Protection of Fauna
- ESCP 14: Road Transport and Road Traffic Management
- ESCP 15: Construction Camp Management
- ESCP 16: Cultural and Religious Issues
- ESCP 17: Community and Workers Health and Safety
- ESCP 18: Construction and Operation Phase Security
- ESCP 19: Operation of Heavy Equipment Management
- ESCP 20: Excavation
- ESCP 21: Transportation of Oversized Equipment
- ESCP 22: Lifting and Materials Handling
- ESCP 23: Stringing conductors at road, river, and existing transmission line crossings

**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<br>• Develop site specific 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 supervision consultant for approval.<br>• Organize disposal of all wastes generated during construction in the designated disposal sites.<br>• Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route.<br>• Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process.<br>• Provide refuse containers at each worksite.<br>• Request suppliers to minimize packaging where practicable.<br>• Place a high emphasis on good housekeeping practices.<br>• 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.<br>• Potable water should be supplied in bulk containers to reduce the quantity of plastic waste (plastic bottles). Plastic bag use should be avoided. |
| Hazardous Waste | Health hazards and environmental impacts due to improper waste management practices | The Contractor shall<br>• Collect chemical wastes in sealed containers appropriately labelled for safe transport to an approved chemical waste depot.<br>• Store, transport and handle all chemicals avoiding potential environmental pollution.<br>• Store all hazardous wastes at a fair distance from water courses.<br>• Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction.<br>• Construct concrete or other impervious 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 the construction have a potential to be a source of contamination.<br>• 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<br>• Prepare spill control procedures and submit them for supervision consultant approval.<br>• Train the relevant construction personnel in handling of fuels and spill control procedures.<br>• Store dangerous goods on top of a sealed plastic sheet away from watercourses.<br>• Refueling shall occur only within safe areas.<br>• Store and use fuels in accordance with material safety data sheets (MSDS). Make available MSDS for chemicals and dangerous goods on- site.<br>• Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored; and ensure personnel trained in the correct use.<br>• Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use.<br>• Make sure all containers, drums, and tanks that are used for storage are in good condition and are labelled 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.<br>• Store hazardous materials above flood level considered for construction purposes<br>• 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.<br>• Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution.<br>• Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials. |

**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<br>• Follow the management guidelines proposed in ESCPs 1 and 2.<br>• Minimize the generation of sediment, oil and grease, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems. |

| | | |
|---|---|---|
| Discharge from construction sites | Construction activities, sewerage fro m construction sites and work camps may affect the surface water quality. | The Contractor shall<br>• Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials.<br>• Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site.<br>• Stockpile materials away from drainage lines<br>• Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, approved waste disposal site or recycling depot.<br>• Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. 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 should 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<br>• Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as |
| | | practicable following earthwork to minimize erosion.<br>• Ensure that roads used by construction vehicles are swept regularly to remove dust and sediment.<br>• Water the loose 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). |
| Construction activities in water bodies | Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and other aquatic biology. | The Contractor Shall<br>• Dewater sites by pumping water to a sediment basin prior to release off site – do not pump directly off site.<br>• Monitor the water quality in the runoff from the site or areas affected by dredge/excavation plumes, and improve work practices as necessary.<br>• Protect water bodies from sediment loads by silt screen or other barriers.<br>• 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 or storm water systems.<br>• Do not discharge cement and water curing used for cement concrete directly into water courses and drainage inlets. |

| | | |
|---|---|---|
| Drinking water | Untreated surface water is not suitable for drinking purposes due to presence of suspended solids and ecoli. | The Contractor Shall<br>• Provide the drinking water that meets NEQS standards. Drinking water to be chlorinated at source, and ensure presence of residual chlorine<br>0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time. |

***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<br>• Prepare drainage management procedures and submit them for supervision consultant approval.<br>• Prepare a program to prevent/avoid standing waters, which supervision consultant will verify in advance and confirm during implementation.<br>• Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line.<br>• Rehabilitate road drainage structures immediately if damaged by contractors' road transports.<br>• 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 NEQS, before it is being discharged into the recipient water bodies.<br>• Ensure that there will be no water stagnation at the construction sites and camps.<br>• Protect natural slopes of drainage channels to ensure adequate storm water drains.<br>• Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. |
| Ponding of water | Health hazards due to mosquito breeding | • Do not allow ponding of water especially near the waste storage areas and construction camps.<br>• 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<br>• Strictly manage the wastes management plans proposed in ESCP1 and storage of materials in ESCP2.<br>• Construct appropriate spill contaminant facilities for all fuel storage areas.<br>• Establish and maintain a hazardous material register detailing the location and quantities of hazardous substances including the storage, and their disposals.<br>• Train personnel and implement safe work practices for minimizing the risk of spillage.<br>• 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.<br>• Remediate the contaminated land using the most appropriate available method. |
| Construction material stock piles | Erosion from construction material stockpiles may contaminate the soils | The Contractor shall<br>• 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** |
|---|---|---|
| Clearing of construction sites | Cleared areas and slopes are Susceptible to erosion of topsoils, which affects the growth of vegetation and causes ecological imbalance. | The Contractor shall<br>• Prepare site specific erosion and sediment control measures and submit them for supervision consultant approval.<br>• Reinstate and protect cleared areas as soon as possible.<br>• Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turf/tree plantations. |
| Construction activities and material stockpiles | The impact of soil erosion are destruction of aquatic environment by erosion and/or deposition of sediment | The Contractor shall<br>• Locate stockpiles away from drainage lines.<br>• Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds.<br>• Remove debris from drainage paths and sediment control structures.<br>• Cover the loose sediments of construction material and water them if required.<br>• Divert natural runoff around construction areas prior to any site disturbance.<br>• Install protective measures on site prior to construction, for example, sediment traps.<br>• Observe the performance of drainage structures and erosion controls during rain and modify as required. |

| | | |
|---|---|---|
| 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<br>• Stabilize the cleared areas not used for construction activities with vegetation<br>• Ensure that roads used by construction vehicles are swept regularly to remove sediment.<br>• Water the material stockpiles, access roads and bare soils as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds). |

***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<br>• Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m.<br>• Remove unwanted materials from top soil like grass, roots of trees and similar others.<br>• Locate topsoil stockpiles in areas outside drainage lines and protect from erosion.<br>• Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil.<br>• 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.<br>• 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 ROW or temporary access roads will affect the soil fertility of the agricultural lands | • Limit equipment and vehicular movements to within the approved construction zone.<br>• Plan construction access to make use, if possible, of the final road alignment. |

***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<br>• Prepare plantation plan and submit the plan for supervision consultant approval.<br>• Ensure the topography of the final surface of all raised lands are conducive to enhance natural draining of rainwater/flood water.<br>• Undertake mitigation measures for erosion control/prevention by tree plantation.<br>• 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.<br>• Reinstate the natural landscape of the ancillary construction sites after completion of works. |

***ESCP 9*: Quarry Areas Development and Operation**

| **Project Activity/ Impact Source** | **Environmental Impacts** | **Mitigation Measures/ Management Guidelines** |
|---|---|---|
| Development and operation of borrow areas | Borrow areas will have impacts on local topography, landscaping and natural drainage. | The Contractor shall<br>• Prepare quarry area management plan and submit the plan for supervision consultant approval.<br>• Use only approved quarry and borrow sites<br>• Reuse excavated or disposed material available in the project to the maximum extent possible.<br>• Store top soil for reinstatement and landscaping.<br>• Control dust and air quality deterioration by application of watering and implementing mitigation measures proposed in ESCP 10: Air Quality Management<br>• Noise and vibration control by ESCP 11: Noise and Vibration Management. |

***ESCP 10*: Air and Dust Quality Management**

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|---|---|---|
| Construction vehicular traffic | Air quality can be affected by vehicle exhaust emissions and combustion of fuels. | The Contractor shall<br>• Prepare air quality management plan (under the Pollution Prevention Plan) and submit the plan for supervision consultant approval.<br>• Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition.<br>• Operate the vehicles in a fuel-efficient manner.<br>• Cover hauls vehicles carrying dusty materials moving outside the construction site.<br>• Impose speed limits on all vehicle movement at the worksite to reduce dust emissions.<br>• Water construction materials prior to loading and transport.<br>• Service all vehicles regularly to minimize emissions. |
| Construction machinery | Air quality can be affected by emissions from machinery and combustion of fuels. | The Contractor shall<br>• 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.<br>• Focus special attention on containing the emissions from generators.<br>• Machinery causing excess pollution (e.g., visible smoke) will be banned from construction sites.<br>• Service all equipment regularly to minimize emissions.<br>• 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 are a nuisance in the environment and can be a health hazard, and also can affect the local crops; | The Contractor shall<br>• 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 sand shall be covered and confined to avoid their being wind drifted.<br>• Minimize the extent and period of exposure of the bare surfaces.<br>• Restore disturbed areas as soon as practicable by vegetation/grass-turfing. |

| | | |
|---|---|---|
| | | • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations.<br>• Not permit the burning of solid waste. |

***ESCP 11*: Noise and Vibration Management**

| **Project Activity/ Impact Source** | **Environmental Impacts** | **Mitigation Measures/ Management Guidelines** |
|---|---|---|
| Construction vehicular traffic | Noise quality will be affected due to vehicular traffic | The Contractor shall<br>• Prepare a noise management plan (under the Pollution Prevention Plan) and submit the plan for supervision consultant approval.<br>• Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures.<br>• Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc.<br>• Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site. |
| Construction machinery | Noise may have an impact on people, property, fauna, livestock and the natural environment. | The Contractor shall<br>• Appropriately site all noise generating activities to avoid noise pollution to local residents.<br>• Use the quietest available plant and equipment.<br>• 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.<br>• Install acoustic enclosures around generators to reduce noise levels.<br>• Fit high efficiency mufflers to appropriate construction equipment.<br>• 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<br>• Notify adjacent landholders prior any typical noise events outside of daylight hours.<br>• Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions.<br>• Employ best available work practices on-site to minimize occupational noise levels.<br>• Install temporary noise control barriers where appropriate.<br>• Plan activities on site and deliveries to and from site to minimize impact.<br>• Monitor and analyze noise and vibration results and adjust construction practices as required.<br>• Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas. |

### *ESCP 12*: 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<br>• Prepare a plan for protection of flora and submit the plan for supervision consultant approval.<br>• Minimize disturbance to surrounding vegetation.<br>• Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation.<br>• Get approval from supervision consultant for clearance of vegetation.<br>• Make selective and careful pruning of trees where possible to reduce need of tree removal.<br>• Control noxious weeds by disposing of at designated dump site or burn on site.<br>• Clear only the vegetation that needs to be cleared in accordance with the engineering plans and designs. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles etc.<br>• 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.<br>• Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from.<br>• 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.<br>• Ensure excavation works occur progressively and re-vegetation done at the earliest<br>• Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction<br>• Supply appropriate fuel in the work camps to prevent fuel wood collection. |

***ESCP 13*: Protection of Fauna**

| **Project Activity/ Impact Source** | **Environmental Impacts** | **Mitigation Measures/ Management Guidelines** |
|---|---|---|
| Construction activities | The location of construction activities can result in the loss of wild life habitat and habitat quality, | The Contractor shall<br>• Prepare a plan for protection of fauna and submit the plan for supervision consultant approval.<br>• Limit the construction works within the designated sites allocated to the contractors.<br>• Check the site for animals trapped in, or in danger from site works and use a qualified person to relocate the animal. |
| Vegetation clearance | Clearance of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas | The Contractor shall<br>• Restrict the tree removal to the minimum numbers required.<br>• Fell the hollow bearing trees 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 | The Contractor shall<br>• Provide adequate knowledge to the workers regarding protection of flora and fauna, and relevant government regulations and punishments for illegal poaching.<br>• Ensure that staff and Subcontractors are trained and empowered to identify, address and report potential environmental problems. |

***ESCP 14*: 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 traffic and safety of the road- users. | The Contractor shall<br>• Prepare a traffic management plan and submit the plan for supervision consultant approval.<br>• Strictly follow the Project's 'Traffic Management Plan' and work with close coordination with the Traffic Management Unit.<br>• Prepare and submit additional traffic plan, if any of his traffic routes are not covered in the Project's Traffic Management Plan, and requires traffic diversion and management.<br>• Include in the traffic plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary diversions, warning signs / lights, road signs etc.<br>• Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Country's Traffic Regulations. |
| | Accidents and spillage of fuels and chemicals | The Contractor shall<br>• Restrict truck deliveries, where practicable, to day time working hours.<br>• Restrict the transport of oversize loads.<br>• Operate vehicles, if possible, to non-peak periods to minimize traffic disruptions.<br>• Enforce on-site speed limit. |

***ESCP 15*: 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<br>• Prepare a construction camp management plan ensuring labor influx management and submit the plan to NHA and supervision consultant for approval.<br>• Locate the construction camps within the designed sites or at areas which are acceptable from environmental, cultural or social point of view.<br>• Consider the location of construction camps away from communities 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.<br>• Submit to the supervision consultant 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.<br>• 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<br>• Adequate housing for all workers.<br>• Safe and reliable water supply, which should meet NEQS. Drinking water to be chlorinated at source, and ensure presence of residual chlorine 0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time (WHO guideline).<br>• 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 location. The minimum number of toilet facilities required is one toilet for every ten persons.<br>• Storm water drainage facilities. |

| | | |
|---|---|---|
| Disposal of waste | Management of wastes is crucial to minimize impacts on the environment | The Contractor shall<br>• Ensure proper collection and disposal of solid wastes within the construction camps.<br>• Insist waste separation by source; organic wastes in one container and inorganic wastes in another container at household level.<br>• 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.<br>• 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<br>• Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass.<br>• Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking.<br>• Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the project area, and relevant government regulations and punishments on wildlife protection. |
| Health and Hygiene | Increased risk of communicable diseases and burden on local health services to be transmitted including malaria, exacerbated by inadequate health and safety practices. | The Contractor shall<br>• Provide adequate health care facilities within construction sites.<br>• Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse.<br>• Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals.<br>• Initial health screening of the laborers coming from outside areas.<br>Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work.<br>• 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 rainy season in offices and construction camps and yards. |

| | | |
|---|---|---|
| | | • Not dispose food waste openly as that will attract rats and stray dogs.<br>• 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<br>• Provide appropriate security personnel (police or private security guards) and enclosures to prevent unauthorized entry into the camp area.<br>• Maintain register to keep a track on a head count of persons present in the camp at any given time.<br>• Provide appropriate type of firefighting equipment suitable for the construction camps<br>• Display emergency contact numbers clearly and prominently at strategic places in camps.<br>• Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors. |
| Social and cultural aspect for Camp setup | Labor Influx in the project area will have risk of social conflict, illicit behavior and crime, burden on and competition for public service provision | The Contractor will<br>• The Contractor will schedule construction time particularly near the settlements, to cause least disturbance to the local population, particularly women.<br>• Contractor will hire labor preferably form the project area based on adjacency principles.<br>• Contractor will ensure training of staff and signing of a Code of Conduct. Training will focus on awareness on local customs, traditions, behaviour towards women and children, and prevention of GBV/SEA/SH. Contractor will warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions.<br>The Contractor will carry out the construction activities in such a way that the open defecation timings by the local community should not be affected. The normal defecation timings are early in the morning and at late in the evening. So, the Contractor will have to take care of these timings.<br>• During construction activities, if privacy of the nearby households is affected, the Contractor will inform the house owner to make some arrangements. Similarly, Contractor will take care as much as possible that the construction activities should not affect the privacy.<br>• The Contractor will also ensure that noise and light pollution from the labor camp is kept at minimal levels especially at night. |

| | | |
|---|---|---|
| Site Restoration | Restoration of the construction camps to original condition requires demolition of construction camps. | The Contractor shall<br>• 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.<br>• Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed.<br>• Give prior notice to the laborers before demolishing their camps/units.<br>• Maintain the noise levels within the national standards during demolition activities.<br>• Different contractors should be hired to demolish different structures to promote recycling or reuse of demolished material.<br>• Reuse the demolition debris to a maximum extent. Dispose remaining debris at the designated waste disposal site.<br>• Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner. |

***ESCP 17*: Worker Health and Safety**

| **Project Activity/ Impact Source** | **Environmental Impacts** | **Mitigation Measures/ Management Guidelines** |
|---|---|---|
| Best practices | The population in the proximity of the construction site and the construction workers are exposed to several (i) biophysical health risk factors, (e.g., noise, dust, chemicals, construction material, solid waste, wastewater, vector transmitted diseases etc.), (ii) road accidents from construction traffic. | The Contractor shall<br>• Prepare an Occupational Health and Safety plan and submit the plan for supervision consultant's approval. Implement suitable safety standards for all workers and site visitors which should 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 National Standards.<br>• Provide the workers with a safe and healthy work environment, considering inherent risks in construction activity and specific classes of hazards in the work areas.<br>• 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.<br>• Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job.<br>• Appoint an environment, health and safety manager to look after the health and safety of the workers.<br>• Inform the local authorities responsible for health, safety and security duly informed before commencement of civil works and establishment of construction camps to maintain effective surveillance over public health, social and security matters. |

| | | |
|---|---|---|
| | Child labor | The Contractor shall<br>• Not hiring of children below the age of 14 for any non-hazardous type of labour, and below the age of 18 for hazardous work.<br>• Project staff will monitor sites to check for child labour, and will hold regular consultations to keep a check on forced labour at project sites<br>• No child under 18 years will be allowed to reside in project-related accommodation and camps |
| Accidents | Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims | The Contractor shall<br>• Ensure health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations should be easily accessible throughout the place of work.<br>• Document and report occupational accidents, diseases, and incidents.<br>• 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.<br>• Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures.<br>• Provide awareness to the construction drivers to strictly follow the driving rules. |
| 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 16 Construction Camp Management<br>• Adequate ventilation facilities<br>• Safe and reliable water supply.<br>• Hygienic sanitary facilities and sewerage system.<br>• Treatment facilities for sewerage of toilet and domestic wastes<br>• Storm water drainage facilities.<br>• Recreational and social facilities<br>• Safe storage facilities for petroleum and other chemicals in accordance with ESCP 2<br>• Solid waste collection and disposal system in accordance with ESCP1.<br>• Arrangement for trainings<br>• Paved internal roads.<br>• Security fence at least 2 m height.<br>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<br>• Provide portable toilets at the construction sites, if about 10 people are working the whole day for a week. Location of portable facilities should be at least 6 m away from storm drain system and surface waters. These portable toilets should be cleaned once a day and all the sewerage should be pumped from the collection tank once a day and should be brought to the common septic tank for further treatment.<br>Provide safe 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<br>• ESCP 2: Fuels and Hazardous Goods Management<br>• ESCP 4: Drainage Management<br>• ESCP 10: Air Quality Management<br>• ESCP 11: Noise and Vibration Management<br>ESCP 15: 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<br>• Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of sexually transmitted infections (STI) HIV/AIDS.<br>Train all construction workers in general health and safety matters, and on the specific hazards of construction sites. |

***ESCP 18: Construction and Operation Phase Security***

| **Project Activity/ Impact Source** | **Impacts /Concerns** | **Mitigation Measures/ Management Guidelines** |
|---|---|---|
| Construction Phase | Inadequate construction site security poses a significant risk to assets, construction materials and property. Theft/vandalism of assets, materials and property would increase construction costs and cause delays in project completion. | The Contractor shall:<br>• Provide appropriate security personnel (i.e., security guards) to prevent unauthorized entry into the camp area.<br>• Employ night watchman for periods of significant on-site storage or when the area necessitates.<br>• Ensure all assets (i.e., tools, equipment, etc.) and construction materials at construction site are identified, inventoried and tracked as closely as possible. All assets should be clearly labelled and marked. Keep records of tool serial numbers and check inventory on a regular basis.<br>• All tools and equipment should have a check out/in system, if not in use should be secured and stored in a proper place to prevent theft or loss.<br>• Provide storage sheds for the secure storage of equipment and tools when not in use.<br>• Ensure there is proper fencing around the construction site perimeter. Fencing should be chain-link at least 2.4 m high and secured with a steel chain and lock. If possible, the entire site should be fenced; if this is not possible, make sure the construction trailer and any equipment storage areas are fenced.<br>• Ensure construction site has controlled access points (one or two entry points at most), allowing for close monitoring of comings and goings from the site.<br>• Workers should be easily identified and have credentials that indicate site access.<br>• Ensure job site is properly lighted at night. Well-lit areas should include any office trailers and equipment storage trailers. Floodlights operated by sensors should also be installed where appropriate.<br>• Pre-employment screening investigations should be used to verify the applicants relating to their employment, education and criminal history background.<br>• Provide awareness training to security |

| | | |
|---|---|---|
| | | guards/personnel on community relations and GBV/SEA/SH prevention |
| | Improper security measures may pose security risk for construction workers and especially foreign staff on construction sites. | The Contractor shall:<br>• Prepare site specific security plan.<br>• Maintain register to keep track of number of persons present in the camp at any given time.<br>• Provide appropriate security personnel at job sites as mentioned above.<br>• Ensure proper fencing as mentioned above.<br>• Ensure controlled access points to job site as mentioned above. |
| Operation Phase | Vandalism/damage and theft of infrastructure (i.e., metals and etc.). | • Ensure strategic infrastructure sites are secure and fenced with controlled access points. Fencing should be chain- link at least 2.4 m high and secured with a steel chain and lock. |

***ESCP 19: Operation of Heavy Equipment Management***

| Project Activity/ Hazard Source | Hazard Risks | Preventive Measures |
|---|---|---|
| Heavy machinery | Hazards associated with heavy machinery movement are:<br><br>• Run over<br>• Pinch in / caught in between<br>• Falling of equipment form road edge / into excavations<br>• Falling of loads<br>• Overturning<br>• Driver negligence / poor operations | The Contractor shall<br><br>• All above listed hazards shall be prevented through safe working procedures, training of the operators and workers and exclusion of the operation, ensuring visibility and providing signaller etc. where applicable. |
| Before Operations | | • All construction equipment shall be maintained, equipped and operated in accordance with manufactures' requirements.<br>• Only authorized and trained personnel shall operate equipment.<br>• Equipment operators and truck drivers shall make a pre-shift safety inspection of their equipment. Any conditions that effect safe operation shall be corrected before use.<br>• All visibility aids like side / back view mirrors will be available with all site vehicles and machinery.<br>• Blocking of side / back wind shields will not be allowed by any means like curtains, posters, wall papers etc.<br>• Use 3 points mounting and dismounting technique off of heavy equipment - NEVER JUMP OFF HEAVY EQUIPMENT. |
| During Operation | | • Designate the route for earth moving machinery; avoid reversing where possible by providing in – out route.<br>• Separate routes will be established for site vehicles and pedestrians where applicable.<br>• All site staff will be trained for the following:<br>• Always try to walk on the driver side of equipment as the passenger side has a larger blind spot.<br>• Arrange to provide enough space to allow the equipment and workers to perform the planed tasks safely otherwise safe distance will be maintained from all sides of the heavy equipment while they are in use.<br>• Use of high visibility vest for all site personnel.<br>• Prohibition of cell phone use while operating any equipment.<br>• Restriction in transporting workers on equipment or vehicles that are not equipped with seats for passengers.<br>• Deployment of flagman when heavy equipment are in motion, especially where machinery and workers are working at close distance to ensure communication between the operator and flagman to maintain safe movement.<br>• Cordon of swing radius of vehicles in danger zones with warning tape of barriers.<br>• Restriction of work under any suspended or overhead load.<br>• Restrictions in overloading of dumpers and insurance of offloading at level ground with rear wheels stop logs at the edges.<br>• Insurance of reverse alarm with the site vehicles.<br>• Ensure three main principles at site to avoid any mishap.<br>• Exclusion: exclusion will be done by specifying the work area by barricades / fencing/isolating from pedestrian / worker.<br>• Visibility: best view around machinery directly from the operator position will be ensured by adequate visibility aids (clear front, side and rare screens with side / back view mirrors covering all blind areas).<br>• Signallers: A signaller will be provided in a safe position to direct operation and any pedestrian movements in danger zones. |
| After Operations | | The Contractor shall |

| | | |
|---|---|---|
| | | • Never leave any machinery / vehicle unattended in running position or key inside.<br>• After completion of operation all equipment shall be switched off and doors locked where applicable.<br>• Bucket of excavator, loader shall be grounded.<br>• All power transmission shall be neutral.<br>• All equipment shall be parked in secured ground. |

***ESCP 20: Excavation***

| **Project Activity/ Hazard Source** | **Hazard Risks** | **Preventive Measures** |
|---|---|---|
| Sloping and benching | • Landslides, cave-ins, excavation collapse<br>• Falling, rolling or dislodging material<br>• Personal Falls, machinery falls into excavated area or trenches<br>• Water accumulation<br>• Confined Space<br>• Being struck or crushed by a workplace vehicle,<br>• Machinery Hazards; Loading and dumping hazards, e.g. struck by or pinch in between object, crushed by when reversing, overloading, overturning of the vehicles while unloading. | The slopes and configurations of sloping and benching systems will be selected and constructed by contractor and will be in accordance with the approved design following applicable code and designed by a registered professional engineer.<br>i. Allowable configurations and slopes: Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the contractor follows other applicable design procedures approved by the engineer.<br>ii. Sloping and benching systems not utilizing previous options will be approved by a registered professional engineer. Designs shall be in written form and shall include at least the following:<br>(a) The magnitude of the slopes that were determined to be safe for the particular project; (b) The configurations that were determined to be safe for the particular project;<br>(c) The identity of the registered professional engineer approving the design; and<br>(d) At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the PMU upon request. |
| Design of support systems, shield systems, and other protective systems | | Designs of support systems, shield systems, and other protective systems shall be selected and constructed by contractor and shall be in accordance with the approved design specifications following applicable code and designed by a registered professional engineer.<br>i. Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.<br>ii. Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.<br>iii. Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the PMU upon request.<br>iv. Support systems, shield systems, and other protective systems not utilizing Option i, Option ii or Option iii, above, shall be approved by a registered professional engineer.<br>v. Designs shall be in written form and shall include the following: |

| | | |
|---|---|---|
| | | a. A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and<br>b. The identity of the registered professional engineer approving the design.<br>c. At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the PMU |
| Selection of Materials and equipment. | | Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function. Manufactured materials and equipment used for protective<br>systems shall be used and maintained in a manner that is consistent |
| | | With the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.<br>i. When material or equipment that is used for protective systems is damaged, the competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service and shall be evaluated and approved by a registered professional engineer before being returned to service.<br>ii. Installation and removal of support - Members of support systems shall be securely connected together to prevent sliding, falling, kick outs, or other predictable failure.<br>iii. Support systems shall be installed and removed in a manner that protects workers from cave-ins, structural collapses, or from being struck by members of the support system.<br>iv. Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.<br>v. Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.<br>vi. Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.<br>vii. Backfilling shall progress together with the removal of support systems from excavations.<br>viii. Additional requirements for support systems for trench excavations:<br>a. Excavation of material to a level no greater than 2 feet (.61<br>m) below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system. |

| | | |
|---|---|---|
| | | b. Installation of a support system shall be closely coordinated with the excavation of trenches. |
| Shield systems | | • Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.<br>• Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.<br>• Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.<br>• Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.<br><br>Excavations of earth material to a level not greater than 2 feet (.61 m) below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield. |

***ESCP 21: Transportation of Oversized Equipment***

| **Project Activity/ Hazard Source** | **Hazard Risks** | **Preventive Measures** |
|---|---|---|
| Movement of transportation | Hazards associated with transportation of oversized equipment:<br><br>• Traffic disruptions along the way<br>• Traffic accidents<br>• Impact on infrastructure, roads, bridges<br>• Nuisance to people along the transportation route | The Contractor shall:<br><br>• Identify the appropriate special vehicles depending on the characteristics of the load<br>• Ensure that special vehicles are maintained, in good operating condition and have all permits required under the national laws<br>• Ensure that the drivers are trained for the particular type of vehicles<br>• Ensure that drivers are in good physical condition<br>• Ensure that the equipment is loaded appropriately and secured on the vehicle<br>• Ensure that the transportation route avoids schools, hospitals, mosques, markets or other places of concentration of people, as far as possible<br>• Ensure that the vehicle route is surveyed and that its geometric design and condition is appropriate for the transportation of the big and heavy load.<br>• Ensure that turning curves are appropriate for the special vehicles.<br>• Ensure that the necessary clearance is available, i.e., bridges, transmission lines along the way<br>• Ensure that a pilot vehicle is available to inform people on the coming load and to inform the vehicle driver on likely obstacles<br>• Liaise with the traffic police to inform on the dates and the route of the transportation, and request their permit<br>• Liaise with the communities along the route, at least a week before, to inform them on the dates of the transportation |

***ESCP 22: Lifting and Materials Handling***

| Project Activity/ Hazard Source | Hazard Risks | Preventive Measures |
|---|---|---|
| Mechanical Handling | Injuries associated with mechanical handling of loads may result from:<br>• Unsafe operating practices<br>• Inappropriate condition of equipment<br>• Improper loading<br>• Carrying too heavy a load<br>• Improper training | **General Requirements**<br>• Lifting equipment selection shall be based on a risk assessment and shall be suitable for the task for which it will be used.<br>• Lifting equipment selection should also consider the various operating environments under which the equipment may be used.<br>• All lifting equipment used will comply with the necessary legal requirements.<br>• All lifting equipment must be clearly marked with its safe working load as well as a unique identification number. Where the load capacity is variable, a table of load to conditions must be affixed.<br>• Testing, including non-destructive testing where relevant, must be carried out by accredited contractors.<br>• No equipment may be used if proof of inspection and test is not available (as recorded in the register).<br>• No purpose made or adapted lifting equipment will be used, unless the special adaptation has been approved (after risk assessment) by the respective Responsible Engineer and the approval as well as limitations on use or special instructions are held with the register and communicated to the user.<br>• Only employees who have been tested, found competent and authorized will be allowed to operate lifting equipment. |
| Manual handling | Injuries associated with manual handling of loads may result from:<br>• Unsafe working habits<br>• Improper lifting<br>• Carrying too heavy a load<br>• Incorrect gripping<br>• Failure to wear correct personal protective equipment<br>• Improper training | • Training in safe manual handling methods.<br>• Inspect material for the physical size and weight, and sharp or jagged edges, rough or slippery surfaces, slivers or burrs.<br>• Adequate supervision.<br>• Wearing of the correct personal protective equipment.<br>• Pre-employment medical examinations and periodic examinations may reveal a hernia, knee or back injuries.<br>• Consider physical matters such as small worker – heavy load.<br>• Keep fingers away from pinch points, especially when setting down material.<br>• When handling timber, pipes or other long objects, keep the hands away from the ends to prevent them from being pinched.<br>• Wipe off grease, wet, slippery or dirty objects before handling them.<br>• Keep hands free from oil and grease.<br>• When possible, use holders, containers, handles or tongs when manually handling material. |

***ESCP 23: Stringing conductors at road, river, and existing transmission line crossings***

| Project Activity/ Hazard Source | Hazard Risks | Preventive Measures |
|---|---|---|
| Stringing conductors at road crossings | Hazards associated with stringing conductors at road crossing are;<br>• Traffic disruptions along the way<br>• Traffic accidents<br>• Damage to equipment<br>• Accidents and spillage of fuels and chemicals<br>• Less working time | The Contractor shall:<br>• Prepare and submit a traffic management plan for approval at least 30 days before commencing work on any project component involved in traffic diversion and management.<br>• Coordinate with local administration to communicate traffic closures for the construction work, along with traffic closure schedules.<br>• 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.<br>• Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Country's Traffic Regulations.<br>• 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:<br>◦ Location: Chainage and village name<br>◦ Duration of construction period<br>◦ Period of proposed detour / alternative route<br>◦ Suggested detour route map<br>◦ Name and contact address/telephone number of the concerned personnel<br>◦ Name and contact address / telephone number of the Contractor<br>• Inconvenience is sincerely regretted. |
| Conductors at river crossings | • Hazards associated with the stringing at river crossings;<br>• Risk of drowning of worker and machinery<br>• Corrosion of material and equipment<br>• Electrocution<br>• Slip trips and fall<br>• Chemical Spillage<br>• Flood in rivers<br>• Slope failure<br>• Cold-water shock and immersion | The contractor shall;<br>• Ensure the provision of Lifejackets/buoyancy aids worn by workers with risk of falling into water. Lifejackets/buoyancy aids should conform to BS EN ISO 12402-1, 2, 3 or 4, or other equivalent international standards according to working conditions.<br>• Ensure the checking of Lifejackets thoroughly by the user before each use<br>• Provide a lifebuoy with sufficient lifeline (not less than 30 metres) and the locations of the lifebuoys should be at less than 50-metre intervals along the edges of places where work is being carried out over side. To avoid any delays to rescue operations, lifebuoys should not be tightly tied to posts.<br>• Provide safety harnesses with continuous and effective anchorage system when it is impracticable to provide a suitable working platform, access and egress and safe place of work.<br>• Ensure the provision of Rescue facilities, including sufficient stretcher(s), portable resuscitation equipment and first aid facilities, and kept readily accessible for emergency use.<br>• Ensure the presence of Shelters, vessels for evacuation from adverse weather, etc. in the vicinity of workplaces over/near water.<br>• Ensure the Job specific safety training and regular refresher training to workers to enhance/maintain their safety awareness of potential hazards associated with work over water/near water. |

| | | |
|---|---|---|
| | | • Ensure the safe handling of the chemicals while transporting or using.<br>• Ensure the implementation of the safety standards. Ensure the usage of PPEs by the Workers |
| Stringing conductors at existing transmission line crossings | Hazards associated with the stringing over existing transmission line includes;<br>• Electrocution<br>• Electromagnetic interference<br>• Falling of existing line/conductor | The contractor shall;<br>• Coordinate with the transmission line staff/concerned or NHA to plan the work<br>• Take necessary approval from the concerned department<br>• Take necessary shutdown on the live transmission lines<br>• Provide training and appropriate personal protection equipment for workers;<br>• Maintain construction equipment in good condition;<br>• Test structures for integrity prior to undertaking work;<br>• Ensure Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; among others;<br>• Ensure hoisting equipment should be properly rated and maintained and hoist operators properly trained;<br>• Ensure the specs of safety belts which should be of not less than 16 millimeters (5/8inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident;<br>• Ensure when operating power tools at height, workers should use a second (backup) safety strap;<br>• Provide safe working space for workers when working at properties with additional structure around the power poles. |

# ANNEXURE II. TREE PLANTATION PLAN

## General Description

The scope of works for the Peshawar Torkham Motorway Project was revised due to the inclusion of the link road connecting Peshawar Torkham Motorway project to N-55 and further to N-5. The 42.53 Km long link road connects Peshawar Torkham Motorway to N-55 at Badaber and terminates on the N- 5 between Chamkani and Kuki Khel in Peshawar (see map below). The new proposed alignment of the Southern link Road passes through rolling terrain in the southern outskirts of Peshawar Urban Area.

N-5 and N-55 are important national direct routes that link the Sea Ports in the south (Karachi) with Torkham, a city on the international border in the north between Pakistan and Afghanistan. Torkham is the busiest port of entry between the two countries, serving as a major transporting and receiving site. Islamabad Peshawar Motorway (M-I), an integral part of the CPEC Eastern Alignment connects to N-5 near Chamkani. The proposed road will be 42.53 km 4- lane access-controlled highway, starting from Kuki Khel, connecting N-55 before Badabher Urban Area and terminating at N-5 i.e., between Kiki Khel & Chamkani as part of Peshawar-Torkham Expressway. The construction of the link road as a part of the Peshawar Torkham Motorway project shall connect these important cross-country national routes to the Motorway project allowing for a smooth movement of the traffic from the south to the border area up North.

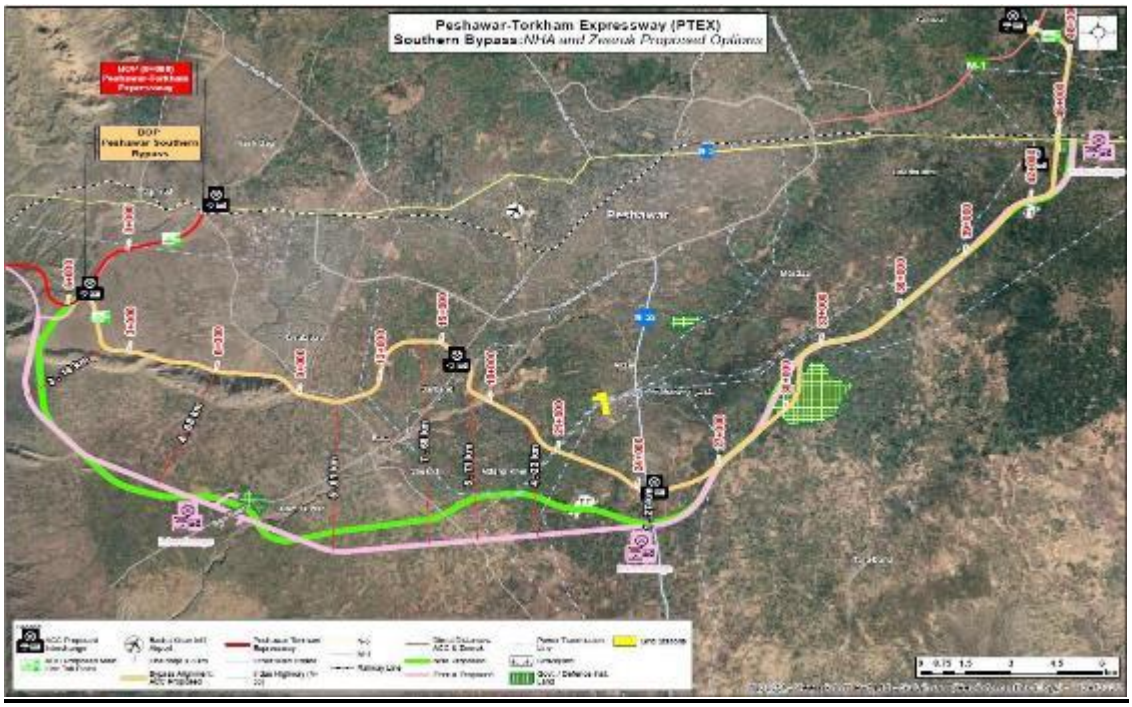



**Figure 1: Proposed Alignment of Southern Link Road**

## Afforestation

Afforestation for planting of about 111,400 forest trees & Fruit Trees will be planted through either Forest department or NHA`s Afforestation and Environment Department i.e., ten plants against one plant cutting. The afforestation to be carried out through NHA will be along the Expressway, and will be limited, not covering the entire plantation plan. The remaining plants will be planted through Forest Department and site selection for plantation will be made with the consultation of NHA, either along the canals/Drains or hilly terrain of KP.

Slope and aspect being some of the determining factors for selection of appropriate plant species for afforestation shall be recognized. Whilst planting of suitable tree species like *Acacia modesta* (Phulai), *Acacia nilotica* (Kikar), *Ailanthus altisimma* (English Bakain), *Albezzia lebbek* (Siris) and Chirpine shall be carried out at 10 feet x 15 feet spacing on gentle to moderate slopes (10-40%). The most popular fast-growing species in the area are Hybrid Poplar Sufeda / Poplar (Salicaceae) and Eucalyptus Sufeda, Lachi (Myrtaceae).

Preference shall be given to the local species for its easier and better acclimatization with the locality factors like soil, precipitation, temperature, humidity and frost etc. Choice of the people for quick growing species to ensure early return to the community in view of its adaptability with the local climatic and edaphic dynamics shall also be respected. Biodiversity shall be imperatively considered for all intents and purposes to help develop and ensure proper habitat for compatible life forms (Flora, Fauna, Fish, Wildlife and Insects). Whilst Olea (Kao) and Shisham (Rose wood) planting shall be done in niches of deep soil on relatively colder aspects, Chirpine shall be definitely planted sporadically for aesthetic purpose. Poplar, Toot and Robinia shall be distributed among the people to broaden the vegetation cover in the area under Farm Forestry on their farmlands in designs favouring their agricultural production. These quick-growing species shall substantially increase their income.

Poplar Trees are also grown as a crop in the area, about 90.5 Acres Poplar orchards to be affected in the Project area. This crop is generally used in the Tobacco Kiln and Match factory. The compensation cost for this forest crop have been estimated in the Resettlement Action Plan.

Afforestation including Planting of saplings shall be carried out twice a year in spring and Monsoon seasons. Whilst watering of plants on steep slopes is next to impossible, efforts shall be made to do watering of plants in the stress period on the relatively accessible gentle to moderate slopes. The afforestation activities are tightly time-bound therefore; all out efforts shall be made to capture the most conducive seasons to get maximal utility of the winter and summer rains.

Bulk planting shall be done in monsoon season to avail the monsoon showers followed by relatively colder months of the year to avoid desiccation. Beating up of failures not exceeding the allowable limit of 30 % in the 1st year, 15% in 2nd year and 5% in the 3rd year of the original work shall be done in the subsequent planting season. Choice of species shall be left open however; some of the important tree species given in Table-1 to match the ecological suitability of the Sub Humid-Tropical Zone shall be given due importance.

**FLAGSHIP TREE SPECIES FOR PLANTATION IN SUB-HUMAD & SUB-TROPICAL SCRUB ZONE OF PESHAWAR & KHYBER DISTRICTS**

| Sl. No | Scientific, English, Local Name Family Sub-Family | Ecological Distribution and Habitat Ecology | Biodiversity Status and Management Implications |
|---|---|---|---|
| 1 | ***Acacia modesta***<br><br>**Gum Acacia**<br>**Phulai, Palosa**<br><br>**(Leguminosae)**<br><br>**Sub-family (Mimosoideae)** | **Distribution:** This tree is native to Pakistan, Afghanistan and India. In KP it is found below 1200 m in the foothill ranges of Himalayas including Buner and Malakand districts of Malakand Division, Haripur, Lower Abbottabad, Lower Mansehra and Kohistan districts of Hazara and central and southern districts of Nowshera, Kohat, Hangu, Karak, Lukky and DIKhan. In Punjab Acacia modesta grow as extensive forests in Salt Range, Kalachitta scrub zone, and Mianwali district, Suleiman Hills, Baluchistan and Kirthar Range.<br><br>**Habitat and Ecology:** It is a moderately intolerant, drought resistant tree that grows on a variety of soils, including dry shallow soils. It grows in precipitation range of 250 to 1300 mm/yr. It prefers a semi-arid, sub-humid climate within a temperature range of -5 to $40^0$C. It exhibits some frost hardiness. At present no disease or insects problems have been identified. | **Silvics:** This is a deciduous, thorny moderate-size tree, 3 to **9** m tall. Diametric growth has been recorded up to 2 m. Leaves are compound, 1.2 to 5 cm long. The bark is rough with irregular cracks. The flowers are pale white to pale yellow, fragrant growing in bunches and appear between March and May depending on geographic location. The pods are small, 5 to 7 cm long, and mature between May and November.<br>It is easily reproduced from seed and through vegetative means. Seed remains viable for 1 year. It is relatively slow growing, but may yield 4 to 6 $m^3$/ha/yr in 50 years. Average height and diameter of 50 years old trees is about 6 m respectively.<br><br>**Management Implications:** This valuable tree is adapted to a variety of arid sites. It is aggressive because it can tolerate some shade. It is important in the Barani region and has great potential for reforestation projects. Young plants need protection from grazing. It has great potential as a farm forestry tree and can be easily managed with a coppice system.<br><br>As the calorific value of its wood is 5500 kcal/kg with high burning value therefore, the trees are indiscriminately cut down for fuel wood purposes. The species is highly threatened; however, its fast regeneration capacity ensures its long survival and therefore, has a promising future in biodiversity conservation.<br><br>**Uses:** Fodder, fuel, agricultural implements, hedge, apiculture, and Phulai gum for sweet making and as adhesives. |

| | | | |
|---|---|---|---|
| 2 | ***Acacia nilotica***<br><br>**Babul Acacia Kikar, Babul**<br><br>**(Leguminosae)**<br><br>**Sub-family (Mimosoideae)** | **Distribution:** This tree is native to Pakistan and is found in the Sindh, Punjab, Balochistan and NWFP. It is wild as well as extensively cultivated as farmland species throughout the country usually below 600 m in elevation.<br><br>**Habitat and Ecology:** *Acacia nilotica* is an intolerant, drought resistant tree that grows on a variety of sites. It tolerates saline, sodic sites if adequate soil moisture is available. It requires precipitation of 125 to 1300 mm/yr. It prefers a semi-arid, sub-tropical/tropical climate within a temperature range of 1-45$^0$C. It exhibits distinct difference between sub-species as to frost hardiness and drought resistance. | Acacia nilotica is an evergreen, thorny, moderate-size tree with 20 meter tall and bole diameter up to one meter. Leaves are compound and 2.5 to 7.5 cm long. The crown form varies from conical to spreading. The flowers are fragrant, yellow to bright yellow growing in bunches and get matured year-around depending on sub-species and geographic location. The seed bearing pods are 8-22 cm long, and also mature round the year.<br><br>It is easily reproduced from seed. Pre-treatment of seed with boiling water or Keeping the seeds in cow-dung for a week help increase germination. It is relatively fast growing and yields 4 to 5 m$^3$/ha/yr in a period of 20 years. Average height and diameter for 20 year old trees is 10 m and 15.7 cm respectively.<br><br>**Management Implications:** This tree of multiple benefits is adapted to a variety of arid sites. It is aggressive and is easily established. It is important in the central and southern regions of KP/Pakistan and its wood is valued for fuel and charcoal. Young trees need protection from grazing and frost in the early age. It has great potential as a farm forestry tree. It is useful for controlling erosion in gullied areas and also can be grown on saline and sodic sites for soil reclamation and biomass production. **C**alorific value of the wood is 4900 kcal/kg. Wood is durable, heavy, hard and very strong. At present there are minor problems with seed insects.<br><br>**Uses:** Fodder, fuel and charcoal, agricultural implements, pit props, apiculture, gum and lac production, tannin, fencing, land stabilization, nitrogen fixing, and medicinal (Tree bark used for cure of diarrhea and dysentery). |
| 3 | ***Olea* ferruginea**<br><br>**Indian olive / Olea Zaytoon, Kau (Oleaceae)** | **Distribution:** The tree is native to the sub-continent including Pakistan, Afghanistan, and India. In Pakistan it is<br>found on the lower hills of Khyber Pakhtunkhwa, Punjab, NWIF'P, Baluchistan, Azad Kashmir and in the hills on the west side of the Indus River in the Sindh.<br><br>**Habitat and Ecology:** A tolerant tree that grows on a variety of calcareous, loamy, to gravel sandy | **Silvics:** A small, evergreen tree 9 to 12 m tall with diameter of 0.3 to 0.6 m. The leaves are simple, 3 to 10 cm long. The whitish flowers are arranged in bunches. They bloom between March and September. The fruit is a drupe 8 mm long, that mature between May and December.<br>It is reproduced both from seed and by vegetative means. The seeds should be planted immediately after collection, as the stored seeds Iose its viability rapidly. One year old poly bag plants are suitable for field planting.<br>It grows very s1ow. One year old coppice shoots are 0.25 to 0. 30 m tall. Trees with heights of 3.5 m and diameters of 3 cm in a five year period have been reported. It has no known insect or disease problems.<br><br>**Management Implications:** Olea is a good tree for afforestation projects in arid areas. It has potential as an oil and fruit tree. Grafting to better varieties through top |

| | | | |
|---|---|---|---|
| | | soils. It is doing well in a precipitation zone of 250 to 1000 mm/yr. It prefers an arid to semi-arid, cool temperate and sub-humid warm subtropical climate with a temperature range of -10 to $40^0$C at elevations from 500 to 1500 m. It coppices easily, and is frost and drought resistant. | working of wild olives could increase its oil and fruit production. Direct planting of edible olives can also be done but it is a costly proposition in the wild areas. However, its raising on the farmlands in orchard form is a profitable intervention.<br>Its wood has been extensively and indiscriminately used in the past mainly for fuelwood purposes, while the foliage being nutritious for fodder. Its natural population has been therefore, reduced to *critically endangered* position. It has been completely wiped out from many ecosystems in different ecological zones causing detrimental impacts on wildlife, birds and game animals besides production of quality honey. It has no known insect or disease problems.<br>The color of wood varies from light brown to nearly black. The wood is hard, heavy and resilient.<br>**Uses:** Construction, fuel, tool handles, fodder, afforestation on watershed and fruit and edible oil. |
| 4 | ***Albizzia lebbek***<br>**Black Siris**<br>**Sirin**<br><br>**(Leguminosae)**<br>**Sub-family**<br>**(Mimosoldeae)** | **Distribution:** This tree is native to the sub-Himalayan tract in Pakistan. It grows in a narrow belt from DIKhan to Peshawar valley, Mardan, Bajaur, Buner and Hazara. It has been planted throughout the plains of Sindh & Punjab also.<br>**Habitat and Ecology:** A moderately intolerant, tree that grows on a variety of moist sites. It favors well drained loamy soils but can also tolerate saline and sodic conditions with pH value of 8.7 to 9.4. It requires a summer precipitation zone of 400 to 1000 mm/yr. It prefers a sub-humid cool/warm sub-tropical and tropical climate with a temperature range of 4 to 40 $C^0$ and an elevation range of 100 to 1600 m. | **Silvics:** A fast growing deciduous tree 12 to 30 m tall and an average diameter of 1 m are common. The crown is openly flat, and umbrella-like. Foliage is feathery-like and the leaves are compound. The bark is dark grey, rough and irregularly cracked.<br>The fragrant flowers are yellow or greenish-white in dense clusters appearing between April and May. The pods are broad, flat and about 25cm long. They are golden brown when ripe. The pods mature between June and September.<br>Grazing and browsing can be a problem with this tree in the young stage. . Seedlings are highly susceptible to frost damage. Several fungus diseases attack the leaves and pods of this tree. A bark beetle called *Indarbela quadrinotata* is a serious threat to roadside and block plantations.<br>It can be reproduced both from seed and vegetative measures. Pre-treatment of seed by an overnight soaking in water will generously increase the germination. The tree is relatively fast growing. Yields of $5m^3$/ha/yr depending upon the site conditions have been recorded over rotation of 10 to 15 years.<br>**Management Implications:** This tree is adapted to a variety of moist sites and soils. It is best suited to well drained, alkaline soils. It coppices readily. It is a good nitrogen fixer and has the potential as a suitably erosion control tree. The trees are heavily lopped for fodder.<br>Its grains are figured, attractive, interlocked and the texture medium to coarse. Color of the heartwood is dark grey-brown turning to rich dark brown on exposure. The wood is strong and resilient. |

| | | | |
|---|---|---|---|
| | | | **Uses:** Fodder, fuel, land stabilization, nitrogen fixing, poles, agricultural implements, shade, and apiculture. |
| 5 | ***Dalbergia sissoo***<br><br>**Indian Rosewood Shisham, Tahli**<br><br>**(Leguminosae)**<br><br>**Sub-family (Papilionoideae)** | **Distribution:** The tree is native to the subcontinent along a sub-Himalayan tract. It is common along rivers banks and streams. It is successfully planted in many areas of Pakistan, India and other parts of the world.<br><br>In Punjab, apart from its widespread natural growth, extensive artificial plantations had been established from the colonial period. Changa Manga, Piranwala, Khanewal, Cheechwatni and Shorkot plantations are some of the examples, which are managed under proper management plans. These plantations are fast losing their health vigour and density leading to markedly poor trend. Trees are readily prone to diseases, especially in the sub-mature stage and fast losing its survival.<br>Unlike Punjab none of Shisham plantations were raised in the Khyber Pakhtunkhwa. However, gigantic Shisham trees were inherited from the Royal Empire of India growing along road and canal sides. These trees also fell victim of Shisham epidemic and disappeared from the vegetation landscape.<br><br>**Habitat and Ecology:** It is one of the most important trees in Asia. It | **Silvics:** A medium size to large, deciduous tree, 30 m in height. The branches are spreading and diameters of 3 m have been recorded. The trunk is usually crooked. The leaves are compound with 3 to 5 leaflets on an 8 cm stalk. The leaflets are between 2.5 to 6 cm in diameter, broadly oval, tough and pointed. The bark is grey in color and furrowed longitudinally. On older trees the bark may peel off in strips. The flowers occur in groups and are small. The flowers are dull white to yellowish white to pinkish, appearing between March and May. The pods are small, 5 to 8 cm long and papery. The pods ripen from June to February. There are usually 1 to 4 seeds per pod. It is difficult to separate the seed from the pods. Seed still wrapped in broken pods can be stored for 6 months without loss of viability.<br><br>**Management Implications:** It can be reproduced both from seed and through vegetative means. Under irrigation it is grown extensively throughout the Punjab, NWFP and parts of Sindh. In irrigated plantations growth of 11 m in height and 20 cm in diameter have been recorded during a 15 years period. MAI of 7. 7 inch/ha/yr is achieved over a 20 years rotation. It grows slower than Eucalyptus and poplar, but is a good farm forestry tree because it is a good fodder tree. Its nodulated roots fix nitrogen and therefore, enrich the nutrient value of soils on which it is growing. It is also a good shade tree. The timber is characterized by interlocked grain and medium to coarse texture. The heartwood is golden brown to dark brown and offers the best of furniture wood. Wood is heavy with a specific gravity of 0.85 and a calorific value of 5000 kca1/kg. The wood is very resilient, hard and strong.<br><br>Young trees are heavily grazed and browsed. Shisham is very intolerant tree, susceptible to root diseases in irrigated plantations and attacks by a number of leaf fungi. Since about two decades an epidemics (dieback disease due to a virus "*Pithium dibarium"*) outbroke on Shisham all across Punjab and Khyber Pakhtunkhwa.<br>The mature and sub-mature trees of Shisham growing on public or private lands were all badly infested and ultimately wilted to complete drying, which were then auctioned as wholesale to gain financial advantage for the public exchequer. Now seldom healthy mature trees are found on roads and canal side or on the farmlands. The symptoms of poor growth on Shisham trees are phenotypically visible as deformity and crookedness. Plus trees (overtly and covertly healthy and strong trees) for seed collection are hardly available. Consequently, the *indeginous Shisham trees are critically endangered, leading to extinction.* There is a dire need to try and introduce |

| | | | |
|---|---|---|---|
| | | occurs in a dry sub-tropical, dry temperate climate and does best on well drained sandy to sandy loam and alluvial soils but may also tolerate saline soils with poor growth. It has an elevation range of 900 to 1500 m with a precipitation of 300 to 2000 mm. It is frost hardy and has a temperature range of 0 to $50^0$C. | other provenances of Shisham at different elevation zones. A try was once made during 1997-98 to introduce some provenances from Nepal by the Silviculture Research Division, FMC of Khyber Pakhtunkhwa Environment Department on a piece of fallow land in the Peshawar Valley. This has now established as a successful grove for collection of Shisham trees.<br><br>**Uses:** Fodder, fuel and charcoal, outclass and durable furniture, medicinal (roots and bark), sporting goods, farm implements and dense cool shade. |
| **6** | ***Morus alba***<br><br>**Mulberry**<br><br>**Tut**<br><br>**(Moraceae)** | **Distribution**: The tree is native to Pakistan, China, Central Asia and Afghanistan. It has been planted in many parts of KP and Punjab.<br><br>**Habitat and Ecology:** A moderately intolerant tree that grows on a variety of well drained, rich soils. It requires a precipitation zone of 750 to 1250 mm/yr or more. It prefers a semi-arid, cool to cold subalpine temperate, sub-tropical winter/monsoon, climate with a temperature range of -10 to $40^0$C at elevations up to 3300 m. | **Silvics:** A medium-sized deciduous tree, 9 to 15 m tall and diameters of 0.6 to 0.8 m. The crown is spreading and rounded. The leaves are simple, but varied in shape, 5 to 15 cm long and 4 to 12 cm wide. The bark is dark greyish brown with vertical ridges or fissures.<br>It is monoecious. The male flowers are in 12 long catkins. The female flowers are in solitary, rounded heads 0.5 to 1.0 cm in diameter. The flowers are greenish appearing between February and April. The fruit is a berry containing 5 to 15 small seeds, 0.7 to 1 cm long. The berries are white to pinkish to purple to red to black. The fruiting period is between March and June. It will coppice easily, can be grown in mixed stands, is frost hardy, and can tolerate hot drought conditions if irrigated. It has numerous insects and pest enemies including porcupines, defoliators, powdery mildew, root rots, and die back.<br>It is reproduced both from seed and by vegetative means. Pesticide treated seed can be stored else the seeds being sweet and fragrant are eaten away by the ants and insects. It grows very fast with an MAI of 5 to 8.5 m/ha/yr. Diameters of 60cm are recorded for 15 years old trees.<br><br>**Management Implications:** This is a good tree for afforestation projects because of its fast growth and value. Also, it is an important tree for silkworm feed. Silkworm growers have a tendency to reduce the quality of wood by over lopping the branches and foliage, subsequently reducing tree growth. This is a valuable farm forestry tree. The sport goods industry offers good market for its wood. The trees produce a variety of eco-specific fruits both fresh and can be dried. Tree population has declined |

| | | | |
|---|---|---|---|
| | | | considerably from the farmlands and homesteads causing a vacuum in the biodiversity setting.<br>The grains are straight and medium coarse with uneven texture.<br>Color of the heartwood is bright yellowish brown changing to dull brown with age. Specific gravity is 0.69 and a calorific value of 5100 kcal/kg.<br>The wood is hard, elastic and resilient in nature.<br>**Uses:** Silk worm food, fodder, fruit, sports goods, veneer and pulp wood, furniture, medicinal (Bark is purgative and fruit a laxative), shelterbelt and a thick cool shade. |
| **7** | ***Robinia pseudoacacia***<br>**Black Locust Robinia, Walaiti Kikar (Leguminosae)**<br><br>**Sub-family (Papilionoideae)** | **Distribution:** The tree is native to the southeast and central United States. Because of its adaptability it is grown throughout temperate zones in the world. In Pakistan it has been successfully established in the plains and in the hills of the KP and Punjab. Plantations have been and are being raised in Hazara and Malakand Divisions.<br><br>**Habitat and Ecology:** It is a tree that grows on a variety of soils but prefers loose and well drained sites and cannot grow on waterlogged sites. The tree is frost tolerant and will grow in areas with temperatures<br><br>down to -20 $^{0}$ C. It grows from sea level to 2500 m within a precipitation range of 700<br>to 1000 mm/yr. It is surprisingly drought hardy and can withstand dry periods of 2 to 6 months. | **Silvics:** A medium sized to large, deciduous tree 30 m in height with an open crown and a straight bowl. There are a variety of growth forms, some of which may be thorny. The leaves are compound 18 to 15 cm long. The bark is thick, rough, brown and has longitudinal fissures. The flowers are small and occur in long hanging bunches. They are yellowish to white and fragrant, appearing between March and June. The pods are small, 2.5 to 3 cm long and 0.5 cm wide. The pods are hard and usually break open while still on the tree, scattering the seeds around. The pods mature between August and October. The tree is relatively free of disease and insect/pest attacks.<br><br>It is easily reproduced both from seed source as well as vegetative means. Good seed crops are produced annually and the insecticide mixed seed can be stored well for several years. Pretreatment of seed will improve germination. It has a rapid growth rate for 30 years and then slower down while by the age of 50 year the growth almost ceases. Growth of 4 to 8 $m^3$/ha/yr in 45 years old stand has been reported.<br><br>**Management Implications:** Robinia is a fast-growing tree in the chir pine zone of Pakistan. The wide spreading root system makes it an ideal tree for erosion control and soil stabilization. It fixes nitrogen and its foliage and seeds are useful as fodder. It is in fact an excellent farm forestry tree. Attracts honey bees from far and wide due to its flower's brilliant white color and fragrance. Its fuelwood has a high burning value with calorific value of 4800 kcal/kg.<br>Uses: Fodder, fuel and charcoal, shade, erosion control, fence posts, apiculture and ornamental. |
| **8** | ***Populus euramericana***<br><br>**Hybrid Poplar** | **Distribution:** The tree was widely grown all over Europe after the Second World War and now throughout the world. It was | **Silvics:** A tall tree often attaining height of 30 m and a diameter of 50cm. The leaves are broadly triangular with long petioles. It is female poplar –a hybrid cultivar derived from Populus deltoids and Populus nigra at the Institute of Casale Monferrato, Italy. It has no burrs. Buds are pointed and flowering occurs before leafing. |

| | | | |
|---|---|---|---|
| | **Sufeda / Poplar**<br><br>**(Salicaceae)** | introduced in Pakistan in the mid-fifties and in the Khyber Pakhtunkhwa in the mid 70's on commercial scale.<br><br>**Habitat and Ecology:** Poplar grows on deep soils which have large amount of fresh water. However, it performs poorly under waterlogged and saline conditions. It withstands freezing temperatures but is damaged when temperatures exceed 40 to 45$^0$C. It should therefore not be planted in the southern part of Punjab and Balochistan as well as in Sindh. The irrigated lands in Peshawar, Mardan, Malakand and Hazara civil divisions are the best fit areas for its cultivation under farm/agro forestry. | It is reproduced by vegetative means only (stem cuttings). Hybrid Poplars are very fast growing. MAI of 40 m$^3$/ha/yr has been recorded. Height of 17 m and diameter growth of 15 cm are common in a period of 5 years.<br>**Management Implications:** This is a very suitable farm forestry tree. It requires deep soil working and continuous weed control. In conditions of water stress, it is prone to insect attacks and disease problems caused by the defoliators and borers. Wood grains are fine or medium and even textured. Color of wood is white or sometimes greenish brown when dry.<br><br>Poplars are extensively grown on the farmlands in different combinations both in linear as well as block plantations. It has literally established itself as a cash crop on short rotation. The extensive growth of poplars has altogether changed the vegetation mosaic of the province. Alongside its major benefits as cash income on short rotation and carbon sinks due to its leafy biomass, this species has created sufficient hostility for biodiversity conservation. The noteworthy impacts are drain on soil nutrients and water resources, replacement of many useful indigenous trees and opportunity cost of crop production.<br>**Uses:** Timber for improvised housing construction, fuel, packing cases and crates, low quality furniture, match and match boxes, plywood, pulp, chip board, shuttering poles, and low-nutrient fodder. |
| **9** | ***Eucalyptus camaldulensis***<br>**Eucalyptus**<br>**Sufeda, Lachi**<br>**(Myrtaceae)** | **Distribution:** The tree is native to Australia. It is widely planted in arid areas throughout the world. In Pakistan it is successfully planted countrywide in the plains and in the hills.<br><br>**Habitat and Ecology:** Eucalyptus species grows on a variety of soils. It does well on saline, sodic and waterlogged sites. It is adapted to a precipitation zone of 200 to 1250 mm/yr or more. It prefers a semi-arid, warm, sub-tropical winter/monsoon rain climate with a temperature of -5 to 40 C$^0$ at elevations up to 1400 m. It coppices well and can be grown in mixed | **Silvics:** A large, evergreen tree, up to 40 m height with a diameter of 1 to 2 m. The crown is spreading and irregular. The leaves are simple, narrow and lance shaped, 6 to 30 cm long and 0.8 to 2 cm wide. The leaves have a unique eucalyptus smell when crushed. The bark is smooth and stem is usually straight. The bark is whitish, pale grey with mottle reddish patches. Pieces of the bark may shed from mature trees in long strips or irregular flakes.<br><br>The flowers, which occur in groups of fives and tens, bloom usually between May and June. The fruit is a capsule containing many small seeds, and is shaped like a half globe 0.7 cm in diameter. The capsules mature between September and October.<br><br>The fresh saplings are prone to attack by termites but with age it becomes pest free and resistant.<br><br>It is reproduced both from seed and by vegetative means. Seed sealed in air tight containers will remain viable for long periods in cold storage.<br><br>It grows very fast. Height growth rates of o.3 m/month for young stands have been reported. The trees put up a MAI of 10 to 25 m$^3$/ha/yr. |

| | | | |
|---|---|---|---|
| | | stands. It is frost hardy and can tolerate hot droughty conditions if irrigated or if there is a shallow water table. | **Management Implications:** This is a good tree for reforestation projects because of its high rate of survival and fast growth and wood value. Farmers prefer this species as farm forestry tree because of its substantial cash return on short rotation. It coppices extremely well and can yield 3-5 crops from the same stump. This exotic species is occupying the land fast but somehow, it is now discouraged due to some of its negative effects and replaced by the locally indigenous trees.<br><br>There is some evidence that this tree may compete with crops for moisture. It is an excellent farm forestry tree ideally suited for planting on saline, sodic and waterlogged farm sites. Different stakeholders view differently this tree ; some dislike it for its high consumption of water and its other allelopathic characteristics towards other plant communities and birds, while the others favour it for its little tending efforts, hardiness and being a species of multiple benefits in short period of time.<br><br>The professionals take this tree both as a threat and opportunity; threat because of its unfriendly attitude to some forms of life communities; and opportunity due to bringing about a dramatic change in the flora landscape by increasing the vegetation base and cover. This tree shows a readily success on all poor and rich soils and in a wide altitudinal and climate range but its proper placement in its suitable sites is of great importance.<br><br>As far its wood properties its grains are twisted and interlocked, medium coarse with uneven texture. Heartwood is reddish brown. Its wood specific gravity is 0.71 and a calorific value of 4900 kcal/kg. The wood is hard, elastic and resilient.<br><br>**Uses:** Fuelwood, charcoal, furniture, eucalyptus oil (leaves), shelterbelt, apiculture, pulp and fiber board, mine props and shuttering material for construction. |
| **10** | ***Pinus roxburghii***<br>**Chir pine**<br>**Chir, Nakhtar**<br>**(Pinaceae)** | **Distribution:** The tree is native to Pakistan, Afghanistan, Bhutan, Nepal and India. In Pakistan it is found in the Himalayas specifically in Azad Jammu Kashmir, Murree, Hazara, Swat, Lower Dir, and in Bajaur, Khyber, Malakand, and Orakzai Agencies. It is easily cultivated in the northern areas of KP. Large plantations have been raised in Swat, Mansehra, | **Description:** It grows into a large tree gaining 21 to 33 m height and an average diameter growth of 0.6 m. The crown is rounded. The needles grow in fascicle of threes, 20 to 30 cm in length. The bole is straight and erect. It is monoecious. The male flowers or cones are many, crowded in beadlike clusters, 1.3 to 1.8 cm long. The female flowers are erect solitary with 2 to 5 clustered at the end of branches. The cones bloom between January and April. The fruit is the female cone. As it ripens, it gains a shiny reddish-brown color. The seed in the cones take a full year to mature after pollination and 2 years for the reproductive cycle to be completed. There are two, winged seeds beneath each cone scale. Seed is shed during September through October.<br><br>It is reproduced from seed. Seed cropping is erratic but seed can be stored in sealed containers in a refrigerated environment for a couple of years. |

| | | | |
|---|---|---|---|
| | | Abbottabad and Balakot area of Kaghan Valley.<br><br>**Habitat and Ecology:** An intolerant tree that grows on a variety of soils, include shallow soils and soils originating from limestones, granites, and sandstone. It is drought hardy and is well adapted to a precipitation zone of 450 to 1625 mm/yr and can survive 2 to 4 months of drought. It prefers a sub-humid, moderately cool sub-tropical monsoon climate with a temperature range of -5 to $40^0$C at elevations between 500 to 2500 m. It is frost hardy and fire resistant. The tree is free of disease and insect/pest problems. Natural regeneration profusely occurs on bare mineral soil. | This is considered a fast-growing tree among the conifers. Yields of 7 to 14 $m^3$ /ha/yr are recorded on sites of poor to high quality.<br><br>**Management Implications:** This is a valuable tree for reforestation and afforestation of denuded areas in the foothills of Pakistan. Native stands have been heavily overcut in the past and the barren watersheds are in dire need of replanting.<br><br>The tree growth is quite aggressive and still dense at places, particularly in the well protected areas and reserved forests. The biodiversity status of Chirpine is satisfactory.<br><br>**Uses:** Its products are used for constructional timber, fuel wood, resin, erosion control, edible seed, paper pulp, furniture, match sticks and tannin. |

Source: i. Trees of Pakistan by Mehmud Iqbal Sheikh 1993 ii. Resource Management Plan of Khwara Reserved Forests Nizampur Nowshera by Dr. Nasim Javed 2002

## Fruit Plants (Orchards)

The proposed project nearly half alignment passes through the green agricultural lands of Peshawar valley, which also affect the orchards. The affected trees may be peach, plum, and persimmon and so on. In addition to that the removal of fruit trees will have negative impacts on the economics of local community as many of them depend on orchids. Fruit trees in Project Area include Pear, Peaches, Persimmon and Guava.

Due to construction of Link Road, about 9420 Fruit plants will be affected. 10 plants will be planted against each tree cut. These fruit plantations will be carried out at private owned land will the help of Agricultural Department and local community. The budget allocation has been made for new plantation. The detail of Fruit trees to be cut are given below:

- Poplar (Safaida) 695 Nos
- Eucalyptus 350 Nos
- Ailanthus 180 Nos
- Robinia (Kikar) 170 Nos
- Mulberry 80 Nos
- Others, i.e., Bakain, Shisham, Willow, Phallai, etc., 265 Nos

## Tree Plantation Budget

The total budget for Tree Plantation is **PKR 78.11 million.**

**Cost Estimates of Operations**

| S. No | Item | Production / Requirement | Target (number of plants) | Unit cost (Pak Rs.) | Total Cost (Pak Rs.) |
|---|---|---|---|---|---|
| **1** | **Afforestation**<br>At the area including, purchase lay out, Pit digging at 20x30 feet spacing, Carriage of plants, Planting, Restocking of failures@30%, first year, 15% 2nd year and 5% 3rd year.<br>Maintenance for 3 years with watering. | Total Req.= 111,400<br>+ 30% 16200<br>+ 15% 8100<br>+ 5% 2700<br>Plants | 111,400 | 650 / plant | 72.41 million |

| | | | | | |
|---|---|---|---|---|---|
| **2** | Tractor with fabrication for watering plants and carriage of plants and supplies. | One water Tanker / tractor | | 3 Million<br>Lump Sump | 3 million<br>Lump Sump |
| **3** | Watchman | 3 Watchmen for 3 years | | 3 x 25,000 x 36 | 2.7 million |
| **4** | **Total** | | | | **78.11 M PKR** |

# ANNEXURE III. STAKEHOLDER MAPPING AND MODE OF ENGAGEMENT

| Sr. No. | Stakeholder Category | Stakeholder | Contact Person | Degree of Influence (X) | Interest in the project (Y) | Importance (Z=X*Y) | Frequency of Contact | Responsibility of contact | Engagement channels/ tools |
|---|---|---|---|---|---|---|---|---|---|
| **1** | Federal Government Departments | National Highway Authority (NHA) | Member Planning<br><br>Project Director | 10 | 10 | 100 | Regular | Senior level | • Progress review meetings<br>• Project reports/ outputs |
| **2** | Provincial Government Departments | Environmental Protection Department | TBD | 10 | 5 | 50 | Frequent | Middle management level | • Consultative meetings<br>• Seminars/ Workshops<br>• Website/ social media |
| | | Agriculture Department, Peshawar | District Agriculture Officer | 5 | 10 | 50 | Frequent | Middle management level | |
| | | Agriculture Department, Nowshera | Agriculture Officer (Extension) | 5 | 5 | 25 | Occasional | Officer level | |
| | | Directorate of on-farm water management | District Officer on-farm Water Management Nowshera<br>District Officer on-farm Water Management<br><br>Peshawar<br>District Officer on-farm Water Management Khyber | 5 | 5 | 25 | Occasional | Officer level | |
| | | Revenue Department | Add. AC Revenue<br><br>AC Pabbi | 10 | 8 | 80 | Occasional | Officer level | |
| | | Wildlife Department | HQ Wildlife Peshawar | 5 | 5 | 25 | Occasional | Officer level | |

| Sr. No. | Stakeholder Category | Stakeholder | Contact Person | Degree of Influence (X) | Interest in the project (Y) | Importance (Z=X*Y) | Frequency of Contact | Responsibility of contact | Engagement channels/ tools |
|---|---|---|---|---|---|---|---|---|---|
| | | Forest Department | DFO Nowshera Forest Division | 5 | 5 | 25 | Occasional | Officer level | |
| | | Social Welfare Department | Dy. DG Social Welfare | 5 | 5 | 25 | Occasional | Officer level | |
| | | Communication and Works (C&W) Department | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| | | Women Development Department | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| | | Directorate of Archaeology | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| | | Labour Department | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| **3** | Municipal Agencies | Peshawar Development Authority | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| | | Concerned TMAs (Peshawar & Nowshera) | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| | | Water and Sanitation Company Peshawar | TBD | 5 | 5 | 25 | Occasional | Officer level | |
| **4** | Project Affected Persons (PAPs) | Affected people whose properties will be acquired i.e., houses, land and other assets. | TBD | 5 | 10 | 50 | Regular | Middle management level | • Community meetings<br>• Seminars/ Workshops<br>• Website/ Social Media<br>• Print and Electronic media advertisements and public service messages |

| Sr. No. | Stakeholder Category | Stakeholder | Contact Person | Degree of Influence (X) | Interest in the project (Y) | Importance (Z=X*Y) | Frequency of Contact | Responsibility of contact | Engagement channels/ tools |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | • Public disclosure documents<br>• Right to information (RTI) requests |
| | | Farmers | TBD | 5 | 10 | 50 | Regular | Middle management level | • Agriculture extension activities<br>• Community meetings<br>• Print and Electronic media advertisements and public service messages<br>• Public disclosure documents<br>• Right to information (RTI) requests |
| **5** | NGOs/CSOs | Local and provincial level NGOs/CSOs | Various & TBD | 5 | 5 | 25 | Occasional | Middle Management | • Consultation Meetings |
| • At the time of formation of GRC, community members of different locations representing the project areas, will be nominated. | | | | | | | | | |

# ANNEXURE IV. SECURITY MANAGEMENT PLAN

## 1. Introduction

### 1.1 Context

The construction of SLR traversing through Peshawar, Nowshera, and Khyber districts in the Khyber Pakhtunkhwa (KP) province could potentially pose several security challenges, given the historical context of the region. The proximity to the Afghan border in these areas introduces the risk of cross-border militancy and smuggling activities. The rugged terrain and porous nature of the border can pose challenges to secure the construction sites and ensure the safety of workers and infrastructure.

Additionally, these districts have experienced incidents of terrorism and insurgent activities in the past. Construction projects, especially those of strategic importance like an expressway, can become targets for sabotage or attacks by militant groups aiming to disrupt economic activities and create instability. The security of the construction workforce, as well as the protection of the infrastructure itself, would be paramount considerations.

To mitigate these challenges, a comprehensive security plan would be necessary, involving coordination between local law enforcement agencies and private security firms. Regular risk assessments, intelligence sharing, and close monitoring of the construction sites would be essential components of such a security strategy. Additionally, community engagement and cooperation with local populations could play a crucial role in enhancing overall security, fostering a sense of ownership and collaboration in maintaining a safe environment for the expressway construction. The potential security risks are discussed in **Table 1**.

### 1.2 Objective and Purpose

The Objective of this Security Management Plan (SMP) is to provide and maintain a safe physical environment and manage staff activities to reduce the risk of personal injury and property loss during the implementation of the Project. This Security Management Plan covers all the components of the project activities.

This SMP is intended to set out responsibilities and tasks associated with the management of security concerns during the Construction/operation of the Projects. This Plan was developed to:

- Protect both the project and its personnel, ensuring a secure work environment. It employs strategic security measures to prevent unauthorized access, safeguard critical assets, and maintain camp sites integrity.
- Prioritize the safety of staff, contractors, and visitors, facilitating smooth project operations without negatively impacting surrounding communities.
- Emphasizes a balanced approach, integrating security measures with utmost respect for human rights.

- Ensure that all personnel involved in the Construction/operation of the Projects, including the NHA and any contractors and subcontractors working for or on behalf of the project fully understands the project policies and expectations on security management; and
- Implement applicable Good International Practices to handle security management related issues in an appropriate manner.

### 1.2 Scope

This SMP applies to activities that are relevant to security management (e.g., personal safety, physical security, vehicle, equipment, access control, material control, etc.) during construction/operation of the Sites. Personal safety is of higher priority than the protection of assets, including vehicles, office equipment or programme materials. This SMP applies to all parties working for or on behalf of the Projects having activities relating to security during Construction and operation of the Project.

### 1.3 Applicable Requirements and Standards

All employees, the NHA/EPC Contractor are required to comply with applicable security requirements and standards that are defined in this section for security management during the construction/operation of the project. These requirements will also be incorporated into the bidding contracts. In addition, where standards referred to below are inconsistent or contradictory, the approach is to apply the most stringent standard unless otherwise agreed by the NHA.

## 2. National Legislation

The following are National Regulation, regarding Security concerned.

- Private Security Companies Procedures, 1988- Ministry of Interior, Pakistan
- The Protection of. Pakistan Act, 2014
- The Prevention of Electronic Crimes Act, 2016
- Pakistan Penal Code (ACT XLV OF 1860)
- FIA Act,1974
- The National Security Policy 2022-2026

### 2.1 International Standards

The International regulations and best practices are:

- World Bank Good Practice Note on Assessing and Managing Risks and Impacts of the Use of Security Personnel, 2018,
- Voluntary Principles on Security and Human Rights Toolkit Version 3, 2008,

- Guidelines for Implementation of the UN Basic Principles on the Use of Force and Firearms by law Enforcement Officials, 2016
- The UN Guiding Principles on Business and Human Rights, John Ruggie, 2011

## 3. Security Management

A specific security Company will be contracted/hired to provide a secure operating environment to project operations and its contractors while undertaking operations throughout the project area. Security In charge and Security Contractor in consultation with the local law enforcing agencies will implement a security procedure that identifies and responds to different situations of threats to security in a manner appropriate to the level of threat and with respect for human rights. This shall be based on local information, government concerns, and direct information obtained.

### 3.1 Security Risks

A preliminary review of security risks identified the following risks but not limited to during the construction/operation phase of the Projects:

**Internal risks:**

- Disruption to the workforce resulting from confrontations by individuals at the Projects site (Project labor);
- Theft (by the Team's employees or Security Contractor's personnel);
- Strike (by the Team's employees); and
- Harassment (especially gender-based harassment), unethical, or inappropriate behavior by security guards to the Projects' employees or local communities.

**External risks:**

- Theft (by local communities);
- Protests (by local communities); and
- Unauthorized access to the Project site by local community.
- Terrorism;
- Inter-tribal or communal violence which could pose a threat to project personnel;
- Action leading to strike or disruption of work, social conflict, civil unrest;
- Breakdown of relationships with Community groups and Committees;
- Reaction of community to an incident or accident involving project personnel or asset;
- Threat of armed attack;

- Kidnapping

Nonetheless, the security situation, specifically within district Khyber, is presently unsatisfactory, keeping in view the previous security record before merger of FATA into KP.

Moreover, currently there is no ongoing conflict in the project area. However, the SMP will be updated if such sensitive situation arises. Moreover, there are no inter-tribal conflicts in the project area as only two villages lie in the Khyber District.

### 3.2 Risk Assessment

The security risks during the construction/operation phase are summarized in **Table 1**. Security in charge shall coordinate with the NHA and Security Contractor to undertake an updated security risk assessment: (i) prior to the commencement of major changes at construction/operation planning (e.g., rearrangement of the construction/operation layout) and (ii) after the occurrence of major security issues; and update this SMP to consider the need to ensure the respect for human rights and the protection of the local community as well as its own employees, assets and reputation.

**Table 1: Description of Major Security Risks of the Project Area**

| Sr. No | Risk | Description |
|---|---|---|
| 1 | **Road Traffic Accident** | Inadequate road maintenance and poor infrastructure in project area may contribute to road accidents. |
| 2 | **Environment & Infrastructure** | • There are several environmental risks, heavy rains during monsoon season. Fog in winter is also a hazard.<br>• Fire hazards are a major concern where infrastructure is weak and safety standards are poorly enforced. |
| 3 | **Kidnap** | • Criminal elements or militant groups may engage in kidnapping for financial gain or targeted to extort ransom.<br>• Project staff could face a threat of kidnapping in KP, especially in the Khyber tribal district project area. |
| 4 | **Terrorism and Political Violence** | • Terrorist groups may carry out attacks to promote their political ideologies or create fear. This threat is characterized by acts of violence targeting civilians, infrastructure, or government. |
| 5 | **Civil Unrest** | • Political instability can lead to civil unrest, with mass demonstrations, protests, and potential violence. Political disagreements, elections, or controversial decisions may trigger such events and result in severe disruption in affected areas. |
| 6 | **Crime** | • Organized Crimes criminal gangs and individual robbers can be a direct threat.<br>• Theft, robberies, dacoities are highly likely to occur at random in the region. |

#### 3.2.1 Risk Classification

Risk is the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard. It may also apply to situations with property or equipment loss, or harmful effects on the environment. Risk levels are classified as Critical, High, Medium, Low, and Negligible, with corresponding descriptions and recommended actions for each level. Critical risks may lead to suspension or evacuation, while lower-level risks involve

varying degrees of operational and travel restrictions. The levels of the risks are defined in below Table 2.

**Table 2: Rating and Risk Level Description**

| RATING | RISK LEVEL DESCRIPTION |
|---|---|
| **Critical (E)** | Ongoing operations are unsustainable and projects may be suspended for indefinite periods. Travel is only allowed in exceptional circumstances (critical programming or staff evacuation). This stage is declared by the organization's management team in consultation with Security Team. |
| **High (D)** | Only essential operational travel should be considered, and operations may be suspended at short notice. This stage is declared by the Project Director (PD) in consultation with Security Team. The Construction Camp must temporally relocate all non-essential staff to safe areas & and be prepared to hibernate operations. Project staff should be given the opportunity to relocate to home, or safe, areas. |
| **Medium (C)** | There must be specific planning to mitigate identified security threats; there may be strict operational and travel restrictions on staff at times. Travel into the project area may be restricted by the PD for period of time. Essential staff have been identified and some nonessential staff may be relocated from affected areas. |
| **Low (B)** | Standard Operating Procedures (SOP's) are in place to manage security and there may be some operational and travel restrictions placed on staff. |
| **Negligible (A)** | Normal security precautions for operations and travel are required. |

### Risk Rating

The risk rating requires assigning a value for the impact of an outcome occurring and the probability of a potential outcome. Based on these assigned values, a matrix format is used to place the specific hazard within a specific location of the matrix. This location can then be used to determine risk score for that activity.

### Risk Probability

The probability is given the following types and number:

| RATING | DESCRIPTION OF PROBABILITY |
|---|---|
| **Certain** | Will occur / on-going active threat |
| **Highly Likely** | A very high probability of occurring |
| **Likely** | A high probability of occurring |
| **Possible** | A reasonable probability of occurring |
| **Unlikely** | Unlikely to occur |

### Impact

The impact is categories as critical, severe, moderate, minor and negligible which are described below:

| RATING | DESCRIPTION IMPACT |
|---|---|
| **Critical** | Death or severe injury, loss of vital equipment, critical costs / bankruptcy cancellation of activities |

| | |
|---|---|
| **Severe** | Severe injury or possible death, loss of important equipment, severe costs to the program major disruption of activities |
| **Moderate** | Injury, loss of equipment, moderate costs to the programme delays in activities |
| **Minor** | Possible injury possible equipment minor costs limited delays in activities |
| **Negligible** | No or minor injuries, no or minor loss of equipment, negligible costs, minor disruption to activities |

The Project's security risks are assessed and scored based on its likelihood and severity of impacts. After that, the Project can use the resulting simple grid (Figure below) to help guide and prioritize addressing the most imminent and severe security risks.

Risk = Impact x Probability

### Risk Analysis Matrix

A Risk Analysis Matrix is presented, evaluating specific threat scenarios, their impact, probability, and resulting risk levels. This analysis aids in determining the urgency and severity of each security concern Based on the above classification risk analysis matrix has been developed and presented in **Table 3.**

**Table 3: Risk Analysis Matrix**

| | Threat Scenario | Impact | Probability | Risk |
|---|---|---|---|---|
| 1 | **Road Traffic Accident** | Severe | Likely | High |
| 2 | **Environment & Infrastructure** | Severe | Likely | High |
| 3 | **Kidnap** | Critical | Possible | High |
| 4 | **Political Violence & Terrorism** | Critical | Possible | High |
| 5 | **Civil Unrest** | Moderate | Likely | Medium |
| 6 | **Crime** | Moderate | Likely | Medium |
| 7 | **Medical** | Severe | Possible | Medium |

The project's potential impacts and their probability have been assessed using the methodology described above. A summary of these impacts and probability along with the mitigation measures is presented in Table 4.

**Table 4: Security Risk Assessment and Mitigation Measure**

| Kidnap | | Threat Description: | Mitigation Measures: |
|---|---|---|---|
| Impact | Critical | The threat of kidnap is highest in the areas along the Afghanistan border, although abductions are known to occur in the past in. Kidnappings can be politically or financially motivated. | • Staff should maintain a low profile; avoid travel in darkness; only using trusted drivers / taxis; not set patterns and routines; keep in pairs or teams at all times.<br>• Local knowledge of the operational context must be maintained by staff at all times: ability to seek information from humanitarian and other agencies is VITAL.<br>• Any event having a potential to change the security situation within your operational areas must always be communicated to project management so that appropriate steps can be taken.<br>• CIM plans should be made available to all staff and appropriate training conducted. Your organisation should support the PD and key project staff with appropriate Kidnap & Rescue (K&R} training.<br>• The team will check for third party awareness and should be discrete when discussing itineraries and planned routes. |
| Probability | Possible | | |
| Risk | HIGH | | |
| **Terrorism & Political Violence** | | **Threat Description:** | **Mitigation Measures:** |
| Impact | Critical | Terrorist attacks occur periodically across Pakistan and have affected project area, causing civilian casualties. Many active groups and their factions are the most active terrorist groups in the province and have threatened to disrupt the peace in the country.<br>No such groups exist or are active within the project area or in the vicinity.<br>In KP, there may be some active militant groups in certain pockets, which are far away from the project area. | • Local knowledge of the operational context must be maintained by staff at all times: the ability to seek information from humanitarian actors and other agencies is VITAL.<br>• Emergency and relocation plans should be made available to all staff and appropriate training conducted.<br>• All staff should adopt a low profile, to include the choice of appropriate vehicles, dress, activities and equipment. |
| Probability | Possible | | |
| Risk | HIGH | | |
| **Civil Unrest** | | **Threat Description:** | **Mitigation Measures:** |
| Impact | Moderate | Protests are common in the Province, particularly in cities. Large | • Avoid all large public crowds, including political gatherings and peaceful protests. |
| Probability | Likely | | |

| | | | |
|---|---|---|---|
| **Risk** | MEDIUM | demonstrations organized by political parties or religious groups can attract tens of thousands of people and result in severe disruption in affected areas. Road closures and the suspension of telecommunication networks are common during periods of unrest. Strikes are common and tend to take place alongside political protests. Economic and labour issues, such as changes to regulation or reforms that threaten jobs, often lead to industrial action. | • Any event having a potential to change the security situation within the operational areas must be communicated to management so that appropriate steps can be taken.<br>• Increased vigilance should be implemented during periods of political tension, such as elections.<br>• Staff should be aware of places that may act as focal points for spontaneous unrest including police stations, government facilities, places of worship, and public squares known for political protests. |
| **Threat: Crime** | | **Threat Description:** | **Mitigation Measures:** |
| **Impact** | Moderate | Criminal gangs are active in the certain regions involved in robberies, dacoities, kidnapping and other violent crimes. The KP regions face tribal enmities & honour killings. Street crime, burglaries, mobile snatching and theft of personal property are not uncommon, though most crime is financially motivated and mostly non-violent. | • Avoid crowded areas, tourist attractions and areas known to frequent heavily by members of the international community.<br>• Be cognisant of the perception of wealth with regards to possessions carried.<br>• Gender safety training should be considered for all staff.<br>• Minimise the amount of valuables and cash carried.<br>• Seek advice from local staff as to local areas considered unsafe.<br>• Be prepared to hand over valuables if challenged in a threatening way.<br>• Consider carrying an imitation "robber" wallet with a small amount of cash to hand over if challenged.<br>• Keep copies of important documents separate from originals. |
| **Probability** | Likely | | |
| **Risk** | MEDIUM | | |

### 3.3 Security Management Measures

#### 3.3.1 Physical Security

The NHA/EPC Contractor Team shall be responsible for coordinating with Security Contractor in providing all necessary facilities and equipment related to security management during the construction/operation phase to ensure all security issues are managed and responded to in a timely manner.

Physical security will involve the use of security barriers, such as fences, gates, locks, guard posts, surveillance/electronic security systems used, and the overall security management system at all the project premises.

**Security Barriers**

These will mainly comprise of fences, gates, guard posts, surveillance / electronic cameras which will be managed by trained personnel who shall document and record daily incidents at the various points and provide reports to their superiors for appropriate action.

*Fences*

The Projects shall provide and maintain fenced and secured compounds at Construction/ operation camps.

*Locking Devices*

Locking devices (e.g., padlocks) shall be provided for all doors to prevent unauthorized person access to Projects' properties.

*Gates*

Gates shall be provided at each entrance to limit authorized person access to Project's area (by the access roads) and Construction/operation sites. Locking devices (e.g., padlocks) shall be installed at the gate during non-working hours. Employees and visitors are only allowed to enter the sites through the designated gate.

*Lighting System*

A lighting system shall be sufficiently available at entrances, exits, along the access roads, and in parking areas (if provided) to detect movement during periods of darkness. Motion-activated lights can be installed for an even bigger impact.

Emergency lighting of adequate intensity shall be installed and automatically activated upon failure of the principal artificial light source. Emergency lighting systems shall be inspected and maintained weekly by a security contractor.

*Surveillance/Electronic Security Systems, CCTV and Control Room*

Closed-circuit television (CCTV) system shall be installed at the Projects construction/operation site for continuous monitoring of security issues inside and outside the construction/operation area. CCTV shall be installed at entrance gates, storage areas, working areas, along the access roads, and parking areas (if provided). However, CCTV is not allowed to be installed in private areas such as employees' rooms, toilets, etc. to monitor personal activities. CCTV cameras shall be positioned where there is enough lighting and the lighting does not create 'white-out glare'.

CCTV system is connected and transfers data to a CCTV control room where the database and monitoring screen are installed. CCTV recordings shall be kept at least for 30 days. The Security Contractor shall appoint staff to manage the CCTV control room 24/7. An alternate electrical power system shall be installed to ensure uninterrupted construction/operation of electronic security systems in the event of a power outage. The roles and responsibilities of the security control room staff shall comprise of the following:

- Monitor all security construction/operations;
- Process all visitor applications;
- Immediately communicate to the relevant person (e.g., Security Manager, Security Leader) in the event of incidents;

- Control mobile roving patrols for the Projects site;
- Provide a direct link between incident commanders;
- Support to call out emergency services;
- Provide a communication link between the Projects and police;
- Complete daily records and archive of data;
- Provide security support to specific requests as directed; and
- Record all calls and walkie-talkie communications for emergency incidents.

### 3.2.2 Access Control

Where security management requires body check of employees/visitors, the Projects shall ensure gender sensitivity is respected by providing security guards of the same gender.

*Employee Access*

Security guards shall be appointed to control access and egress of the Project employees to the Project construction/operation sites via employee badges, which include the employee's photo. In addition to that, a biometric system (i.e., fingerprint system) will also be considered for employee access control. Individuals who are not provided with an approved employee badge/fingerprint shall not be permitted entry.

*Visitor Access*

Visitors shall be subject to a security check when entering the Projects construction/operation sites to ensure that no weapon is being carried. Visitors shall be required to provide their identification (ID), record on Visitor logbook and provide information of contact point prior to access to the Project construction/operation site. The contact point shall pick up visitors at the entrance and escort them during the work at the Projects sites for safety and security purposes. Visitors will be provided with a numbered visitor badge and will be required to display it at all time of the visit. Visitors shall return the visitor badge to the security guard when they leave the Projects' site and shall also complete their accessing's information (e.g., time out and signature) in the visitor logbook and retrieve their ID. All visitors must leave the Projects construction/operation site by 10:00 pm.

*Vehicle Access*

Security guards shall check vehicles from top to bottom prior to accessing to the Projects construction/operation site. Information related to vehicles shall be recorded correctly and sufficiently in the Vehicle Logbook by security guards and signed by the driver.

**Security Stations**

To ensure security at the Project sites, a security station shall be provided at each entrance gate and storage area. At each station, a security guard shall be appointed to manage the delegated area 24/7. The emergency contact list shall be posted at each security station in order to ensure that the security guards know how to coordinate with other relevant employees/ departments for emergency response in case security incidents/ accidents happen at the Projects construction/operation site.

***Patrol***

A patrol of the area surrounding the sites shall be conducted by security guards every two hours. A walkie-talkie shall be provided to patrol security guards to accommodate their duties.

### 3.2.4 Material Control

All properties/materials in and out of the project site shall be accompanied by an approved Material Gate Pass (MGP). Employees in charge of material management of the project shall be responsible for the approval of MGP. No materials shall be permitted to access or leave the construction/operation site without the appropriate documentation. The MGP shall cover the following information:

- Number of MGP;
- List all materials by item, a description of the material and serial numbers;
- Quantity/ volume of material;
- Date of materials entry/exit;
- Reason of materials entry/exit; and
- Department in charge of materials.

  The MGP shall consist of the following:
- One original (kept in the department managing the materials); and
- Two copies (one kept by security guards at the entrance and one kept by the driver).

  The driver at the security gate shall submit a copy of the MGP to the security guards. The security guards shall conduct a search of all vehicles and the items they carry before accessing or exiting the Projects site. The security guard will record all the information relating to the material access/exit, including:
- MGP number;
- Vehicle plate number;
- Driver information (full name, identity card number); and
- Entry and Exit time.

Any vehicle attempting to access/leave the Projects sites with materials without a completed MGP shall be stopped and refused access/exit.

### 3.2.5 Security operating Procedures

This shall entail some of the key security operating procedures which will comprise of:

*Boundary security*

Security will maintain control of the project's perimeter by deploying personnel at strategic points along the boundaries of the project facilities and also channel people to access-control points that will have security personnel (both armed and unarmed as well as those in uniform and non-uniformed personnel.

*Access Control Policy and Procedures*

Access to project sites will by project personnel and visitors will be through a formal, documented access control procedures to facilitate the implementation of access control policy and associated access controls. Project and Contractor personnel will be issued with badges and will at all times

carry and display these badges when in the field. The badges will enable the bearer to access project facilities upon site security enquiry. Visitor badges will be issued to all visitors who are not project employees.

*Unexpected / Unplanned Visitors*

In case of unexpected (unplanned) visitors, the security guard will be notified immediately by the security officers, access endorsement/authorization will be issued only by the Security officer after consultation with the PD, and thereafter a visitor's badge will be issued. The visit will not exceed few hours and they must be accompanied by the project personnel /staff in charge of the visit.

## 4. Managing Relations with Public Security and Emergency Service

EPC Contractor and Security Manager are encouraged to reach out to authorities (e.g., local police, the forest security personnel, local emergency service), preferably in advance of any issue, to understand potential deployments and, to the extent possible, to promote appropriate and proportional use of force. It involves simply making introductions to the local police station and initiating a discussion about when and how authorities are likely to respond to incidents at the Projects or involving the Projects personnel.

The EPC contractor will maintain communication through NHA with local police and other law enforcement agencies. In case of emergency, the security personnel and site/camp management will contact police station and FC of law enforcement agencies in the respective area to tackle the issue.

The EPC Contractor and Security Manager shall closely consult with local authorities in developing security action plans for scenarios that security guards may be faced with. They shall maintain contact and communication through check-ins with public security forces to help the company be confident that police will respond quickly and professionally if an incident occurs, or that suspects (including community members) are caught trespassing or stealing will be treated fairly in police custody.

## 5. Security Contractor Management

The NHA/EPC Contractor shall be responsible for hiring a competent Security Contractor who is in charge of security issues at the construction/operation site. The Security Contractor shall meet all the requirements.

### 5.1 Security Contractor Selection

#### 5.1.1 Screening of Security Contractor

The NHA/EPC Contractor shall search relevant information about the reputation of Security Contractors on public information sources or learn from Security Contractors' stakeholders and local courthouses and fill in the screening checklist (given in Appendix) for a preliminary assessment. To determine the quality of past works (i.e., child labour, forced labour, past abuses, punished or fined due to violation of legal requirements, violation of human rights, had a serious health and safety accident), ascertain whether there have been security accidents/incidents that happened to the contractors when they worked for other projects. The Security Contractors shall maintain a trustworthy and dependable reputation. In addition to that, the client shall check the

availability of local Security Contractors and shall coordinate with Human Resources Department to ensure the selection of Security Contractor is in line with the Local Recruitment and Procurement Plan.

### 5.1.2 Evaluation of Security Contractor

The Security Leader shall send a list of documents required to be submitted by Security Contractors. Security Contractors must demonstrate that their competencies meet the selection criteria by providing evidence to the Security Leader. Then, an inspection by the client shall be conducted to verify the information provided in the questionnaire and assess the compliance level of Security Contractors prior to selection. Only Security Contractor who have met all requirements will be selected. Security Contractor providing any security services to the Projects construction/operation site shall meet the following competency requirements:

- Security Contractor is functional to provide security services in compliance with legal requirements;
- Security Contractor has experience in providing similar services related to the Projects construction/operation;
- Security Contractor shall have a comprehensive security policy and procedures that could be applied to the Projects;
- All the security guards working at the Projects construction/operation site are trained to ensure their competency and professionalism in handling security issues at the Projects construction/operation site; and
- Security Contractor engaged to provide security services to the Projects shall ensure that there has been no evidence to show any abuses to their employees, breach to individual human rights, or violation of labour regulations. Review of Human Resource (HR)-related documents shall be conducted by NHA Team personnel, who has a good understanding of labor regulations, to verify and confirm the compliance of the Security Contractors prior to engagement.

### 5.1.3 Contractual Arrangement

Security Contractor will not be selected if they fall into one of the below non-conformities:

- Did not obtain Certificate of satisfaction of security and other conditions;
- Does not have security guards trained and certified by a competent police authority;
- Punished or was fined due to violation of legal requirements;
- Had historical misconducts in terms of child labour, forced labour, and major health and safety; and
- History of abuse or human rights violations.
- Refer to (given in Appendix) for the requirement that shall be incorporated in the contract with Security Contractor. Prior to commencing work at the Projects' construction/operation site and in the event of changing workforce, the Security Contractor shall submit to the Projects the following documents:

- Security guard's profiles who will work at the Project site, including Copy of ID, security guard certificates granted by a competent police authority, background checked with confirmation of local authority, valid labour contract with Security Contractor, health examination records, occupation health and safety training records (if any), fire-fighting training records (if any); Code of conduct training records to all security guards who will work at the Projects construction/operation site.

## 5.2 Term of Project Requirement

Security guards shall be Pakistani citizens at the age of 18 or above; having clear records, good political credentials and moral sense, having graduated from secondary schools or above, capable of civil acts, and having good health that meet the requirements for security works.

### 5.2.1 Code of Conduct

The following codes of conduct are applicable for the security guards:

- Shall not accept bribes at any time;
- Shall remain alert and observe all activities in areas under their control;
- Directly report all incidents or violations to the Security Manager;
- Shall have no conflict of interests or hold a criminal record of any kind;
- Shall not threaten, assault, or coerce the Project employees, visitors and communities in any way;
- Shall be willing to work in the event of emergencies;
- Be physically fit and able to perform all duties, roles, functions of security activities;
- Have professional dress and deportment;
- Be free from any communicable diseases;
- Shall not participate in the possession, purchase, trade, collection, hunting, or poaching of wildlife or forest resources;
- Shall immediately proceed to the emergency response and inform the related emergency response team for the primary emergency response team during emergency cases;
- Shall provide preventive and defensive services, protecting company employees, facilities, equipment, and construction/operations wherever they are located;
- Shall have no law-enforcement authority and will not encroach on the duties, responsibilities, and prerogatives reserved for public security forces;
- Aware of culturally specific gender issues in order to react to the NHA/EPC Team's employees and communities, and enhance local acceptance of the presence of security personnel; and
- Respect human rights (Refer to the Projects' Labour Management Plan) and make clear that arbitrary or abusive use of force is prohibited.

### 5.2.2 Use of Force

Security guards are permitted to use force only as a matter of last resort and only for preventive and defensive purposes in proportion to the nature and extent of the threat, and in a manner that respects human rights (Refer to the Projects' Labor Management Plan). The project will follow the good practice note on assessing and managing the risks and impacts of the use of force from the security personnel. (Environment and Social Framework ESF Good Practice Note on Security Personnel)

All security guards shall be properly trained on using force effectively, proportionally, and with respect for human rights. In the event a security guard is required to use force against the individual, the security guard shall:

- Attempt non-violent means first and only use force when necessary;
- Use only the minimum of force required, to affect the purpose and keep it proportional to the threat;
- Operate strictly within the law and the authority is given to them to use force;
- Clearly prioritize the prevention of injuries or fatalities and peaceful resolution of disputes;
- Render medical aid to an injured person, including offenders;
- Report any use of force as soon as possible to Security Manager and Security Leader; and
- The use of force may need to be justified at any later hearing. The Security Manager will have the responsibility of presenting the justification following any reportable incidents.

### 5.2.3 Equipment

No one in the guard force is allowed to carry firearms as per legal requirements in Pakistan. The Security Contractor shall be responsible for providing all security-related equipment under their areas of control at the Projects construction/operation site. This will include, but will not be limited to the following:

- Uniforms for all security guards. The uniforms provided to security guards shall include trousers, shirts, shoes, hats, shoulder loops, etc. in according to legal requirements;
- Sufficient communication equipment including walkie-talkies;
- Transportation for conducting security patrols and responding to security incidents or accidents;
- Portable lights supporting for patrol at night (with extra batteries);
- Speakers;
- Raincoats;
- Motorcycle or bicycle (when necessary) for use to patrol the Projects area;
- Electric batons, metal batons, rubber batons, armor, cut resistant gloves approved by the local authorities; and

- Personal Protective Equipment (PPE) such as high-visibility clothing, safety shoes, hard hat, etc. According to the Project's health and safety regulations.

  All security facilities and equipment (in Appendix) shall be regularly checked, inspected, and maintained to ensure they are in normal construction/operation conditions and ready for use in emergency cases. Security Contractor shall appoint employees for this task and all inspection and maintenance records shall be documented and retained at the Projects construction/operation site for monitoring and auditing purposes.

## 5.3 Security Incident Reporting, Investigating, and Resolving

The Security Incident Reporting, Investigating, and Resolving Process is generally designed for different levels, corresponding to the scale and seriousness of security issues. Therefore, classification of security issues is an important initial step. The Security Incident Reporting, Investigating, and Resolving Process will be updated by the EHS Manager, and discussed further in the following paragraphs:

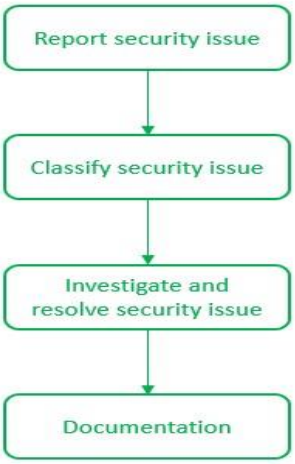



**Figure -1: Security Incident Reporting, Investigating and Resolving Process**

### Step 1: Report security issue

When a security issue is identified, security guards or employees who identify the security issue shall immediately inform the Security Manager and NHA/EPC Contractor directly or by phone in case of security incidents. If the security issue is out of control of the Security Manager and client, the Security Leader shall escalate the information to the EHS Manager or the Project Director for further advice and instructions to control the issue.

The client and the Security Manager shall be responsible for providing the security contact list at the Project's construction/operation site and ensure all security guards understand how to communicate when a security issue happens. The security contact list could be integrated into the contact list for other kinds of emergencies developed by the Security Leader.

### Step 2: Classify security issue

Security Leader shall review and classify the security issue whether it can be investigated and resolved using an internal process or if it must be reported to local authorities for further

investigation and resolution. If the issue needs support from local authorities, the Security Leader shall seek the approval from PD to report the issue to local authorities.

**Step 3: Investigate and resolve security issue**

*For internal process:* A Security Committee, members typically include the NHA/EPC Contractor member, EHS Manager, Security Manager, other related managers (as needed) shall be established when a security incident occurs. The Security Committee shall investigate and consult with relevant personnel and/or community/ local authority to understand clearly and fully the situation of the security incident. If required, a meeting can be organized with relevant employees for the collection of detailed information, clarification, discussion, and consultation. Minutes of the consultation session shall be recorded in the Security Incident Report. The NHA/EPC shall coordinate with Security Manager to complete the Security Incident Report and submit to the EHS Manager for approval. In case that the resolution leads to disciplinary actions or compensations for the damage (if any), the disciplinary process and compensations shall follow the Project's Labour Management Plan and related legal requirements.

*For external process (by local authorities):* Security Manager shall coordinate with the local authorities in the investigation and resolution process, then record recorded in the Security Incident Report and submit to the PD for approval.

**Step 4: Documentation**

All follow-up actions shall be tracked in the Security Incident Report. Security records shall be kept for at least five (5) years; and NHA/EPC and Security Manager is responsible for maintaining all records relating to security issue.

### 5.4 Training

In relation to the Projects, the security contractor shall engage and deploy fully trained security guards, with the required qualifications and experiences to fulfill their responsibilities. Therefore, Security Contractor shall be responsible for providing security guards with appropriate training, including refresher courses to ensure their competencies.

### 5.5 Discipline

EHS Manager and security contractor shall use the circumstances on the basis contract for the removal of security guards from the Project such dismissal from the Project will comply with National Labour Code. Dismissed security guards may have the right to appeal in accordance with the Employee Grievance Procedure. The grievance shall be dealt according to the Project GRM.

World Bank`s good practice notes on "Assessing and Managing the Risks and Impacts of the Use of Security Personnel" will be the guiding document for security risk assessment and management for the project lifecycle.

### 5.6 Grievance Mechanism

To the extent possible, the SMP shall adopt the Project Grievance Redress Mechanism in managing the security related grievances. The security manager shall engage the relevant project personnel to ensure security personnel grievances are included in the Project GRM and

Stakeholder Engagement Plan, and work with public security leaders to integrate the project GRM with internal procedures. Key areas of emphasis will be on the following steps:

Step 1: Publicizing Grievance Management Procedures,

Step 2: Receiving and Keeping Track of Grievances,

Step 3: Reviewing and Investigating Grievances,

Step 4: Developing Resolution Options and Preparing a Response,

Step 5: Monitoring, Reporting, and Evaluating a Grievance Mechanism, and

Step 6: Dedication of adequate resources both human and capita

Refer to the Employee Grievance Mechanism for internal grievance and Stakeholder Engagement Plan for external grievance related to security issues during the construction/operation phase of the Projects.

As part of project supervision, incident reports to be submitted to the NHA, and grievance mechanism logs regarding grievances or allegations that involve project-related security personnel. Security-related allegations or incidents can include issues such as theft, abuse of power and retaliation, sexual harassment and exploitation, gender-based violence, and bribery and corruption. NHA Security should request more information about any reported incidents and steps taken to address the issue and prevent recurrence and should promptly keep NHA Management informed of allegations or instances of violence or abuse and the remedial efforts. Allegations or incidents related to security personnel should be documented and assessed with the objective of determining compliance or noncompliance with policies and procedures and whether any corrective or preventive actions are required. Unlawful or abusive acts should be reported to appropriate authorities, including NHA, and project management should actively monitor the status of any ongoing criminal investigations and cooperate fully. Project staff responsible for the project SEP and Grievance Mechanism should communicate outcomes to complainants and other relevant parties, keeping in mind confidentiality provisions and the need to protect victims from further incidents or retaliation. Where appropriate, it can also be constructive to share relevant lessons learned with the community and any changes made to prevent future incidents.

Any allegations of criminal behavior should be reported to relevant authorities, whether from private or public security, grievances regarding employees or contractors. It is important that allegations related to security have been to security personnel be investigated by a neutral party and that identified, the risk any allegations of retaliation be immediately investigated. profile of the project Confidentiality of complainants must be protected.

A separate workers GRM is suggested to be established and managed by main contractor with Project E&S specialists as members. The nature of complaints related to workers will include, but not limited to, the following: GBV complaints, SH, remuneration, working hours, PPE, OHS, protection issues, security issues, social issues, family-work balance, working conditions, CoC, etc.

The complaints can be registered through complaint registers, email addresses, phone numbers and In-writing. Separate boxes and registers for employees/workers will be place within the

premises. The existing committee for Project GRM will have relevant individual to address related complaint.

Gender-responsive measures will be taken to ensure confidentiality.

### 5.7 Logistic and Supply Chain Security

Logistic and supply chain security are characterized by a multifaceted approach encompassing physical security measures, such as surveillance and access controls, to protect warehouses and transportation; optimization of inventory management through technologies like barcoding and RFID; stringent transportation security protocols to ensure the safety of goods in transit; thorough supplier evaluation for reliability; robust information security through cybersecurity measures; regulatory compliance with international standards like ISO 28000; proactive risk management practices, including vulnerability assessments and contingency planning; and the integration of innovative technologies like blockchain and artificial intelligence to enhance overall security and resilience in the face of evolving global challenges.

### 5.8 Crisis Management and Response

Security and crisis management constitute a strategic framework aimed at preventing, preparing for, responding to, and recovering from various threats and crises that can impact an organization. This involves the establishment of comprehensive security protocols, risk assessments, and proactive measures to mitigate potential risks. Crisis response plans are crucial components, outlining clear procedures and communication strategies for addressing emergencies. The effectiveness of security and crisis management lies in its ability to adapt to dynamic threats, ensuring a swift and coordinated response to safeguard assets, personnel, and the organization's overall resilience. Regular training, simulations, and continuous improvement are integral to maintaining an agile and effective security and crisis management framework.

### 5.9 Monitoring

Monitoring is a critical component to prevent issues from becoming problems in the first place and to ensure that action plans are implemented and procedures are being followed. The monitoring program related to the SMP is presented in **Table 5** and implementation follows the requirements.

Any major non-compliance (e.g., issues that could lead to a significant failure of structures, fatal accident, major injuries, authorities' notice/prosecution, or delay in project schedule) shall be corrected within one working day. Minor non-compliance issues (e.g., issues that do not lead to a breach of statutory requirements, bodily injuries/damage to properties, the environment, and surrounding communities) shall be corrected within one week.

#### 5.9.1 Reporting

#### Internal Reporting

After each internal inspection and audit, an internal report shall be completed and communicated to all relevant parties. Security Manager shall prepare and submit weekly and random inspection report on security facilities and equipment to EHS Manager for review and approval; while EHSS

Staff with prepare and submit monthly inspection and random inspection on security facilities and equipment, and Annual Internal Security Management Report to NHA/EPC Contractor. The internal reporting during construction/operation may include, but not limited to Summary of security incidents; and Review of actions taken and status.

**External Reporting**

In addition to internal reporting, the Projects are required to submit periodic monitoring reports to World Bank and Local authorities.

### 5.9.2 Training and Communication

The Project Owner is committed to providing appropriate training to all personnel and ensures that the NHA/EPC Contractor team are also providing the same level of training to their personnel (including Managers, Supervisors, and Employees) so that these people have the skills and knowledge necessary to implement and fulfill their obligations required by the SMP during construction/operation.

To improve security management skills and knowledge, the EHS Manager, Security Manager, shall closely coordinate with local police in order to attend available professional training courses in terms of security management organized by local authorities. In addition to that, online training courses available on WB website related to security management and human rights will also help the managers fully understand the Applicable Standards and well-manage security issues at the Project.

**Table 5: Monitoring Program**

| Action | Performance Indicators | Monitoring Protocol | Responsibilities | Monitoring Records |
|---|---|---|---|---|
| Internal monitoring | Status of security facilities and equipment | Weekly | ■ Security Contractor; and<br>■ NHA/EPC<br>■ EHS Manager. | ■ Record of checking security facilities and equipment. |
| Internal monitoring | No. of security incidents | Daily monitoring, but reports can be consolidated Monthly | ■ Security Contractor;<br>■ NHA/EPC; and<br>■ EHS Manager. | ■ Security incident report; ■ Visitor logbook; and<br>■ Vehicle logbook. |
| | Security performance related to human rights | Daily monitoring, but reports can be consolidated Monthly | ■ Security Contractor;<br>■ NHA/EPC; and<br>■ EHS Manager. | ■ Grievance records. |
| | ■ No. of security guards signed labor contract;<br>■ Working hours and overtime hours of security guards;<br>■ No. of security paid under regional minimum wage;<br>■ No. of security guards registered with Social, health and unemployment insurance; and | Monthly | ■ Security Contractor;<br>■ NHA/EPC; and<br>■ EHS Manager. | ■ Labor contracts;<br>■ Timesheets;<br>■ Payrolls; ■ Social, health and unemployment insurance; and ■ Induction training records. |
| | ■ Status of security facilities and equipment;<br>■ No. of security incidents;<br>■ Security performance related to human rights;<br>■ No. of security guards signed labour contract;<br>■ Working hours and overtime hours of security guards;<br>■ No. of security paid under regional minimum wage; | Annually | NHA/EPC; and<br>■ EHS Manager. | ■ Record of checking security facilities and equipment;<br>■ Security incident report;<br>■ Visitor logbook;<br>■ Vehicle logbook;<br>■ Grievance records;<br>■ Labor contracts; |

| | | | | |
|---|---|---|---|---|
| Internal monitoring | ■ No. of security guards registered with Social, health and unemployment insurance<br>■ No. of employees receiving security training;<br>■ No. of security guards who were not provided sufficient annual leave;<br>■ Type of training provided to security guards; and<br>■ No. of security guards receiving training. | Subject to Lender requirements | NHA/EPC;<br>■ EHS Manager.<br>■ EHSS Staff; and<br>■ EHSS Manager. | ■ Timesheets;<br>■ Payrolls;<br>■ Social, health and unemployment insurance; and■ Induction training records; ■ Annual leave records; and<br>■ Security guards training records. |
| Internal monitoring | ■ Status of security facilities and equipment;<br>■ No. of security incidents;<br>■ Security performance related to human rights;<br>■ No. of security guards signed labor contract;<br>■ Working hours and overtime hours of security guards;<br>■ No. of security paid under regional minimum wage;<br>■ No. of security guards registered with Social, health and unemployment insurance;<br>■ No. of employees receiving security training;<br>■ No. of security guards who were not provided sufficient annual leave;<br>■ Type of training provided to security guards; and<br>■ No. of security guards receiving training. | | | ■ Record of checking security facilities and equipment;<br>■ Security incident report;<br>■ Visitor logbook;<br>■ Vehicle logbook;<br>■ Grievance records;<br>■ Labor contracts;<br>■ Timesheets;<br>■ Payrolls;<br>■ Social, health and unemployment insurance; and<br>■ Induction training records;<br>■ Annual leave records; and<br>■ Security guards training records. |

**Table 6: Security Training Matrix**

| Trainee | Training content | Training form | Training frequency | | Training record |
|---|---|---|---|---|---|
| | | | Initial training | Refresher training | |
| Security Guards | ■ General regulatory requirements (e.g. Human rights-related themes, Criminal Law, Civil Law and Labour Code);<br>■ Code of conduct;<br>■ Use of security and safety equipment;<br>■ Communication skills;<br>■ Conflict management skills;<br>■ General information about the Project (e.g., layout, organization charge (including the person in charge of security issues)), site rules and relevant regulations of the Project, etc.;<br>■ Security Management Plan/ Procedures of the Project;<br>■ Emergency Preparedness and Response Plan of the Project;<br>■ Emergency communication route for security issues;<br>■ Employee Grievance Mechanism; and<br>■ Rules, regulations and information concerning restrictions related to hunting and poaching, as well as the punishment that can expected if any staff or worker or other person associated with the Project violates rules and regulations. | In-house training | Prior to working at the Projects | Bi-annual | ■ Training materials; and<br>■ List of participants (including the participants' signatures) |

| | | | | | |
|---|---|---|---|---|---|
| | ■ Security professional training;<br>■ Occupational Health and Safety training;<br>■ Basic life support and first aid; and<br>■ Fire-fighting. | External training | Prior to working at the Projects | ■ As per new requirements of laws;<br>■ Annual; | Certificate of training. |
| All employees, including the EPC Contractors and its subcontractor's employees | ■ Security Management Plan and their roles and responsibilities on security management;<br>■ Requirements on reporting security issues;<br>■ Code of Conduct;<br>■ Employee grievance mechanism.<br>■ Emergency communication procedures | In-house training | Prior to working at the Projects | Bi-annual | ■ Training materials<br>■ List of participants (including the participants' signatures). |

## 5.10 Records and Documentation

The control of documents and records related to security management shall be conducted in accordance with the relevant document and records control requirements of the NHA/EPC Contractor, the following documents and records:

- Visitor logbook
- Vehicle logbook
- Screening checklist of Security Contractor (Appendix A)
- List of documents required to Security Contractor and evidence of compliance, including relevant training records (Appendix B)
- Requirements in the contract with security contractor
- Record of checking security facilities and equipment (Appendix D)
- Security incident report (Appendix E)
- Material Gate Pass records
- Induction training records;
- Communication records related to the SMP to all relevant stakeholders;
- Internal and external audit/inspection records;
- Monthly security report of Security Contractor to the Projects; and
- External report (if applicable).

  All records are required to be filed for at least five years or as per regulatory requirements, whichever is more stringent and kept in safe storage accessible only to authorized personnel.

## Appendix A: SCREENING CHECKLIST OF SECURITY CONTRACTORS

**Name of Security**

**Contractor: Date of**

**Screened by:**

| No. | Aspect | Source | Status (Yes/ No) | Notes |
|---|---|---|---|---|
| 1. | Complaints/ Issues/ Records of child labour | | | |
| | | | | |
| 2. | Complaints/ Issues/ Records of forced labour | | | |
| | | | | |
| 3. | Complaints/ Issues / Records of sexual harassments or abuses | | | |
| | | | | |
| | | | | |
| 4. | Punished or fined due to violation legal requirements | | | |
| | | | | |
| | | | | |
| 5. | Violated human rights | | | |
| 6. | Complaints/ Issues / Records of serious health and safety accident | | | |
| | | | | |

## Appendix B: LIST OF DOCUMENTS REQUIRED FROM SECURITY CONTRACTOR

| No. | Documents | Status | | | Notes |
|---|---|---|---|---|---|
| 1. | Business license | | | | |
| 2. | Certificate of satisfaction of security | | | | |
| 3. | Company profile which includes company's experiences for providing similar services related to the Project construction/operations | | | | |
| 4. | Security policy and procedures | | | | |
| 5. | List of employees of business | | | | |
| 6. | Logbook of security guard training | | | | |
| 7. | Security guard certificates granted by competency local authority | | | | |
| 8. | Report on fulfilment of security requirements | | | | |
| 9. | Security service business management book | | | | |
| 10. | Grievance records in the past three years (if any) | | | | |
| 11. | Occupational accident records in the past three years (if any) | | | | |
| 12. | Punishment or fine records due to violate legal requirements (if any) | | | | |

| Provided by | Checked by | Approved by |
|---|---|---|
| (Signature and full name) | (Signature and full name) | (Signature and full name) |
| (Position) | EHS Manager | NHA/EPC Contractor |
| Date: | Date: | Date: |

**Appendix C: Requirements in the contract with security contractor, but not limited to:**

a. Compliance with national and local laws and regulations, and WB Safeguards;

b. Compliance with HR policy and procedures' requirements defined by the Projects; and

c. Measurement, monitoring, and reporting of the Project's Labour Management Plan implementation, progress, and performance.

d. A security guard shall be removed from the Project if he violates one of the below actions:

- Leaving a post or duty without appropriate reliefs;
- Theft, which includes unauthorized use of project equipment or facilities such as telephones, internet facilities or services, and information technology equipment;
- Acceptance of gifts, gratuities that may compromise duties and responsibilities;
- Insulting or offensive behavior;
- Consumption of alcohol or illegal substances or being under the influence of either while on duty;
- Making false reports or knowingly omitting information in a report;
- Sleeping on duty;
- Wilful disobedience of instructions or neglecting duty;
- Participating in the possession, purchase, trade, collection, hunting, or poaching of wildlife or forest resources;
- Making any statements or comments verbally or in writing to any news agencies, media, or other individuals relating to the Project's activities, which can affect negatively to the Project;
- Willful or carelessly permitting violations to project rules or directives; and
- Abusing or violating human rights.

e. During its contract with the Project, the security contractor shall be removed from the Project if the security contractor violates one of the below actions:

- Punished or fined due to violation of legal requirements;
- Misconduct in terms of child labour, forced labour, and major health and safety; and
- Abused or violated human rights.

f. Any non-compliance of the security contractor with the Project's Security Management Plan shall be subjected to corrective actions and compensations to the Project for such damage (if any) according to the legal requirement.

**Appendix D**

## LIST OF SECURITY FACILITIES AND EQUIPMENT

| No. | Facilities/ Equipment | Status |
|---|---|---|
| 1. | CCTVs | |
| 2. | Control room | |
| 3. | Telephones for non-emergency calls | |
| 4. | Telephone for emergency calls | |
| 5. | IT equipment | |
| 6. | Walkie-talkie communications devices | |
| 7. | Fences | |
| 8. | Locking devices | |
| 9. | Security station | |
| 10. | Lighting system | |
| 11. | Uniforms for security guards | |
| 12. | Portable lights | |
| 13. | Emergency lighting systems | |
| 14. | Speakers | |
| 15. | Electric batons, metal batons, rubber batons, armour, cut resistant gloves approved by the local authorities | |
| 16. | Visitor badge | |
| 17. | Visitor logbook | |
| 18. | Vehicle Logbook | |
| 19. | Material Gate Pass | |
| 20. | Internal contact points | |
| 21. | External contact points | |
| 22. | Security training records | |
| | | |
| | | |
| | | |

| Prepared by | Approved by |
|---|---|
| (Signature and Full name) | (Signature and Full name) |
| (Position)<br><br>Date: | (Position)<br><br>Date: |

## Appendix E

### SECURITY INCIDENT REPORT

Reference #: Date and Time of incident:

Location of incident:

Individuals involved (include contact details):

| No. | Full name | ID/ Employee's ID | Position | Contact information (phone |
|---|---|---|---|---|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |

Description of the incident (including situation leading up to the incident):

Security incident investigation and consultation:

Assessed consequences to the Project and to community members (include a description of injuries or damage sustained, if applicable).

# ANNEXURE V. SITE HSE PLAN

It is required that all personnel working on the project attend the Health and Safety site induction briefing prior to commencing any work on the site.

The General Site Rules shall act as the main agenda and content of the induction briefing. Additionally, any information specific to the project shall be included in the induction. The induction briefing should be, as far as possible, two-way communication with attendees invited to contribute, comment and ask questions regarding health and safety. Other rules are as follows:

- All attendees of the induction briefing will be recorded.
- High visibility jacket/vests, safety helmets and safety footwear (incorporating steel toe-caps and mid-sole) must be worn at all times.
- Safety goggles for protection during all cutting, grinding and drilling operations or where there is risk from impact, dust, chemicals or hot metal.
- Dust masks for protection from dust.
- Ear protection during all operations which produce noise above the level at which you need to raise your voice to be heard. Gloves during concreting work.
- On this site, formal permits must be in place before any of the following operations may be carried out: Permit to Excavate, Hot Work Permit & Confined Spaces Permit. (Where Applicable), thoroughly understand it and get permission from area supervisor (If required).
- Follow the messages and instructions displayed on HSE boards installed on site.
- Be aware of emergency muster (assembly) points and escape routes. In the event of an emergency do not panic, follow the site emergency response procedures.
- Report promptly all accidents to your supervisor and HSE officer at site. Immediately provide first aid for the injured and call for the medic.
- While working alone or in a confined space make sure that your nearby colleague and supervisor are well informed or use a banksman where appropriate.
- Ensure adequate lighting is in place for work on night shifts or for emergency response.
- All Scraps, waste materials and garbage must be disposed of in accordance with the construction waste management Strategy.
- Always clean your work site after completing the job or your shift.
- Maintain appropriate barricades as required.
- Never tamper with electric cables and appliances. Never insert direct cables into sockets, rather use proper plugs.
- Do not enter scaffold that is not tagged safe for access.
- Tools or materials must not be carried while climbing up or down scaffolding or ladders.
- Use pouches or ropes for this purpose.
- Do not smoke or produce naked flame in NO SMOKING area. Use of open fire is prohibited.

- Keep all gangways and aisles clear and clean at work sites.
- Vehicles must be driven at a safe speed, observing speed limits. Drivers must have a valid driving license for the class of vehicle they are operating.
- Vehicles shall only be parked in designated parking areas. Never travel in a vehicle unless in seating equipped with a seatbelt.

## 1. Site HSE Roles and Responsibilities

### 1.1 Project Manager (PM)

i. Develop and disseminate policies for occupational health and safety management systems and environmental management systems

ii. Provide resources for the management and implementation of occupational health and safety management systems and environmental management systems

iii. Responsible for ensuring the implementation of occupational health, safety and environmental policies

iv. Aware of the relevant maters of environment, health and safety.

v. Allocate Budget and Provide resources for the implementation of HSE Plan in its true spirit.

vi. Attend meetings regarding the Health Safety and Environment.

vii. Report Health Safety and Environment matters to the management of the company as required.

### 1.2 Construction Manager (CM)

Responsibilities include, but not limited to:

- Well conversant with international & local, Health, Safety & Environmental rules, regulations and current legislation.
- Ensure that all senior site staff is also conversant with the relevant requirements of current legislations and EPC contractor HSE plan.
- Ensure that site personnel are assigned appropriate duties and responsibilities accordingly to assist in the effective implementation of this HSE Plan.
- Ensure no job is carried on without supervision.
- Approve work methods statements; ensure safety procedures are established and undertaken.
- Funds for essential HSE facilities, equipment and personnel are made available.
- His own personal behavior supports, strengthens and confirms the site's HSE management program.

### 1.3 Environmental/HSE Officer

i. Carry out safety inspection of Work Area, Work Method, Men, Machine & Material and other tools and tackles.

ii. Facilitate inclusion of safety elements into Work Method Statement.

iii. Highlight the requirements of safety through Tool-box/other meetings.

iv. Conduct investigation of all incident/dangerous occurrences & recommend appropriate safety measures.

v. Advice & co-ordinate for implementation of HSE plan in its true spirits.

vi. Convene HSE meeting & minute the proceeding for circulation & follow-up action.

vii. Plan procurement of PPE & Safety devices and inspect their healthiness.

viii. Report to Project Manager (PM) and Resident Director EPC contractor on all matters pertaining to status of safety and promotional program at site level.

ix. Facilitate administration of First Aid

x. Facilitate screening of workmen and safety induction.

xi. Conduct fire and other emergency Drills and facilitate emergency preparedness

xii. Design campaigns, competitions & other special emphasis programs to promote safety in the workplace.

xiii. Recommend to Site In charge, immediate discontinuance of work until rectification, of such situations warranting immediate action in view of imminent danger to life or property or environment.

xiv. To decline acceptance of such PPE / safety equipment that do not conform to specified requirements.

xv. Encourage raising Near Miss Report on safety along with, improvement initiatives on safety.

xvi. Ensuring that all injuries, accidents, incidents/near misses and hazards are positively and timely reported.

xvii. Assisting Engineers/Area Supervisors in accident/incident investigations, where required Attending and positively contributing in the HSE Committee Meetings.

**1.4 Workers**

- Use the proper tools and equipment when operating. According to the requirement of operation and different hazard sources using the PPE and protective clothing provided by company, such as, helmets, safety harness, goggles, safety vest, and other personal protective equipment
- Maintain the tool and keep the tool clean after job completion.
- Report to the site supervisor or on-site project manager for the equipment damage and hidden danger.
- Develop personal safety awareness - including workers themselves and others, especially new employees and young people.
- Avoid unnecessary risk generation.
- For known sources of danger, remind new employees to stay away from these hazards.
- It will strictly be forbidden to play in the construction area or to damage the public utilities.
- Provide advice on how to eliminate hazards.

**1.5 Sub-Contractor HSE Management**

i. Sub-contractor's employees shall immediately correct all unsafe conditions & acts as directed by Contractor Direct supervision. Unsafe acts by any personnel may be grounds for immediate removal and permanent banning from the project site.

ii. Only properly trained employees shall be authorized by sub-contractor to operate equipment, machinery, vehicles & tools.

iii. All Sub-contractors are required to follow safe work practices, and meet the requirements clearly identified in field HSE PLAN.

iv. The Sub-contractor shall erect & maintain safeguards for the protection of workers, any other sub-contractors & the public and eliminate or mitigate HSE hazards created by or otherwise resulting from performance of the work.

## 2 Communication and HSE Meetings

### 2.1 HSE Targets and Goals

Pursuant to the Policy Statement, the following HSE Targets and Goals are identified to create a positive approach to health, safety, and protection of the environment during all activities of the project; this will be achieved by employing competent and motivated staff:

i. To avoid all personal injuries during the execution of the Project,

ii. To ensure that all personnel employed on the Project are competent to carry out their designated tasks safely.

iii. To create positive health, safety and environment attitudes and perceptions at all levels of the Project organization, and to raise health safety and environmental awareness in general.

iv. To implement a training program that supports the achievement of personnel competency in relation to Health, Safety, and the Environment.

v. To complete the Project without incurring any significant property damage to permanent equipment, or temporary facilities.

vi. To complete the Project with minimum avoidable impact upon the surrounding environment.

vii. To implement a hierarchy of communication forums that ensure that HSE concerns can be raised and addressed at all levels of the organization. To continually monitor and improve HSE performance.

### 2.2 HSE Score Board

Environmentalist/HSE Officer will arrange an HSE score board and display at the key location of the project site facilities. Information on the HSE Score Board will be updated on a daily basis.

### 2.3 HSE Awareness Sign Boards

HSE awareness signboards shall be displayed at key locations around the site to create and maintain awareness and ownership of HSE issues.

### 2.4 Internal Site HSE Committee Meeting

Internal HSE Committee Meetings chaired by the Site Manager/Construction Manager, will be held monthly with all Area Supervisors and nominated Engineers, Supervisors and support staff. HSE committee meetings will allow communication of HSE performance and corrective actions. All-important HSE matters regarding the site as well as the non-compliance reported in the current month will be discussed in these meetings.

### 1.3 Performance Monitoring

#### 1.3.1 Performance Review in Site HSE Committee Meetings

Performance reviews shall be held on a monthly basis in the Internal Site HSE Committee Meetings. The objective of the review is to gather information from monitoring, inspection and site working activities and to assess the effectiveness of the implementation of HSE procedures on site. The key performance indicators are:

a. Compliance with Health, Safety and Environment standards

b. Identification of areas not addressed in the HSE Plan

c. Achievement of specified HSE objectives

d. HSE statistics, root cause and trend analysis of the statistics

#### 1.3.2 HSE Inspections of Equipment and Tools

a. The Site Manager will ensure that no Civil, Electrical or Mechanical equipment will go to the working area without HSE inspection.

b. Environmentalist/HSE Officer will co-ordinate with Equipment and Plant Department for the inspection of all Civil, Electrical and Mechanical equipment or the inspection of Civil, Electrical and mechanical equipment,

c. If during inspection, any equipment is found sub-standard, Manager Site HSE is authorized to reject this equipment and inform the Site Manager.\

### 1.4 Incident / Accident Reporting and Investigation

#### 1.4.1 Objective

The objective of incident reporting, investigation & analysis is to identify the cause(s) of an incident to allow for preparation of recommendations, to avoid recurrence of such incident(s) in future.

#### 1.4.2 Incident Reporting and Investigation

Any work-related incident, accident, injury, illness, exposure, or property loss must be reported to your supervisor, the SS, and within 1 hour. Motor vehicle accidents must also be reported. A report must be filed for the following circumstances:

**a)** Accident, injury, illness, or exposure of an employee;

b) Injury of a subcontractor;

c) Damage, loss, or theft of property; and/or

d) Any motor vehicle accident regardless of fault, which involves a company vehicle, rental vehicle, or personal vehicle while the employee is acting in the course of employment.

e) HSE Officer shall brief the Management about the lost time injury/fatal cases and serious incidents/near-misses. The Incident/Near Miss report Format is attached as Annex. “A”.

f) Project Manager and Construction Manager will review the incident report and comments on the recommendations of the Site HSE Staff. They will then assign corrective actions accordingly.

g) Occupational accidents resulting in employee injury or illness will be investigated by the SS. This investigation will focus on determining the cause of the accident and modifying future work activities to eliminate the hazard.

h) All employees have the obligation and right to report unsafe work conditions, previously unrecognized safety hazards, or safety violations of others. If you wish to make such a report, it may be made orally to your supervisor or other member or management, or you may submit your concern in writing, either signed or anonymously.

i) The Site HSE Staff shall carry out a follow up of the recommendations/corrective actions from time to time where he identifies ongoing non-compliance, he shall inform the Project Manager Construction Manager.

### 1.5 Orientation, Site HSE Induction and Other Training Activities

#### 1.5.1 Initial HSE Orientation Program

Each and every person will undergo an HSE orientation program. On completion of orientation, he will be issued an Organizational Identity card. Contractor Site HSE Staff shall perform the initial orientation based on but not limited to the following:

- Explaining Organizational HSE Policy and Standards.
- General HSE rules and regulations for working in a Construction Site, Batching plant, Excavation Area, Mechanical and Electrical work including use of Personal Protective Equipment, incident reporting, getting first aid, emergency response, (HSE inspection, housekeeping, etc.
- Hazards at construction site, works, offices, or any miscellaneous work.
- Specific hazards like height, open excavations, electrical, fire, Fumes (including spray painting) and vehicle safety etc.
- Environmental hazard.

#### 1.5.2 Daily Tool Box Talk by Supervisors/HSE Officer

HSE tool Box talk shall be conducted by Supervisor/HSE Officer for specific work groups prior to the start of work. The tool box is a forum for two- way communication between management and the employees. Tool box talk is focused on a specific job. The agenda shall consist of the following:

- Details of the jobs being intended for immediate execution.
- The relevant hazards and risks involved in executing the job and their control and mitigating measures.
- Specific site condition to be considered while executing the job like high temperature, humidity, unfavorable weather etc.
- Recent non-compliances observed.
- Appreciation of good work done by any person.
- Feedback from employees
- Any doubt clearing session at the end.
- Record of Tool box talk shall be maintained as per format attached.
- Incidents, which may occur in the site/works, shall also be discussed in “tool box talks”.
- Daily tool box talk record format is attached as Annex. “B”.

### 1.5.3 HSE Training During Project Execution

HSE training shall be arranged by contractor as per the need of the project execution and recommendation of HSE committee of site.

#### 1.5.3.1 Site-Specific Training

Prior to working at this site, an initial site-specific training session or briefing shall be conducted prior to commencement of work activities. During this initial training session, employees shall be instructed on the following topics:

- Personnel responsibilities;
- Content and implementation of the HASP;
- Description of assigned tasks/scope of work;
- Site hazards and controls;
- Site-specific hazardous procedures (e.g., lining activities, etc.);
- Coordination of Site activities;
- Training requirements;
- PPE requirements;
- Emergency information, including local emergency response team phone numbers,
- route to nearest hospital, accident reporting procedures, evacuation routes and procedures, location of assembly points, and emergency response procedures;
- Instruction in the completion of required inspections and forms; and
- Location of safety equipment (e.g., portable eyewash, first aid kit, fire extinguishers, etc.).
- The various components of the project HASP will be presented followed by an opportunity to ask questions to ensure that each attendee understands the HASP. Personnel will not be permitted to enter or work in potentially contaminated areas of the Site until they have completed the Site-specific training session.

#### 1.5.3.2 Safety Meeting/Health and Safety Plan Review

"Tailgate" safety meetings will take place each day prior to beginning the day's work. All Site personnel will attend these safety meetings, which may be contracted personnel, subcontractor personnel, or personnel from contractors. The safety meetings will cover specific health and safety issues, Site activities, changes in Site conditions, and a review of topics covered in the Site-specific pre-entry briefing.

#### 1.5.3.3 Management Employees Training Program

- The management employees training program will be conducted during the project to ensure that all management employees are trained.
- An HSE specialist from contractor head office shall conduct the meetings, during his visit to site.
- The duration of this course would be half day.

**Annexure A**

| HSE TOOL BOX TALK RECORD | Quality Records Forms | |
|---|---|---|
| | | Doc. Version 1 |
| | | |

**Project Title:** **Peshawar Southern Link Road Project**

**Project Section:**

**Topic:** _____ **Date** _____

| SR. NO. | NAME OF WORKER / STAFF | CRAFT | AREA | CONTRACTOR | REMARKS |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Delivered by** **SITE HSE OFFICER**

## Annexure B

| INCIDENT / NEAR MISS REPORT | Quality Records Forms | |
|---|---|---|
| | Doc Level | Doc. Version 1 |
| | Doc No | |

**Project Title:** Peshawar Southern Link Road Project

**Project Section:**

**Topic:**_____ **Date** _____

**Objective(s)**

To implement immediate and effective process in order to provide immediate treatment against any fatality, Injuries, Casuality.

**SECTION A: TO BE COMPLETED BY PERSON INVOLVED (OR BY SUPERVISOR OR HEALTH AND SAFETY REPRESENTATIVE IF WORKER IS INCAPACITATED) AND BY THEIR SUPERVISOR**

**Details of the person involved in the incident/near miss**

**Employee #:** ..... **Site Address** ..... **Work phone:** .....

**Name:** ..... **Father Name:** .....

**Position:** ..... **Date of birth:** ..... ☐ Male ☐ Female

**Please select one:** ☐ ZKB Member ☐ Client Member ☐ Sub Contractor ☐ Visitor/Other

**Details of the:** ☐ Incident ☐ Near miss ☐ Medical

**Date:** ..... **Time:** ..... A.M /P.M

**City:** ..... **Location:** .....

**Was the incident/near miss reported to your supervisor, immediately:** ☐ Yes ☐ No

Part of the body injured

| Head | Trunk | Internal | Arm | Hand | Leg | Foot eye |
|---|---|---|---|---|---|---|
| ☐ neck | ☐ heart | ☐ left | ☐ left | ☐ left | ☐ left | ☐ ear |
| ☐ hip | ☐ lungs | ☐ right | ☐ right | ☐ right | ☐ right | ☐ |
| ☐ nose | ☐ chest | ☐ systemic | ☐ shoulder | ☐ thumb | ☐ knee | ☐ great toe |
| ☐ mouth | ☐ stomach | | ☐ upper arm | ☐ fingers | ☐ lower leg | ☐ other toe |
| ☐ teeth | ☐ groin | | ☐ elbow | ☐ palm | ☐ ankle | |
| ☐ face | ☐ back | | ☐ forearm | | ☐ thigh | |
| ☐ skull | ☐ multiple | | ☐ wrist | | ☐ upper leg | ☐ psychoso |

Nature of injury

| | | | | | |
|---|---|---|---|---|---|
| ☐ abrasion | ☐ puncture | ☐ heart attack | ☐ sprain | ☐ burn | ☐ traum |
| ☐ bruise | ☐ laceration | ☐ hearing loss | ☐ strain | ☐ scald | shock |
| ☐ fracture | ☐ amputation | ☐ foreign body | ☐ hernia | ☐ rash | ☐ electri |
| ☐ concussion | ☐ bite | ☐ minor cuts | | ☐ allergy | shock |
| | | | | | ☐ psych |
| | | | | | chemi |

☐ aggravation of previous injury or medical condition *(please describe)*: .....

Type of incident which caused injury

| | | | | |
|---|---|---|---|---|
| ☐ striking against | ☐ stumbling | ☐ lifting | ☐ pushing | ☐ ingestion |
| ☐ struck by | ☐ slipping | ☐ bending | ☐ pulling | ☐ absorption |
| ☐ caught in/on | ☐ tripping | ☐ twisting | ☐ jumping | ☐ inhalation |
| ☐ stepping on | ☐ falling | ☐ stress | ☐ vehicle | ☐ needlestic |
| ☐ other *(please describe)*: ..... | | | | |

| INCIDENT / NEAR MISS REPORT | Doc Level | Doc. Version 1 |
|---|---|---|

| | Doc No | |
|---|---|---|

Agency of injury

| | | | |
|---|---|---|---|
| ☐ vehicle power | ☐ buildings | ☐ mobile plant | ☐ structures |
| ☐ tools | ☐ furniture | ☐ other tools/equipment | ☐ surfaces |
| ☐ animal/insect | ☐ heat stress | ☐ materials | ☐ sunburn |
| ☐ biological agent | ☐ chemicals | ☐ equipment | ☐ stress |
| ☐ objects | ☐ ionising radiation | | |

☐ other *(please describe)*: .....

**SECTION B: TO BE COMPLETED BY THE SUPERVISOR AND THE PERSON INVOLVED WITHIN 48 HOURS**

**THIS SECTION IS EXTREMELY IMPORTANT AS THE AIM OF THE INVESTIGATION IS TO IDENTIFY PREVENTATIVE ACTION THAT WILL AVOID RECURRENCE OF A SIMILAR INCIDENT/NEAR MISS**

Probable cause or causes of incident/near miss

| | | | |
|---|---|---|---|
| ☐ inadequate instruction | ☐ fault of plant or equipment | ☐ poor storage | ☐ weather |
| ☐ inadequate workspace | ☐ equipment unavailable | ☐ poor access | ☐ terrain |
| ☐ assistance unavailable | lack of attention | incorrect method | ☐ work practices |
| ☐ other *(please describe)*: ..... | | | |

**Describe the incident/near miss:**

**Immediate action:**

**Long term action:**

| | | | | |
|---|---|---|---|---|
| **Training Required?** | ☐ | ☐ | **Rehabilitation** | ☐ |
| Induction | ☐ Yes | ☐ No | is required | ☐ unknown as yet |
| Task specific | ☐ Yes | ☐ No | is not required | time off work required |
| Area specific | Yes | No | | |

**AUTHORISATION (ALL SIGNATURES ARE REQUIRED)**

| | |
|---|---|
| **Person involved in the incident:**<br>Name: .....<br>Signature: .....<br>Date: ..... | **HSE Officer/ Supervisors:**<br>Name: .....<br>Signature: .....<br>Date: ..... |
| **HSE Manager:**<br>Name: .....<br>Signature: .....<br>Date: ..... | **Project Manager:**<br>Name: .....<br>Signature: .....<br>Date: ..... |

# ANNEXURE VI. EMERGENCY RESPONSE PLAN

Contractors are committed and obliged to protecting the community, workers, public and concerned company's property and the surrounding environment; in the emergency situations. These situations shall be handled through the implementation of an Emergency Preparedness and Response Plan (EPRP). The construction contractors shall meet with the local emergency service institutions and law enforcement agencies i.e., Fire and rescue 1122, Police, to review and discuss the construction process, including unique construction equipment(s), the overall construction process, and schedule/phasing. This plan will be communicated to all the concerned and personnel who will be responsible for managing the emergency situations, and those who will be affected by the emergencies.

## 1. Purpose

The purpose of the emergency response plan is to identify the actual and potential hazards and their risks, organize responsibilities, identify the resources and plan to utilize them in order to control and minimize impacts of risks in an efficient way. This plan is applicable to all construction processes and sites, machinery/ equipment and materials. It includes preparation to respond in the event of fires, incidents/ accidents involving personnel injuries, property damages etc., hazardous materials emissions, explosions, and natural disasters i.e., flood, earthquake etc. This plan also includes preparation to respond in the event of riots, arsons, terrorist attacks etc.

## 1.2 Objectives

The objectives of this plan are;

i. To develop, maintain, implement, check and improve procedures and practices which will ensure efficient utilization of available resources; in order to protect workers and staff from impacts of hazard's risks.

ii. To minimize impacts of emergencies and unplanned happenings.

iii. The plan includes preparedness and response mechanisms.

## 1.3 Scope

The emergency management program is applied to all Project elements and intended for use throughout the Project 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

### 1.4 Types of Emergencies

Following is a list of the hazards and emergency situations, which need planning and proper handling to minimize their risks.

- Fire
- Road Traffic Accidents,
- Materials/ effluents spills i.e. asphalt, POL, etc.
- Natural disasters i.e., torrential rains, floods, earthquakes
- Occupational accidents i.e., fall, electrocutions, cave-ins
- Arsons, vandals
- Terrorist attacks, etc.

### 1.5 Responsibilities

#### 1.5.1 Alerting

The following procedures will be prescribed for internal reporting of emergencies:

i. The Emergency Response Coordinator (ERC) will awaken on-site personnel, including visitors, of the nature of the emergency.
ii. The ERC will activate and deploy the concerned ERTs, and notify and inform the project person in-charge, emergency medical assistance/ Rescue 1122, fire department, Police etc., whoever and whenever needed.
iii. Concerned Project Manager (PM) or whosoever is in-charge of the project shall only be authorized to speak on contractors' behalf to outside agencies (police, fire department, medical services, Media etc.) during an emergency situation.
iv. The ERC will identify any need for security measures at the Project Area during any emergency and will notify the concerned project or security person in-charge.
v. When any person identifies an emergency situation, or the potential for an emergency situation, and reports it to the ERC, the ERC will then activate the Emergency Response Team.
vi. The supervision consultant shall be notified in writing within 24 hours of any emergency situation.

#### 1.5.1 On Site Person In charge

The Contractor's on-site in-charge shall be responsible for handling emergency situations for concerned site. He will act as Emergency Response Coordinator (ERC) and shall be

responsible for ensuring that all subcontractors, staff, on-site visitors and others adhere to the appropriate emergency response procedures as stated in this Plan.

### 1.5.2 Emergency Response Team (ERT)

Emergency Response Team shall be for matted at all camps, each team comprised of 3 or 5 members including and lead by the ER Coordinator or the concerned person in- charge. All the members of the ER Team shall be trained in basic First Aid, search & rescue and firefighting; that will further provide search& rescue, first aid and arrange transportation in case of accidents and emergencies, and extinguish fires, guide workers and staff to assembly points and other safe places. The ERT shall assist the ER Coordinator in accidents investigation. The contact details of the ERTs shall be posted at prominent places so that all workers are aware of them.

| | |
|---|---|
| **Project Manager** | **Person In charge (ERT)** |
| **Environmentalist/HSE Manager** | **HSE Coordinator (ERT)** |
| **Admin / Labour Team Lead** | **ERT Team Member** |

### 1.5.3 Safety Training

On-site induction, Tool Box Talks (TBT), trainings shall be organized by the Emergency Response Coordinator/ HSE Officer/ Engineer regarding the health & Safety measures from potential and existing hazards, environmental protection, etc. New workers and staff shall be orientated regarding their work and the potential hazards, and safety from them. All trainings shall be recorded and communicated to the Supervision Consultant.

### 1.5.4 Site Inspections

The concerned HSE Officer/Engineer shall visit and inspect all the worksites, plants, machines, workshops, laboratories, working platforms, safety equipment etc., on regular basis, record and notify findings to the concerned Project Manager/ person in- charge. In- case of any observations i.e. unsafe equipment, un-safe acts, violations, absence of safety equipment, etc. required control and mitigation measures must be communicated to the concerned person In charge and workers/staff must implement those measures immediately.

### 1.5.5 First Aid Post / Box

First aid post shall be established at all camps & plants or first aid box provided as per the requirement. The concerned ERTs shall be trained in basic first aid. The first aid post/ or the facilities where first aid box are kept shall be indicated prominently.

## 1.6 Emergency Response Procedures

### 1.6.1 Fire

Fire is a major cause of deaths, disabilities and deaths at house hold and work-places. Most of ten fires are caused by in appropriate and unsafe use of materials and equipment. All personnel at camp sand plants shall be trained in fire safety and use of fire Extinguishers. Fire extinguishers, no Smoking sings etc. shall be installed at all camps, offices, plants, stores, fueling stations, workshops etc. In case of fire, areas with potential to be affected shall be evacuated immediately and gathered at the assembly point, or any other safe zone. The ERTs shall be activated. The fire if at initial stages shall be extinguished with keeping in view personnel safety of employees/ workers at priority. The emergency services i.e. fire brigade, rescue 1122 shall be called immediately. All the fire safety equipment and signs shall be regularly inspected and maintained. The reasons for accidents shall be recorded; mitigation or control measures designed and communicated to all employees. The situation must be recorded and reported to the Supervision Consultant within 24 hours of the incident.

### 1.6.2 Road Traffic Accidents (RTA)

All the drivers at site shall be made aware regarding safe driving practices at the active construction site, borrow areas, camps to avoid accidents. All the drivers shall be trained, motivated and enforced in use of seat belt, obeying speed limit and traffic signs i.e. diversion, speed limits, U-turns, etc. which shall be installed at all required locations. In case of any RTA the concerned ERTs shall be activated; first aid shall be provided to injured person (God Forbid) if any on the spot, transported to the nearest emergency medical facility or the first aid post at the nearest concerned camp. The concerned ER Coordinator or the person in-charge shall be informed immediately. The reasons for accidents shall be investigated, recorded; mitigation or control measures designed and communicated to all employees through a series of trainings, orientations. The situation must be recorded and reported to the Assistant to Employer Representative (AER).

### 1.6.3 Materials / Effluents Spills

Spillage of liquids hazardous to workers' health, wild life and property shall be avoided.

Concerned workers shall be trained in proper and safe handling of such materials. PPEs shall be provided and their unseen forced on the concerned workers. In case of liquids and effluents spills the spills must be controlled through spill control kit, collected and properly disposed which does not affect human or wild life. Spillage of significant amount shall be recorded and reported. Concerned workers shall be orientated on the findings of the reasons for spillage and control measures.

### 1.6.4 Natural Disasters

Since the project area in view of the past weather record is not subject and vulnerable to torrential rains, floods, earthquake; however, the camps shall be established at safe places, and in case of torrential rains, floods workers shall be alerted and mobilized to safe places prior to the impact. In case of earthquake all personnel shall evacuate settlements and gather at the assembly point or any other safe place. The ERTs shall be activated. In case of personnel injuries, first aid shall be provided

on the spot and causality(s) transported to the nearest emergency medical facility/ hospital. In case of property damage, its causes shall be recorded and reported to the SC.

### 1.6.5 Occupational Accidents

All the workers and staff at active construction sites, camps, plants, and workshops shall be trained and orientated on occupational health and safety measures. Tool Box Talks (TBT) shall be organized by the concerned HSE Head/Manager, or site in-charge prior to any new activity or activity potentially hazardous. All such activities shall be recorded and reported accordingly. PPEs shall be provided to all workers and they shall be trained in their proper use and maintenance. All measures needed for the health and safety of workers and staff shall be put in place to a safe and healthy working environment. In case of falls from heights, electrocutions, cave-ins, etc., casualty(s); the ERTs shall be activated; they shall provide first aid and transport causality(s) to the nearest emergency medical facility or the concerned nearest camp/ first aid post. Transportation arrangements must be made immediately and the concerned ER Coordinator or person in-charge must be informed immediately. The happening must be recorded and reported to the Assistant to Employer Representative (AER). The incident must be investigated, findings recorded, control measures devised; and communicated to all concerned, in order to avoid such happenings in future. Daily Tool Box Talk Format and Incident Investigation Format are also formatted for the project.

### 1.6.6 Arsons / Vandals

All the social disputes among the contractor and workers, subcontractors, and community shall be settled peacefully, with mutual consensus; however, in case of unpleasant situations safety of the workers and staff shall be the priority, and the nearest police station shall be informed to protect employees. Social framework agreements may be signed to sort out the community matters if any.

### 1.6.7 Terrorist Attacks

Contractor's own security system will be launched to provide the Security to staff workers and labors and visitors and also security for foreigners, who shall escort them at all construction sites, plants and camps or wherever they move. No foreigners shall be allowed to move outside work areas without Police escort. For security, the contractors have also arranged private security to protect worksites, stores and camps at day and night and prevent, unauthorized trespassing. In case of any terrorist attack (God forbid), safety of the workers and staff shall be the prime priority; however, they shall be trained to protect themselves and seek and move to safe places, moreover the nearest Police/ Elite Force station shall be notified immediately for additional security and further safety.

### 1.6.8 Emergency Contact Number

Emergency Response personnel/Team will be available during the whole Project and will be utilized to assist during emergency situations or provide first aid as needed.

| | | |
|---|---|---|
| Project Manager | Person In-charge (ERT) | - |
| Environmentalist/ HSE Manager | HSE Coordinator (ERT) | - |
| Admin / Labour Team Lead | ERT Team Member | - |

In case of any emergency, Safety Manager or designated person will be authorized to Contact the external public safety agencies/emergency services. Following are the contacts of emergency services.

| | |
|---|---|
| Fire | 16 |
| Police | 15 |
| Edhi Rescuer | 115 |

### 1.7 Fire Prevention and Fire Fighting

#### 1.7.1 Purpose

The purpose of this procedure is to highlight the fire hazards, precautions and suppression facilities required for the Projects. The responsibilities of various staff for this purpose are stated in the table below:

| Sr. No. | Staff | Responsibilities |
|---|---|---|
| 1 | **Construction Manager** | Ensures that procedure is understood and being applied appropriately. |
| 2 | **Site Health, Safety and Environment Staff** | Responsible for the improvement of this procedure and monitoring compliance and introducing whatever training is required for fire teams, fire wardens and personnel. |
| 3 | **HSE Supervisors** | Office and Camp "FIRE ACTION" notices are displayed at strategic locations, and that sufficient "Emergency Assembly Points" are set up, and regular practice evacuation drills are performed.<br>A number of office/ camp staff are being assigned with the responsibility to act as fire wardens<br>Office/camp staff (in particular new starts) has been briefed and keeps updated on fire and emergency response procedures.<br>Awareness to control flammable materials being used on the premises.<br>Daily checks of the office to ensure that walkways are not blocked, carpet and other fittings are properly secured, fire doors kept closed and that the means of escape are available.<br>Kitchen areas are being monitored to ensure that electrical fittings have been turned off after use and do not present a fire hazard.<br>Training for the use of fire extinguishers has been to staff/workers and signs have been displayed on various locations indicating the emergency procedures.<br>'No Smoking' policy applies in the Meetings/conference rooms.<br>Common social areas, mess halls and toilets, within the camp, are checked before closure of possible ignition sources following each meal time and at end of evening. |
| 4 | **E & M (Electrical and Mechanical) Manager** | • E & M Manager shall ensure that the following control measures are in place: |

| | | |
|---|---|---|
| | | • Workshops are maintained in a neat and tidy manner and that waste oil, rags and other flammable materials are removed at the end of each shift or as necessary.<br>• Maintenance crews are properly trained for the use of fire extinguishers, raising the alarm and fire hazards on the work place.<br>• Battery recharging will be conducted in well-ventilated separate areas, with no smoking signs and fire extinguishers in place<br>• Areas around pedestal grinders and other hot work type activities are kept free of combustibles.<br>• Welding and burning shall be screened and controlled to prevent fire risk and exposure to personnel<br>• That flammable liquid such as gasoline, diesel etc. are not used for cleaning purposes and their container is marked as per the containment.<br>• Provision of adequate storage areas that are located in places where exits, passage ways and stairways are not adversely affected<br>• Flammable liquids are stored safely, in a neat and tidy manner with adequate HSE signs provided |

### 1.7.2 Cutting and Welding

Particular care will be taken while carrying out hot work operations on the locations where combustibles are available. This will include precautions such as; inspection of the surrounding area, removal of any combustible materials, protection by fire blankets and provision of fire extinguishers.

Compressed gas cylinders shall be closed when not in use, and shall be stored, properly secured and used in an upright position at all times. Protective end caps will be fitted when being moved or transported (unless by cylinder trolleys).

Compressed gas cylinders shall be kept clear of electrical equipment and cabling where they are part of an electrical circuit

## 1.8 Hazard Analysis and Risk Management

Hazard Analysis and Risk management techniques shall be adopted so that potential hazards are identified and evaluated prior to execution, thereby enabling either substitution or adoption of control techniques.

### 1.8.1 Purpose

To ensure that all steps are taken to control hazards identified in a job and provide a safe working environment.

### 1.8.2 Typical Hazards

Following are examples of typical hazards that can be encountered:

- Falling objects
- Welding
- Gas cutting
- Grinding
- Erection of steel work
- Installation of pipeline etc.
- Transportation / Lifting of heavy equipment
- Excavation Work

### 1.8.3 Control Hazard

The hierarchy of Risk/Hazard Control is used to determine risk reduction measure in order of their effectiveness, as follows:

- Elimination or substitution of the task / job step or substance.
- Engineering Control Including guarding and mechanical aids such as scaffolding, extraction ventilation and alike.

- Administrative Controls Including permits, training, signage, reduction in time or personnel exposure personal Protective Equipment

### 1.9 Personal Protective Equipment

#### 1.9.1 Purpose

This procedure has been developed to ensure that all site personnel on the project are provided with, and wear or hold, appropriate Personal Protective Equipment (PPE) to protect them against work related hazards which may endanger their health, safety and environment.

#### 1.9.2 Scope

This procedure applies to all contractor personnel employed including all of Sub- contractor's deployed at the project.

#### 1.9.3 Definitions

Personal Protective Equipment is defined as equipment designed to be worn or held by personnel to protect themselves against work related hazards which may endanger their health and safety.

#### 1.9.4 Instructions

The risks posed in any particular work activity shall be assessed, and adequate PPE selected in accordance with the following criteria:

- Gives protection against risk(s) without itself leading to any increased risk is suitable for the personnel involved in the work including correct fitting. Is compatible with the work activity.

#### 1.9.5 Basic Personal Protective Equipment (PPE)

Basic and minimum PPE requirements for the safe execution of proposed project are as:

- Safety helmet of plastic construction, manufactured in accordance with standard.
- Safety footwear with steel toe protection manufactured in accordance with standard.
- The construction and sole materials shall be chosen in accordance with the activity and adequate for the place of work.
- In addition to above, EPC contractor shall also supply coveralls to employees working in workshops.

#### 1.9.5.1 Eye and Face Protection

Suitable protective goggles, face shield or screens shall be worn by personnel involved in, assisting with or adjacent to any activity where there may be a danger of projected debris, dust, sparks or other particles; corrosive fluids or mists; excessive heat, light or other harmful radiation.

#### 1.9.5.2 Respiratory Protection

Respiratory Protective Equipment shall be available to all persons who are exposed to any situation in which there is a possibility of the atmosphere being or becoming deficient in oxygen or containing any harmful substance, whether particle, dust mist, vapors or gas.

### 1.9.5.3 Hearing Protection

Hearing protection shall be made available to all workers exposed to noise levels of 85 dB (A) or above. The selection of type of protection shall be in accordance with the type of noise hazard and the work being performed. In all work environments where the noise level is at or above 85 dB (A), prominent signs in English and in local language shall be displayed indicating the need for ear protection. A visual sign in the form of a line drawing of ear muffs shall also be displayed.

### 1.9.5.4 Hand and Arm Protection

Adequate hand and arm protection shall be available for all manual labour. The type of protection worn shall be selected according to the hazard to be protected against. These include but not limited to:

- Impacts, cuts, abrasions and infections.
- Extreme temperatures.
- Chemical, toxic, corrosive and other hazardous substances.

| S.NO | WORK ACTIVITIES | SUITABLE PPE |
|---|---|---|
| A. | Excavators, breakers, Chippers, drillers. | Protective goggles, hand gloves, Safety helmets and Safety shoes. |
| B. | Mixing cement, concrete, Lime mortar, asphalt material, refractory material. | Safety goggles, gloves and protective foot wears. |
| C. | Electricians | Insulated tools, Rubber hand gloves and electrical resistant shoes, mat. |
| D. | Grinders | Protective goggles and leather hand gloves |
| E. | Gas cutters, welder's helper | Colored goggles, leather hand gloves. |
| F. | Welders | Welding screen, safety shoes with rubber sole, Leather hand gloves. |
| G. | Workers engaged in | Dust mask, hand gloves |
| H | High noise level area i.e. D.G operator working, near piling work, compressor operator etc. | Ear plug / ear muff |
| I | Working in dusty | Dust mask, Safety goggles. |
| *Safety Helmet with chin strap and Safety Shoes are compulsory at SITE. | | |

#### 1.9.5.5 Harnesses

Harnesses shall be provided, worn and properly secured in all work situations, when other safeguards such as nets, planking, or scaffolding cannot be used. Such situations include, but are not limited to:

- Working on scaffolding.
- Work on any high structure, whether in construction or batching plant site.

#### 1.9.5.6 Transportation

Only vehicles necessary to the construction operation shall be permitted on site.

- It shall be ensured that only authorized and competent personnel are allowed to drive vehicles.
- Loads shall be within the safe weight limit for the vehicle and shall not project beyond the vehicle body in such a manner as to present a hazard to other vehicles, pedestrians or adjacent structures.
- Passengers shall not be carried unless a proper seat is provided.
- Personnel shall not get on or off any vehicle whilst it is in motion.
- All vehicles shall be parked on level ground with the hand brake applied.
- Keys shall be left in the ignition unless at an authorized car park.
- Vehicles shall not block access or emergency points.
- All drivers of vehicles shall be in possession of a valid license for the class of vehicle.
- All drivers shall go through an orientation before entering the site.
- Vehicle Inspection is attached as Annex “A”.

#### 1.9.5.7 Speed Limits

During the project laid down speed limits for the vehicles will be strictly observed.

#### 1.9.5.8 Drivers’ Responsibilities

Drivers’ responsibilities include:

- Take responsibility for the vehicle, the load and passengers being carried.
- Checking of the vehicle prior to the start of the journey.
- Ensuring that all personnel in the vehicle are wearing seat belts.
- Shall not pick up unauthorized persons.

# Annexure A

MOTOR VEHICLE WEEKLY SAFETY CHECKLIST

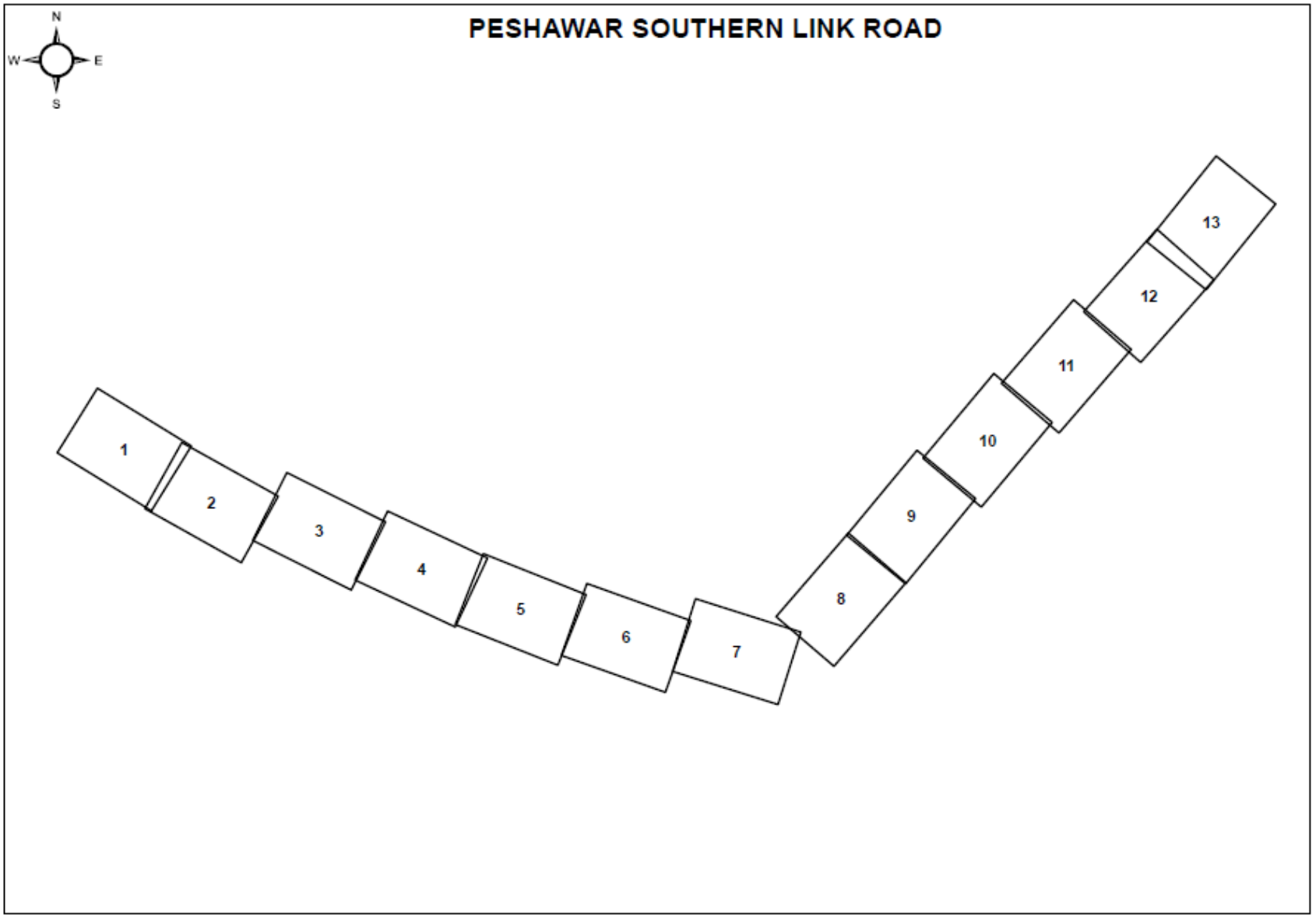
Department: _____

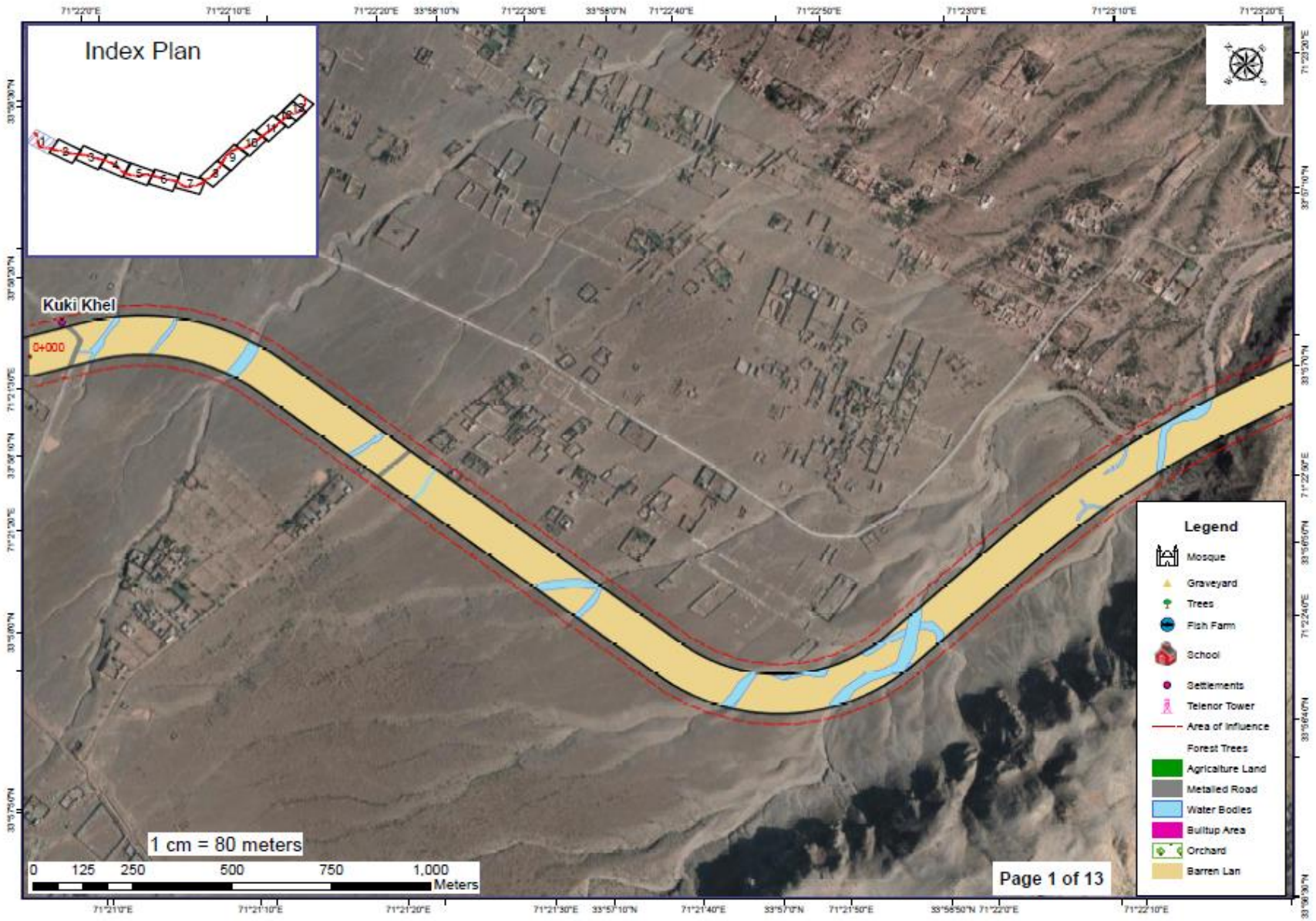
Vehicle Make:_____Model:_____V.I.N.#_____

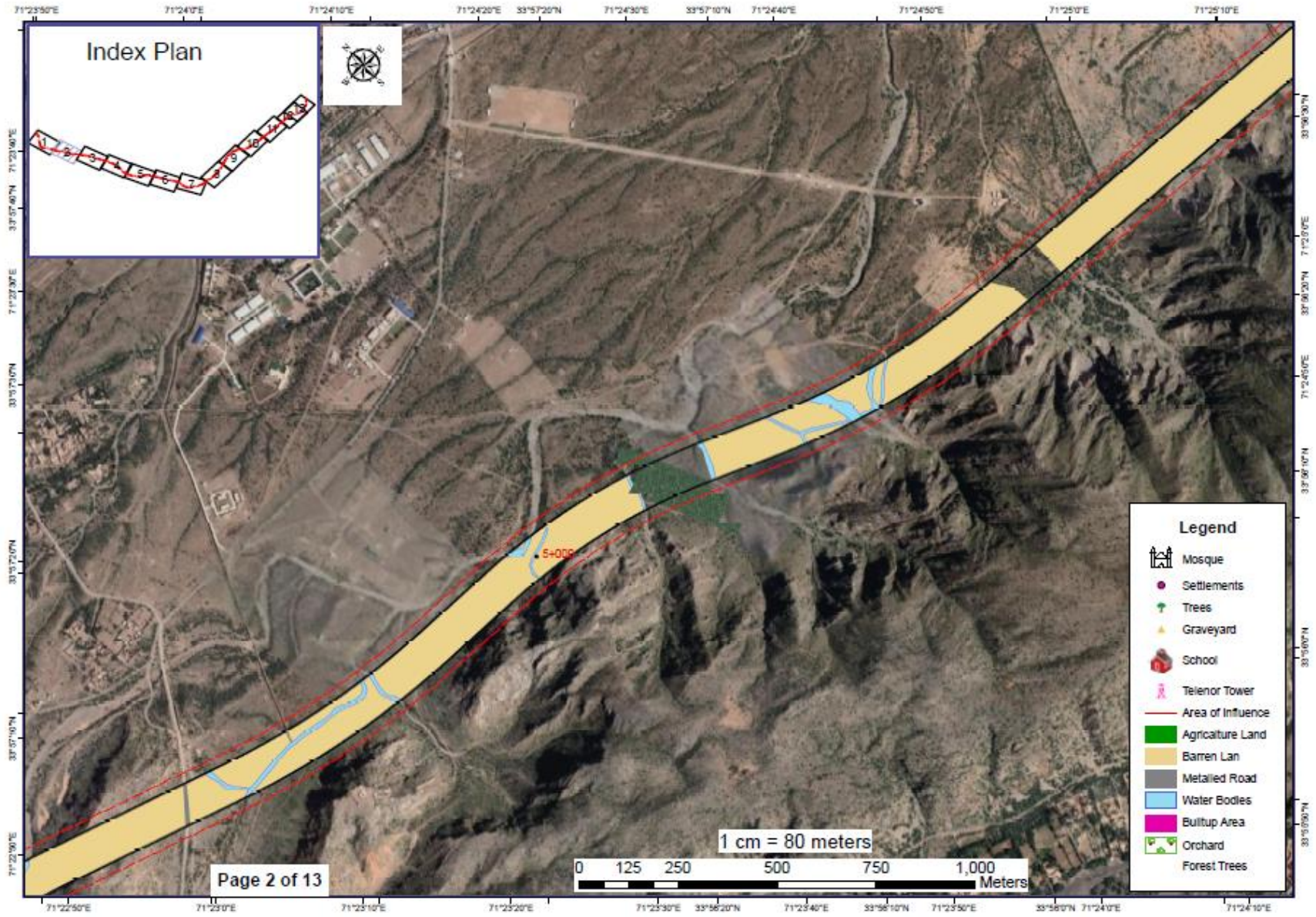
| **Do not operate any vehicle if an unsafe condition exists.** | Inspection Date: / / <br> Inspected By: | Inspection Date: / / <br> Inspected By: | Inspection Date: / / <br> Inspected By: | Inspection Date: / / <br> Inspected By: | Inspection Date: / / <br> Inspected By: |
|---|---|---|---|---|---|
| Windshield wipers and washers | | | | | |
| Directional Signals | | | | | |
| Lights | | | | | |
| Horn and Mirrors | | | | | |
| Inspection sticker current | | | | | |
| Tag current | | | | | |
| Check for 4000 mile maintenance | | | | | |
| Tire inflation and safe tread depth | | | | | |
| Power steering fluid | | | | | |
| Antifreeze / Coolant | | | | | |
| Motor oil level | | | | | |
| Brake fluid & Brake operation | | | | | |
| Exterior and Interior condition acceptable | | | | | |
| Transmission Fluid & Hydraulics (if applic.) | | | | | |

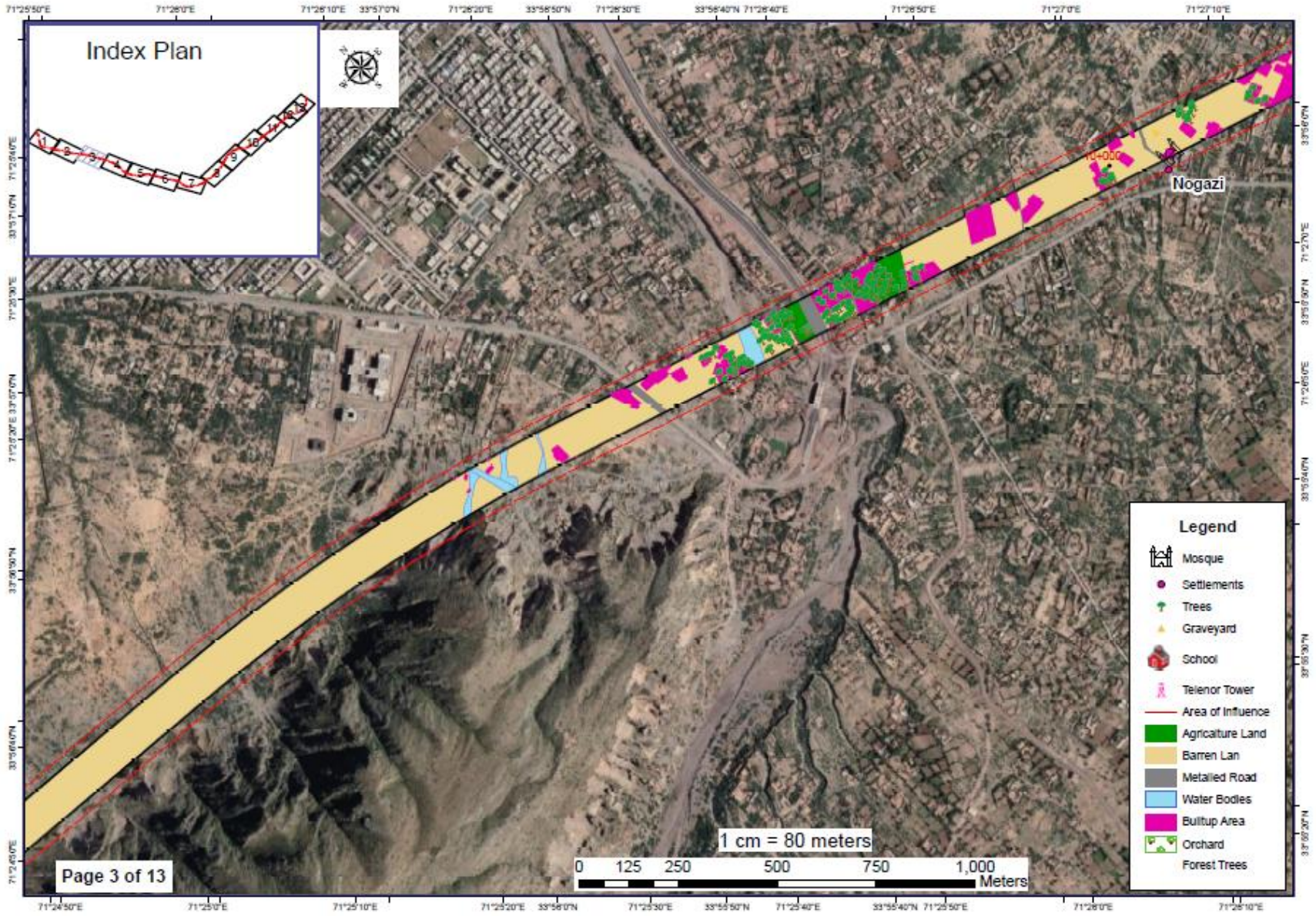
Comments: _____
_____
_____

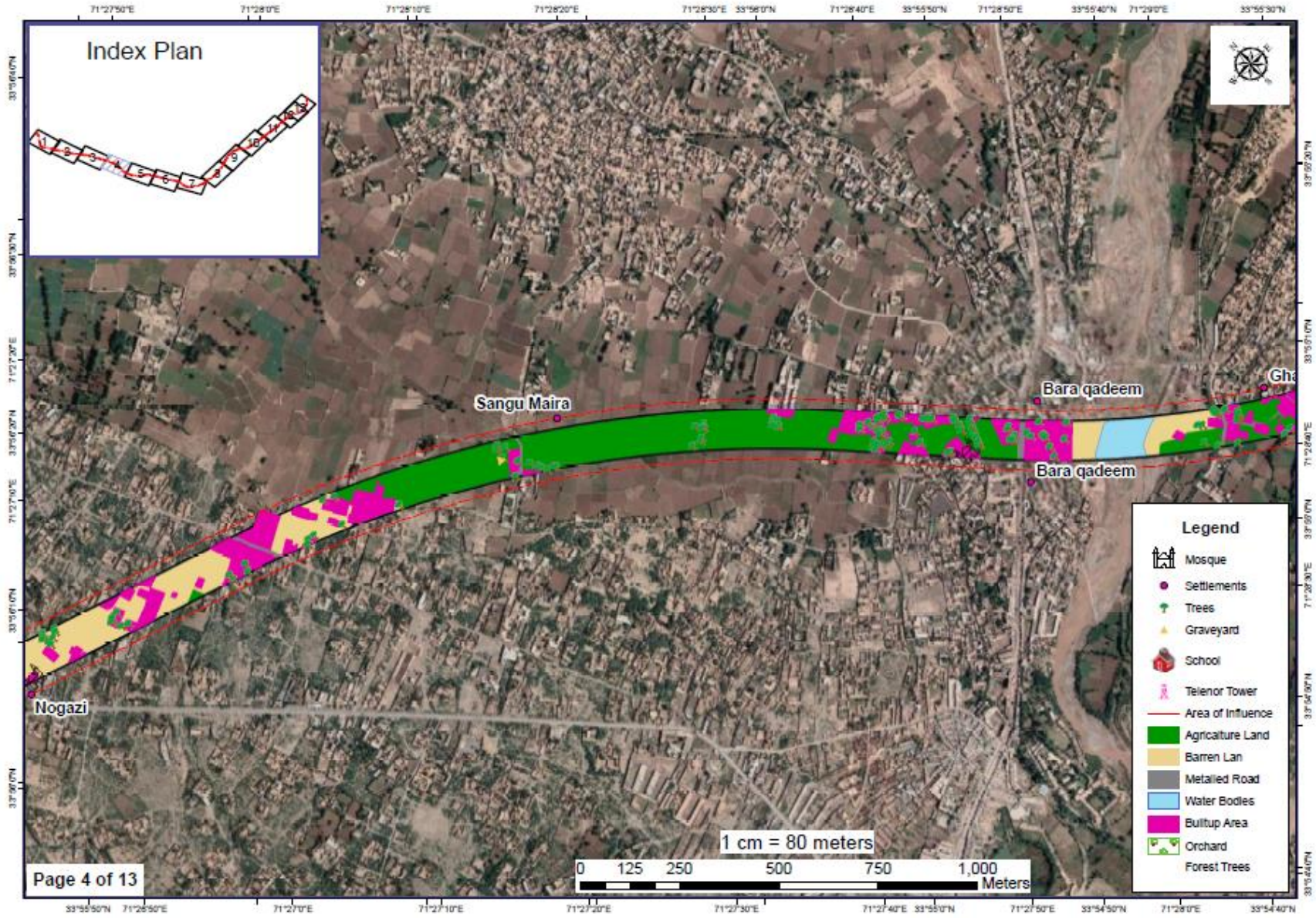
# ANNEXURE VII. LAND USE & AOI MAPS

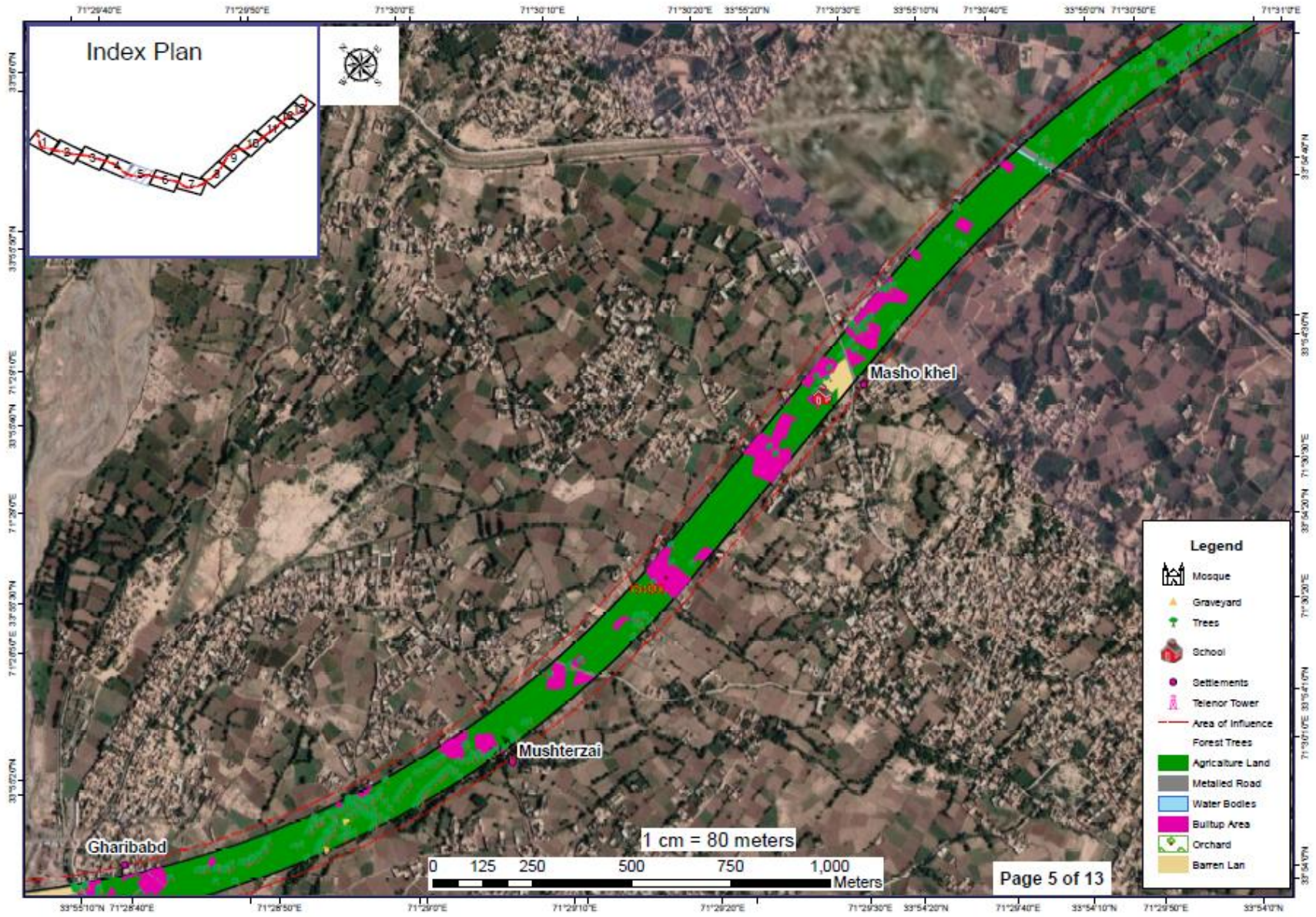


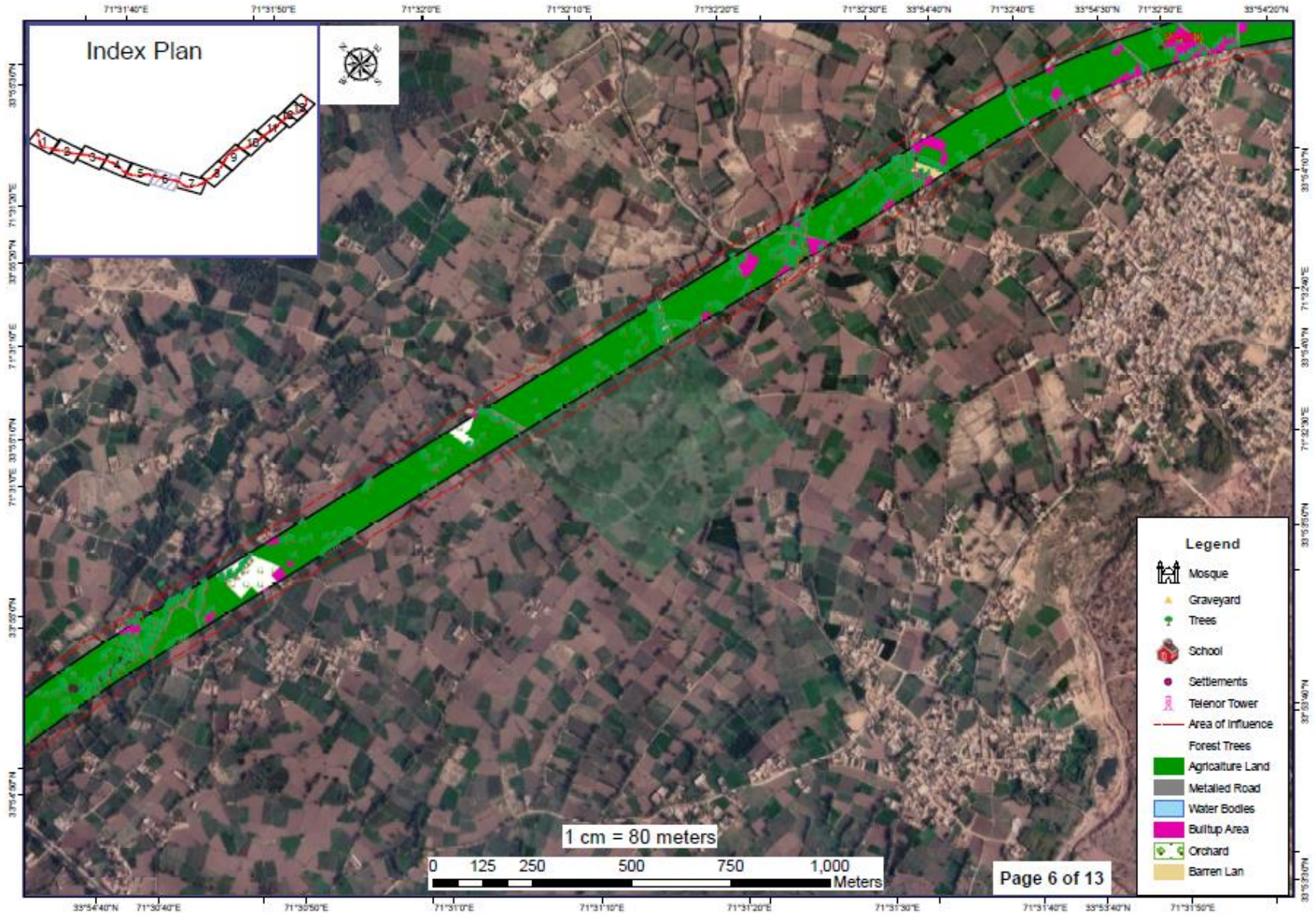

Index Plan
Kuki Khel
0+000
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 1 of 13
Legend
Mosque
Graveyard
Trees
Fish Farm
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan

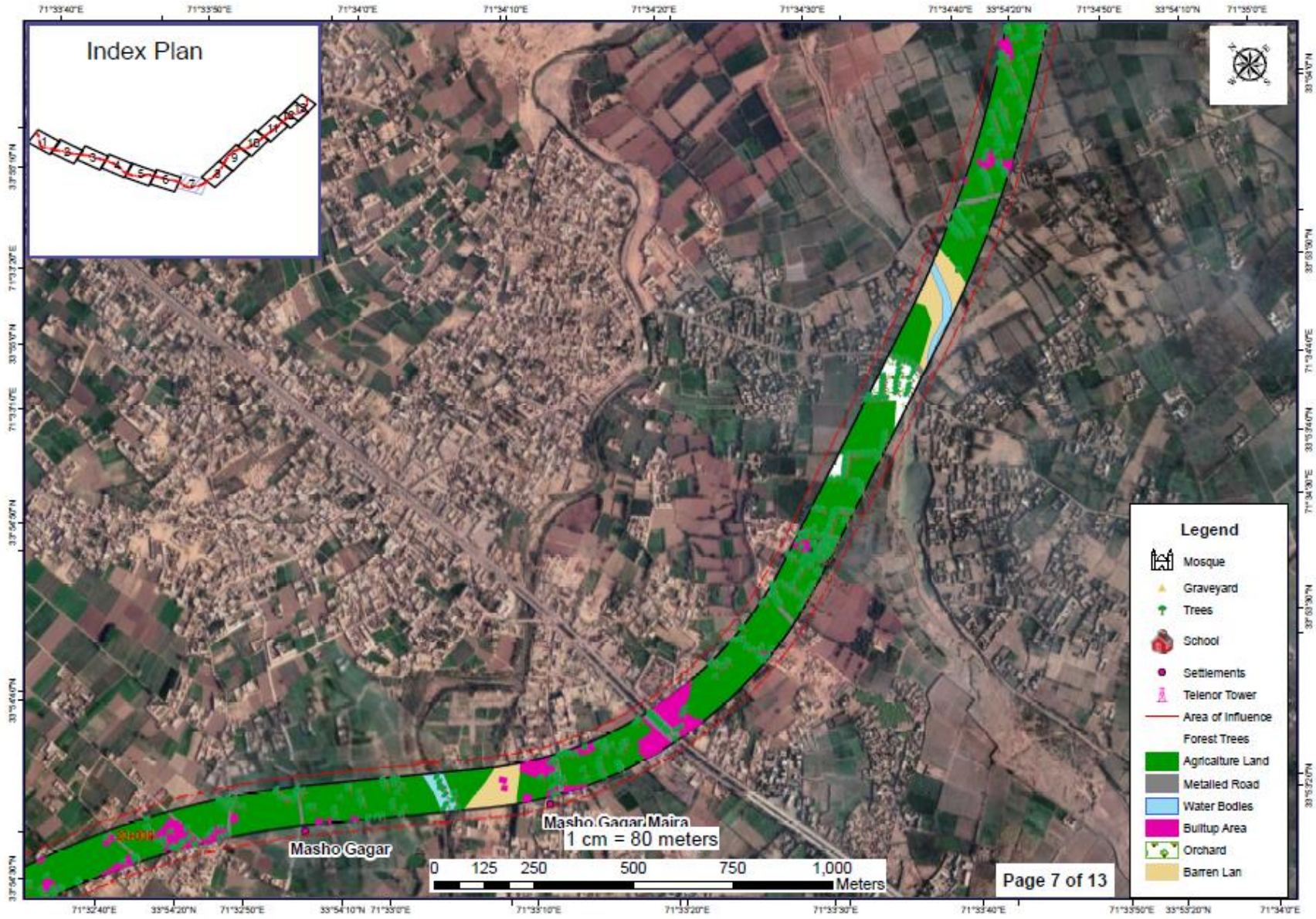

Index Plan
Legend
Mosque
Settlements
Trees
Graveyard
School
Telenor Tower
Area of Influence
Agricaiture Land
Barren Lan
Metalled Road
Water Bodies
Builtup Area
Orchard
Forest Trees
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 2 of 13

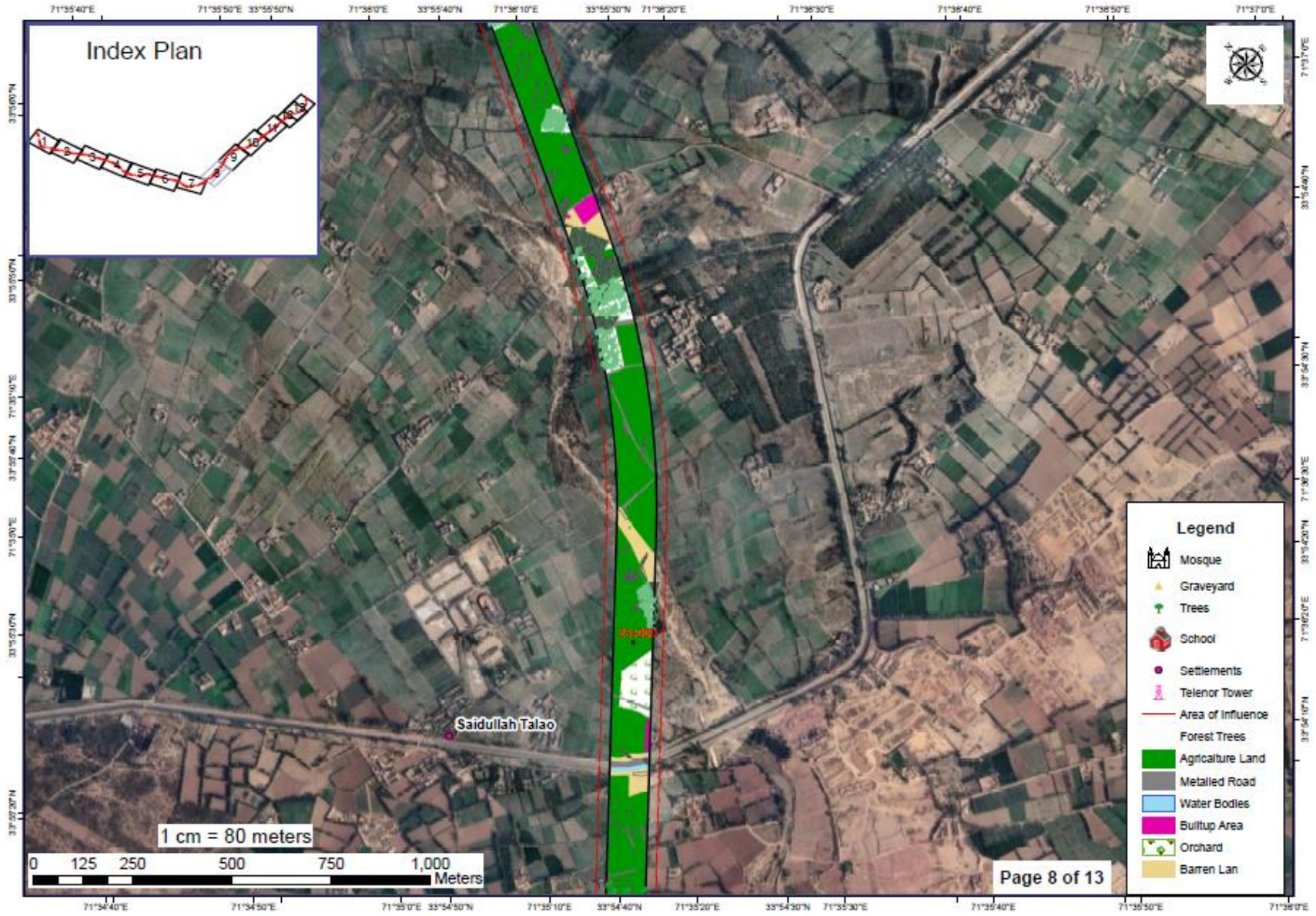

Index Plan
Nogazi
Legend
Mosque
Settlements
Trees
Graveyard
School
Telenor Tower
Area of Influence
Agriculture Land
Barren Lan
Metalled Road
Water Bodies
Builtup Area
Orchard
Forest Trees
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 3 of 13

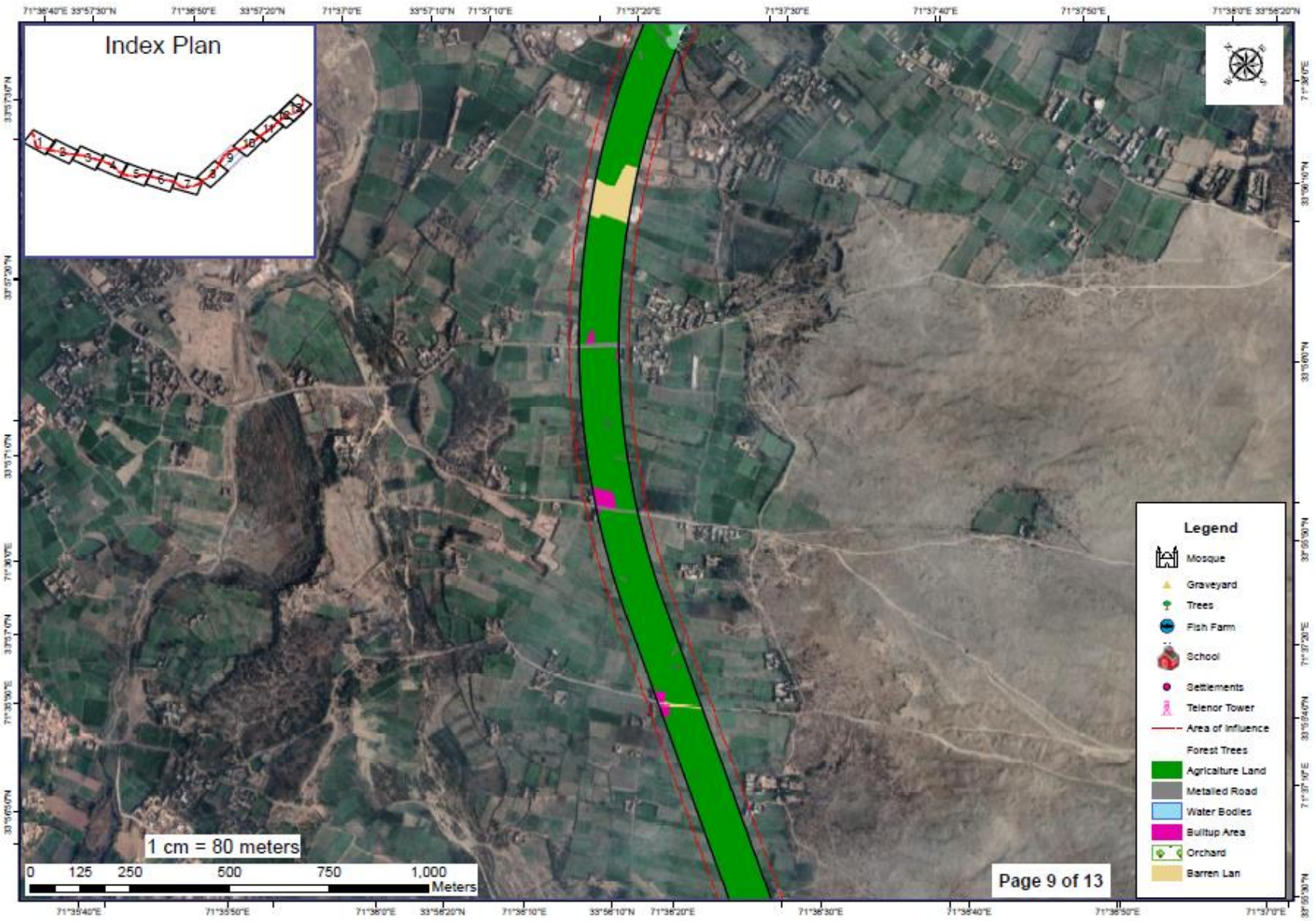

Index Plan
Sangu Maira
Bara qadeem
Bara qadeem
Nogazi
Legend
Mosque
Settlements
Trees
Graveyard
School
Telenor Tower
Area of Influence
Agricaiture Land
Barren Lan
Metalled Road
Water Bodies
Builtup Area
Orchard
Forest Trees
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 4 of 13

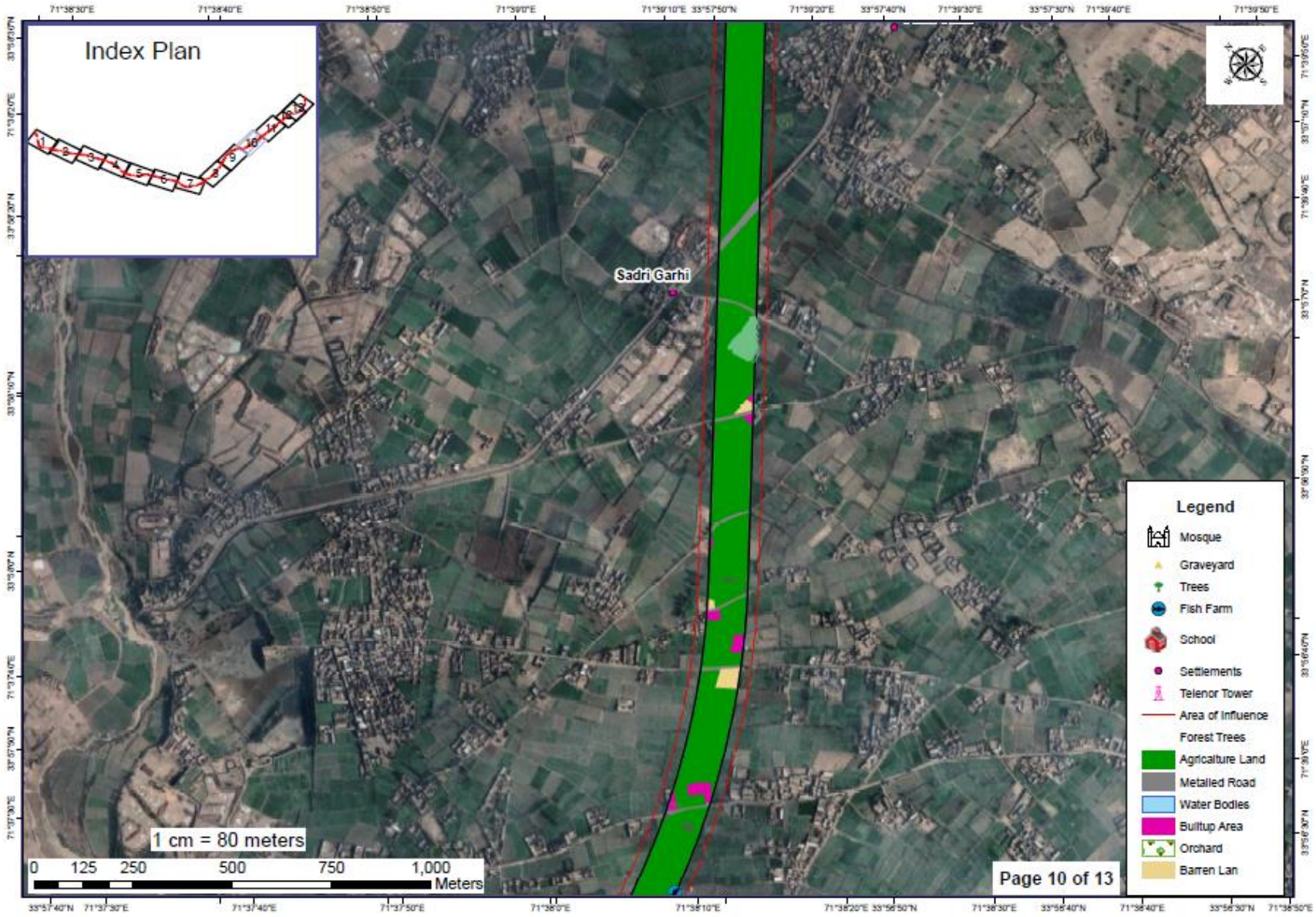

Index Plan
Masho khel
Mushterzai
Gharibabd
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 5 of 13
Legend
Mosque
Graveyard
Trees
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricaltural Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan

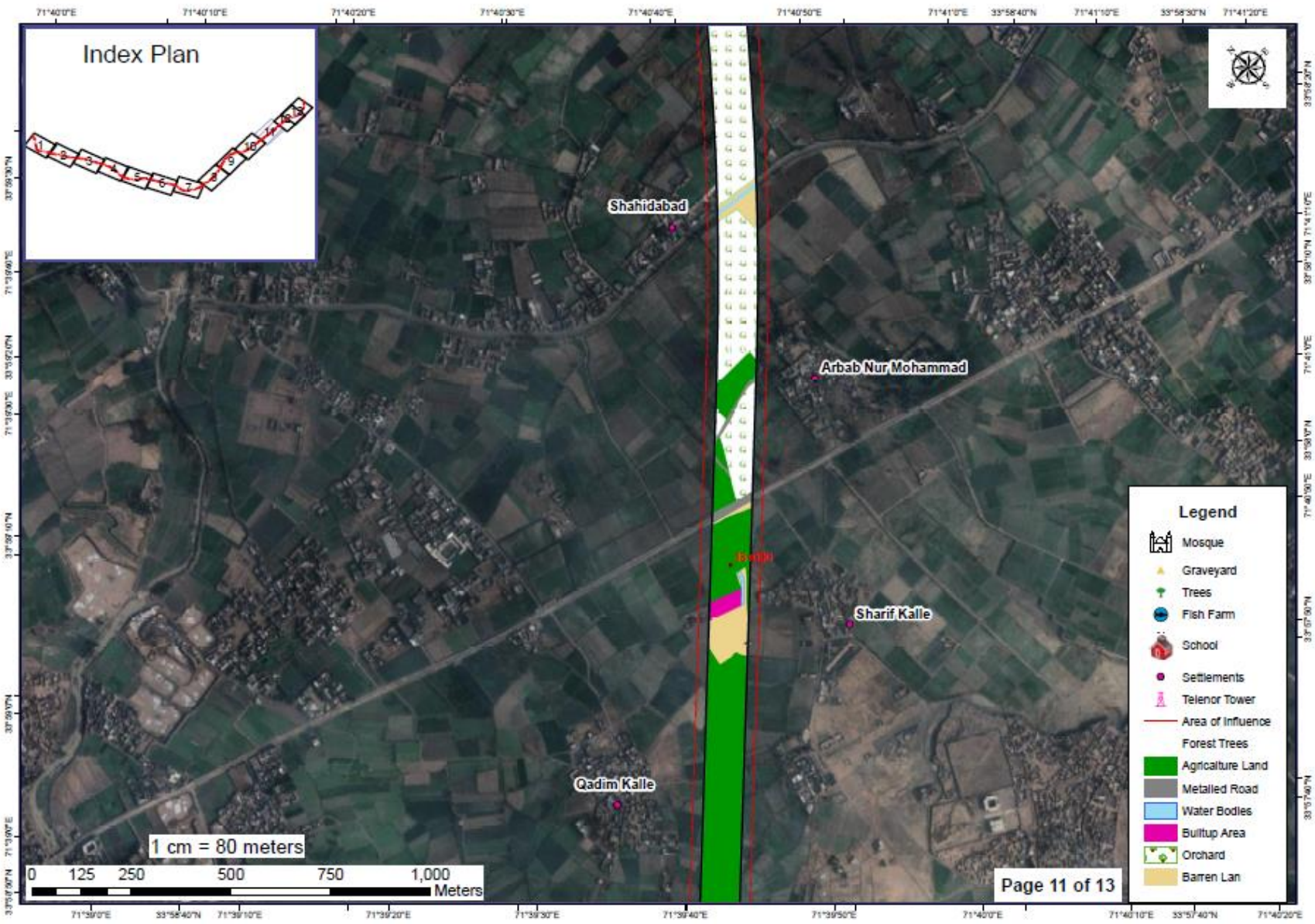

Index Plan
Legend
Mosque
Graveyard
Trees
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 6 of 13

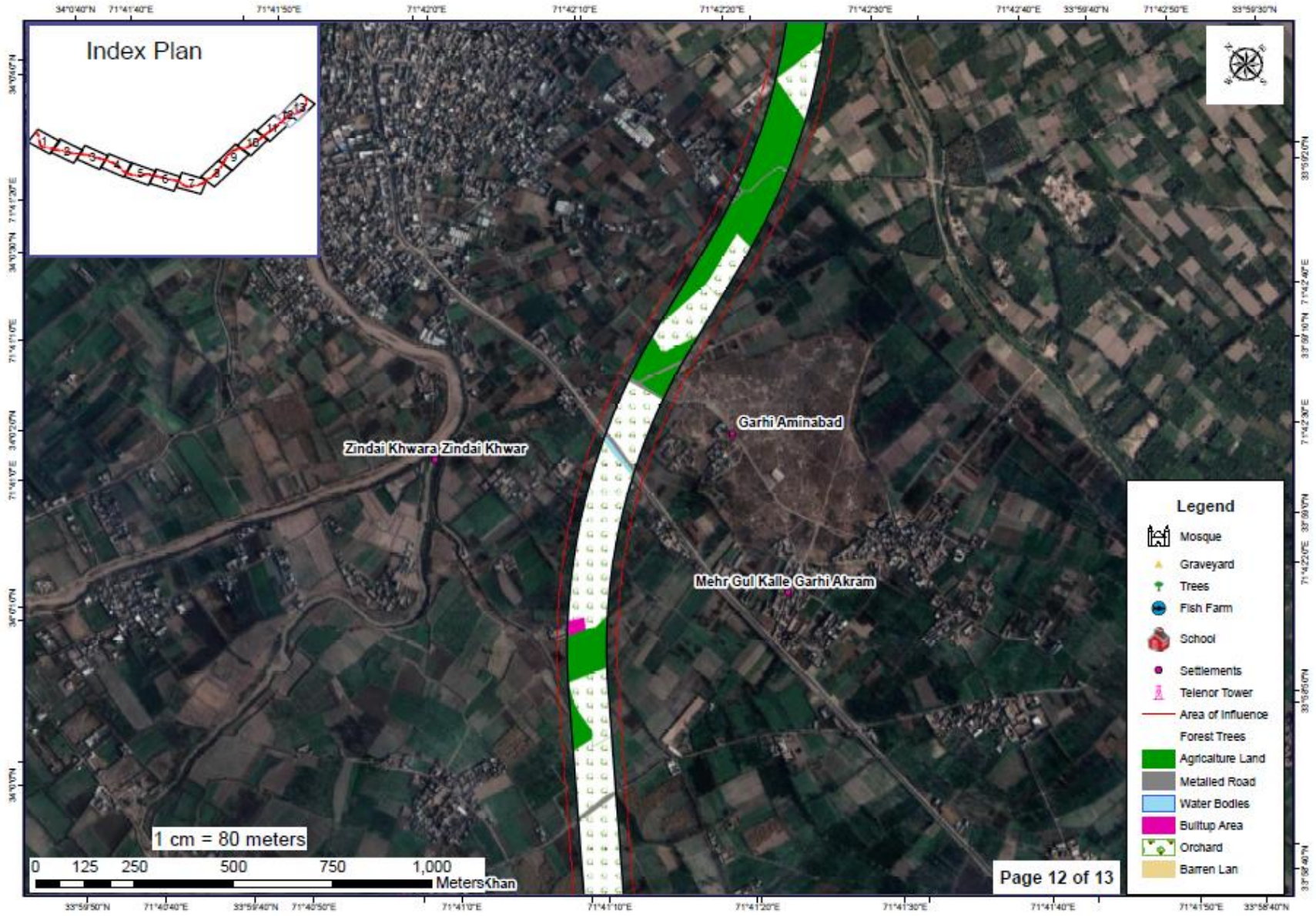

Index Plan
Masho Gagar
Masho Gagar Maira
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 7 of 13
Legend
Mosque
Graveyard
Trees
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan

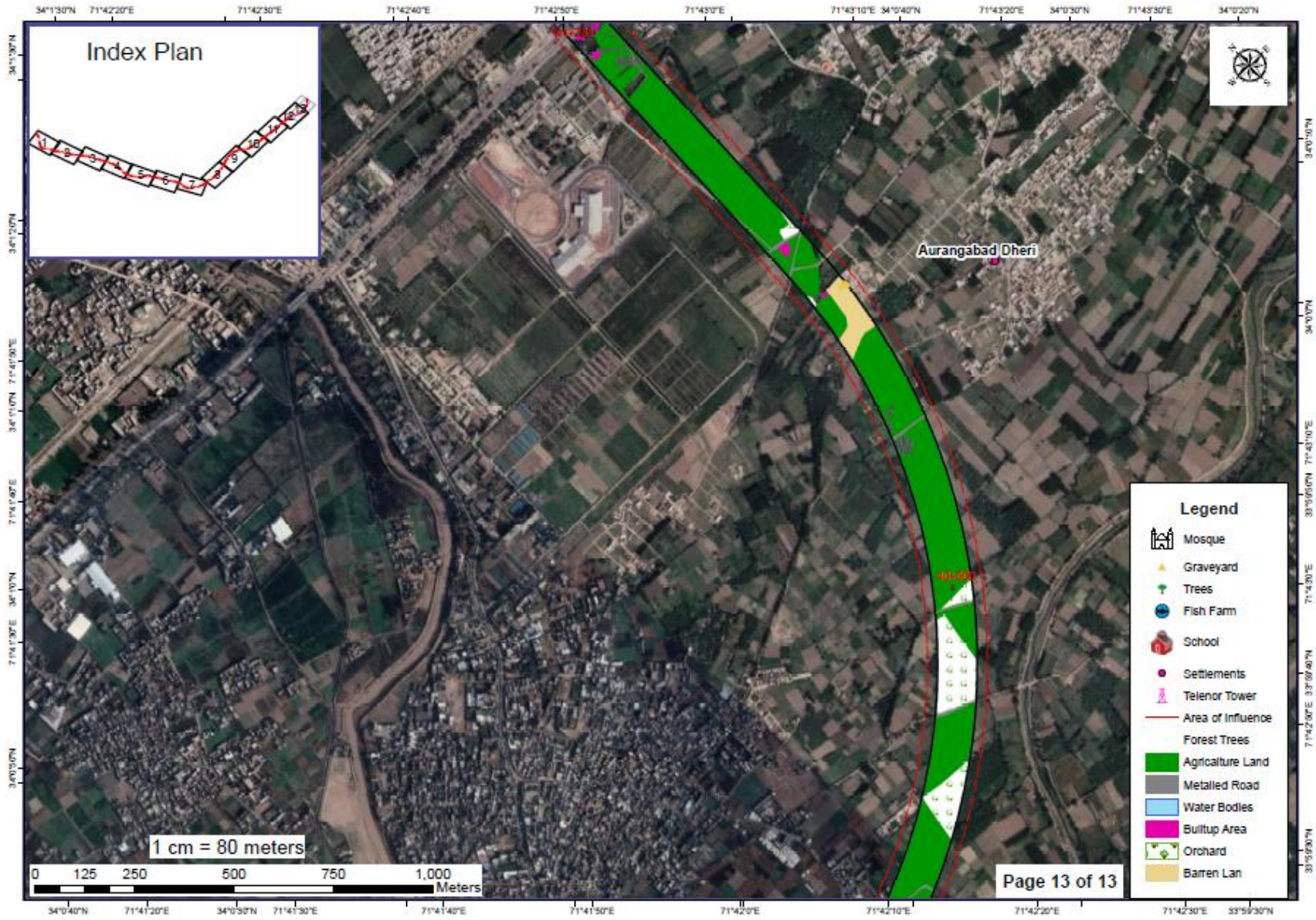

Index Plan
Legend
Mosque
Graveyard
Trees
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan
Saidullah Talao
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 8 of 13


Index Plan
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 9 of 13
Legend
Mosque
Graveyard
Trees
Fish Farm
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan


Index Plan
Sadri Garhi
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 10 of 13
Legend
Mosque
Graveyard
Trees
Fish Farm
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan


Index Plan
Shahidabad
Arbab Nur Mohammad
Sharif Kalle
Qadim Kalle
Legend
Mosque
Graveyard
Trees
Fish Farm
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agriculture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 11 of 13


Index Plan
Zindai Khwara Zindai Khwar
Garhi Aminabad
Mehr Gul Kalle Garhi Akram
Legend
Mosque
Graveyard
Trees
Fish Farm
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agriculture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 12 of 13


Index Plan
Aurangabad Dheri
Legend
Mosque
Graveyard
Trees
Fish Farm
School
Settlements
Telenor Tower
Area of Influence
Forest Trees
Agricalture Land
Metalled Road
Water Bodies
Builtup Area
Orchard
Barren Lan
1 cm = 80 meters
0 125 250 500 750 1,000
Meters
Page 13 of 13

# ANNEXURE VIII. ENVIRONMENTAL MONITORING REPORTS

## Ambient Air

STEPS

**STEPS ENVIRONMENTAL LABORATORY**

(A Joint Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Muhabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-334-5544333, 0313-9747407
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002

**Ambient Air Quality Report**

**Date: 26/10/2022**

**Report Reference No:** A-20225011
**Project Name:** Peshawar Turkham Link Road Project (NTIA)
**Sample Location:** Grand trunk Road Tarnab, Nowshehra
**Date of Sample Analysis:** 15/10/2022

**Nature of Sample:** Ambient Air
**Name of Organization:** JV RTIC & STEPS
**Sample Collected Sent by:** STEPS
**Date of Completion of Analysis:** 15/10/2022

| S.No. | Parameters | NEQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| 01 | PM 2.5 | 35 µg/m³ | 78.9 | -β Ray Absorption method | Un-Satisfactory |
| 02 | PM 10 | 150 µg/m³ | 218.7 | -β Ray Absorption method | Un-Satisfactory |
| 03 | $CO_2$ | mg/m³ | 947 | 40 CFR Part 50, App. D (US-EPA) | - |
| 04 | CO | 10 mg/m³ | 1.4 | Non-Dispersive Infra-Red (NDIR) method | Satisfactory |
| 05 | NO | 40 µg/m³ | 18.5 | Gas Phase Chemiluminescence | Satisfactory |
| 06 | $NO_2$ | 80 µg/m³ | 77.4 | Gas Phase Chemiluminescence | Satisfactory |
| 07 | $SO_2$ | 120 µg/m³ | 64.3 | UV fluorescence (UVF) | Satisfactory |
| 08 | NOx | µg/m³ | 95.9 | Addition | Satisfactory |
| 09 | $O_3$ | 130 µg/ m³ | 45.6 | Non-Dispersive UV Absorption method | Satisfactory |

**National Environmental Quality Standards (NEQS)**

1. **Sample analyzed by:**
Imdad Ullah

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

2. **Report by:**
Imdad Ullah

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

*Note: This report state the result of the test performed for the sample received by the laboratory from the above stated "Client/Organization". Verification or acknowledgement of the origin or association of the sample being tested to particular site is beyond the responsibility of STEPS Environmental Laboratory.*

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com


Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002

## Ambient Air Quality Report

Date: 25/05/2023

**Report reference No:** AA- SEL/MR/2023/05-23
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Batatal Bazar Road Garibabad
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Ambient Air
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of completion of analysis:** 23/05/2023

| Sr.No. | Parameters | NEQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| 01 | PM 2.5 | 35 µg/m³ | 40.8 | -β Ray Absorption method | Un-Satisfactory |
| 02 | PM 10 | 150 µg/m³ | 161.6 | -β Ray Absorption method | Un-Satisfactory |
| 03 | $CO_2$ | - mg/m³ | 778 | 40 CFR Part 50, App. D (US-EPA) | - |
| 04 | CO | 10 mg/m³ | 1.9 | Non-Dispersive Infra-Red (NDIR) method | Satisfactory |
| 05 | NO | 40 µg/m³ | 19.6 | Gas Phase Chemiluminescence | Satisfactory |
| 06 | $NO_2$ | 80 µg/m³ | 68.2 | Gas Phase Chemiluminescence | Satisfactory |
| 07 | $SO_2$ | 120 µg/m³ | 55.7 | UV fluorescence (UVF) | Satisfactory |
| 08 | NOx | µg/m³ | 87.8 | Addition | Satisfactory |
| 09 | $O_3$ | 130 µg/ m³ | 24.1 | Non-Dispersive UV Absorption method | Satisfactory |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002


## Ambient Air Quality Report

**Date: 25/05/2023**

**Report reference No:** AA- SEL/MR/2023/05-23
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Shalober Bara
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Ambient Air
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of completion of analysis:** 23/05/2023

| S. No. | Parameters | NEQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| 01 | PM 2.5 | 35 µg/m³ | 28.4 | -β Ray Absorption method | Satisfactory |
| 02 | PM 10 | 150 µg/m³ | 56.8 | -β Ray Absorption method | Satisfactory |
| 03 | $CO_2$ | - mg/m³ | 364 | 40 CFR Part 50, App. D (US-EPA) | - |
| 04 | CO | 10 mg/m³ | 1.7 | Non-Dispersive Infra-Red (NDIR) method | Satisfactory |
| 05 | NO | 40 µg/m³ | 11.7 | Gas Phase Chemiluminescence | Satisfactory |
| 06 | $NO_2$ | 80 µg/m³ | 32.5 | Gas Phase Chemiluminescence | Satisfactory |
| 07 | $SO_2$ | 120 µg/m³ | 29.3 | UV fluorescence (UVF) | Satisfactory |
| 08 | NOx | µg/m³ | 44.2 | Addition | Satisfactory |
| 09 | $O_3$ | 130 µg/ m³ | 13.4 | Non-Dispersive UV Absorption method | Satisfactory |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# Noise

**STEPS ENVIRONMENTAL LABORATORY**
(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-334-5544333, 0313-9747407
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002

**Noise Level**

**Date: 26/10/2022**

**Report reference No:** N-20225011
**Project Name:** Peshawar Torkham Link Road Project (NHA)
**Sample Location:** Grand trunk Road Tarnab, Noshehra
**Date of sample analysis:** 15/10/2022

**Nature of sample:** Noise Level
**Name of Organization:** JV-RIC & STEPS
**Sample collected sent by:** STEPS
**Date of completion of analysis:** 15/10/2022

| S.No. | Parameters | NEQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| 01 | Noise level | 65 dB (A) | 81.94 | BS 7445:2003 | Un-Satisfactory |

**National Environmental Quality Standards (NEQS)**

1. **Sample analyzed by:**
Imdad Ullah

STEPS ENVIRONMENTAL LABORATORY
Sheikh Malloon Town Mardan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

2. **Report by:**
Imdad Ullah

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

*Note: This report state the result of the test performed for the sample received by the laboratory from the above stated ""Client/Organization"". Verification or acknowledgement of the origin or association of the sample being tested to particular site is beyond the responsibility of STEPS Environmental Laboratory."

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881083, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002


## Noise Quality Report

**Date: 25/05/2023**

**Report reference No:** N- SEL/MR/2023/05-23
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Batatal Bazar Road Garibabad
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Noise Level
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of completion of analysis:** 23/05/2023

| S. No | Parameters | NEQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| 01 | Noise level | 65 dB (A) | 68.3 | BS 7445:2003 | Un-Satisfactory |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002


## Noise Quality Report

**Date: 25/05/2023**

**Report reference No:** N- SEL/MR/2023/05-23
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Shalober Bara
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Noise Level
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of completion of analysis:** 23/05/2023

| S. No | Parameters | NEQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| 01 | Noise level | 55 dB (A) | 51.6 | BS 7445:2003 | Satisfactory |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# Ground Water

STEPS ENVIRONMENTAL LABORATORY
Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-336-5564333, 0313-9747407
E mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002

## Ground Water Analysis Report

Date: 26/10/2022

**Report reference No:** GW-20225011
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Grand Trunk Road Turnab, Noshehra
**(Grab Composite):** Grab
**Date of sample collection:** 15/10/2022

**Nature of sample:** Borehole - Groundwater
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of sample received:** 15/10/2022
**Date of completion of analysis:** 18/10/2022

| S. No. | Parameters | NDWQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| A. Field Analysis. | | | | | |
| 01 | pH | 6.5-8.5 | 7.5 | Hanna Digital meter | Satisfactory |
| 02 | Temp | - | 27 °C | Thermometer | |
| 03 | Dissolve Oxygen | - | 0 ppm | Multiparameter Photometer | |
| 04 | Turbidity | ≤ 5NTU | 0.98 | 2100 P HACH | Satisfactory |
| B. Lab. Analysis. | | | | | |
| 05 | E. Conductivity | NGVS | 1126 | HI 98130 Combo Hanna | |
| 06 | TDS | 1000 ppm | 564 | HI 98130 Combo Hanna | Satisfactory |
| 07 | Color | < 15 TCU | Colorless | Multiparameter Photometer | Satisfactory |
| 08 | Odor | Odorless | Unobjectionable | Sensory evaluation | Satisfactory |
| 09 | Taste | Tasteless | Unobjectionable | Sensory evaluation | Satisfactory |
| 10 | Total Alkalinity | < 500 ppm | 257 | Multiparameter Photometer | Satisfactory |
| 11 | Total Hardness | < 500 ppm | 416 | Titration based method | Satisfactory |
| 12 | Calcium | ≤ 250 ppm | 117.34 | Multiparameter Photometer | Satisfactory |
| 13 | Magnesium | ≤ 250 ppm | 47.2 | Multiparameter Photometer | Satisfactory |
| 14 | Sodium | ≤ 200 ppm | 83.7 | Meter | Satisfactory |
| 15 | Potassium | NGVS | 12.6 | Multiparameter Photometer | |
| 16 | Sulfate | ≤ 250 ppm | 158.3 | Multiparameter Photometer | Satisfactory |
| 17 | Chloride | ≤ 250 ppm | 68 | Kit base method | Satisfactory |
| 18 | Nitrate | ≤ 50 ppm | 8.7 | Multiparameter Photometer | Satisfactory |
| 19 | Nitrite | ≤ 03 ppm | 1.52 | Multiparameter Photometer | Satisfactory |
| 20 | Fluoride | ≤ 1.5 ppm | 0.87 | Multiparameter Photometer | Satisfactory |
| 21 | Arsenic | ≤ 0.01 ppm | 0.003 | Multiparameter Photometer | Satisfactory |
| 22 | Iron | ≤ 2 ppm | 0.86 | Multiparameter Photometer | Satisfactory |
| 23 | Copper | ≤ 2 ppm | 0.43 | Multiparameter Photometer | Satisfactory |
| 24 | E.Coli | +Ve/ -Ve | -Ve | Compact Dry EC plates | -Ve |
| 25 | Fecal Coliform | 0 CFU/100 ml | 0.00 | DelAgua Kit | Nil |

**(NDWQS) National Drinking Water Quality Standards**
**NGVS (No Guideline Value Set)**
**TDS (Total Dissolved Solid)**

1. Sample analyzed by: Imdad Ullah

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

2. **Report by:** Imdad Ullah

3. Chief Analyst with seal: Tayyaba Akhtar

4. **Countersigned by:** Fazal Ullah
Director Admin & Finance

"Note: this report state the result of the test performed for the sample received by the laboratory from the above stated "Client/Organization". Verification or acknowledgement of the origin or association of the sample being tested to particular site is beyond the responsibility of STEPS Environmental Laboratory."

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002


## Water Quality Report

Date: 25/05/2023

**Report reference No:** W- SEL/MR/2023/05-04
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Batatal Bazar Road Garibabad
**Grab/Composite:** Grab
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Borehole-Groundwater
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of sample received:** 23/05/2023
**Date of completion of analysis:** 25/05/2023

| S. No. | Parameters | NDWQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| **A. Field Analysis.** | | | | | |
| 01 | Ph | 6.5-8.5 | 7.8 | Hanna Digital meter | Satisfactory |
| 02 | Temp | - | 28 °C | Thermometer | |
| 03 | Dissolve Oxygen | - | 0 ppm | Multiparameter Photometer | |
| 04 | Turbidity | ≤ 5NTU | 0.89 | 2100 P HACH | Satisfactory |
| **B. Lab. Analysis.** | | | | | |
| 05 | E. Conductivity | NGVS | 526 | HI 98130 Combo Hanna | |
| 06 | TDS | 1000 ppm | 321 | HI 98130 Combo Hanna | Satisfactory |
| 07 | Color | < 15 TCU | Colourless | Multiparameter Photometer | Satisfactory |
| 08 | Odor | Odorless | Unobjectionable | Sensory evaluation | Satisfactory |
| 09 | Taste | Tasteless | Unobjectionable | Sensory evaluation | Satisfactory |
| 10 | Total Alkalinity | < 500 ppm | 213 | Multiparameter Photometer | Satisfactory |
| 11 | Total Hardness | < 500 ppm | 301 | Titration based method | Satisfactory |
| 12 | Calcium | ≤ 250 ppm | 89.04 | Multiparameter Photometer | Satisfactory |
| 13 | Magnesium | ≤ 250 ppm | 21 | Multiparameter Photometer | Satisfactory |
| 14 | Sodium | ≤ 200 ppm | 10 | Meter | Satisfactory |
| 15 | Potassium | NGVS | 14 | Multiparameter Photometer | |
| 16 | Sulfate | ≤ 250 ppm | 31 | Multiparameter Photometer | Satisfactory |
| 17 | Chloride | ≤ 250 ppm | 40.9 | Kit base method | Satisfactory |
| 18 | Nitrate | ≤ 50 ppm | 15.3 | Multiparameter Photometer | Satisfactory |
| 19 | Nitrite | ≤ 03 ppm | 1.29 | Multiparameter Photometer | Satisfactory |
| 20 | Fluoride | ≤ 1.5 ppm | 0.18 | Multiparameter Photometer | Satisfactory |
| 21 | Arsenic | ≤ 0.01 ppm | 0.00 | Multiparameter Photometer | Satisfactory |
| 22 | Iron | ≤ 2 ppm | 0.38 | Multiparameter Photometer | Satisfactory |
| 23 | Copper | ≤ 2 ppm | 0.4 | Multiparameter Photometer | Satisfactory |
| 24 | E.Coli | +Ve/ -Ve | -Ve | Compact Dry EC plates | -Ve |
| 25 | Fecal Coliform | 0 CFU/100 ml | 0.00 | DelAgua Kit | Nil |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

4 **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881083, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com


Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002

## Water Quality Report

Date: 25/05/2023

**Report reference No:** W- SEL/MR/2023/05-04
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Shalober Bara
**Grab/Composite:** Grab
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Borehole-Groundwater
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of sample received:** 23/05/2023
**Date of completion of analysis:** 25/05/2023

| S. No. | Parameters | NDWQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| **A. Field Analysis.** | | | | | |
| 01 | Ph | 6.5-8.5 | 7.8 | Hanna Digital meter | Satisfactory |
| 02 | Temp | - | 26 °C | Thermometer | |
| 03 | Dissolve Oxygen | - | 0 ppm | Multiparameter Photometer | |
| 04 | Turbidity | ≤ 5NTU | 0.73 | 2100 P HACH | Satisfactory |
| **B. Lab. Analysis.** | | | | | |
| 05 | E. Conductivity | NGVS | 751 | HI 98130 Combo Hanna | |
| 06 | TDS | 1000 ppm | 373 | HI 98130 Combo Hanna | Satisfactory |
| 07 | Colour | < 15 TCU | Colourless | Multiparameter Photometer | Satisfactory |
| 08 | Odor | Odourless | Unobjectionable | Sensory evaluation | Satisfactory |
| 09 | Taste | Tasteless | Unobjectionable | Sensory evaluation | Satisfactory |
| 10 | Total Alkalinity | < 500 ppm | 223 | Multiparameter Photometer | Satisfactory |
| 11 | Total Hardness | < 500 ppm | 343 | Titration based method | Satisfactory |
| 12 | Calcium | ≤ 250 ppm | 112 | Multiparameter Photometer | Satisfactory |
| 13 | Magnesium | ≤ 250 ppm | 28 | Multiparameter Photometer | Satisfactory |
| 14 | Sodium | ≤ 200 ppm | 47.8 | Meter | Satisfactory |
| 15 | Potassium | NGVS | 11.8 | Multiparameter Photometer | |
| 16 | Sulfate | ≤ 250 ppm | 114 | Multiparameter Photometer | Satisfactory |
| 17 | Chloride | ≤ 250 ppm | 55 | Kit base method | Satisfactory |
| 18 | Nitrate | ≤ 50 ppm | 09 | Multiparameter Photometer | Satisfactory |
| 19 | Nitrite | ≤ 03 ppm | 1.15 | Multiparameter Photometer | Satisfactory |
| 20 | Fluoride | ≤ 1.5 ppm | 0.48 | Multiparameter Photometer | Satisfactory |
| 21 | Arsenic | ≤ 0.01 ppm | 0.00 | Multiparameter Photometer | Satisfactory |
| 22 | Iron | ≤ 2 ppm | 0.19 | Multiparameter Photometer | Satisfactory |
| 23 | Copper | ≤ 2 ppm | 0.42 | Multiparameter Photometer | Satisfactory |
| 24 | E.Coli | +Ve/ -Ve | -Ve | Compact Dry EC plates | -Ve |
| 25 | Fecal Coliform | 0 CFU/100 ml | 0 | DelAgua Kit | Nil |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# Surface Water

STEPS

**STEPS ENVIRONMENTAL LABORATORY**

Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Muhabbat Abad, Mardan, KP, Pakistan
Phone: +92 0937 881085, +92 334 5544833, 0313 9747407
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002

## Surface Water Analysis Report

**Date: 26/10/2022**

**Report reference No:** SW-20225011
**Project Name:** Peshawar Torkham Link Road Project (NHA)
**Sample Location:** Grand truck road, Tarnab Nowshera
**(Grab Composite):** Grab
**Date of sample collection:** 15/10/2022

**Nature of sample:** Canal - Surface water
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of sample received:** 15/10/2022
**Date of completion of analysis:** 18/10/2022

| S. No. | Parameters | NDWQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| A. Field Analysis. | | | | | |
| 01 | **pH** | **6.5-8.5** | 7.7 | Hanna Digital meter | Satisfactory |
| 02 | **Temp** | - | 27 °C | Thermometer | |
| 03 | **Dissolve Oxygen** | - | 0 ppm | Multiparameter Photometer | |
| 04 | **Turbidity** | **≤ 5NTU** | 4.89 | 2100 P HACH | Satisfactory |
| B. Lab. Analysis. | | | | | |
| 05 | **E. Conductivity** | **NGVS** | 340 | HI 98130 Combo Hanna | |
| 06 | **TDS** | **1000 ppm** | 194 | HI 98130 Combo Hanna | Satisfactory |
| 07 | **Color** | **< 15 TCU** | Colorless | Multiparameter Photometer | Satisfactory |
| 08 | **Odor** | **Odorless** | Unobjectionable | Sensory evaluation | Satisfactory |
| 09 | **Taste** | **Tasteless** | Unobjectionable | Sensory evaluation | Satisfactory |
| 10 | **Total Alkalinity** | **< 500 ppm** | 138 | Multiparameter Photometer | Satisfactory |
| 11 | **Total Hardness** | **< 500 ppm** | 290 | Titration based method | Satisfactory |
| 12 | **Calcium** | **≤ 250 ppm** | 61 | Multiparameter Photometer | Satisfactory |
| 13 | **Magnesium** | **≤ 250 ppm** | 37 | Multiparameter Photometer | Satisfactory |
| 14 | **Sodium** | **≤ 200 ppm** | 6 | Meter | Satisfactory |
| 15 | **Potassium** | **NGVS** | 5.3 | Multiparameter Photometer | |
| 16 | **Sulfate** | **≤ 250 ppm** | 59 | Multiparameter Photometer | Satisfactory |
| 17 | **Chloride** | **≤ 250 ppm** | 41.9 | Kit base method | Satisfactory |
| 18 | **Nitrate** | **≤ 50 ppm** | 7.5 | Multiparameter Photometer | Satisfactory |
| 19 | **Nitrite** | **≤ 03 ppm** | 2.3 | Multiparameter Photometer | Satisfactory |
| 20 | **Fluoride** | **≤ 1.5 ppm** | 0.5 | Multiparameter Photometer | Satisfactory |
| 21 | **Arsenic** | **≤ 0.01 ppm** | 0.004 | Multiparameter Photometer | Satisfactory |
| 22 | **Iron** | **≤ 2 ppm** | 0.61 | Multiparameter Photometer | Satisfactory |
| 23 | **Copper** | **≤ 2 ppm** | 0.02 | Multiparameter Photometer | Satisfactory |
| 24 | **E.Coli** | **+Ve/ -Ve** | -Ve | Compact Dry EC plates | -Ve |
| 25 | **Fecal Coliform** | **0 CFU/100 ml** | 0 | DelAgua Kit | Nil |

**(NDWQS) National Drinking Water Quality Standards**
**NGVS (No Guideline Value Set)**
**TDS (Total Dissolved Solid)**

1. Sample analyzed by: Imdad Ullah

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

2. **Report by:** Imdad Ullah

3. Chief Analyst with seal: Tayyaba Akhtar

4. **Countersigned by:** Fazal Ullah
Director Admin & Finance

*Note: This report state the result of the test performed for the sample received by the laboratory from the above stated "Client/Organization". Verification or acknowledgement of the origin on association of the sample being tested to particular site is beyond the responsibility of STEPS Environmental Laboratory."

# STEPS ENVIRONMENTAL LABORATORY

(A Joint-Venture between IRSP & STEPS Pakistan)
Address: Jail road, near GHSS, Mohabbat Abad, Mardan, KP, Pakistan
Phone: +92-0937-881085, +92-3364-5544333
E-mail: lab@stepspakistan.com
Website: www.stepspakistan.com

Registered from EPA
Certificate No:
PA/Lab-Cer/SEL/002


## Surface Water Quality Report

**Date: 25/05/2023**

**Report reference No:** SW- SEL/MR/2023/05-04
**Project Name:** Peshawar Turkham Link Road Project (NHA)
**Sample Location:** Kabul River Distributary
**Grab/Composite:** Grab
**Date of sample analysis:** 23/05/2023

**Nature of Sample:** Distributary/Canal
**Name of Organization:** JV-RHC & STEPS
**Sample collected sent by:** STEPS
**Date of sample received:** 23/05/2023
**Date of completion of analysis:** 25/05/2023

| S. No. | Parameters | NDWQS Limits | Concentration | Method used | Remarks |
|---|---|---|---|---|---|
| **A. Field Analysis.** | | | | | |
| 01 | Ph | 6.5-8.5 | 7.6 | Hanna Digital meter | Satisfactory |
| 02 | Temp | - | 27 °C | Thermometer | |
| 03 | Dissolve Oxygen | - | 0 ppm | Multiparameter Photometer | |
| 04 | Turbidity | ≤ 5NTU | 2.67 | 2100 P HACH | Satisfactory |
| **B. Lab. Analysis.** | | | | | |
| 05 | E. Conductivity | NGVS | 752 | HI 98130 Combo Hanna | |
| 06 | TDS | 1000 ppm | 386 | HI 98130 Combo Hanna | Satisfactory |
| 07 | Color | < 15 TCU | Colourless | Multiparameter Photometer | Satisfactory |
| 08 | Odor | Odorless | Unobjectionable | Sensory evaluation | Satisfactory |
| 09 | Taste | Tasteless | Unobjectionable | Sensory evaluation | Satisfactory |
| 10 | Total Alkalinity | < 500 ppm | 159 | Multiparameter Photometer | Satisfactory |
| 11 | Total Hardness | < 500 ppm | 363 | Titration based method | Satisfactory |
| 12 | Calcium | ≤ 250 ppm | 78 | Multiparameter Photometer | Satisfactory |
| 13 | Magnesium | ≤ 250 ppm | 46 | Multiparameter Photometer | Satisfactory |
| 14 | Sodium | ≤ 200 ppm | 12 | Meter | Satisfactory |
| 15 | Potassium | NGVS | 10.2 | Multiparameter Photometer | |
| 16 | Sulfate | ≤ 250 ppm | 61.5 | Multiparameter Photometer | Satisfactory |
| 17 | Chloride | ≤ 250 ppm | 38 | Kit base method | Satisfactory |
| 18 | Nitrate | ≤ 50 ppm | 10 | Multiparameter Photometer | Satisfactory |
| 19 | Nitrite | ≤ 03 ppm | 1.25 | Multiparameter Photometer | Satisfactory |
| 20 | Fluoride | ≤ 1.5 ppm | 0.78 | Multiparameter Photometer | Satisfactory |
| 21 | Arsenic | ≤ 0.01 ppm | 0.00 | Multiparameter Photometer | Satisfactory |
| 22 | Iron | ≤ 2 ppm | 0.43 | Multiparameter Photometer | Satisfactory |
| 23 | Copper | ≤ 2 ppm | 0.67 | Multiparameter Photometer | Satisfactory |
| 24 | E.Coli | +Ve/ -Ve | -Ve | Compact Dry EC plates | -Ve |
| 25 | Fecal Coliform | 0 CFU/100 ml | 0 | DelAgua Kit | Nil |

**National Environmental Quality Standards (NEQS)**

1 **Sample analyzed by:**
Dr. Asif Khan

STEPS ENVIRONMENTAL LABORATORY
Sheikh Maltoon Town Mardan

2. **In charge of STEPS Environmental Laboratory:**
Dr. Asif Khan

3. **Name & sign of Chief Analyst with seal:**
Tayyaba Akhtar

4. **Countersigned by:**
Fazal Ullah
Director Admin & Finance

"Note: This report state the result of the test performed for the sample received by the laboratory from the above stated""Client/Organization"". Verification or acknowledgement of the origin on association of the sample being tested to particularsite is beyond the responsibility of STEPS Environmental Laboratory."

# ANNEXURE IX. NATIONAL ENVIRONMENTAL QUALITY STANDARDS

## National Environmental Quality Standards (NEQS)

### Table 1: Effluent Discharge Standards (NEQS 2000) Applicable to the Works

| Sr. No. | Determinant | NEQS |
|---|---|---|
| 1 | Temperature | 40 $^{O}$C =≤3 deg. |
| 2 | pH | 6 – 9 |
| 3 | BOD5 | 80 mg/l |
| 4 | Chemical Oxygen Demand (COD) | 150 mg/l |
| 5 | Total Suspended Solid (TSS) | 200 mg/l |
| 6 | Total Dissolved Solids | 3500 mg/l |
| 7 | Grease and Oil | 10 mg/l |
| 8 | Phenolic compounds (as phenol) | 0.1 mg/l |
| 9 | Ammonia | 40 mg/l |
| 10 | Chlorine | 1.0 mg/l |
| 11 | Chloride | 1000.0 mg/l |
| 12 | Sulphate | 600 mg/l |
| 13 | Manganese | 1.5 mg/l |
| 14 | Fluoride | 10 mg/l |
| 15 | Cyanide (as CN') total | 1.0 mg/l |
| 16 | An-ionic detergents (as MB As) | 20 mg/l |
| 17 | Sulphide (S-2) | 1.0 mg/l |
| 18 | Pesticides | 0.15 mg/l |
| 19 | Cadmium | 0.1 mg/l |
| 20 | Chromium trivalent and hexavalent | 1.0 mg/l |
| 21 | Copper | 1.0 mg/l |
| 22 | Lead | 0.5 mg/l |
| 23 | Mercury | 0.01 mg/l |
| 24 | Selenium | 0.5 mg/l |
| 25 | Nickel | 1.0 mg/l |
| 26 | Silver | 1.0 mg/l |
| 27 | Total Toxic metals | 2.0 mg/l |
| 28 | Zinc | 5.0 mg/l |
| 29 | Arsenic | 1.0 mg/l |
| 30 | Barium | 1.5 mg/l |
| 31 | Iron | 8.0 mg/l |
| 32 | Boron | 6.0 mg/l |

**Table 2: National Environmental Quality Standards (NEQS) for Gaseous Emission (mg/Nm$^3$, Unless Otherwise Defined)**

| Sr. No. | Parameter | Source of Emission | Existing Standards | Revised Standards |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1. | Smoke | Smoke Opacity not to exceed | 40% or 2 Ringlemann Scale | 40% or 2 Ringlemann Scale or equivalent smoke number |
| 2. | Particulate Matter (I) | (a) Boilers and Furnaces<br>(i) Oil fired<br>(ii) Coal fired<br>(iii) Cement Kilns<br><br>(b) Grinding, crushing, clinker coolers and Related processes, Metallurgical Processes, converter, blast furnaces and cupolas. | <br><br><br>300<br>500<br>200<br><br>500 | <br><br><br>300<br>500<br>200<br><br>500 |
| 3. | Hydrogen Chloride | Any | 400 | 400 |
| 4. | Chlorine | Any | 150 | 150 |
| 5. | Hydrogen Fluoride | Any | 150 | 150 |
| 6. | Hydrogen Sulphide | Any | 10 | 10 |
| 7. | Sulphur Oxide (2) (3) | Sulfuric acid/ Sulphonic acid plants<br><br>Other plants except power plants operating on oil and coal | <br><br>400 | <br><br>1700 |
| 8. | Carbon Monoxide | Any | 800 | 800 |
| 9. | Lead | Any | 50 | 50 |
| 10. | Mercury | Any | 10 | 10 |
| 11. | Cadmium | Any | 20 | 20 |
| 12. | Arsenic | Any | 20 | 20 |
| 13. | Copper | Any | 50 | 50 |
| 14. | Antimony | Any | 20 | 20 |
| 15. | Zinc | Any | 200 | 200 |
| 16. | Oxides of Nitrogen (3) | Nitric acid manufacturing unit.<br>Other plants except power plants operating on oil or coal:<br>Gas fired<br>Oil fired<br>Coal fired | <br><br>400<br>-<br>- | <br><br>400<br>600<br>1200 |

| Sr. No. | Properties/Parameters | Standard Values for Pakistan | WHO Standards | Remarks |
|---|---|---|---|---|
| 12 | Beta Emitters | 01 | 01 | |
| **CHEMICAL** | | | | |
| **Essential Inorganics** | | **mg/litre** | **mg/litre** | |
| 13 | Aluminum (Al) mg/l | ≤0.2 | 0.02 | |
| 14 | Antimony (Sb) | ≤0.005 | 0.02 | |
| 15 | Arsenic (As) | ≤0.05 | 0.01 | Standard for Pakistan similar to most Asian developing Countries |
| 16 | Barium (Ba) | 0.7 | 0.7 | |
| 17 | Boron (B) | 0.3 | 0.3 | |
| 18 | Cadmium (Cd) | 0.01 | 0.003 | Standard for Pakistan similar to most Asian developing Countries |
| 19 | Chloride (Cl) | <250 | 250 | |
| 20 | Chromium (Cr) | ≤0.05 | 0.05 | |
| 21 | Copper (Cu) | 2 | 2 | |
| **Toxic Inorganics** | | **mg/litre** | **mg/litre** | |
| 22 | Cyanide (CN) | ≤0.05 | 0.07 | Standard for Pakistan similar to most Asian developing Countries |
| 23 | Fluoride (F) | ≤1.5 | 1.5 | |
| 24 | Lead (Pb) | ≤0.05 | 0.01 | Standard for Pakistan similar to most Asian developing Countries |
| 25 | Manganese (Mn) | ≤0.5 | 0.5 | |
| 26 | Mercury (Hg) | ≤0.001 | 0.001 | |
| 27 | Nickel (Ni) | ≤0.02 | 0.02 | |
| 28 | Nitrate ($NO_3$) | ≤50 | 50 | |
| 29 | Nitrite ($NO_2$) | ≤3 | 3 | |
| 30 | Selenium (Se) | 0.01 | 0.01 | |
| 31 | Residual Chlorine | 0.2-0.5 at consumer end 0.5-1.5 at source | --- | |
| 32 | Zinc (Zn) | 5.0 | 3 | Standard for Pakistan similar to most Asian developing Countries |
| **Organics** | | | | |
| 33 | Pesticides mg/L | --- | PSQCA No. 4629-2004, Page No.4, Table No. 3, Serial No. 20-58 may be consulted | Annex-II |
| 34 | Phenolic Compounds (as Phenols) mg/L | --- | ≤0.002 | |

| Sr. No. | Properties/Parameters | Standard Values for Pakistan | WHO Standards | Remarks |
|---|---|---|---|---|
| 35 | Poly nuclear aromatic hydrocarbons (as PAH) g/L | | 0.01 (By GC/MS method) | |
| ***PSQCA: Pakistan Standards Quality Control Authority | | | | |

Table 3: National Environmental Quality Standards (NEQS, 2009) for Vehicular

**Table 5: National Environmental Quality Standards (NEQS, 2010) for Drinking Water**

| Sr. No. | Properties/Parameters | Standard Values for Pakistan | WHO Standards | Remarks |
|---|---|---|---|---|
| **BACTERIAL** | | | | |
| 1 | All water is intended for drinking (E.Coli or Thermotolerant Coliform bacteria) | Must not be detectable in any 100ml sample | Must not be detectable in any 100ml sample | Most Asian Countries also follow WHO Standards |
| 2 | Treated water entering the distribution system (E.Coli or Thermotolerant Coliform and total Coliform bacteria) | Must not be detectable in any 100ml sample | Must not be detectable in any 100ml sample | Most Asian Countries also follow WHO Standards |
| 3 | Treated water entering the distribution system (E.Coli or Thermotolerant Coliform and total Coliform bacteria) | Must not be detectable in any 100ml sample. In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12-month period. | Must not be detectable in any 100ml sample. In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12-month period. | Most Asian Countries also follow WHO Standards |
| **PHYSICAL** | | | | |
| 4 | Colour | ≤15 TCU | ≤15 TCU | |
| 5 | Taste | Non Objectionable/ Acceptable | Non Objectionable/ Acceptable | |
| 6 | Odour | Non Objectionable/ Acceptable | Non Objectionable/ Acceptable | |
| 7 | Turbidity | <5 NTU | <5 NTU | |
| 8 | Total hardness as $CaCO_3$ | <500mg/l | --- | |
| 9 | TDS | <1000 | <1000 | |
| 10 | pH | 6.5-8.5 | 6.5-8.5 | |
| **RADIOACTIVE** | | | | |
| 11 | Alpha Emitters bq/L or pCi | 0.1 | 0.1 | |

**Table 6: National Environmental Quality Standards (NEQS, 2010) for Ambient Air**

| Pollutants | Time-weighted average | Concentration in Ambient Air | | Method of Measurement |
|---|---|---|---|---|
| | | Effective from 1st July 2010 | Effective from 1st January 2013 | |
| Sulphur Dioxide ($SO_2$) | Annual Average* | 80µg/m$^3$ | 80µg/m$^3$ | Ultraviolet Fluorescence Method |
| | 24 hours** | 120µg/m$^3$ | 120µg/m$^3$ | |
| Oxides of Nitrogen as (NO) | Annual Average* | 40µg/m$^3$ | 40µg/m$^3$ | Gas Phase Chemi luminescence |
| | 24 hours** | 40µg/m$^3$ | 40µg/m$^3$ | |
| Oxides of Nitrogen as ($NO_2$) | Annual Average* | 40µg/m$^3$ | 40µg/m$^3$ | Gas Phase Chemi luminescence |
| | 24 hours** | 80µg/m$^3$ | 80µg/m3 | |
| Ozone ($O_3$) | 1 hour | 180µg/m$^3$ | 130µg/m$^3$ | Non disperse UV absorption method |
| Suspended Particulate Matter (SPM) | Annual Average* | 400µg/m$^3$ | 360µg/m$^3$ | High Volume Sampling, (Average flow rate not less than 1.1m$^3$/minute) |

## ANNEXURE X. WHO STANDARDS

| Sr. No. | Parameter | Unit | WHO Guideline |
|---|---|---|---|
| 1 | Temperature | $^0C$ | ---- |
| 2 | pH | -- | 6.5-8.5 |
| 3 | Total Dissolved Solids (TDS) | mg/l | 1000 |
| 4 | Total Suspended Solids (TSS) | mg/l | --- |
| 5 | Chloride | mg/l | 250 |
| 6 | Fluoride | mg/l | 1.5 |
| 7 | Taste | Object./unobj. | Unobject |
| 8 | Odour | Object./unobj. | Unobject. |
| 9 | Colour | TCU | 15 |
| 10 | Iron | mg/l | 0.3 |
| 11 | Sodium | mg/l | 200 |
| 12 | Nitrate (as $NO_3^-$) | mg/l | 50 |
| 13 | Nitrite (as $NO_2^-$) | mg/l | 3 |
| 14 | Ammonia | mg/l | 1.5 |
| 15 | Hydrogen Sulphide ($H_2S$) | mg/l | 0.05 |
| 16 | Sulphate | mg/l | 250 |
| 17 | Lead | mg/l | 0.10 |
| 18 | Total Hardness as $CaCO_3$ | mg/l | 500 |
| 19 | Turbidity | NTU | 5 |
| 20 | Zinc | mg/l | 3 |
| 21 | Manganese | mg/l | 0.1 |

| Sr. No. | Parameter | Unit | WHO Guideline |
|---|---|---|---|
| 22 | Benzene | mg/l | 10-120 |
| 23 | Aluminum | mg/l | 0.2 |
| 24 | Molybdenum | mg/l | 0.070 |
| 25 | Chromium | mg/l | 0.050 |
| 26 | Cadmium | mg/l | 0.003 |
| 27 | Boron | mg/l | 0.300 |
| 28 | Barium | mg/l | 0.700 |
| 29 | Antimony | mg/l | 0.005 |
| 30 | Arsenic | mg/l | 0.010 |
| 31 | Cyanide | mg/l | 0.070 |
| 32 | Mercury | mg/l | 0.001 |
| 33 | Nickel | mg/l | 0.020 |
| 34 | Total Coliform | Number/100ml | 0/100 ml |
| 35 | E.Coli | Number/100ml | 0/100 ml |

# ANNEXURE XI. VILLAGE-WISE LIST OF PAPS

| Sr. No. | Location/ Village | PAP Name | Type of Affected Structure |
|---|---|---|---|
| 1. | Sangu | Sawab Gul | Land and Residential |
| | | Bashir Ahmad | Land and Residential |
| | | Stona Gul | Land and Residential |
| | | Ayyaz | Land and Residential |
| | | Ghulam Hussain | Land and Residential |
| | | M. Aamir | Land and Residential |
| 2. | Gharibabad | Haji Jamal Khan | Land and Residential |
| | | Sher M | Land and Residential |
| | | M. Ramzan | Land and Residential |
| | | Mehmood Khan | Land and Residential |
| | | Hammad Khan | Land and Residential |
| | | Rustam | Land and Residential |
| | | Atif Khan | Land and Residential |
| | | M.Arif | Land and Residential |
| | | Shah Zaman Khan | Land and Residential |
| | | Khan Zaman | Land and Residential |
| 3. | Mushterzai | Hadayat Ullah | Land and Residential |
| | | Zahir Shah | Land and Residential |
| | | Shamshad Khan | Land and Residential |
| | | Jawad | Land and Residential |
| | | Saif ullah | Land and Residential |
| | | Saleh Muhammad | Land and Residential |
| | | Hassan | Land and Residential |
| | | Nasar Khan | Land and Residential |
| | | M.Shafi | Land and Residential |
| | | Ather Ullah | Land and Residential |
| | | Safir Ullah | Land and Residential |
| | | Pervaiz | Land and Residential |
| 4. | Masho Khel | Younas Khan | Land and Residential |
| | | Khan Raziq | Land and Residential |
| | | Hamza | Land and Residential |
| | | Goher Ali | Land and Residential |
| | | Sabir Ali | Land and Residential |
| | | M.Zuhaib | Land and Residential |
| | | Shafa,at Ullah | Land and Residential |
| | | Iqbal Jaan | Land and Residential |
| | | Israr | Land and Residential |
| | | Khana Gul | Land and Residential |
| | | Shah Gul | Land and Residential |
| | | Maghaz Khan | Land and Residential |
| | | Zameen Gul | Land and Residential |
| | | Khana Gul | Land and Residential |
| | | Naimat Khan | Land and Residential |
| | | ShahJee Gul | Land and Residential |
| | | Maghaz Khan | Land and Residential |
| | | Said Nawaz | Land and Residential |
| | | Zakir khan | Land and Residential |
| | | Samir Khan | Land and Residential |
| 5. | Masho Gaggar | Shah Khan | Land and Residential |
| | | Shahid Ullah | Land and Residential |
| | | Mumtaz Khan | Land and Residential |

| Sr. No. | Location/ Village | PAP Name | Type of Affected Structure |
|---|---|---|---|
| | | Zakir | Land and Residential |
| | | Adil Nawaz | Land and Residential |
| | | Taimoor Khan | Land and Residential |
| | | Arshed | Land and Residential |
| | | Tilawat Khan | Land and Residential |
| | | Dilawar Khan | Land and Residential |
| | | Abu Bakar | Land and Residential |
| | | Yasin Khan | Land and Residential |
| | | Gul Nabi | Land and Residential |
| | | Amir Nawaz | Land and Residential |
| | | Azher Ali | Land and Residential |
| | | Huzaifa | Land and Residential |
| 6. | Masho Gaggar Maira | M.Ali | Land and Residential |
| | | Saad Ali | Land and Residential |
| | | Shahid Ali | Land and Residential |
| | | Imran Ali | Land and Residential |
| | | M.Irfan | Land and Residential |
| | | M.Islam | Land and Residential |
| | | Zain Khan | Land and Residential |
| | | Younis Khan | Land and Residential |
| 7. | Sourazai Bala | Khursheed | Land and Residential |
| | | Amjad Khan | Land and Residential |
| 8. | Kas Korona | Mushtaq Ahmad | Land and Residential |
| 9. | Kas Chatri Dag | Sher Khan | Land and Residential |
| | | Almas Khan | Land and Residential |
| | | Atlas Khan | Land and Residential |
| 10. | Kas Sourazai Payyan | Fazal Qayoom | Land and Residential |
| | | Nisar Khan | Land and Residential |
| | | Asad Ullah | Land and Residential |
| 11. | Garhi Muhammad Gul | Afzal Khan | Land and Residential |
| | | Guldar Shah | Land and Residential |
| | | Niaz | Land and Residential |
| | | Shahbaz Khan | Land and Residential |
| | | Khawas Khan | Land and Residential |
| 12. | Garhi Gul Ahmad | Jameel | Land and Residential |
| 13. | Muhammad Gull Chowk | Gull Muhammad | Land and Residential |
| | | Farooq Khan | Land and Residential |
| 14. | Garhi Muhammad Gul | Dilbar | Land and Residential |
| | | Zahir Shah | Land and Residential |
| 15. | Satiano Dheri | Niaz Ali | Land and Residential |
| 16. | Garhi Banati | Anwar Khan | Land and Residential |
| 17. | Benati Kally | Shamood Gul | Land and Residential |
| 18. | Mera Sourazai | Khitab Gul | Land and Residential |
| | | Iftikhar Hussain | Land and Residential |
| 19. | Settano Kally | Shehzad Khan | Land and Residential |
| | | Mahwais Khan | Land and Residential |
| 20. | Khatak Pul | Mousa Khan | Land and Residential |
| 21. | Sharif Kally | Niaz Muhammad | Land and Residential |
| 22. | Ghazi Musa Khan | Abdul Satar | Land and Residential |
| 23. | Garhi Sharif Ullah Khan | Ibrahim | Land and Residential |
| 24. | Kachori | M. Younas | Land and Residential |
| | | M. Kareem | Land and Residential |
| | | Azam | Land and Residential |
| 25. | Tarnab Farm | Sher Ahmad | Land and Residential |

| Sr. No. | Location/ Village | PAP Name | Type of Affected Structure |
|---|---|---|---|
| **26.** | Dheri | Shah Jahan | Land and Residential |
| | | Fawad | Land and Residential |

## ANNEXURE XII. PHOTOLOG

<table>
<tr><td> 
</td><td> 
</td></tr>
<tr><td colspan="2">Group Consultation at Village Jabba Khalisa</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Group Consultation at Village Settano Killi</td><td>Group Consultation at Village Arbab bangla</td></tr>
<tr><td> 
</td><td> 
</td></tr>
</table>

| Group Consultation at Village Arbab Dheri | Group Consultation at Bara |
|---|---|
|  |  |
| Group Consultation at Bara | Group Consultation at Village Jalandar Kalay |
|  |  |
| Group Consultation at Village Masho Khel | Group Consultation at Mushtarzai |

| | |
|---|---|
|   |   |
| Group Consultation at Village Sangu | Group Consultation at Village Garibabad |

**Photolog of Consultations with Government Departments**

| | |
|---|---|
|   |   |
| Meeting with Deputy DG Social Welfare Qayyum Khan (0345 9153665) | Meeting with Deputy Director Planning, Muhammad Asif (0333-9127525) |
|   |   |
| Meeting with DG Agriculture Extension ,Shams Ur Rehman (0300-5891457) | Meeting with Agriculture Statistics Officer |


Meeting with Additional AC Revenue ,Muhammad Taj Khan (0300- 5139618)


Meeting with PA to AC Nowshera (For Table Data)


Meeting with Agriculture Officer Nowshera (Extension, Tahir Badshah


Meeting with Sub Divisional Officer C&W Nowshera



Meeting with DFO Peshawar & Nowshera Forest Division

| | |
|---|---|
|  |  |
| Meeting with AC Office Pabbi Maliha Sahar (0334-4428883) | Meeting with DFO HQ Wildlife Peshawar, Salah-ud-Din (0301-8802284) |

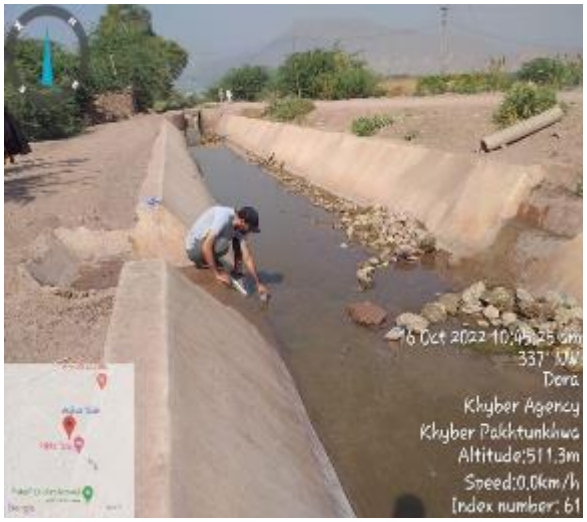
# ANNEXURE XIII. ENVIRONMENTAL MONITORING PHOTO LOG

<table>
<tr><th colspan="2">Ambient Air Quality</th></tr>
<tr><td>  </td><td> 
</td></tr>
<tr><td> 
</td><td>  </td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><th colspan="2">Noise Level</th></tr>
</table>

<table>
<tr>
<td>  </td>
<td> 
</td>
</tr>
<tr>
<td> 
</td>
<td>  </td>
</tr>
<tr>
<td>  </td>
<td> 
</td>
</tr>
<tr>
<td colspan="2">Drinking Water Sampling</td>
</tr>
</table>




**Surface Water Sampling**


16 Oct 2022 10:45:25 am
337° NW
Dora
Khyber Agency
Khyber Pakhtunkhwa
Altitude:511.3m
Speed:0.0km/h
Index number: 61


15 Oct 2022 3:14:09 pm
74° E
Tarnab
Peshawar
Khyber Pakhtunkhwa
Altitude:278.8m
Speed:2.6km/h
Index number: 46


15 Oct 2022 3:14:29 pm
100° E
Tarnab
Peshawar
Khyber Pakhtunkhwa
Altitude:265.6m
Speed:0.0km/h
Index number: 49

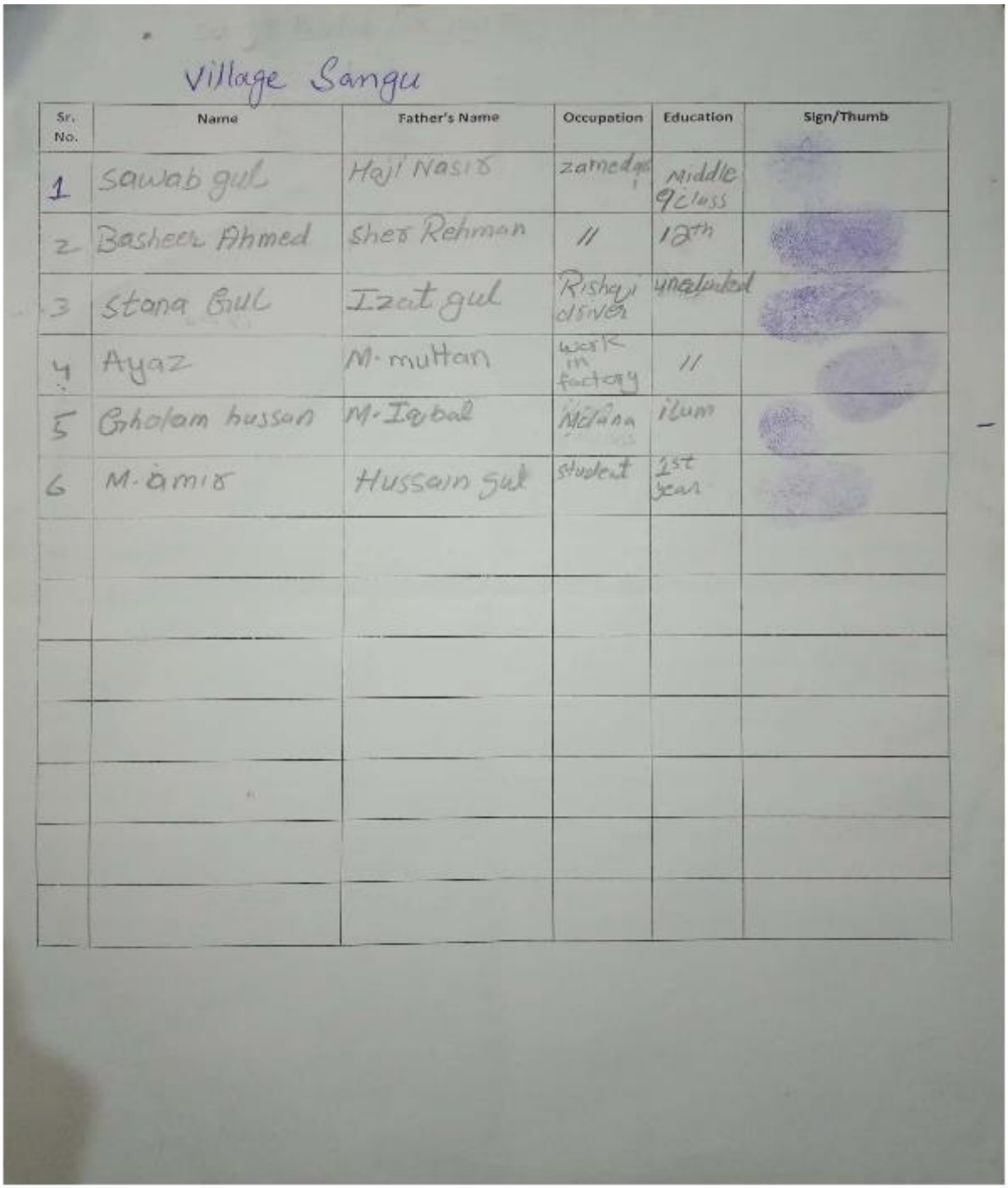

16 Oct 2022 10:45:35 am
343° NW
Dora
Khyber Agency
Khyber Pakhtunkhwa
Altitude:517.7m
Speed:0.0km/h
Index number: 63

## ANNEXURE XIV. ESIA TEAM

| S. No. | Name | Proposed Position | Task Assignment |
|---|---|---|---|
| • | Saeed Hussain | Team Leader<br>Social development and Resettlement expert | **Preparation of RAP** |
| • | Shabbir Ahmad Khan | Environment Specialist (ES-I) | **Environmental baseline<br>Stakeholder's consultation<br>Impact Assessment** |
| • | Dr. Akhtar | Environment Specialist (ES-I) | **Analysis of alternatives and developing ESMP** |
| • | Sibghat Ullah Khan | Environment Specialist (ES-II) | **Support and facilitation to ES-I** |
| • | Abdur Rehman | Social development and Resettlement expert-I | **Socio-economic baseline and support in RAP** |
| • | Malik Pervaiz Akhtar | Social development and Resettlement expert-I | **Socio-economic baseline and support in RAP** |
| • | Tehmina Kazmi | Gender Specialist | **Gender issues in RAP and socio-economic survey/mitigation measure** |
| • | Gul Muhammad Khan | Ecologist/Biologist | **Biological baseline** |
| • | Muhammad Arshad Rafiq | Communication Expert | **Public disclosure document, news paper announcements** |

# ANNEXURE XV. ATTENDANCE SHEETS OF CONSULTATIONS

## Village Sangu

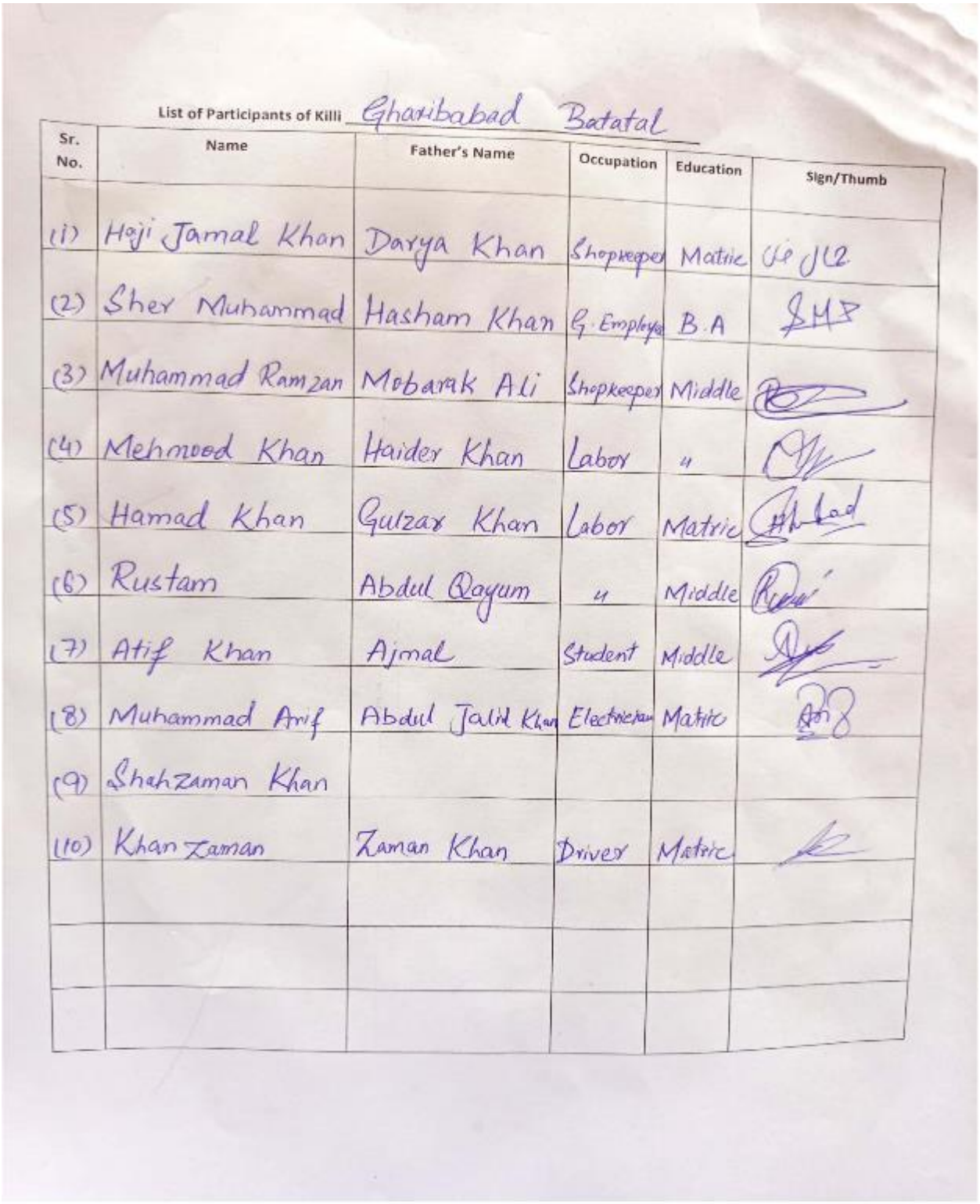


Village Sangu

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| 1 | Sawab gul | Haji Nasir | zamedar | Middle 9class | |
| 2 | Basheer Ahmed | Sher Rehman | // | 12th | |
| 3 | Stana Gul | Izat gul | Rishaw driver | unlimited | |
| 4 | Ayaz | M. muttan | work in factory | // | |
| 5 | Gholam hussan | M. Iqbal | Mdana | ilum | |
| 6 | M. Amir | Hussain gul | student | 1st year | |

Scanned with CamScanner

**Village Ghareebabad.**

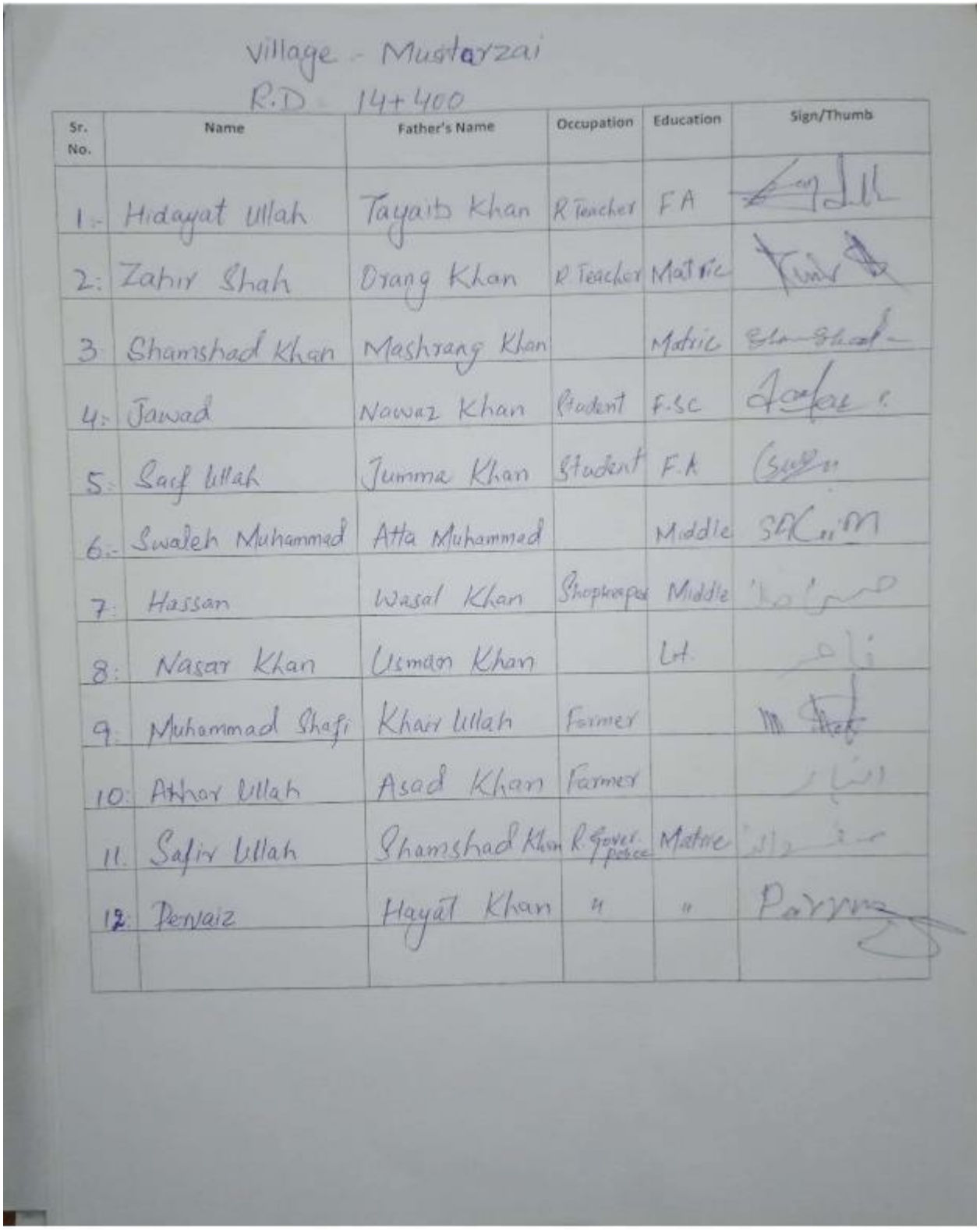


List of Participants of Killi Gharibabad Batatal

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| (1) | Haji Jamal Khan | Darya Khan | Shopkeeper | Matric | |
| (2) | Sher Muhammad | Hasham Khan | G. Employe | B.A | |
| (3) | Muhammad Ramzan | Mobarak Ali | Shopkeeper | Middle | |
| (4) | Mehmood Khan | Haider Khan | Labor | " | |
| (5) | Hamad Khan | Gulzar Khan | Labor | Matric | |
| (6) | Rustam | Abdul Qayum | " | Middle | |
| (7) | Atif Khan | Ajmal | Student | Middle | |
| (8) | Muhammad Arif | Abdul Jalil Khan | Electrician | Matric | |
| (9) | Shahzaman Khan | | | | |
| (10) | Khan Zaman | Zaman Khan | Driver | Matric | |
| | | | | | |
| | | | | | |
| | | | | | |

Scanned with CamScanner

## Village Mustarzai

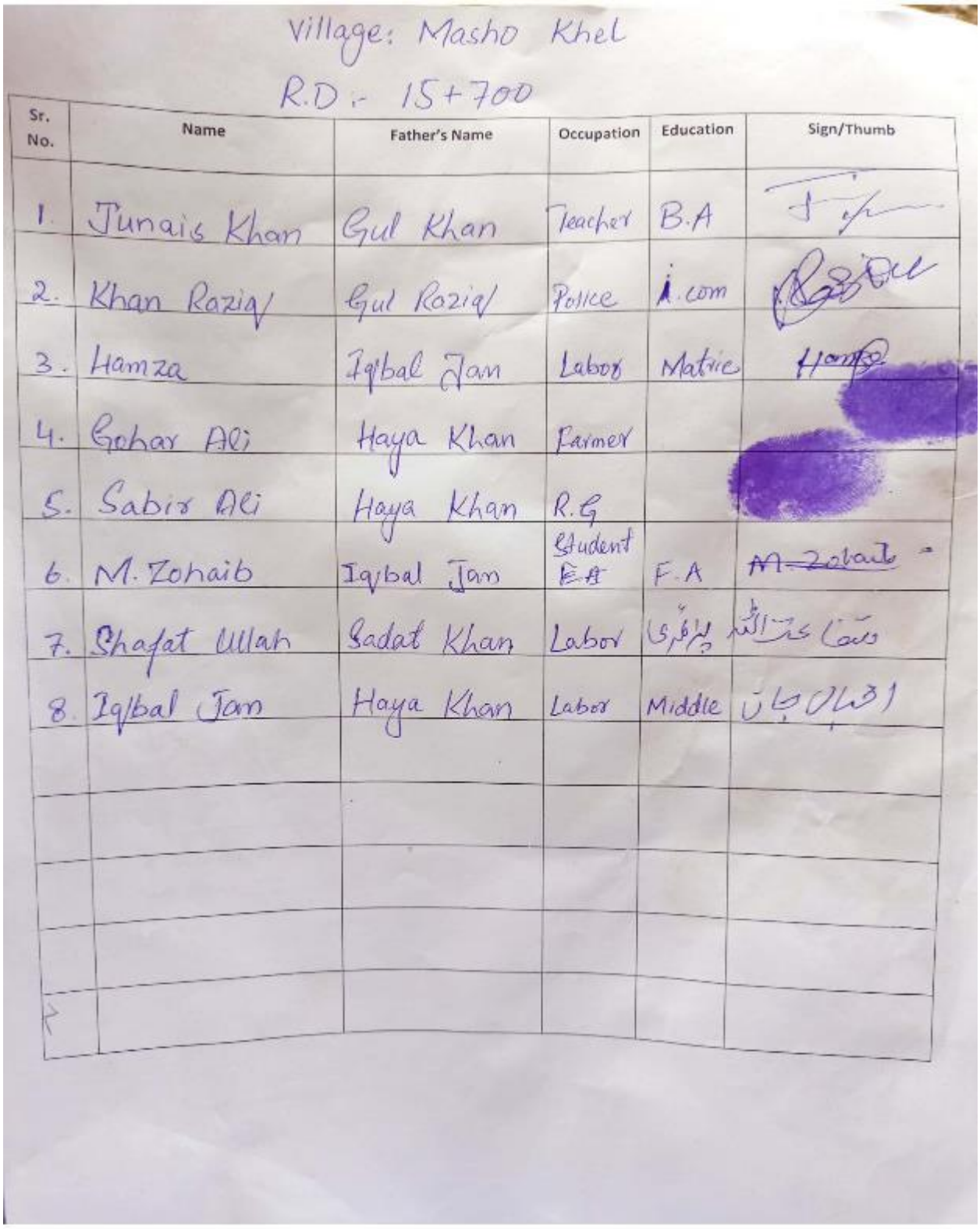


Village - Mustarzai
R.D - 14+400

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| 1. | Hidayat Ullah | Tayaib Khan | R Teacher | FA | |
| 2. | Zahir Shah | Orang Khan | R Teacher | Matric | |
| 3 | Shamshad Khan | Mashrang Khan | | Matric | |
| 4. | Jawad | Nawaz Khan | Student | F.Sc | |
| 5. | Saif Ullah | Jumma Khan | Student | F.A | |
| 6. | Swaleh Muhammad | Atta Muhammad | | Middle | |
| 7. | Hassan | Wasal Khan | Shopkeeper | Middle | |
| 8. | Nasar Khan | Usman Khan | | Lit. | |
| 9. | Muhammad Shafi | Khair Ullah | Farmer | | |
| 10. | Athar Ullah | Asad Khan | Farmer | | |
| 11. | Safir Ullah | Shamshad Khan | R Govt. peace | Matric | |
| 12. | Tenvaiz | Hayat Khan | " | " | |

Scanned with CamScanner

## Village Masho Khel



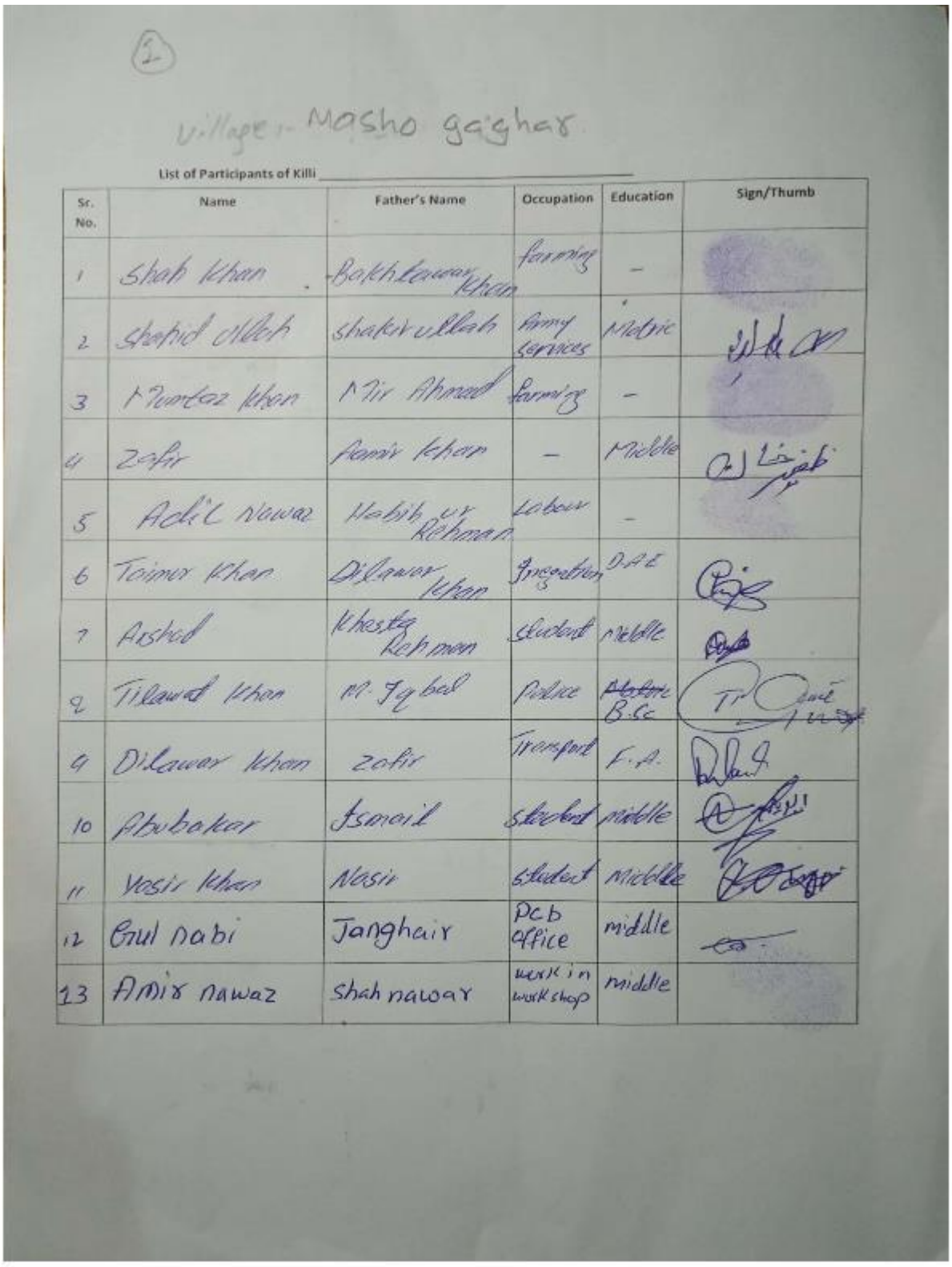
Village: Masho Khel

R.D :- 15+700

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| 1. | Junais Khan | Gul Khan | Teacher | B.A | |
| 2. | Khan Raziq | Gul Raziq | Police | I.com | |
| 3. | Hamza | Iqbal Jan | Labor | Matric | |
| 4. | Gohar Ali | Haya Khan | Farmer | | |
| 5. | Sabir Ali | Haya Khan | R.G | | |
| 6. | M. Zohaib | Iqbal Jan | Student F.A | F.A | ~~M. Zohaib~~ |
| 7. | Shafat Ullah | Sadat Khan | Labor | | |
| 8. | Iqbal Jan | Haya Khan | Labor | Middle | |

Scanned with CamScanner

## Village Masho Gaggar



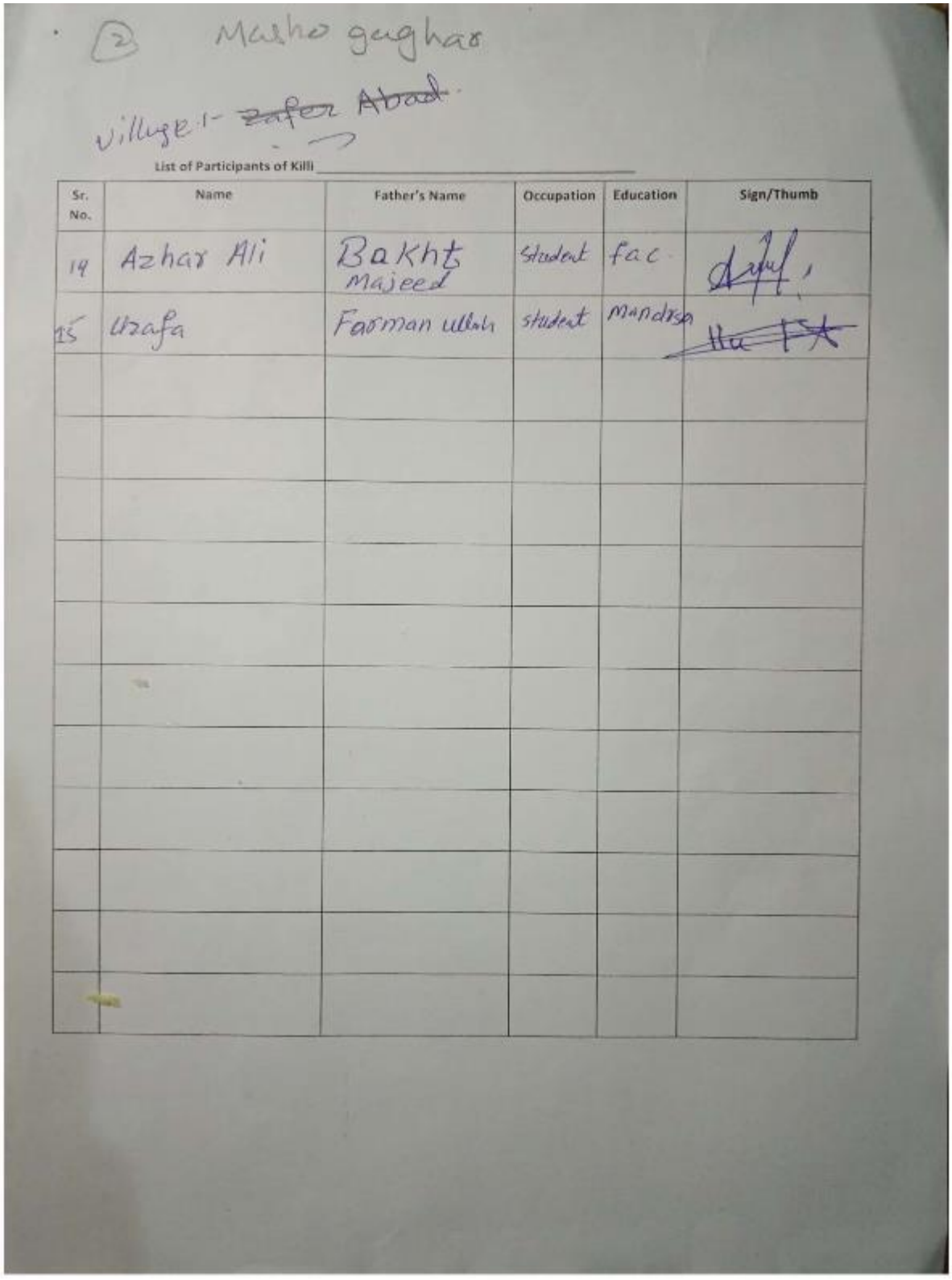
1

Village:- Masho gaghar

List of Participants of Killi _____

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| 1 | Shah Khan | Bakhtawar Khan | farming | - | |
| 2 | Shahid Ullah | Shakir ullah | Army services | Matric | |
| 3 | Mumtaz Khan | Mir Ahmad | farming | - | |
| 4 | Zafir | Amir Khan | - | Middle | |
| 5 | Adil Nawaz | Habib ur Rehman | Labour | - | |
| 6 | Taimur Khan | Dilawar Khan | Graduation | DAE | |
| 7 | Arshad | Khushtaj Rehman | Student | Middle | |
| 9 | Tilawat Khan | M. Iqbal | Police | ~~Matric~~ B.Sc | |
| 9 | Dilawar Khan | Zafir | Transport | F.A. | |
| 10 | Abubakar | Ismail | Student | middle | |
| 11 | Yasir Khan | Nasir | Student | Middle | |
| 12 | Gul Nabi | Janghair | Pcb office | middle | |
| 13 | Amir Nawaz | Shah Nawaz | Work in workshop | middle | |

Scanned with CamScanner



(2) Masho gughar

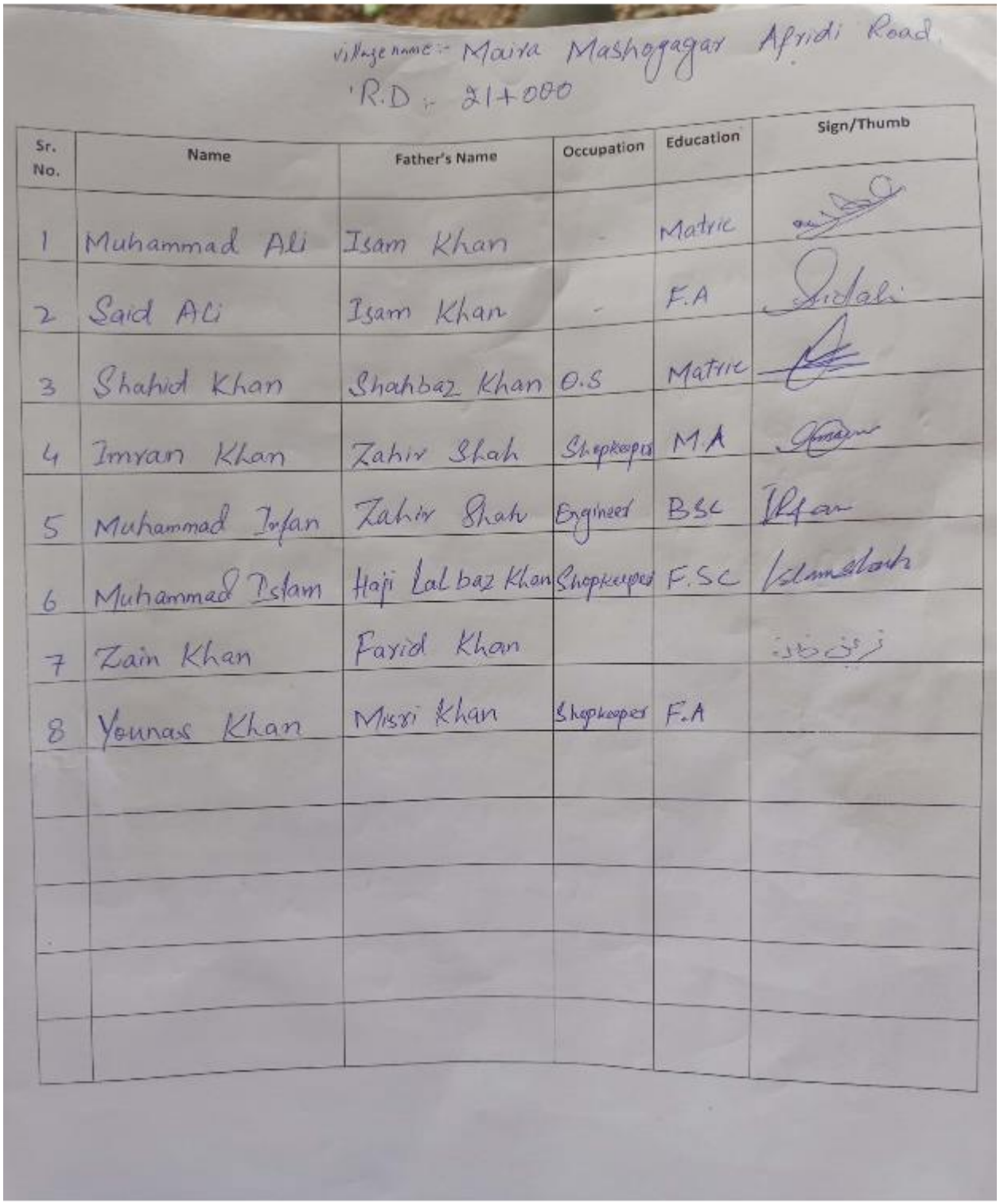
Village:- ~~Zafer~~ Abad

List of Participants of Killi _____

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| 14 | Azhar Ali | Bakht Majeed | Student | fac | |
| 15 | Uzafa | Farman ullah | student | Mandrsa | |

Scanned with CamScanner

## Village Masho Gaggar Maira



Village name:- Maira Mashogagar Afridi Road.
R.D:- 21+000

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| 1 | Muhammad Ali | Isam Khan | - | Matric | |
| 2 | Said Ali | Isam Khan | - | F.A | |
| 3 | Shahid Khan | Shahbaz Khan | O.S | Matric | |
| 4 | Imran Khan | Zahir Shah | Shopkeeper | M.A | |
| 5 | Muhammad Irfan | Zahir Shah | Engineer | BSc | |
| 6 | Muhammad Islam | Haji Lal baz Khan | Shopkeeper | F.Sc | |
| 7 | Zain Khan | Farid Khan | | | |
| 8 | Younas Khan | Misri Khan | Shopkeeper | F.A | |

Scanned with CamScanner

## Village Surizai Bala -Peshawar Area

Peshawar-Turkham Link Road Project- NHA

List of Participants

| Sr. No. | Name | Father's Name | Occupation | Killi/village | Sign/Thumb |
|---|---|---|---|---|---|
| 1 | Tahir shah | Zahir shah | Bussiness | Shasif killi | |
| 2 | Arshad Khan | Lal Zaman | Labour | 11 | |
| 3 | Farman Ullah | Nazir Muhmad | Student | 11 | |
| 4 | Niaz Muhamad | Taj Muhammad | | | |
| 5 | Bilal Khan | Muhammad Nabi | student | | Bilal |
| 6 | Nasir Khan | 11 | 11 | 11 | |
| 7 | Usman Khan | Haji Taza Gul | Farmer | Qadeem killi | |
| 8 | Atta Ullah | Bahar Ullah | student | 11 | |
| 9 | Muzamil | Kafaitullah | 11 | 11 | |
| 10 | M. Haris | M. Shoaib | P. Job | 11 | |
| 11 | Fazullah | Safa ullah | Farmer | Khattak Pool | |
| | Ihtisham Ul | Fazale Amin | 11 | | |

Consultation Conducted By: ..... dated .....

## Village Satteno-Peshawar Area

Peshawar-Turkham Link Road Project- NHA

List of Participants

| Sr. No. | Name | Father's Name | Occupation | Killi/village | Sign/Thumb |
|---|---|---|---|---|---|
| 1 | Mian Awrangzeb | Mian Saifur Rehman | Govt Servant | Jeddan Khalsa | |
| 2 | M. Fazli Qadir | M. Fazli Dayan | Teaching | -do- | |
| 3 | Sajjad Ahmed | Fazle Subhan | Business | = | |
| 4 | Malik Umar Khan | M. Wazir Khan | Business | = | |
| 5 | Ghulam Taimur | Rokhan | Govt Servant | = | |
| 6 | Kiramatullah | Malik Abdullah | wapda | " | |
| 7 | Rahat Kalam | Sahar Gull | Farmer | " | |
| 8 | Yasa Khan | Awal Shah | " | " | |
| 9 | N. Tahir | M. Salih | " | " | |
| 10 | Majan | Mir Rahman | " | " | |
| 11 | Umar Khan | Samandar Khan | " | " | |
| 12 | Noor Muhammad | Rahmat Khan | " | " | |
| 13 | Shahjahan | Sahar Ali | Steel Fixir | " | |
| 14 | Ikramullah | Amanullah | Business man | " | |
| 15 | Malik Tohead | Nasrullah | Business man | " | |
| 16 | Mian Sher Zaman | | Retd. Govt officer | " | |
| 17 | Mian Amjad Khan | Mian Sherafgan | Jeddan Khalsa | = | |

Consultation Conducted By: M Owais dated: 31-08-2022

**Village Jabba Khalsa-Naushehra area**

Peshawar-Turkham Link Road Project- NHA

List of Participants of Killi _____

| S. #. | Name | Father's Name | Occupation | Sign/Thumb |
|---|---|---|---|---|
| 18) | Qazi Noor Syed | Gul Abad | Iman Masjid | |
| 9) | Ahmed Khan | Rasool Khan | Farmer | |
| 10) | Younas Khan | Nisar Muhammad | " | |
| 11) | Hayat Khan | Nasrullah Khan | " | |
| 12) | Fayaz Khan | Nisar Muhammad | " | |
| 13) | Tahir Khan | Shakir Khan | " | |
| 14) | Afsar Khan | Sher Khan | Farmer | |
| 15) | Sher Khan | Gul Hussain | " | |
| 16 | Mushtaq Ahmad | Hameed Gul | Laborer | |
| 17 | Abdul Hameed | Abdul Karim | Labour | |
| 18 | Ismail Khan | Umer Khan | Farmer | |
| 19 | Amjad Khan | Noor Rehman | Labour | |
| 20 | " | | Farmer | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Consultation Conducted By: ..... dated.....

# ANNEXURE XVI. CHANCE FIND PROCEDURE

## 1. BACKGROUND

The purpose of this document is to address the possibility of archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required.

The Antiquities Act, 1975, protects archaeological sites, whether on Provincial Government owned or private land. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public and local communities. Impacts to archaeological sites must be avoided or managed by development proponents. The objectives of this „Archaeological Chance Find Procedure‟ are to promote preservation of archaeological data while minimizing disruption of construction scheduling It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

## 2. POTENTIAL IMPACTS TO ARCHAEOLOGICAL SITES

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits.

## 3. RELEVANT LEGISLATION

It ensures the protection, preservation, development and maintenance of antiquities in the provinces of Pakistan. The Act defines “antiquities” as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments, etc. The Act is designed to protect these antiquities from destruction, theft, negligence, unlawful excavation, trade, and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the relevant provincial governments to prohibit excavation in any area that may contain articles of archaeological significance. Under the Act, the subproject proponents are obligated to ensure that no activity is undertaken in the proximity of a protected antiquity, report to the Department of Archaeology, any archaeological discovery made during the course of the project.

## 4. REMEDIES AND PENALTIES

The Antiquities Act, 1975 provides for heritage inspection or investigation orders, temp orary protection orders, civil remedies and penalties to limit contraventions. These powers provide: ‟ A contravention of any provision of this Act or the rules shall, where no punishment has been specifically provided be punishable with rigorous imprisonme nt for a term which may extend to two years, or with fine up to rupees ten hundred thousand, or with both. ‟

## 5. ARCHAEOLOGICAL ‘CHANCE FIND’ PROCEDURE

If you believe that you may have encountered any archaeological materials, stop work in the area and follow the procedure below: The following „chance- find‟ principles will be implemented by the contractor throughout the construction works to account for any undiscovered items identified during construction works:

Workers will be trained in the location of heritage zones within the construction area and in the identification of potential items of heritage significance.

ii. Should any potential items be located, the site supervisor will be immediately contacted and work will be temporarily stopped in that area.

iii. If the site supervisor determines that the item is of potential significance, an officer from the Department of Archaeology (DoA) will be invited to inspect the site and work will be stopped until DoA has responded to this invitation.
iv. Work will not re-commence in this location until agreement has been reached
v. between DoA and NTDC as to any required mitigation measures, which may include excavation and recovery of the item.
vi. A precautionary approach will be adopted in the application of these procedures.

## 6. DETAILED PROCEDURAL STEPS

- If the Director, department of Archaeology receives any information or otherwise has the knowledge of the discovery or existence of an antiquity of which there is no owner, he shall, after satisfying himself as to the correctness of the information or knowledge, take such steps with the approval of the Government, as he may consider necessary for the custody, preservation and protection of the antiquity.
- Whoever discovers, or finds accidentally, any movable antiquity shall inform forth with the Directorate within seven days of its being discovered or found.
- If, within seven days of his being informed, the Director decides to take over the antiquity for purposes of custody, preservation and protection, the person discovering or finding it shall hand it over to the Director or a person authorized by him in writing.
- Where the Director decides to take over an antiquity, he may pay to the person by whom it is handed over to him such cash reward as may be decided in consultation with the Advisory Committee.
- If any person, who discovers or finds any movable antiquity contravenes the provisions of the Act, he shall be punishable with imprisonment for a term which may extend to five (05) years, or with fine not less than fifteen hundred thousand and rupees or with both and the Court convicting such person shall direct that the antiquity in respect of which such contravention has taken place shall stand forfeited to Government.
- The Director or any officer authorized by him with police assistance may, after giving reasonable notice, enter into, inspect and examine any premises, place or area which or the sub-soil of which he may have reason to believe to be, or to contain an antiquity and may cause any site, building, object or any antiquity or the remains of any antiquity in such premises, place or area to be photographed, copied or reproduced by any process suitable for the purpose.
- The owner or occupier of the premises, place or area shall afford all reasonable opportunity and assistance to the Director.
- No photograph, copy of reproduction taken or made shall be sold or offered for sale except by or with the consent of the owner of the object of which the photograph, copy or the reproduction has been taken or made.
- Where substantial damage is ca used to any property as a result of the inspection, the Director shall pay to the owner thereof reasonable compensation for the damage in consultation with the Advisory Committee.
- If the Director after conducting an inquiry, has reasonable grounds to believe that any land contains any antiquity, he may approach the Government to direct the Revenue Department to acquire such land or any part thereof and the Revenue Department shall thereupon acquire such land or part under the Land Acquisition Act, 1894 as for a public purpose.

# ANNEXURE XVII. QUESTIONNAIRE FOR SOCIO-ECONOMIC DATA

**PESHAWAR-TURKHAM LINK ROAD PROJECT-KPK**

**Land Acquisition and Resettlement Plan (LARP)**

**CENSUS AND SOCIO-ECONOMIC SURVEY OF THE PAPs**

**A. IDENTIFICATION** **CASE No…… RD NO……**

**Questionnaire No .**_____ **Date:** _____

Interviewer: _____ Name of Respondent /AP:_____

S/o:_____

Town/Mohalla: _____

Union Council: _____ Tehsil/District: _____

Age: _____ years Marital Status: _____

Education: _____

Profession: _____ Caste: _____

PAP-ID:_____

## Contact Details (Cell No.):

## B. Household / Family Profile children below 10 yrs. M---------- F……..= total……

| Sr. No. | Relationship with H.H (Code-A) | Age | Marital Status (Code-B) | Education | Occupation and Sources of Income | | | | Total Monthly Income (Rs.) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Primary Source | | Any Other | | |
| | | | | | Occupation (D) | Income Monthly (Rs) | Occupation | Income Monthly (Rs) | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |

**Code A:** 1. Self 2. Wife 3. Son 4. Daughter 5. Father 6. Mother 7. Grandson 8. Grandmother 9. Sister in law

10. Nephew 11. Niece 12. Daughter in law 13. Mother in law 14. Father in law 15. Brother in law 16. Brother

17 Sister 18. Aunt 19. Any Other

**Code B:** 1. Single 2. Married 3. Divorced 4. Widow / Widower

**Code C:** 1. Low income 2. More distance of educational institution 3. Lack of better Transport facilities 4.Negative attitude towards formal education
5. Lack of interest 6. If any other (please specify) ___

**Code D:** 1. Farming 2. Business (Type_____) 3. Livestock Rearing 4. Service (If Government Type___)
5. Service Private (Type_____) 6. Milk Selling 7. Retired Govt. Employee 8. Agri. Labour
9. Employed Overseas 10. Employment at port 11. Fishing Labor at port 12. Mason 13. If any other (please specify _____)

**Code E**: 1. Below 5000 2. 5000-9000 3.9001-15,000 4.15001-20000 5. 20001-25000 6. Above 25000

**Q.1.** How much is your average H.H. monthly expenditure?

1. Below 5000 2. 5000-9000 3. 9001-15,000
4. 15,001-20,000 5. 20,001-25,000 6. Above 25,000

**Q.2.** What is type of your family system?

1. Joint……. 2. Nuclear…….

## C. LIVING STATUS

**Q.3.** What is type of your household structure?

1. Pucca……2. Semi Pucca…….3. Kacha……..4. Hut……

**Q.4.** What is the type of ownership of your house structure?

1. Owned 2. Government 3. Rented 4. Free on Landlord property
5. Relative House 6. Any other

**Q.5.** Since how long are you living here? _____ Years

**Q.6**. Which of the following facilities are available in your house?

1. Electricity 2. Water Supply 3. Gas 4. Telephone/ Mobile 5. Sewerage 6. Solid Waste Management

## D. Landholding

**Q.7.** What is your total landholding?

1. Yes _____ (kanal) 2. No _____

**Q.8.** What is use of that landholding: _____

## E. LIVESTOCK

**Q.9.** Do you have any livestock? 1. Yes…… 2.No. …….

**Q.10.** If Yes, details and its use: _____

## F. DRINKING WATER

**Q.11.** What is the source of drinking water?

1. Municipal Tap Water…….2. Hand Pump ……..3. Self-Bore ……

4. Water carrier/Tanker……..5. Spring ……. 6. Stream ……..

**Q.29.** Does your family have any dispute with others?

1. Yes……. 2. No ……..

**Q.30.** If yes, Nature of dispute _____

**Q.31.** Which type of conflict resolution mechanism mostly adopted in this area?

1. Formal (Judiciary/Courts)…… 2. Informal (Jarga)…….

## RESETTLEMENT IMPACTS

**Q.39. DETAILS OF THE AFFECTED RESIDENTIAL STRUCTURE**

| Type of Structure | No. of Rooms | Size (ft) | | Total covered area | Type of Construction Material Used |
|---|---|---|---|---|---|
| | | Width | Length | | |
| | | | | | |
| | | | | | |
| | | | | | |

**PESHAWAR SOUTHERN LINK ROAD PROJECT**

**ASSET INVENTORY AND DETAILS OF THE AFFECTED COMMERCIAL STRUCTURE**

| RD or Location/ Village | Name of Structure | Size (ft) | | Total covered area | Type of Construction P,SP,K |
|---|---|---|---|---|---|
| | | Width | Length | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## PESHAWAR SOUTHERN LINK ROAD PROJECT

## DETAILS OF THE AFFECTED COMMUNITY/PUBLIC STRUCTURE

| RD or Location/ Village | Name of Structure | Size (ft) | | Type of Construction P, SP, K * |
|---|---|---|---|---|
| | | Width | Length | |
| | | | | |
| | | | | |
| | | | | |

***P= Pacca, SP= Semi-Pacca, K= kacha**

## ANNEXURE XVIII. QUESTIONNAIRE FOR VILLAGE PROFILE DATA

Date ---------- ID#---------- Photo No ----------

1. Location/name of the Proposed project:

Mouza/killi _____

Tehsil_____ .District_____
Total Households: _____
Total Population: _____(i) Male_____ (ii) Female_____( Verify from DCR)

4. Type of Construction: (i). Katcha _____ (ii). Semi Pacca _____(iii). Pacca _____
5. Type of Family: (i). Nuclear _____ (ii). Joint _____
6. Local Status (Nos): Local _____ (ii) Migrant _____ (iii) Indigenous_____
7. Languages Spoken in the Killi:

Pashto_____ Saraiki_____ Urdu_____ Other _____

8. Major Castes and Ethnic Groups in the Killi:

| Sr. No | Caste/Ethnic Group | Households |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |

9. Vulnerable Population:

(i). Widows_____ (ii). Handicapped_____ (iii) Below Official Poverty Line (OPL) _____

10. Religion:

| Sr. No. | Religion | Households (Nos.) | Percent |
|---|---|---|---|
| 1 | Muslims | | |
| 2 | Christians | | |
| 3 | Other (specify) | | |

11. Physical Accessibility:

Metalled road: _____kms. (ii). Unmetalled road: _____ km.
Means of transport: _____
Nearest Grain Market: _____ km.
Nearest Agri. Market Centre: _____ km.
Agricultural inputs availability: _____ km.
Nearest Agriculture extension office: _____ km.

12. Source of Drinking Water:

(i) Hand pump _____ (ii) Well _____ (iii) Tapped water (Govt.) supply _____ (iv)Any other (specify) _____

13.Mode of Irrigation:

( i) Canal _____ ( ii) Tube well _____ (iii) Well _____ (iv) Rain _____
( v) Canal + TW _____ (vi) Any other (specify). _____

14. What is the depth of water table? _____ (ft.)

14.1 Is ground water fit for irrigation? (i) Yes._____ (ii) No._____

15.Institutional Facilities:

| Sr. No | Facility | Yes | No | Performance |
|---|---|---|---|---|
| 1 | Hospital | | | |
| 2 | Dispensary | | | |
| 3 | BHU/RHU | | | |
| 4 | Private Practitioner | | | |
| 5 | Veterinary Dispensary | | | |
| 6 | Artificial Semination Center | | | |
| 7 | Post Office | | | |
| 8 | Bank | | | |
| 9 | Police Station/Post | | | |
| 10 | Any other (specify) | | | |

15.1 What options are available in case of emergency?

_____

15.2 Common Diseases:

(i). Children related: _____

(ii). Women related: _____

(iii). Men (adult) related: _____

16. Educational Institutions in the Project Area:

16.1 Educational Attainment: (Nos)

| Sr. No | Facility | | Yes | No | Distance | Performance |
|---|---|---|---|---|---|---|
| 1 | Primary School | Boys | | | | |
| | | Girls | | | | |
| 2 | Middle School | Boys | | | | |
| | | Girls | | | | |
| 3 | High School | Boys | | | | |
| | | Girls | | | | |
| 4 | Dini Madrassa | Boys | | | | |
| | | Girls | | | | |
| 5 | Inter College | Boys | | | | |
| | | Girls | | | | |
| 6 | Degree College | Boys | | | | |
| | | Girls | | | | |

| Education | Male | Female | Total |
|---|---|---|---|
| Post Graduates | | | |
| Graduates | | | |
| Intermediate | | | |
| Metric | | | |
| Total: | | | |

17 . Civic Facilities:

| Sr. No | Facility | Yes | No | Performance |
|---|---|---|---|---|
| 1 | Water Supply | | | |
| 2 | Lined Drainage System | | | |
| 3 | Sewerage System | | | |
| 4 | Electricity | | | |
| 5 | Telephone (lined/mobile) | | | |
| 6 | Grocery Shops | | | |

| | | | | |
|---|---|---|---|---|
| 7 | Medical Stores | | | |
| 8 | Any other (specify) | | | |

18. Cultural and Religious Properties.

(i)Mosque: yes____ No ____ (ii) Shrine: yes _____ No _____ iii) Urs/Mela: yes _____ No_____

(iv) Archaeological site: yes _____ No _____ (v) Any other, specify: _____

19. Occupational Status:

| S. No. | Occupation | Households | Percent |
|---|---|---|---|
| 1 | Farming | | |
| 2 | Govt. Service | | |
| 3 | Private Service | | |
| 4 | Own Business | | |
| 5 | Any other (specify) | | |

20. Income:

Average farm income/ crop season ( 6 months) per household:_____

Average off-farm income per/month of household:_____

21. Tenure Status:

(i). Owner_____(ii). Owner cum Tenant_____ (iii). Share Cropper _____ (iv). Cash Leases _____

22. Main Crops:

(i). Rabi (1) _____ (2) _____(3) _____ (4)_____

(iii). Kharif (1) _____ (2) _____ (3) _____ (4)_____

23. Orchards:

| Sr. No | Type of Orchards | Area |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |

24. Gender Component:

(i) Do women participate in agriculture activities? . Yes _____No_____

if yes (specify) _____

(ii) Women participation in Income generating activities? Stitching ____ Embroidery____ Any other_____

25. Leadership Pattern:

28.1 Who are the influential in the killi? _____

28.2 How important issues and disputes of the killi are settled?

Panchayat. _____ Head of tribe/ Jirga _____ Police / Court. _____ Any other (specify) _____

26. Migration Pattern:

26.1 Did there any migration occurred in killi during last year?

Yes_____ No _____ if yes number of households:_____

26.2 Did there any migration-out occurred in the killi during last year?

Yes___ No _____ if yes number of households:_____ Destination:_____

Reason of migration out _____

27. What are the prevailing Av. Rates of Land per Kanal in your Area?

Residential _____ Grazing Land _____ Cultivated _____
Waste Land _____ Cultivable Waste _____
Other_____
27.1 Average labor rate per day. Unskilled _____Skilled _____
Agri. Laborer Permanent _____ Seasonal _____

28. What do you think about Project Impacts on your Area?

| Possible impacts/effects of the Project | - tive | + tive |
|---|---|---|
| Price of Agriculture Land | | |
| Agriculture Production | | |
| Employment opportunities | | |
| Industrial Development Opportunities | | |
| Living standard | | |
| Education | | |
| Agro-based Industry | | |
| Income generating activities | | |
| Other specify | | |

Name of Interviewer: _____ Signature _____Date _____

Meeting Place:_____

List of Participants of Killi _____

| Sr. No. | Name | Father's Name | Occupation | Education | Sign/Thumb |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## ANNEXURE XIX. FOCUS GROUP DISCUSSION

**Identification:** Date_____

Village: _____Union Council: _____

Tehsil: _____ District: _____

Location/KM of SLR_____

**1- Introduction:**
**:**_____

_____

_____

**2- Impacts of the Project**

**What types of impacts do you expect due to construction of link road in your area**?

_____

_____

_____

_____

**3- Question & Response**

| Question | Response |
|---|---|
| | |
| | |

**4- General Remarks & Suggestion of the Participants:**

_____

_____

**5- General Observations:**

_____

Conducted By:

Name:---------- Sign.----------

## List of Participants

| Sr. No. | Name | Occupation | Signature/ Thumb |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

## ANNEXURE XX. LABOR MANAGEMENT PLAN (LABOR WORKING CONDITIONS)

(As separate document/deliverable of ESIA report)

# ANNEXURE XXI. STAKEHOLDER CONSULTATION REPORT

(As separate document/deliverable of ESIA report)

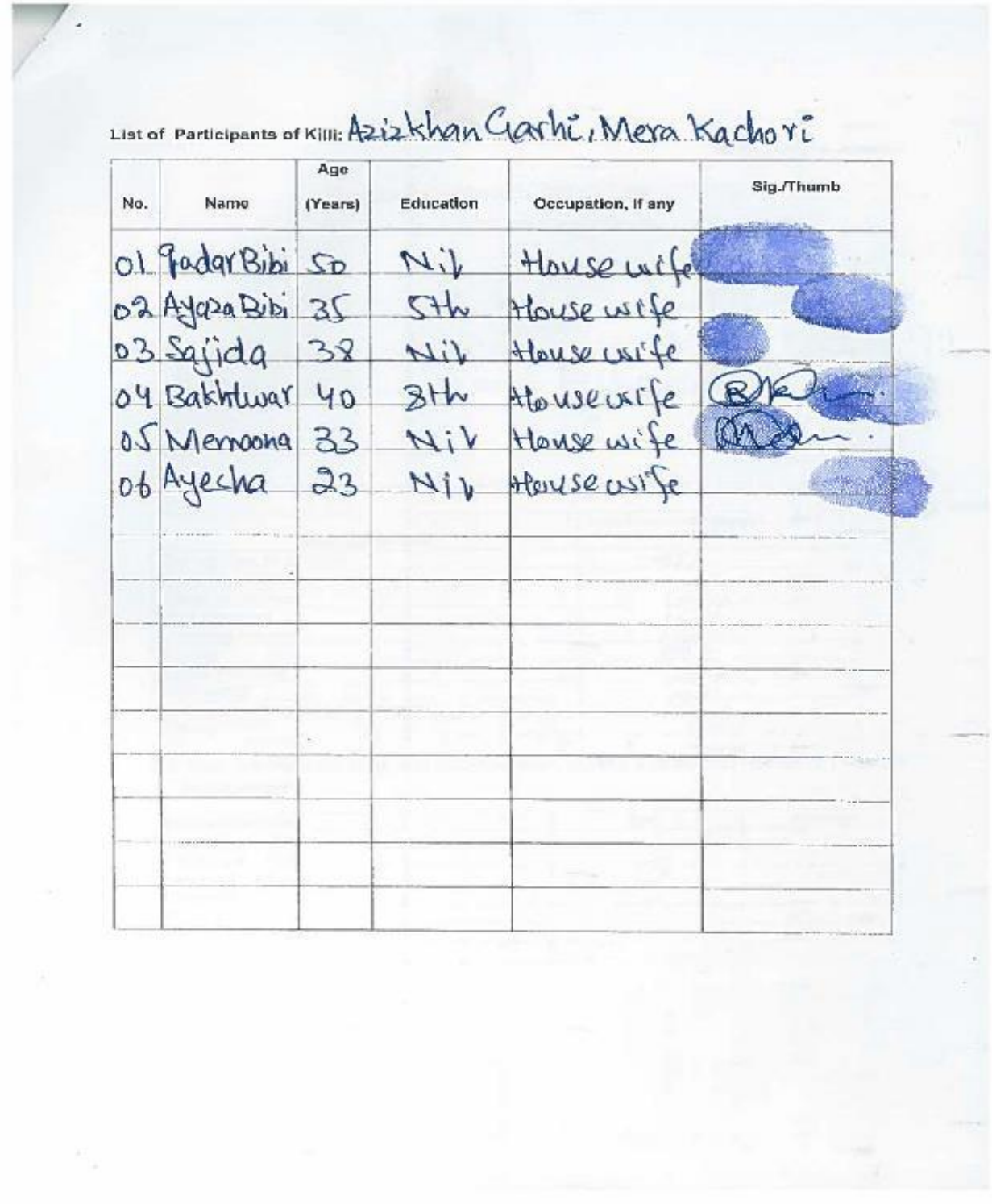
## ANNEXURE XXII. ATTENDANCE OF FEMALE PARTICIPANTS

### 1-Tarnab Farm/Jabba:

List of Participants of Killi: Tarnab farm, Jabba

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Ambareen | 27 | F—A | House wife | Amb. |
| 02 | Sana | 23 | F.A | House wife | |
| 03 | Jan Pari | 60 | Nil | House wife | |
| 04 | Shamshulwara | 45 | Nil | House wife | |
| 05 | W/O Hameed | 42 | Nil | House wife | |
| 06 | D/O Diggat Ali | 30 | Nil | " | |

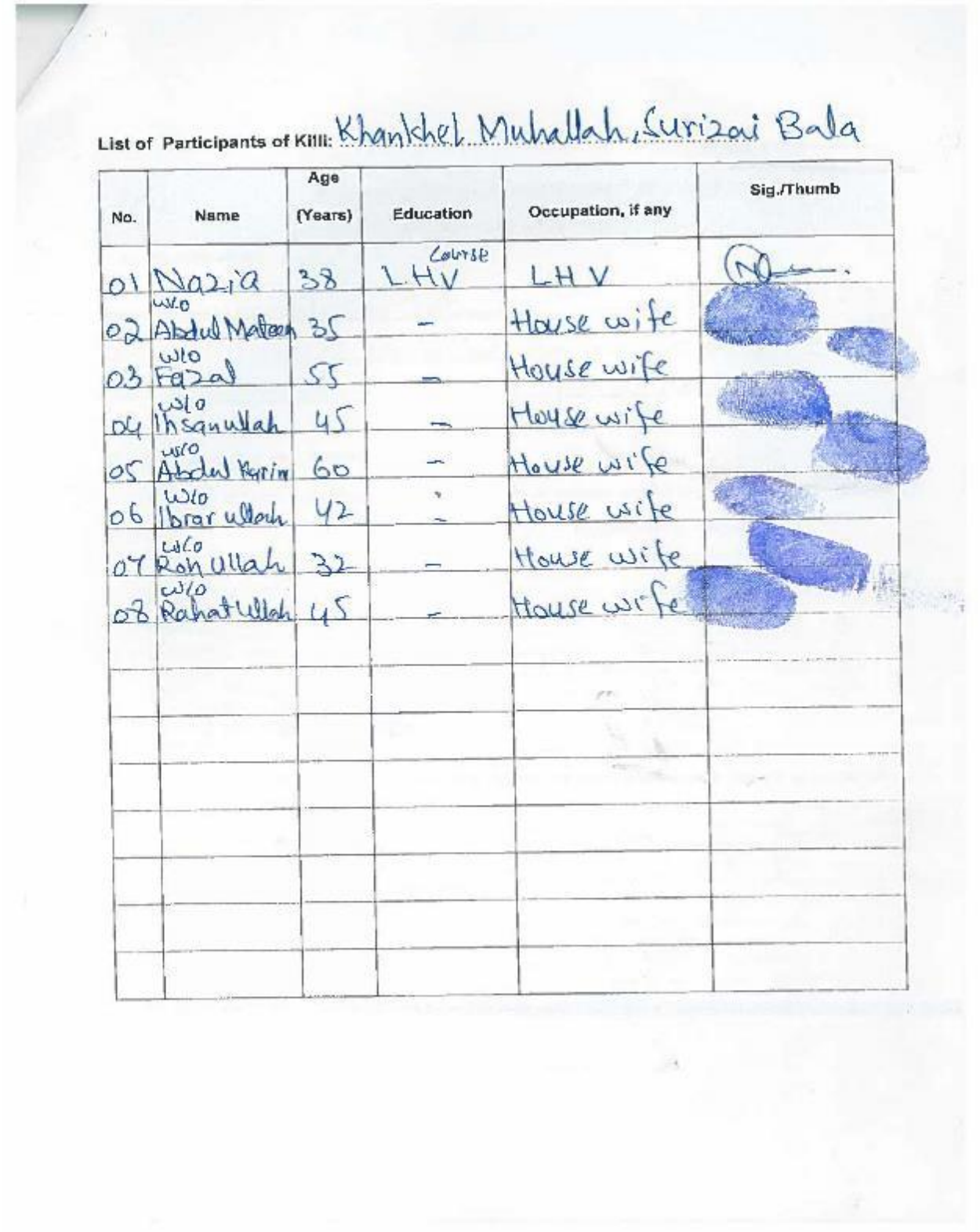
**2-Aziz Khan Garhi, Mera Kachori:**



List of Participants of Killi: Azizkhan Garhi, Mera Kachori

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Qadar Bibi | 50 | Nil | House wife | |
| 02 | Ayaza Bibi | 35 | 5th | House wife | |
| 03 | Sajida | 38 | Nil | House wife | |
| 04 | Bakhtwar | 40 | 8th | House wife | |
| 05 | Memoona | 33 | Nil | House wife | |
| 06 | Ayesha | 23 | Nil | House wife | |

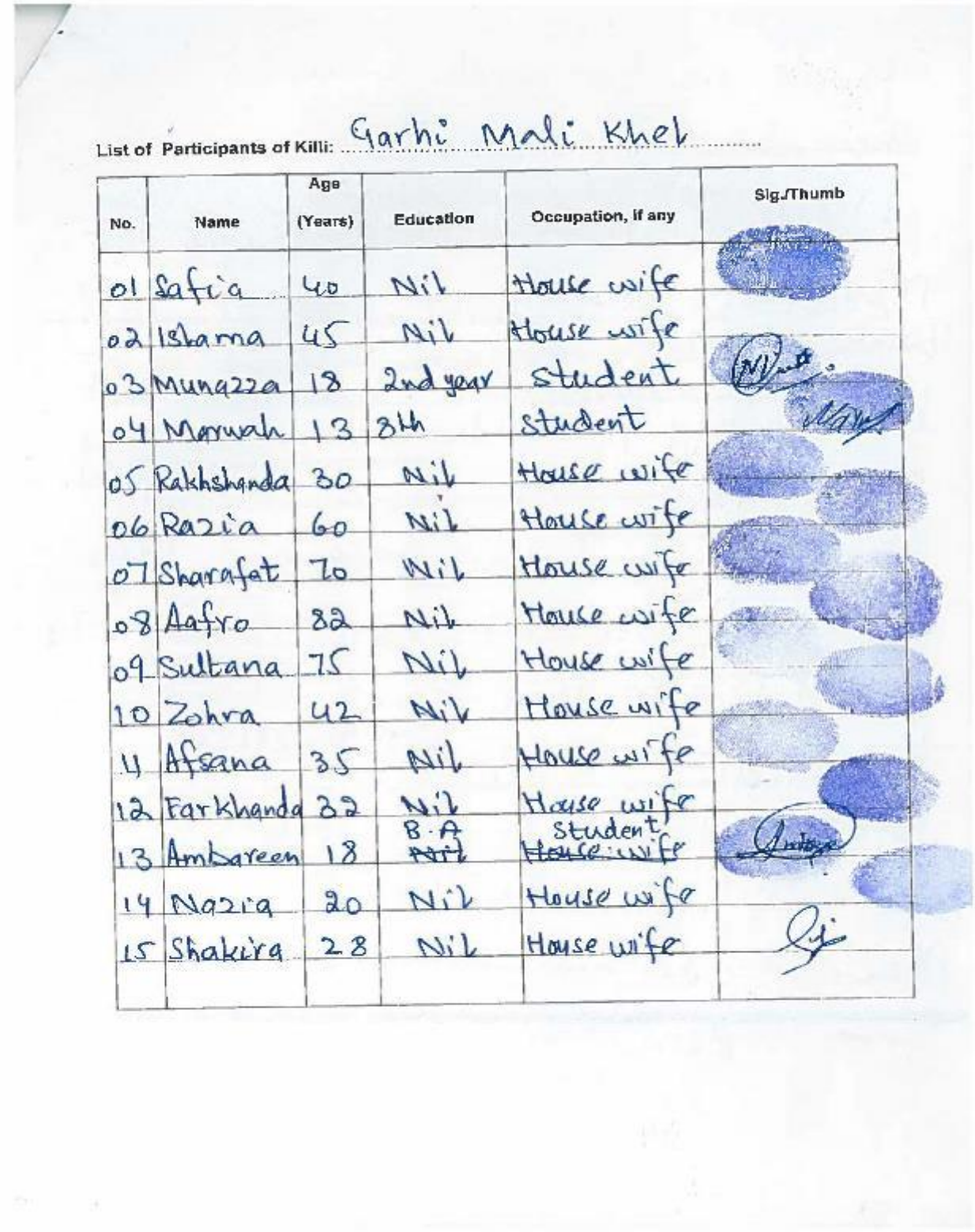
**3-Khankhel Mohallah, Surizai Bala:**



List of Participants of Killi: Khankhel Muhallah, Surizai Bala

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Nazia | 38 | L.HV Course | L.H.V | |
| 02 | W/O Abdul Mateen | 35 | - | House wife | |
| 03 | W/O Fazal | 55 | - | House wife | |
| 04 | W/O Ihsanullah | 45 | - | House wife | |
| 05 | W/O Abdul Karim | 60 | - | House wife | |
| 06 | W/O Ibrar ullah | 42 | - | House wife | |
| 07 | W/O Rohullah | 32 | - | House wife | |
| 08 | W/O Rahatullah | 45 | - | House wife | |

**4-Garhi Mali Khel:**



List of Participants of Killi: Garhi Mali Khel

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Safi'a | 40 | Nil | House wife | |
| 02 | Ishama | 45 | Nil | House wife | |
| 03 | Muna22a | 18 | 2nd year | student | |
| 04 | Marwah | 13 | 8th | student | |
| 05 | Rakhshanda | 30 | Nil | House wife | |
| 06 | Razi'a | 60 | Nil | House wife | |
| 07 | Sharafat | 70 | Nil | House wife | |
| 08 | Aafro | 82 | Nil | House wife | |
| 09 | Sultana | 75 | Nil | House wife | |
| 10 | Zohra | 42 | Nil | House wife | |
| 11 | Afsana | 35 | Nil | House wife | |
| 12 | Farkhanda | 32 | Nil | House wife | |
| 13 | Ambareen | 18 | B.A ~~Nil~~ | Student ~~House wife~~ | |
| 14 | Nazia | 20 | Nil | House wife | |
| 15 | Shakira | 28 | Nil | House wife | |
| | | | | | |

## 5-Afridi Road/Badabher:

List of Participants of Killi: Afridi Road.

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Khybera | 60 | Nil | House Wife | |
| 02 | Mrs. Shaukat | 35 | Nil | House wife | |
| 03 | Saima | 18 | 10th | student | |
| 04 | Mrs. Islam | 50 | Nil | House wife | |
| 05 | Badama | 60 | Nil | House wife | |
| 06 | Razia | 40 | Nil | House wife | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**6-Masho Gaggar:**

List of Participants of Killi: Mashogaggar

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Yasmin | 25 | Nil | House wife | |
| 02 | Salma | 30 | Nil | House wife | |
| 03 | Ravelka | 35 | Nil | House wife | |
| 04 | Shagafta | 45 | Nil | House wife | |
| 05 | Sabahat | 32 | Nil | House wife | |
| 06 | Asia | 28 | Nil | House wife | |

## 7-Mushtarzai:

List of Participants of Killi: Mushtarzai

| No. | Name | Age (Years) | Education | Occupation, If any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Shamim | 60 | Nil | House wife | |
| 02 | Nazia | 32 | Nil | House wife | |
| 03 | Aqal Meena | 33 | Nil | House wife | |
| 04 | Qadar Meena | 50 | Nil | House wife | |
| 05 | Akhtar | 60 | Nil | House wife | |
| 06 | Farhad Bibi | 42 | Nil | House wife | |
| 07 | Basreena | 40 | Nil | House wife | |
| 08 | Jano | 65 | Nil | House wife | |
| 09 | Noor Bibi | 60 | Nil | House wife | |
| 10 | Niaz Bibi | 65 | Nil | House wife | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## 8-Ghareebabad:

List of Participants of Kili: Ghareebabad

| No. | Name | Age (Years) | Education | Occupation, if any | Sig./Thumb |
|---|---|---|---|---|---|
| 01 | Noor Jahan | 50 | nil | House wife | |
| 02 | Sahira | 42 | nil | House wife | |
| 03 | Shakeela | 35 | nil | House wife | |
| 04 | Muntanifa | 50 | nil | House wife | |
| 05 | Hameeda | 55 | nil | House wife | |
| 06 | Ilahi Jan | 60 | nil | House wife | |
| 07 | Rahida | 19 | nil | House wife | |
| 08 | Sadaqa | 26 | nil | House wife | |
| 09 | Ayesha | 23 | nil | House wife | |
| 10 | Tahira | 28 | nil | House wife | |
| 11 | Safia | 20 | nil | — | |
| 12 | Hajmeena | 35 | nil | House wife | |
| 13 | Asia | 40 | nil | House wife | |
| 14 | Amreena | 18 | nil | House wife | |
| | | | | | |
| | | | | | |