SITE-SPECIFIC ENVIRONMENT MANAGEMENT PLAN (SSEMP)

Loan 4099-Pak: Central Asia Regional Economic Cooperation [CAREC) Corridor Development Investment Program – Tranche-II Project

Contract No.: OCB/CAREC/T-II: Construction of Additional Carriageway from Shikarpur to Rajanpur of N-55 (221.95 Km) Under One Package Comprising Four Lots

Tranche-II: LOT - 1: Shikarpur- Kandhkot Section (Total Length 62.42 km)

Funding Agency: Asian Development Bank (ADB)

Executing Agency:

- Project Management Unit (PMU) – Head office
- Project Implementation Unit (PIU) - CAREC/T-II (National Highway Authority (NHA))

Project JV Consultants:

- Minconsult Sdn. Bhd-Malaysia (Lead Firm)
- Ali & Associate Pvt. Ltd
- Creative Engineering Consultant
- Associate Consulting Engineers
- AA Associate (Pvt)
- Associated Consultancy Center

Project Contractor: **ZAHIR KHAN & BROTHERS (ZKB)**

Dated: January, 2024

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ABBREVIATIONS

ADB	Asian Development Bank
CO	Carbon monoxide
dB	Decibels (A measure of audible noise)
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
ERC	Emergency Response Coordinator
ERT	Emergency Response Team
ES	Environment Specialist
GOP	Government of Pakistan
GRM	Grievance Redress Mechanism
HSE	Health, Safety and Environment
ICB	International Competitive Bidding
KM	Kilometer
L/S	Left Side
SDS	Safety Data Sheet
NOC	No Objection Certificate
NO_x	Oxides of Nitrogen
PD	Project Director
SEQS	Sindh Environmental Quality Standards
PM	Project Manager
NHA	National Highway Authority
$PM_{2.5}$	Particulate Matter of 2.5 micron
PM_{10}	Particulate Matter of 10 microns
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
ROW	Right of Way
RD	Reduce Distance
RE	Resident Engineer
R/S	Right Side
RTA	Road Traffic Accidents
SC	Supervision Consultant
SPM	Suspended Particulate Matter
SSEMP	Site Specific Environmental Management Plan
SOx	Oxides of Sulphur
SWMP	Solid Waste Management Plan
TBT	Tool Box Talk
EA	Executing Agency
OHS	Occupational Health & Safety
ES	Environmental Specialist
DDR	Due Diligence Report

1 INTRODUCTION

1. The site-specific environmental management plan (SSEMP) for the construction of additional carriageway from Shikarpur-Kundhkot of N-55, Lot-1 (km 43+400 to km105+820) identifies the principles, approach, procedures and methods, that will be used to control and minimize the environmental and social impacts of all construction and operational activities associated with this project.
2. This document contains the overview of the SSEMP and the details of measures, which would be included in SSEMP. The mitigation measures of each specific condition have also been addressed in this document.
3. Through the National Highway Authority (NHA) of Pakistan, Government of Pakistan plans to implement CAREC Corridor Development Investment Program with the financial assistance from ADB through a Multi-tranche Financing Facility (MFF).
4. The subproject, construction of additional 2 lane along the existing 2 lane carriageway of N-55 from Shikarpur to Kundhkot (Lot-1) of Tranche 2 is located in the administrative jurisdiction of Sindh Province of the Islamic Republic of Pakistan.
5. In compliance with the ADB SPS 2009, the contractor is liable to submit the site- specific environment management plan before the start of the project activities.

1.1. Location of the Project

6. The project area starts from longitude 27°58'09.9"N 68°38'32.2"E Shikarpur (Sindh Province) and ends at longitude 28°13'34.6"N 69°10'12.1"E in Kundhkot, Sindh. The figure 1-1, 1-2 & 1-3 below shows the project location map of Lot-1 (Shikarpur to Kundhkot section).

Figure 1-1: Project Location Map of Lot 1 Shikarpur to Kundhkot section

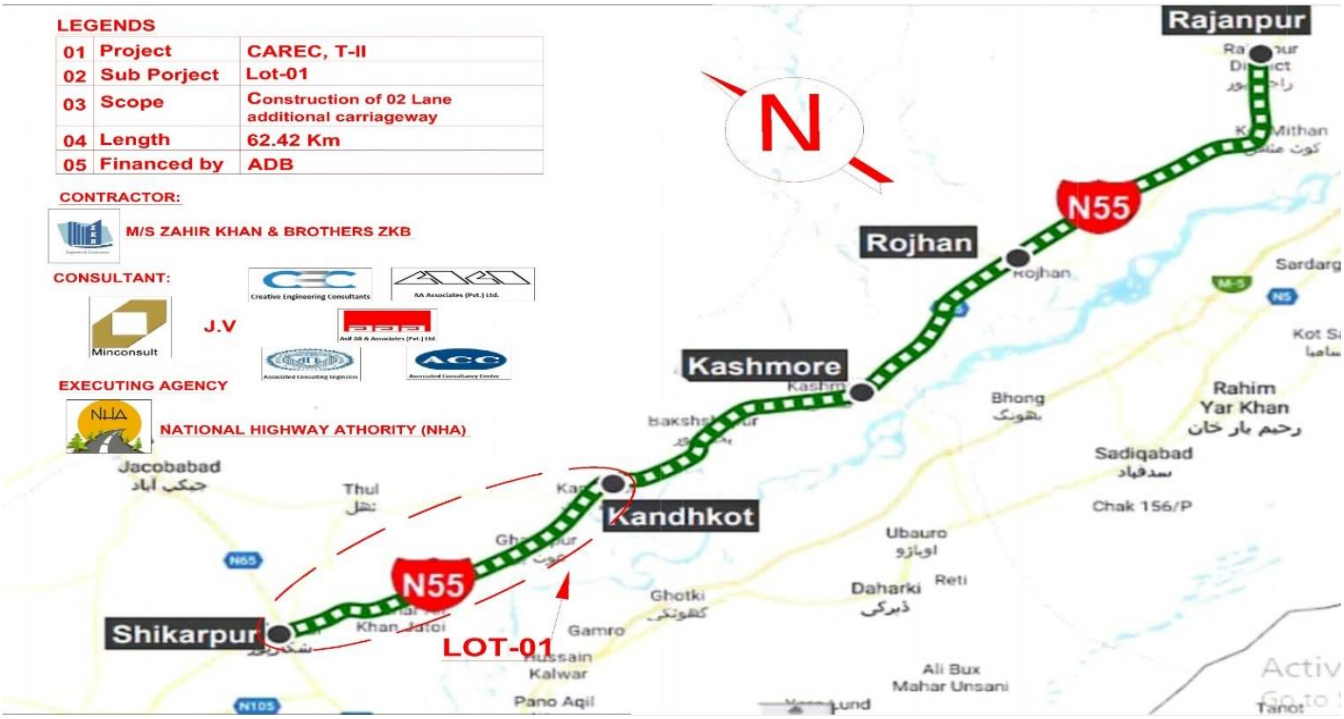


Figure 1-2: Project location Map of Lot 1 Shikarpur to Kundhkot

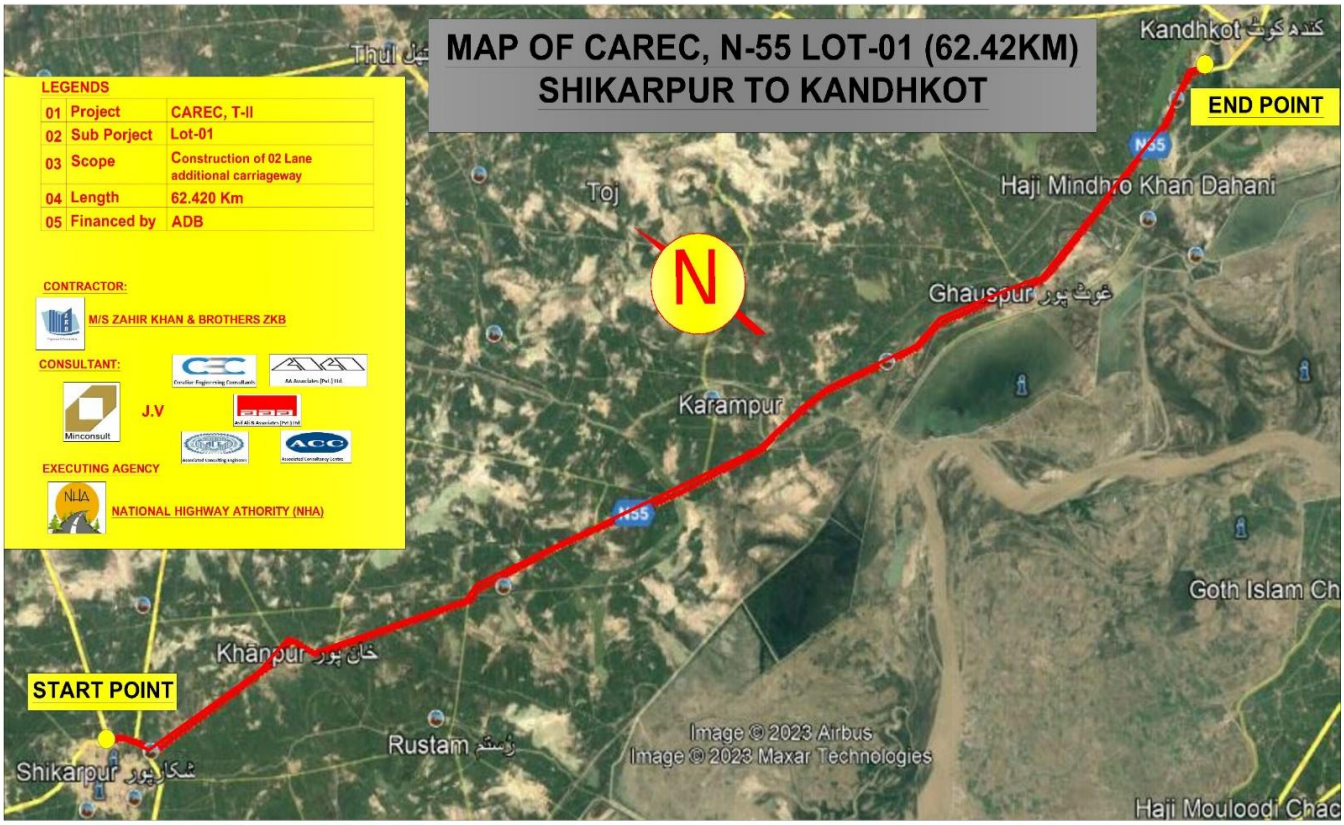


Figure 1-3: Project location Map of Lot 1 Shikarpur to Kundhkot

1.1 Donor Agency

7. The Asian Development Bank (ADB) is the financing agency for the CAREC/T-II, subproject Lot-1.

1.2 Project Administration

8. The comprehensive management plan for CAREC, Tranche-II, sub-project Lot-1 is outlined as follows:

"Executing Agency Details

9. Tranche-II, Lot 1 (Shikarpur-Kundhkot Section) subproject is being managed by the National Highway Authority (NHA) through the PIU, serves as the Executing Agency (EA) on behalf of the Government of Pakistan as shown in table 1-1.

Table 1-1: Correspondence Details of Executing Agency

Executing Agency Details	Information
Name of EA	National Highway Authority (NHA) Ministry of Communications of Pakistan. (Federal Government of Pakistan)
Head Office Address	28 Mauve Area, Sector G-9/1, Kashmir Highway, Service Road South, G 9/1 G-9, Islamabad.
Project office: Site office Address	NHA site office in Kundan Society near Shikarpur Toll Plaza

1.1.1 Construction Supervision Consultants

10. The Construction Supervision Consultant is a joint venture of various engineering firms as given in table 1-2. M/s Minconsult Sdn. Bhd-Malaysia is the lead firm that will serve as supervision consultants for the instant project.

Table 1-2: Correspondence Details Supervision Consultant

Supervision Consultant	Information
Name of Consultants	M/s Minconsult Sdn. Bhd-Malaysia (Lead Firm) JV of • Asif Ali & Associate Pvt.Ltd (AAA), • Creative Engineering Consultant (CEC), • Associate Consulting Engineers (ACE), • AA Associate Pvt Ltd & • Associated Consultancy Center (ACC) Pvt Ltd.
Project Address	Apartment # 12, Al-Safa Heights 2Street No. 73 Sector F-11/1, Islamabad
Site office Address	Office of the NHA in Kundan Society near Shikarpur Toll Plaza

1.2.3. Project Contractor

11. M/S Zahir Khan & Brothers (ZKB) Company has been awarded the contract for construction of subproject Lot-1. The construction contractor (ZKB) contact details are provided below in table 1-3

Table 1-3 Contractor Contact Details

Contractor s	Information
Name of Contractor	Zahir Khan & Brothers (ZKB)
Head office Address	Plot No-44 Street-11 I-9/2, Islamabad.
Telephone	Tel: +92-514444533 & 555
Project Site Office (LOT-1)	ZKB Camp, Near Rizwan Gul Burai Petroleum Service Faizoo Laro Parco Station Teh Khanpur Distt Shikarpur Sindh

1.2 Requirements of SSEMP

11. Under the contractual obligations, the contractor of the sub-project is liable to submit a site-specific Environmental Management plan for mitigations of environmental impacts of the project
12. This SSEMP has been developed to ascertain the identification of all requisite measures and the contractor's dedication to their implementation for environmental protection and compliance with the following:
    a. ADB SPS 2009
    b. Environmental legislations of Sindh Environmental Protection Act 2014
    c. Environmental Assessment IEE/EIA Regulation 2022 and the Sindh Environmental Quality Standards (SEQS),
    d. WHO/WB EHS Guidelines for Health and Safety

1.2. Aims and Objectives of SSEMP

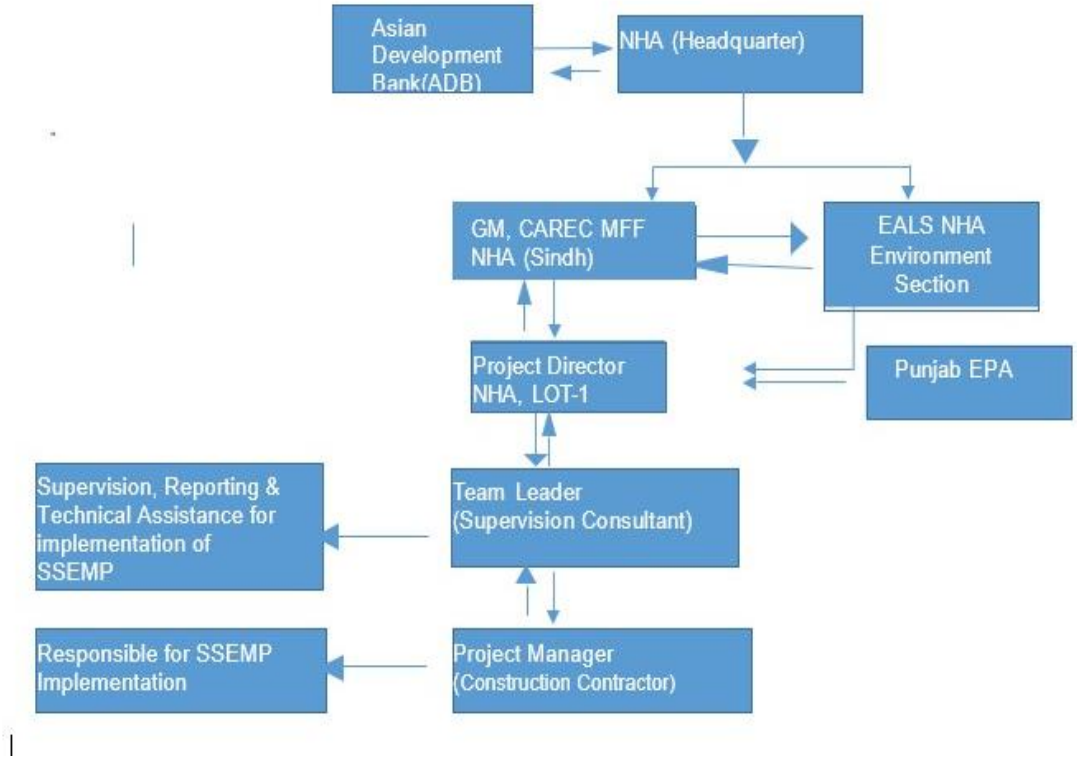
12. For the key players involved, the project management unit representing, the Employer (NHA) PMU, Project Implementation Unit (PIU), CSC and the Contractor of the sub-project. this SSEMP will provide a guide on
    i. Risks identification, evaluation and Assessment
    ii. Mitigation measures need to be taken, and
    iii. When and where they are needed to be invoked.
    iv. Implementation, monitoring and evaluating the plans
    v. Thus, it will help in mitigating adverse impacts associated with the project execution which ultimately results in maximizing project benefits.
13. Following are the core objectives of SSEMP
    a) Identify the potential negative environmental impacts that can result from the construction activities and identify measures to control or avoid these impacts.
    b) Outline specific roles and responsibilities of project staff related to environmental management and mitigation measures.

c) Take actions and conduct monitoring to show the compliance with Provincial, National, International legislative requirements and ADB Safeguard Policy Statement 2009.
d) Avoid or reduce negative impacts on the nearby community (if any) and maintain amicable relationship between local communities and camp residents.
e) Maintain good standards for worker welfare and living conditions at the camp that provide a healthy, safe and comfortable environment.

1.3 Administration of SSEMP Implementation

14. Copies of this SSEMP will be kept at the site office and will be distributed to all senior project officers i.e., Project Manager, Construction Managers, OHS/EHS Managers and site engineers, RE etc. All senior officers will be required to understand and familiarize themselves with the contents of this document

Figure 1-3: Organizational Arrangement for SSEMP Administration



1.4 Institutional Arrangements for implementation of SSEMP

15. The effective execution of the SSEMP relies on engaging multiple stakeholders, each playing a distinct yet crucial role in ensuring robust environmental management and compliance throughout the construction phase. The specific responsibilities of key organizations/individuals are outlined below.

1.4.1 Asian Development Bank (ADB)

- The Bank team's responsibilities include:
  Periodically verifying the SSEMP compliance in coordination with NHA/PIU.
- Conducting periodic site visits and supervision missions for detailed review in projects with significant impacts.

- Reviewing periodic safeguard monitoring reports to ensure planned compliance.
- Addressing grievances, especially those received directly by ADB.
- Concurrence of the SSEMP/IEE report
- Review concurrence and disclosure of the semiannual environmental monitoring reports.

1.4.2 EALS (NHA)

16. The NHA (EALS) operates a distinct environmental section overseen by the Deputy Director Environment to manage environmental tasks comprehensively, guiding project preparation, construction, and maintenance work. Institutions involved for the executing of SSEMP would involve: EALS (NHA) Environmental Unit and PIU headed by (GM) CAREC-MFF.

17. The responsibilities of EALS, NHA as a borrower include:

- The NHA collaborates with the donor agency (ADB) to ensure the efficient execution of the SSEMP.
- Facilitate, coordinate, and provide support to ensure compliance with safeguard requirements.
- Develop and ensure the effectiveness of internal and external monitoring mechanisms.
- Guarantee the efficient and effective operation of the Grievance Redressal Mechanism (GRM) across all (Lot-1) tiers.
- Update/Review IEEs/SSEMPs as necessary.
- Conduct field inspections to verify project implementation findings.
- Prepare Corrective Action Plans and monitor their implementation.
- Maintain collaboration with other relevant departments and stakeholders.
- Ensure the Project Implementation Unit (PIU) submits regular project progress reports to the ADB, including a separate safeguards chapter.
- Report to the Environmental Protection Agency (EPA) as required for the NOC (No Objection Certificate).
- Provide annual reports to the ADB, or more frequently if new issues arise or sensitivities occur.

1.4.3 Project Implementation Unit (PIU)

18. The General Manager (GM) of CAREC serves as the head of the PIU, and the Project Director within the PIU is responsible for ensuring the timely implementation of policies on the sub-project (Lot-1).

- Supervision and efficient monitoring the implementation of SSEMP
- Establish regular reporting by supervision consultant and contractor and environmental safeguard as a part of progress report

- Undertaking regular visits to project sites and report to the PMU/Bank on the status and any new / unexpected issues
- Follow up with contractors and consultants on environmental compliance and ensure its enforcement
- Submission of semi – annual monitoring reports to NHA (EALS) head office for review and onward submission to ADB

1.4.4 Construction Supervision Consultant (CSC)

19. The Chief Resident Engineer (CRE) acts as the "Team Leader" of the construction supervision consultant, while Deputy Team Leader along with their team (RE, ARE, Environmental staff) will supervise the Project Contractors to ensure quality of work and fulfillment of contractual obligations. The environmental specialist within the construction supervision consultant is tasked with ensuring the implementation of safeguard policies for the Lot-1 sub-project.

20. Environmental Specialist of CSC would be responsible for:

- Review and endorsement of SSEMP, and giving the input, if required, to assist contractor
- Review of monthly and quarterly environmental monitoring reports by the third-party contractor (Labs)
- Overseeing the execution of SSEMP and providing assistance to contractors to ensure environmental compliance.
- Checking and endorsement of environmental part of method statements
- Preparing the training material and assist or providing the training
- Addressing environmental incidents/accidents which have been reported.
- Grant approval for all facilities (establishment of camp, asphalt and batching plants, borrow areas) in light of the SSEMP requirements.
- Overall responsible for the monitoring and supervision of the environmental safeguards including Environment, Health and Safety, Traffic Management plan (TMP), Covid 19 measures, etc.
- Prior to construction, review and update SSEMPs, TMP prepared by the contractor
- Ensure the hygienic requirements of contractor's camps.
- Preparation of quarterly and semi-annual environmental monitoring reports and submission to PIU

1.4.5 Contractor

21. The Project Manager and Environmental Specialist of the construction contractor are accountable for directly ensuring the implementation of safeguard policies for the sub-project (Lot-1).

22. The contractor Environmental Specialist will be responsible for:

- Implementation of environmental mitigation measures at preconstruction and construction stage

- Drafting the SSEMP outlining the procedure for compliance and seeking approval from the CSC Environmental unit and PIU/PMU Environmental unit before project mobilization.
- Frequent monitoring and reporting of compliance of SSEMP

23. The OHS Manager of contractor with assistance of his team shall perform following duties.

- Daily inspection of all workplace areas and make sure the safe execution of the ongoing activities.
- Ensure that hygienic food is served to the labor
- Ensure proper living facilities have been provided to labor and staff at site.
- Ensure proper disposal of waste water and sludge.
- Ensure Water Sprinkling water at all the time to suppress the dust emission.
- Conduct trainings and internal audits with the Contractor staff to minimize the non-compliances.
- Conduct quarterly Environmental Monitoring as per monitoring schedule given in later sections of the SSEMP.
- Ensure proper solid waste collection and disposal.
- Filling of compliance monitoring checklist.
- Preparation of Monthly and weekly Environmental Monitoring/HSE Progress Reports and onward submission to the Consultant.
- Address health issues and disposal of medical waste.
- Address social complaints and maintaining record of these complaints.
- Conduct periodic meetings/consultations with Grievances Redressal Cell.
- Keep record of any oil/water spillage/leakage and to adopt necessary mitigation measures.

2 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

24. This section provides an overview of the regulatory requirements and policy framework national and provincial legislation that applies to this subproject. The contractor will ensure the compliance of these regulatory bindings during the sub-project implementation.

2.1 Applicable Regulatory Requirements

25. The applicable regulatory requirements both national and international for the sub-project are listed below table 2-1:

Table 2-1: Summary of Applicable Laws, Policies and Conventions

Applicable Laws, Rules, Policies & Standards	Regulatory Details	Relevance with the subproject
ADB Policy and Operation Manuals		
Safeguard Policy Statement	To ensure environmentally and socially sustainability in projects supported by ADB. ADB does not finance any project that don't comply with ADB Policy and National Laws of Developing Members Countries (DMCs)[3]	The subproject will comply the ADB SPS 2009 requirements during its implementation.
National Laws & Policies		
Sindh Environmental Protection Act 2014	Provide protection, conservation, rehabilitation and improvement of the environment for prevention and control of pollution and sustainable development.[5]	The sub-project will comply the requirements of provision of these clauses of the Sindh act 2014 during its implementation.
Sindh Environmental Quality Standards	maximum allowable discharge limits for Air, noise, water and wastewater.8	The subproject will comply the requirements of this law during its implementation
Labor Laws (Amended) Ordinance, 1972/ Occupational health and Safety Law	Construction and operational activities can affect the occupational health of the workers. Through this law the	The subproject will comply the requirements of this law during its implementation
Highway Safety Ordinance	This ensures safe driving on highways to maintain safety on the highways for protecting human lives and property.	The subproject will comply the requirements of this law during its implementation

2.2 Applicable Environmental Quality Standards

26. The applicable provincial and international standards (extracted after comparison with various standards such as SEQS/WHO/USEPA) for ambient air, noise and drinking water quality levels are given in Table 2-.2, 2-3, 2-4. These most stringent standards will be compiled during the subproject implementation as given in below tables.

Table 2-2: Applicable Air Quality Standards

#	Pollutants	SEQS		USEPA	WB		
		Time Weighted average	Concentration standard	Time weighted average	Concentration standard	Time weighted average	Concentration standard
1	SO_2	-	-	-	-	24 Hours	20µg/m³
		24 hours	120 µg/m³	-	-	-	-
2	NO	Annual average	40 µg/m³	-	-	-	-
		24 hours	40 µg/m³		-	-	-
3	NO_2	Annual average	40 µg/m³	-	-	-	-
		24 hours	80 µg/m³			-	-
4	O_3	1 hour	130 µg/m³	-	-	-	-
		-	-	-	-	8 hours daily maximum	100µg/m³
5	SPM	Annual average	360 µg/m³	-	-	-	-
		24 hours	500 µg/m³	-	-	-	-
6	PM_{10}	-	-	-	-	1 year	20µg/m³
		-	-	-	-	24 hours	50µg/m³
7	$PM_{2.5}$	-	--	-	-	1 year	10µg/m³
		-	-	-	-	24 hours	25µg/m³
		1 hour	15 µg/m³	-	-	-	-
8	Lead	Annual average	1 µg/m³	-	-	-	-
		24 hours	1.5 µg/m³			-	-
9	CO	8 hours	5 mg/m³	-	-	-	-
		1 hour	10 mg/m³	-	-	-	-

Table 2.3: Comparison of Noise standards

#	Category of Area	SEQS		WB guidelines[14]		USEPA Standards[15]	
		Day Time	Night Time	Day Time	Night Time	Indoor	Outdoor
1	Residential Area	55	45	-	-	--	-
2	Commercial Area	65	55	-	-	-	-
3	Industrial Area	75	65	70	-	-	-
4	Silence Zone	50	45	-	-	-	-

Table 2.4: Comparison of Drinking Water Quality Standards

#	Parameters	SEQS (mg/l)	WHO (mg/l)	USEPA (mg/l)
Chemical Parameters				
1	Aluminium (Al)	< 0.2	-	-
2	Ammonium (NH3)	-	1.5	-
3	Antimony (Sb)	< 0.005	-	-
4	Arsenic (As)	≤ 0.05	-	-
5	Barium (Ba)	0.7	-	-
6	Boron (B)	0.3	-	-
7	Cadmium (Cd)	0.01	-	-
8	Chloride (Cl)	< 250	-	-
9	Chromium (Cr)	< 0.05	-	-
10	Copper (Cu)	2	-	-
11	Cyanide (CN)	< 0.05	-	-
12	Fluoride (F)	< 1.5	-	-
13	Iron (Fe)	-	0.3	-
14	Lead (Pb)		0.01	-
15	Manganese (Mn)		-	0.05
16	Mercury (Hg)	≤ 0.001	-	-
17	Molybdenum (Mo)	-	0.07	-
18	Nickel (Ni)	< 0.02	-	0.1
19	Nitrate (NO_3)	< 0.50	-	-
20	Nitrite (NO_2)		-	-
21	Selenium (Se)	0.01	-	-

22	Silver (Ag)	--	-	0.1
23	Sodium (Na)	-	-	20
24	Sulphate (SO_3)	-	-	250
25	Residual Chlorine	0.2-0.5	-	-
26	Zinc (Zn)	-	3.0	-
Physical Parameters				
27	Color	≤ 15 TCU	-	-
28	Taste	Non-	-	-
		Objectionable / Acceptable	-	-
29	Odor	Non-Objectionable / Acceptable	-	-
30	Turbidity	< 5 NTU	-	-
31	Total hardness	< 500 mg/l	-	-
32	TDS	< 1000	-	-
33	Ph	6.5-8.5	-	-
Biological Parameters			-	-
34	E-Coli	Must not be detectable in any 100 ml sample	-	-
35	Total Coliforms	Must not be detectable in any 100 ml sample	-	-

2.3 Penalties of Non-Compliance

2.3.1 Penalties of Non-Compliance

27. In case of any non-compliance regarding environmental and safety safeguards, the CSC shall be liable to impose the fine as per contract.

2.4 Data Recording and Maintenance

28. Standard format will be utilized for recording information during the environmental and other aspects monitoring. The Project data will include information regarding following aspects:

- Training Sessions for workers
- Staff deployment / local employment
- Non-compliance and Corrective actions
- Soil and land pollution
- Disposal of excavated material

- Disposal of waste
- Water resource
- Fuel oil and chemical spills
- Vegetation record
- Noise pollution
- Air and dust pollution

2.5 Meetings

29. The following environmental meetings during the Project will take place. Primary meeting will be done for setting out the requisite end frame sounding for the regular meetings. Scheduled meetings between Contractor and Supervising Consultants will also take place. The purpose of the meeting will be to discuss the conduct of the operation, non – compliances noted by the consultant's environmental team and measures for their remedy. The meeting will be recorded in the form of a daily/monthly environmental report

2.6 Social and Environmental Complaint Register

30. The Contractor will maintain a complaint register at the Camp where complaints record from local communities will be registered and measures shall be taken by the Contractor to mitigate these concerns. Contractor's OHS Manager shall check the register on daily basis and deploy resources to mitigate the registered complaints on prior basis.

2.7 Reporting Mechanism

31. Contractor will prepare the monthly based Environmental Monitoring / HSE Progress Report that will include detailed implementation procedures and practices regarding EMP/SSEMP/HSE management along with sufficient supporting photographic evidences. The Contractor will submit this report to the SC's Environmental Engineer/Scientist and he will be responsible for submitting monthly compliance report for the Project to the Project Director (PD), who will submit it ultimately to regulatory body. The reporting mechanism to be followed during construction phase is summarized below:

Table 0-1: Detail of Reporting Mechanism

Reporting responsibility	Reporting Requirement	Report submitted to
Contractor	• Weekly and Monthly compliance report	CSC
Construction Supervision Consultant (CSC)	• Quarterly Environmental Compliance Report • bi-annual environmental monitoring reports	PIU
PIU	• Semi Annual reports	EALS NHA
EALS NHA	• Final Environmental report after completion of defect liability period.	ADB, EPA

3 SCOPE OF WORK / CONSTRUCTION ACTIVITIES IN SUB-PROJECT

32. The Lot 1 sub-project (CARECT/II), spanning across 62.420 kilometers from Shikarpur to Kundhkot in Sindh, focuses on the dualization of the existing single-lane National Highway-55. This extensive endeavor aims to transform the current roadway into a modern, dual-carriageway thoroughfare. The overarching objective of this initiative is to prioritize the enhancement of road safety, the reduction of travel times, and the facilitation of economic development by enabling seamless and efficient mobility for both goods and individuals.

33. CAREC, sub-project (Lot-1) dualization of G.T road (N-55) is a crucial infrastructure development project aimed at enhancing connectivity and facilitating efficient transportation between Shikarpur and Kundhkot in Sindh, Pakistan. This route is a historic and trading route connecting various regions of the country.

34. Construction/Rehabilitation involves for widening of existed road structure by using the sub-base layers where necessary to achieve the desired profile and providing new granular and asphaltic concrete sub-base base and riding surface. An additional carriageway will be constructed as per the NHA specifications.

35. The construction phase of the subproject will have the following schedule of works:

- Asphaltic Wearing Course (ACWC)
- Asphaltic Base Course (ACBC)
- Aggregate Base Course (ABC)
- Granular Sub-base (GCB)
- Improved Subgrade
- Extension of bridge
- Construction of box and pipe culverts

36. **Structures**: Rehabilitation/reconstruction of existing bridges will require earthworks on the slopes and construction of culverts. Access roading, which sidles across steep slopes, will need to be managed to prevent erosion. Use of concrete for construction will need to be managed to prevent concrete discharge to the water ways.

37. The environmental impacts and mitigation measures for minimizing these impacts have been discussed in subsequent sections of the document.

- Vegetation clearing and Earth Work (for additional lanes)
- Excavation and Road Work (Sub-Base and Base Course)
- Tack Coat and Surface Course
- Box & Pipe Culverts
- Retaining Walls and Toe Walls
- Causeways
- Construction of RCC Bridges extension
- Drainage and Anti Erosion Works
- Slope Protection Works
- Ancillary Works

38. The major structures of the subproject and detail of structures are described in the following table 3-1.

Table 3-1: List of Major Structures in Lot 1

Design of Tranche -II	Dualization of N-55. 80/120 km/hr
Length of Lot-1	62.420km
RDs start from	from km 43+400 to 105+820km
Road Bridges	06 No's
No of box culverts	64 No's
Pipe Culverts	03 No's
Flyover	02 No's

39. The geometric design of the road sub-project meets the following criteria:

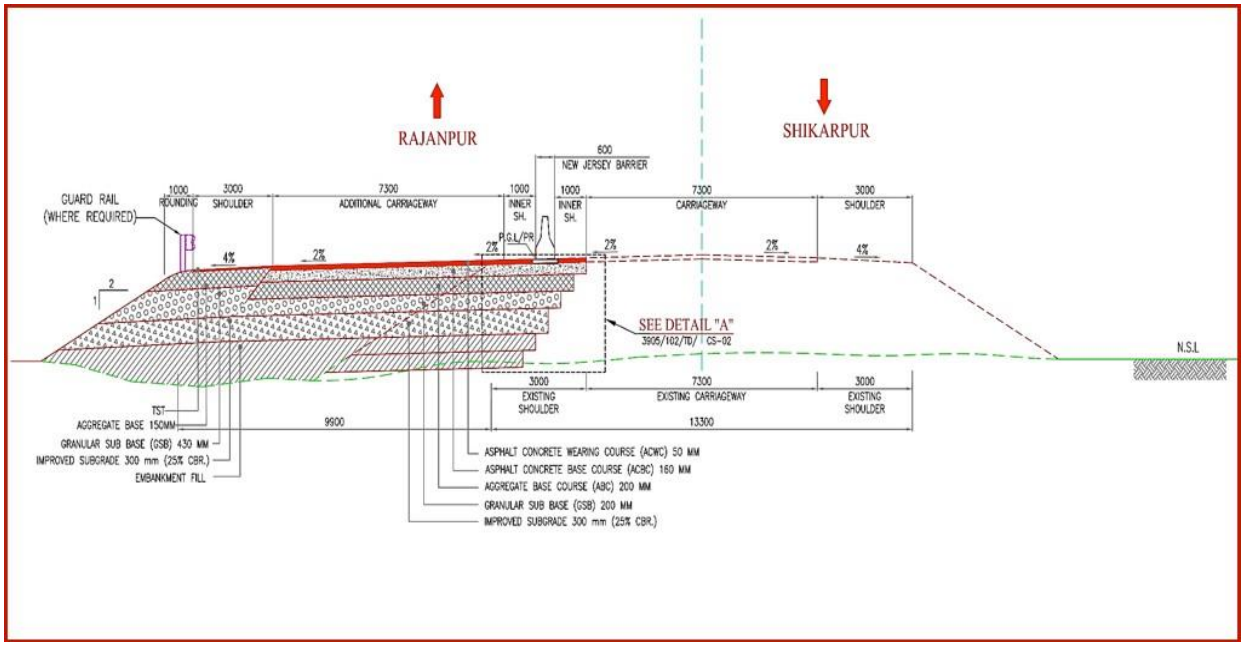
- Geometric design - AASHTO policy on Geometric design of highways & streets -2004 Material & testing - AASHTO – ASM
- Pavement Design -AASHTO guide for Design of Pavement Structures 1993
- Seismic Design - Uniform Building Code (UBC) and seismic zone map of Pakistan &AASHTO

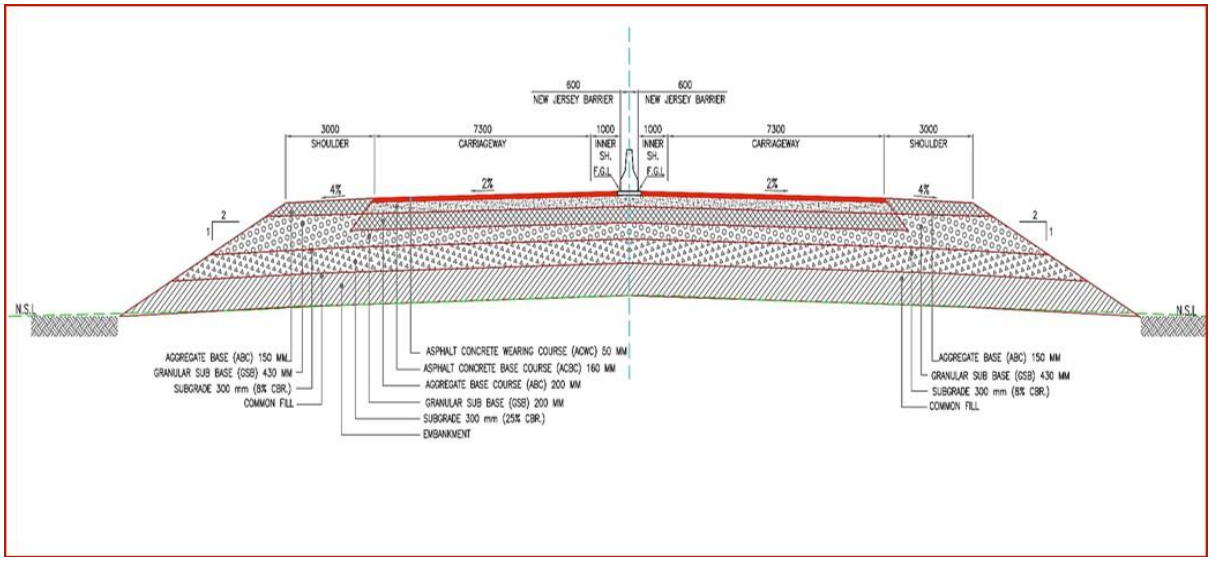
40. The recommended pavement thickness for the additional carriageway is given below:

- Asphaltic Concrete Wearing Course (ACWC): 50 mm
- Asphaltic Concrete Base Course (ACBC) : 160 mm
- Aggregate Base Course (ABC) : 200 mm
- Granular Sub-base (GCB) : 200 mm
- Improved Subgrade : 300 mm (25% CBR)

Typical cross section of alignment

Figure 3-1: Typical Cross section of the subproject





41. The design features of the Lot-1 are detailed in table 3-2.

Table 3-2: Salient Design Features of Lot-1

Design Speed:	
Design Speed for Plain Terrain:	100 km/hr.
Design speed on few constrains:	80 km/hr.
Road Cross Section:	
Number of Lanes:	4 Lanes (Two Additional Lanes & Two already exists)
Lane Width:	3.65 m
Paved Shoulder:	
Inner Shoulder:	1 m
Outer Shoulder:	2.5 m to 3.0 m (with 0.5m to 1m earthen rounding)
Road Cross Slope	
Carriage Way:	2 %
Shoulders:	4%
Right of Way:	20 m for additional carriageway

3.1 Machinery and Manpower to be used on Lot-1

The equipment and personnel intended for use in the sub-project are detailed in Table 3-3 below.

Figure 3-2: ZKB Organization ChartLOT-1

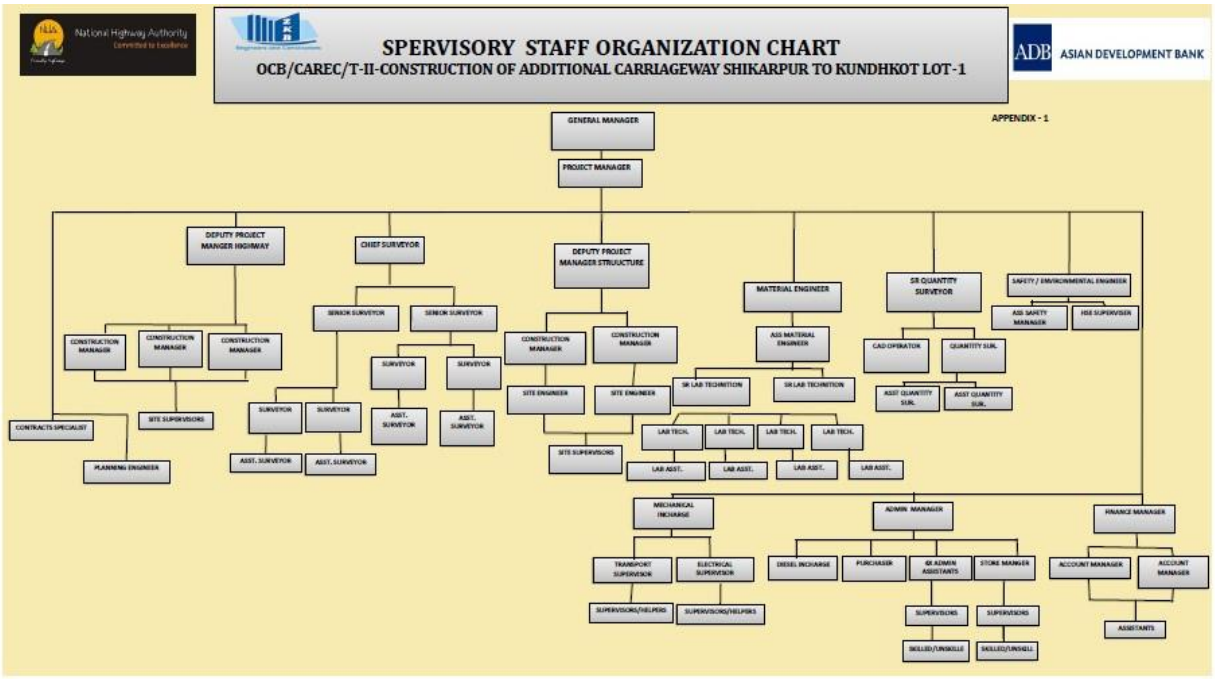


Table 3-3: List of Major Equipment's of Lot 1

Sr. No	Type of Machinery/ Equipment	Total No's	Type of Machinery/ Equipment
1	Bulldozer	02 No's	Spreading of granular material and road filling
2	Excavator	06 No's	Excavation
3	Dump Trucks	15 No's	Vibratory Combination Rubber Mounted Tandem Roller
4	Grader	12 No's	Leveling of earth work
5	Grader with Scarifier	02 No's	Beam Launching Truss
6	BackHoe	02 No's	Piling Equipment
7	Water Tanker	06 No's	Water sprinkling
8	Front End Loader	04 No's	Road Marking Machine
9	Paver	02 No's	Concrete Batching Plant
10	Power Broom	02 No's	Asphalt Premix Plant
11	Bitumen Pressure Distributor	02 No's	Laboratory with Equipment (1 permanent & 1 mobile)
12	Vibratory Rollers	08 No's	For compaction
13	Concrete Batching Plant	01 No's	For Concrete mixing plant
14	Asphalt plant	01 No's	Road making asphalt
15	Small vehicle	25 No's	For site personnel's
16	Oil tankers	02 No's	Fuel distribution

16	Transit mixers	06 No's	For carrying concrete

3.2 Construction Materials

42. The materials to be used in construction of tranche-II, CAREC lot-1 are included;

- Coarse aggregates (crush)
- Fine Aggregates (sand),
- Soil, Water, Asphaltic course,
- Cement, Steel, etc.
- Bitumen, diesel, lubricants

43. The source and quantities of the raw materials is given in table 3-4.

Table 3-4: Quantities and Source of Raw Materials for Lot 1

Sr. No	Description of Material to be used	Unit	Lot-1	Tentative Location to be Purchased From
1	Asphaltic Wearing Course/Bitumen	m3	45193.16	National refinery Karachi, PARCO DG Khan
2	Asphaltic Base Course	m3	137776	
3	Aggregate Base Course	m3	256969	Rori, Local vendor
4	Sub Base Course	m3	295775	Rori, Local vendor
5	Improved Subgrade	m3	265519	Rori, Local vendor
6	Embankment from Borrow Exc.	m3	1422981	Local Vendors
7	Steel	Ton	5969.68	Itfaq, Mughal.pak steel
8	Sand for Concrete	cft	1542379.57330938	Sui, Local Vendor
9	Crush for Concrete	cft	2482628.13871299	Rori, Bullan
10	Cement (Ton)	Ton	2482628.13871299	DG.Khan,Kohat, Lucky

3.3 Construction of Camp

44. M/S ZKB has leased a temporary plot of land from Ghulam Hussain, son of Mohammad Khan Zaat Phore, a resident of Khanchur in Shikarpur district (the agreement copy is attached in the annexure along with the camp layout plan). This land will be used to set up

a camp and yard. The camp's location is at RD 64+650, near PARCO Khanpur in District Shikarpur. The total area allocated for the campsite is 4 acres.

45. This contractor camp will encompass offices, residential areas, a well-equipped first aid station, a material testing laboratory, a mechanical workshop, a storage yard, a steel yard, and more. The temporary contractor camp will be constructed and restored in line with the terms and conditions agreed upon with the landowner (refer to Figure 3-2)

46. A building in Kundan City Shikarpur has been rented for office and senior staff residence purposes, equipped with all necessary camp facilities. The private accommodation's Google coordinates are 27°58'06.0"N 68°39'46.6"E, while the campsite coordinates are 28°01'54"N 68°49'41"E. the layout plan of the camp, lease agreement is attached in **Annexure-6**

47. M/S ZKB face a unique challenge, project is located in a threatened area. This area is surrounded by local thieves who have taken control the neighboring area of the project sites, leaving us with a precarious situation. But we recognize the importance of this project not only in terms of economic growth of the country but also as a symbol of progress and connectivity for the entire region. Despite the challenges posed by the presence of local thieves, we are committed to collaborate with local law enforcement agencies for the safety and security of the project that allows us to continue our work while ensuring the safety of all involved. Local enforcement agency the environmental health and safety of our project personnel, as well as the successful execution of the project, are of paramount importance to us. In response to this challenge, we are working closely with local law enforcement agencies, and they have selected the campsite to ensure the safety and security of our camp. Collaboration with these agencies is vital for addressing security concerns and maintaining a safe working environment for our team.

48. The contractor plans to build an 8-foot-tall wall acting as a noise barrier between the surrounding area and the campsite to ensure security and privacy.

Figure 3-3: Campsite before construction

Figure 3-4: furnished building for accommodation for senior staff in Shikarpur

3.4 Asphalt Plant and Batching plant Installation

49. The Google coordinates of the proposed piece of land for batching and Asphalt plant are Latitude**: 28°02'57"N 68°52'18"E** see figure 3-4 (a & b)
50. In the first quarter of 2024, we will be installed a concrete Batching plant and Asphalt plant, at a carefully selected location for CAREC, Lot-1 sub-project. The chosen area for the batching and asphalt plant installation has undergone thorough environmental assessment, and we are committed to adhering to the highest environmental standards throughout its operation. The DDR of Asphalt & concrete batching plant location see annex-13

- Throughout the installation and operation of the asphalt plant, we will strictly adhere to all relevant environmental standards and regulations Regular monitoring and reporting will be conducted to ensure compliance and prompt corrective action in case of any deviations

Figure 3-5 (a): Location map 500 meters radius of concrete batching & Asphalt plant Location

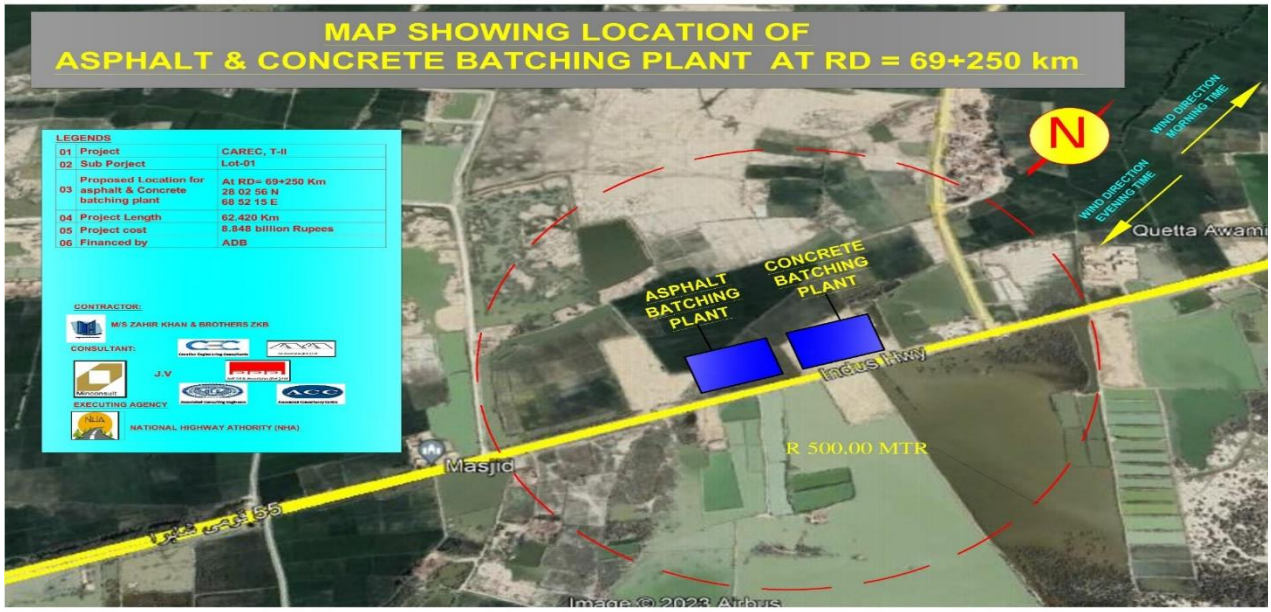


Figure 3-5 (b): concrete batching & Asphalt plant Location before construction

3.5 Camp Allied Facilities in Living Areas

51. Following measures shall be taken to establish and maintain allied facilities at proposed Camp site:

- Suitable and adequate living accommodation shall be provided to all workers.
- The living rooms/ dormitories shall be airy/ventilated and lighted. No congestion inside the rooms shall be allowed.
- Toilets shall have waste flush system for correct disposal and operation of sewage system. Toilets shall be provided with facilities such as Water Closets WCs. Use of antiseptics shall be made on daily basis to ensure proper hygiene and sanitation.
- Recreational facilities shall be arranged including common TV rooms, badminton court, volley ball ground, etc.
- Heating and cooling facilities shall be provided in the living rooms.
- Ample space shall be provided to the labor to maintain keep good housekeeping inside their living areas.
- Uninterrupted electricity supply shall be provided round the clock.
- Water coolers shall be installed for labor.
- Separate messing facility shall be arranged for labor and supervisory/managerial staff, where free of cost good quality food shall be served as well as good hygienic conditions shall be maintained.
- Garbage cans and refusal collection container shall be placed for collection of waste. The Contractor shall arrange tractor trolley to transfer waste from Camp to the recommended waste dumping site.
- Rain water drainage shall be established for proper disposal of water in rainy season.
- Drinking water free of any contamination shall be provided at all locations of the Camp.
- Dengue/Mosquitoes/Disinfecting Chlorinated sprays shall be conducted frequently in all living areas of the Camp.

3.5.1 Kitchens

- OHS Staff shall ensure periodic checks of the cooking staff, particularly for symptoms of hepatitis B, C and HIV AIDS, covid-19 and other contagious diseases
- All the cooking places shall be enclosed with fly's net or covered lids
- LPG Cylinders will be used inside the camp for cooking purpose or in Tandoors, wood will not be used at camp site.
- No tree cutting shall be done or no local bushes shall be burnt for cooking purpose.
- All the cook houses shall be regularly monitored by the OHS personal and medical staff to check the hygienic and sanitation conditions, apart from ensuring the medical fitness of the cooks.
- Good quality cooking oils and other ingredients including vegetables, cereals etc. shall be used for cooking purposes which may not cause any negative impact on labor health.

3.5.2 Dining Areas

52. Dining areas shall be spacious, airy and well lighted. All floors in the dining areas shall be tile soled. OHS staff shall ensure that all dining areas, including those of the sub-Contractor's and canteens etc. will be fly proof and remain clean at all times.

3.5.3 Drainage, Sewerage and Septic Tank in Camp

53. For better hygiene and sanitation, temporary sewerage line having variable dia shall be laid down which shall culminate in 03 No's of septic tanks having three chambered and soakage pit(s) sewage water will be finally disposed off in closed sewage pipe or into the nearby barren pits/Nalla (See Camp Layout Plan). A separate sewage system shall be established for each living/accommodation facility of Camp and shall be kept well maintained. Likewise, necessary, open drains shall be constructed in the Camp for the disposal of storm water.

3.5.4 Material Storage Site

54. The construction material will be placed in respective plant areas for use i.e., aggregate, cement, sand shall be placed in batching plant area and crusher rock material from quarry site shall be stored in crusher plant area. The Contractor will allow only 3-4 material trailers inside the material yard area. T-card will be provided to all trailer operators/helpers and unauthorized persons shall not be allowed to enter inside the construction and material storage areas.

55. All personnel will strictly follow safety procedures in all risk prone areas. Separate ingress and exit points will be marked in batching plant and crusher plant area. If there will be potential source of dust emission, dust will be suppressed by daily sprinkling of water. Contractor shall fix water sprinkling inside the plants and plant area to minimize the dust or material will be washed prior to final use.

3.5.5 Security Arrangements

56. In light of the security challenges posed by the threatened zone near our sub-project camp and site, we would like to inform all stakeholders that we have taken proactive measures to ensure the safety and security of our personnel and project assets.

3.5.5.1 M/S ZKB Security Arrangements:

57. We M/S ZKB have engaged private security services to provide 24/7 security coverage for both our project camp and construction site at Camp, Labor Camp, Material Store, Equipment Yards and location of the work in progress on the work site. Coordination will be necessary with nearby law enforcing agencies.

58. Trained security personnel will be stationed at key entry points and strategic locations to deter unauthorized access and ensure the safety of our workforce.

3.5.5.2 Requested to DGs Rangers for Government Security:

59. In addition to our contractor-provided security, we have also submitted a formal letter to the Director-General (DG) requesting the provision of government security in the threatened zone of our project. We believe that this collaborative effort will enhance security measures and provide additional layers of protection.

3.5.6 Medical Assistance

60. Since it is the Contractor's contractual obligation to provide medical assistance facilities at the Camp and Work Sites. Dispensary along with availability of paramedic staff, necessary medicines/equipment shall be established at the Camp that shall remain functional round the clock. First aid kits with necessary medicines/equipment shall be provided at all active working sites.

3.5.7 First Aid

61. First aid arrangements shall be ensured at Camp and Work Sites. The first aid provider (or nominated person who has been trained in giving first aid) at sites shall perform following duties:

- Keep all necessary first aid medicines and bandages in the first aid box.
- Replace the medicines before their expiry dates to avoid any health hazard.
- Provide first aid to the injured in the event of accident
- Immediately report any accident/incident to OHS Manager for necessary action
- Call ambulance in case of any serious emergency.
- Ring the emergency siren to make others alert about specific emergency.

3.5.8 Dispensary Arrangement

62. Following measures shall be adopted for establishment of Camp Dispensary:

- Furnished dispensary shall be established at the Camp that shall remain functional round the clock.
- Paramedic staff shall be appointed in the camp dispensary round the clock.
- Ambulance shall remain available at camp round the clock.
- Dispensary shall be provided with all necessary medicines, first aid items and equipment where free of cost medical treatment shall be given to all workers

63. Shikarpur Christian Hospital and Ali Medical Center in Shikarpur, along with other medical facilities in close proximity along the project route, will be included in a panel to conduct comprehensive medical examinations for workers in the event of a significant emergency

Table 3-5: Details of Nearest Medical Facility

Sy.No	Name of Hospital	Contact No.	Distance from Camp / Canal Alignment
1.	Shikarpur Christian Hospital) Shikarpur	0726515195	10km
2.	Ali Medical Centre Shikarpur	0726512115	9km
3,	20 Beds Hospital Shikarpur	03251471110	12km
4.	Amar Hospital Kundhkot		14km

3.6 Camp and Site Waste Disposal Points

64. The majority of the project alignment for Lot-1 is characterized by agriculture and barren land. In line with our commitment to responsible construction practices, we have established a plan for material disposal that aligns with environmental regulations and local community involvement.

65. All solid waste disposal records, including dates, quantities, disposal methods, and disposal site locations, will be diligently maintained and updated regularly throughout the project's duration. This information will facilitate compliance with waste management regulations and ensure transparency in waste disposal practices

3.6.1 Site Waste

66. We M/S ZKB are pleased to report that we have identified and proposed various safe locations along the road construction site for the disposal of site waste, specifically for landfilling purposes. These locations have been carefully chosen to address multiple needs, including managing waterlogged areas and accommodating requests from local settlements. Google coordinates of some site disposal for site generated wastes/unsuitable material, e.g., debris, demolished material etc. are given below.

28°04'26"N 68°56'10"E disposal point-1

28°08'31"N 69°05'29"E disposal point-2

28°00'27"N 68°45'57"E disposal point-3

28°01'49"N 68°49'49"E disposal point-4

28°02'23"N 68°50'59"E disposal point-5

67. We will responsibly manage the material extracted during the site execution. This material will be disposed off in designated landfill areas along the project alignment. Additionally, we are collaborating with the local community, allowing them to use the material for their landfilling purposes, thereby contributing to local development while reducing environmental impact. Site waste disposal Plan see Annexure-.12

Figure 0-6: Map of Disposal sites for LOT-1

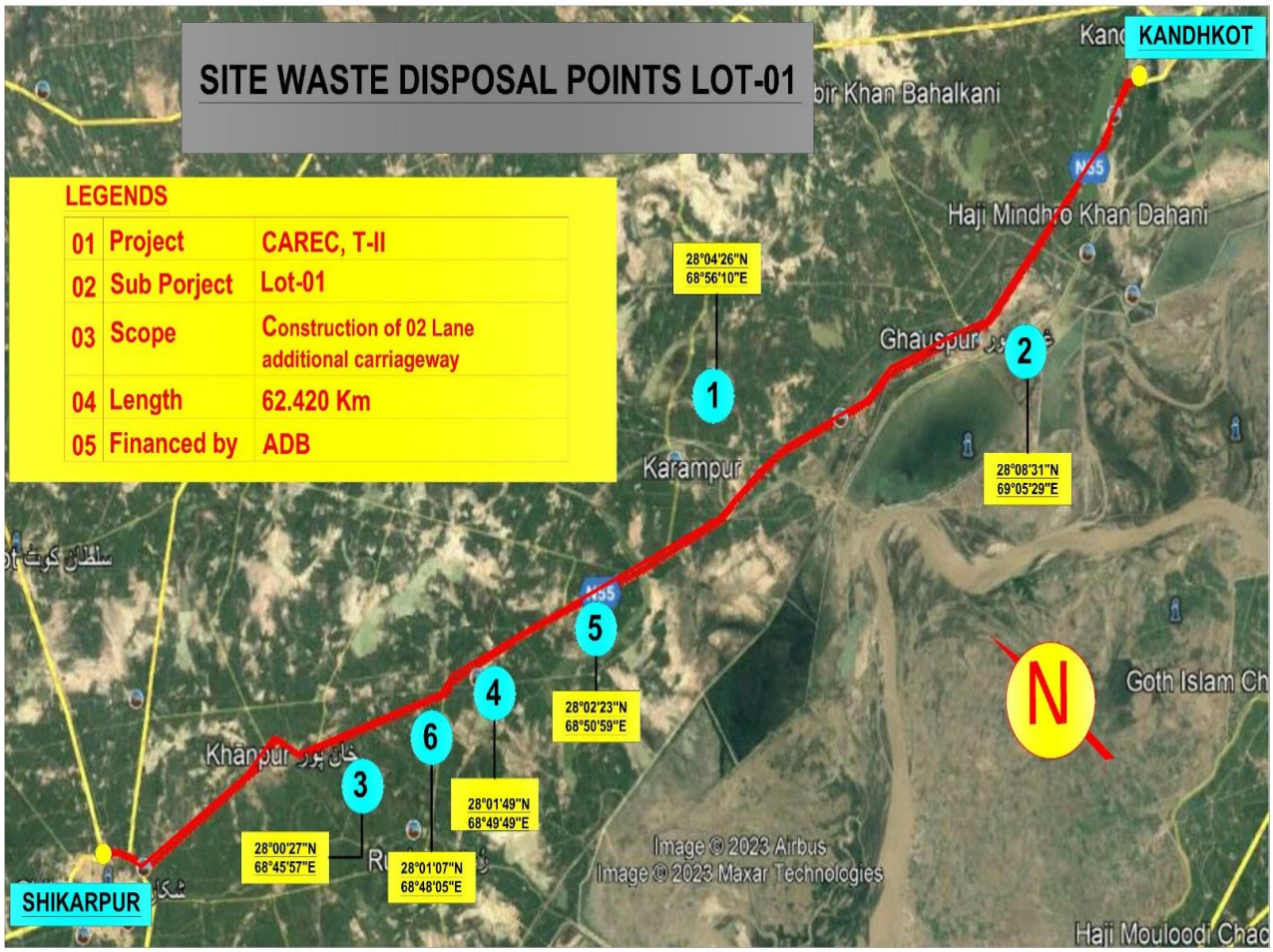


Figure 0-7: Map of Disposal sites, for site waste point-1-5

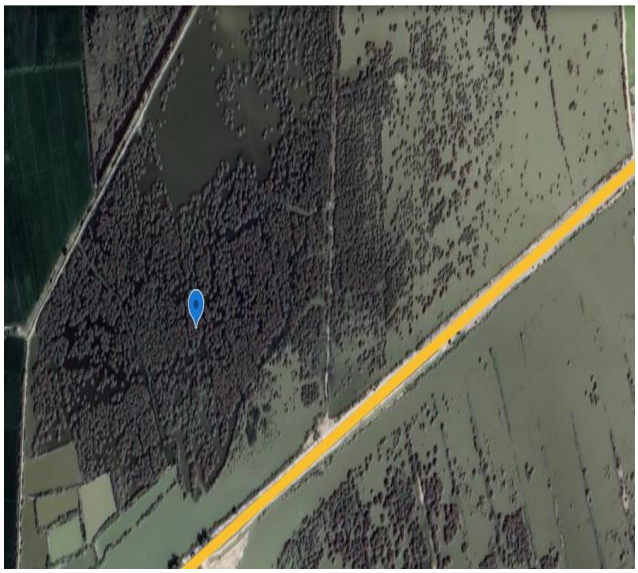


Figure 1

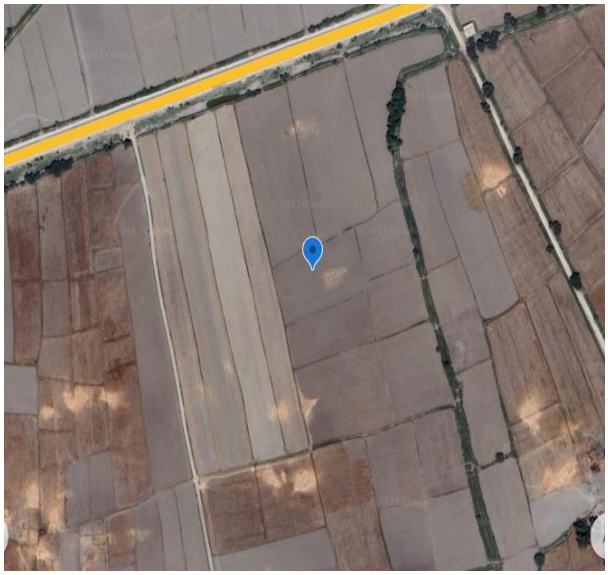


Figure 2

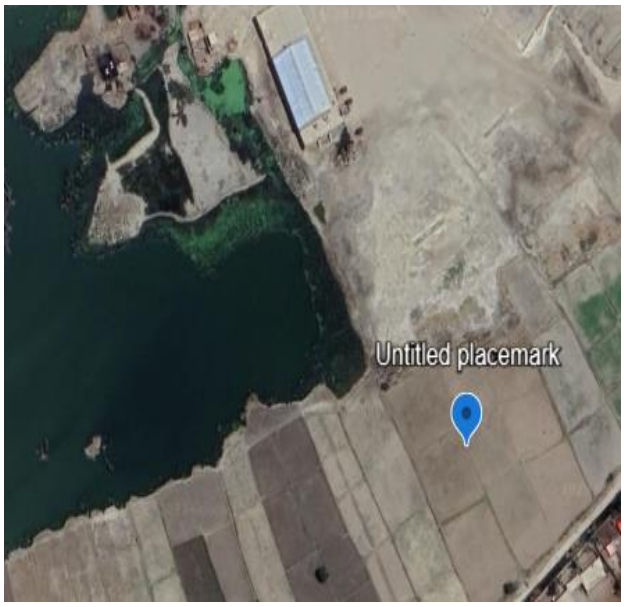


Figure 3

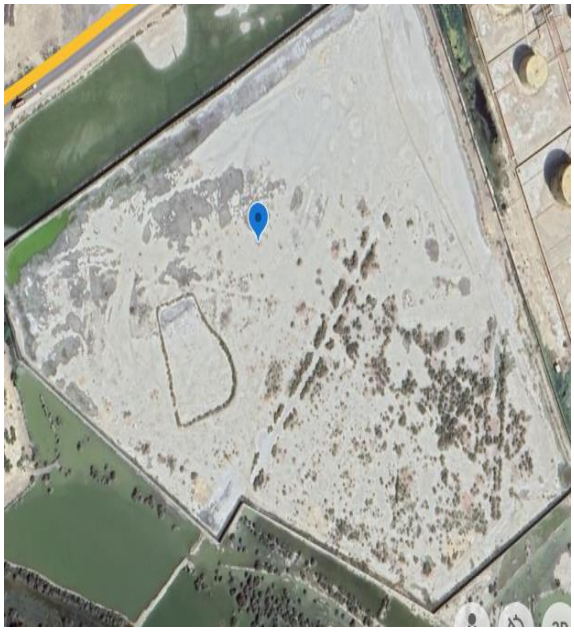


Figure 4

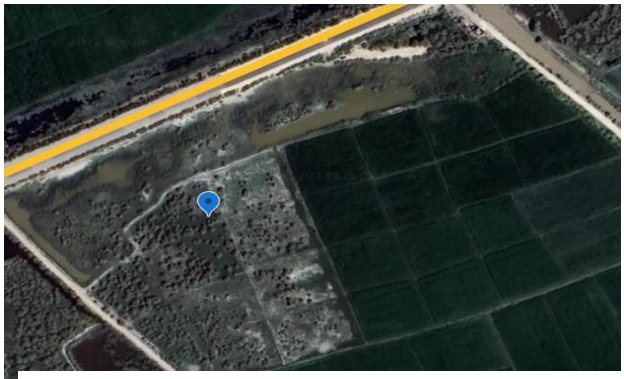


Figure 5

3.6.2 Camp Waste

68. The waste produced at our campsite will receive meticulous attention. For efficient disposal, the contractor will use tractor trolleys to transport waste materials weekly, adhering to proper waste management protocols. All waste will be initially segregated, with recyclable materials sold to local vendors, while non-recyclable waste will be disposed of near designated disposal points using contractor tractor trolleys.

69. Our approach to material and waste disposal reflects our commitment to environmental stewardship, community engagement, and responsible construction practices. We appreciate the cooperation of all stakeholders in maintaining a clean and sustainable project environment. Camp Solid Waste Plan see Annexure-12**.**

3.7 Area of Influence (AOI)

70. For the purpose of environmental and social impacts assessment and implementation of mitigations measures during the construction of the sub-project, selecting an area of influence for road construction involves considering various factors such as population density, land usage, infrastructure, and sensitive areas. In this case, for the N-55, Lot-1 Road construction 300 -meters area of influence, for batching plant and asphalt plant it's crucial to assess and address several aspects:
71. Tranche-II, CAREC, Lot-1 batching plant site as depicted in the following figures. Around the area of campsite some commercial pumps are observed while the CAREC, Lot-1 area is mostly surrounding by the water logged and agricultural land. Campsite and batching plant site of the sub-project area of influence in given below figures.

72. The environment health & safety of our project personnel and the successful execution of the project are of paramount importance to us. In response to this challenge, we are working closely with local law enforcement agencies and they selected the site for camp to ensure the safety and security of our campsite. The collaboration with these agencies is vital to addressing the security concerns and maintaining a safe working environment for our team.

73. We face a unique challenge at project and campsite located in a threatened area. This area is surrounded by local thieves who have taken control of the neighboring area of the project sites, leaving us with a precarious situation.

74. But we recognize the importance of this project not only in terms of economic growth of the country but also as a symbol of progress and connectivity for the entire region. Despite the challenges posed by the presence of local thieves, we are committed to collaborate with local law enforcement agencies for the safety and security of the project that allows us to continue our work while ensuring the safety of all involved.

Figure 0-8: Area of Influence along the LOT-1

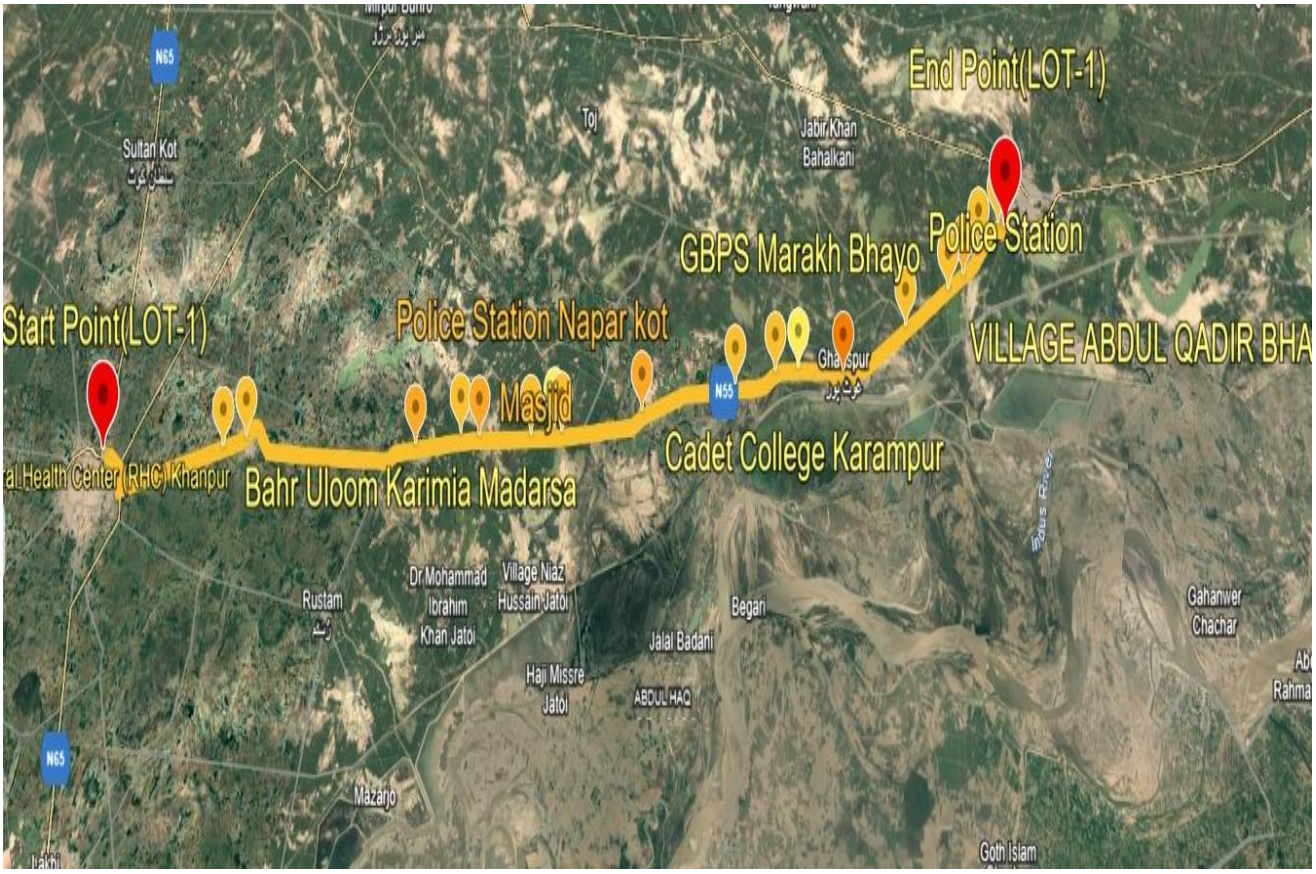


Figure 0-9: AOI of batching plant and site map

3.8 Sensitive Receptors

75. In our comprehensive assessment of the CAREC N-55, Tranche-II sub-Project Lot-1 area, we have found that there are significant sensitive receptors along the sub-project alignment including local settlements, mosques, colleges, Schools, Graveyard, Hospital, water channels, etc. Almost all the lot-1 alignment is covered by the waterlogged, few agricultures land, Commercial and residential area.
76. While these elements represent valuable components of the local community, their presence poses a significant environmental or logistical challenge to our sub-project. Our commitment to responsible and sustainable construction ensures that we will take all necessary precautions to minimize any potential impact on these sensitive receptors.
77. We remain dedicated to maintaining open and constructive communication with the local community, addressing any concerns, and working collaboratively to ensure that the CAREC N-55 sub-Project Lot-1 progresses in a manner that benefits all stakeholders, while respecting the local environment and heritage.

78. The sensitive receptors are shown in the Table 3-6 and a comprehensive map showing environmental sensitive receptors of the project area

Figure 0-10: sensitive receptor map of the sub-project lot-1

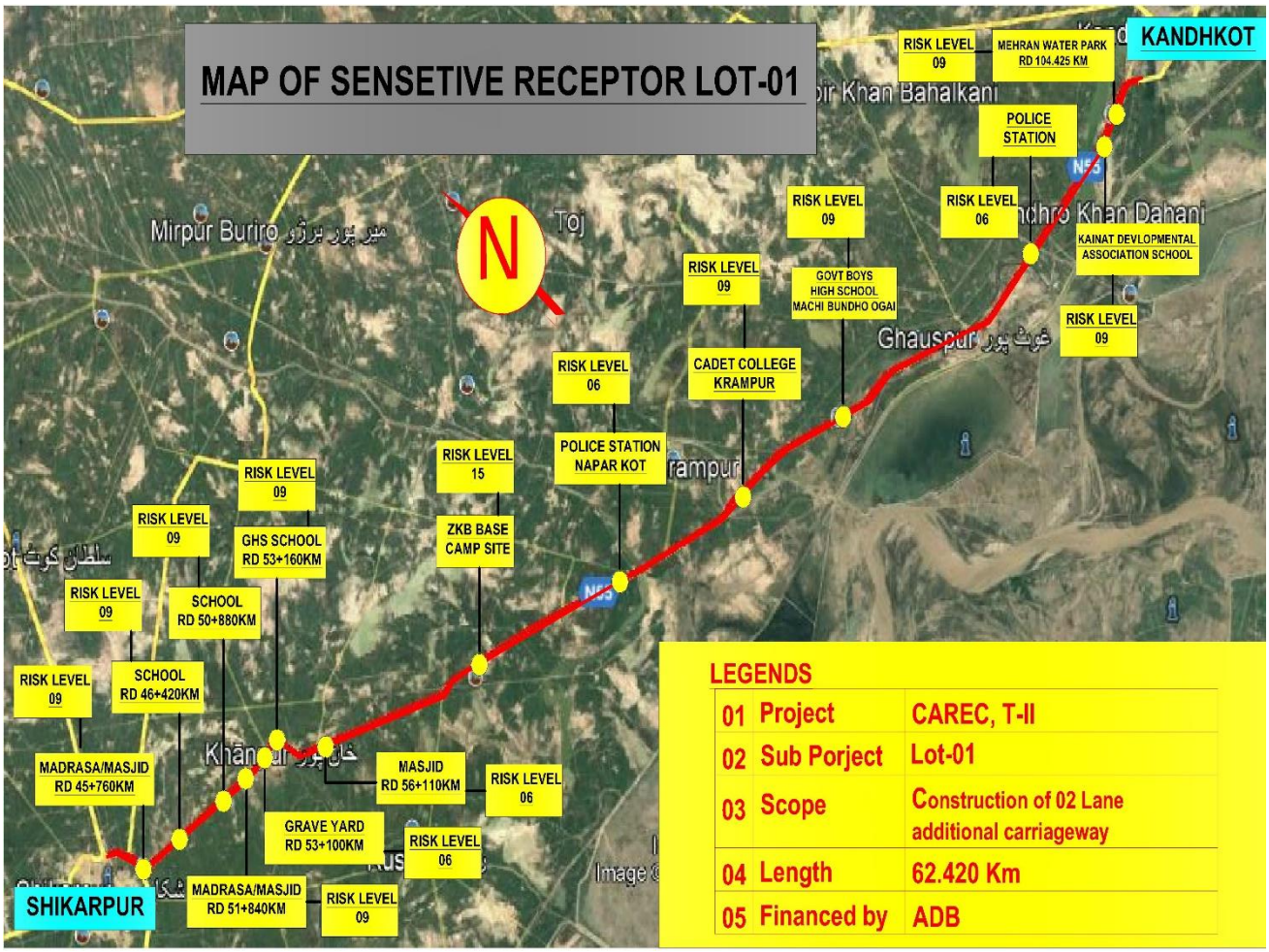


Table 0-6: Sensitive receptor detail along the carriageway at Lot-1

Receptor Name	Location / RDs	Risk Level	Image
Mudarsa	45+760 R/S	Low	
School	46+420 L/S	Low	
School	50+880 L/S	Low	
Mudarsa+ Mosque	51+840 R/S	Low	
Graveyard	53+100 R/S	Low	

G.H.S School Khanpur	53+160	Low	
Graveyard	53+440	Low	
Mudarsa+ Mosque	53+700	Low	
Graveyard and mosque	61+445	Low	
Rural health center	69+880	Low	
Cadet college karampur	78+955	Low	

Boys high School	81+100	Low	
Kainat developmental school	98+480	Low	
Mehran water park	102+300	Low	
Hospital	103+090	Low	

4 RISK ASSESSMENT

4.1 Risk Assessment and Management

79. Risk assessment and management techniques have been adopted so that potential hazards are identified and evaluated prior to execution of critical job or the job which is going to be conducted first time. In the Risk Assessment Matrix, the environmental impacts and the control measures are explained with respect to the construction activities. Special attention needs to be paid during construction with adequate protection, to create friendly environment.

80. These potential risk activities can damage the community badly if not controlled. In order to prevent or mitigate any potential adverse impacts of the construction, it is necessary to implement the recommendations

81. On the most common failures of environmental management is that the construction teams have no guidance as to what environmental management measures are required and so there is a high probability that environmental damage will occur. Once the damage has taken place it is often impossible to put right again, therefore the environmental management measures have failed right at the point when they are most needed. It also becomes difficult to retrofit the environmental management requirements after the construction activities have started. Proper planning is therefore essential.

Table 4-1: Risk Assessment Objectives and Expected Outcomes

Objectives For Risk Assessment	Expected Outcomes
Identify major design and construction risks	Better understanding of environmental engineering, and construction issues faced by each project alternative
Identification, quantification, and likelihood of major scope, budget and schedule risks for all major project components	List of major project risks Reasonable estimate of risk costs and probable total project costs and duration
	Long list of risks mitigation strategies
	Preliminary risk management plan focused on design and constructability risks
	Preliminary risk allocation planning
Targeted assessment of construction problems, causes, and potential cost/schedule impacts Identification and systematic evaluation of possible corrective actions	Analysis of specific problems Costs/Benefits of possible corrective actions that will allow project sponsors/owners to maintain (or recover) schedule and avoid cost overruns

4.2 Risk Identification

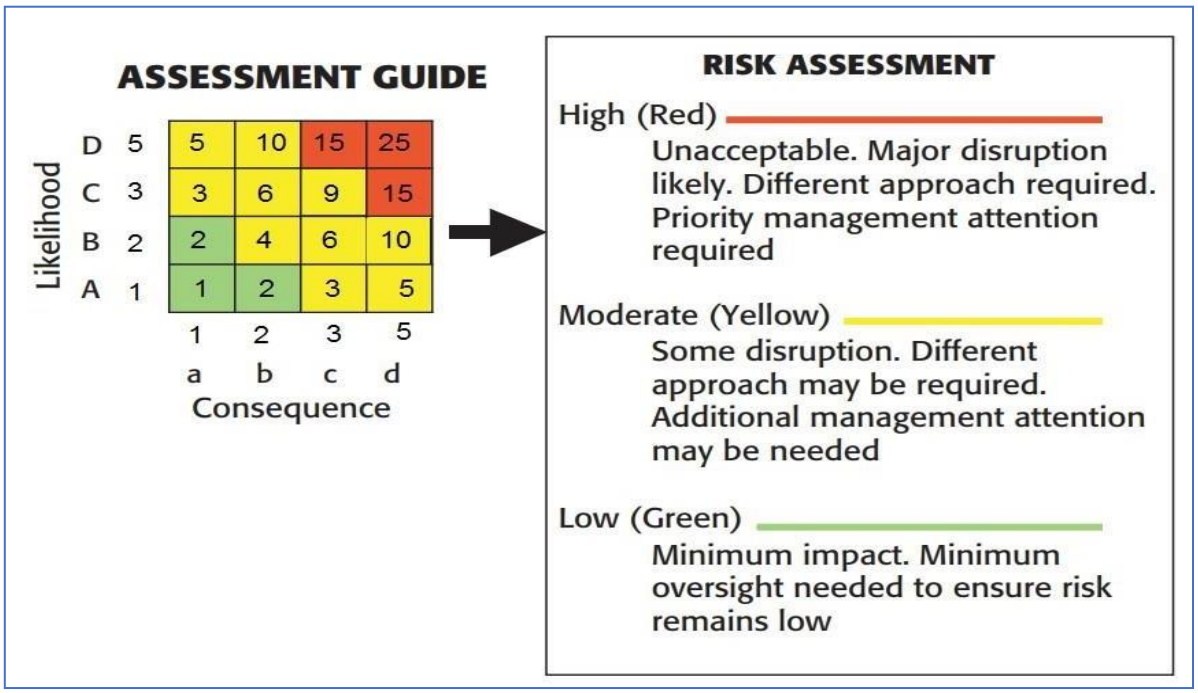
82. The risk identification process identifies and categorizes risks that could affect the project. The objective of risk identification is the early and continuous identification of events that, if they occur, will have negative impacts on the project ability to achieve performance or capability outcome goals. The tools and techniques outlined in this chapter will support the risk identification process, but it will be the people involved in the exercises who are most critical to the success of the process.

4.3 Risk Assessment Process

83. Risk is assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring. It is often described like this:

Risk = Likelihood × Consequence

Figure 4-1: Risk Assessment Model



84. The above model has been adopted from ADB - Environmental Management for Construction Handbook. Any Medium to Significant risk requires an environmental management measure to manage the potential environmental risk. Judgment will be required concerning the application of an environmental management measure to mitigate low risk situations.

4.3.1 Response Options

85. Risk identification, assessment, and analysis exercises form the basis for sound risk response options. A series of risk response actions to avoid or mitigate the identified risks is considered is follows. The likelihood scale and consequence scale are described in Table 4.2 and 4.3 respectively.

Table 4-2: Likelihood Scale

Likelihood	Definition	Scale
Certain	Will certainly occur during the activity at a frequency greater than every week if preventative measures are not applied	5
Likely	Will occur more than once or twice during the activity but less than weekly if preventative measures are not applied	3

Likelihood	Definition	Scale
Unlikely	May occur once or twice during the activity if preventative measures are not applied	2
Rare	Unlikely to occur during the project	1

Table 4-3: Consequence Scale

Consequence	Definition	Score
Catastrophic	The action will cause unprecedented damage or impacts on the environment or surrounding community e.g. extreme loss of soil and water resources and quality from storm water runoff extreme pollution of soil and water resources including major contamination from hazardous materials widespread effects on ecosystems with deaths of fauna/flora widespread community impacts resulting in illness, injury or inconvenience loss or destruction of archaeological or historical sites Occurrence will almost certainly result in the work being halted and a significant fine.	5
Major	The action will cause major adverse damage on the environment or surrounding communities' e.g., major loss of soil and water resources and quality from storm water runoff major pollution of soil and water resources including contamination from hazardous materials significant effects on ecosystems with isolated deaths of non-vulnerable flora and fauna significant annoyance or nuisance to communities major damage to or movement required to archaeological or historical sites Occurrence may result in work being halted and a fine	3
Moderate	No or minimal adverse environmental or social impacts e.g. no measurable or noticeable changes in storm water quality. Water quality remains within tolerable limits little noticeable effect on ecosystems no or isolated community complaints no or unlikely damage to archaeological or historical sites no likelihood of being fined	2
Minor	No or minimal adverse environmental or social impacts e.g. No measurable or noticeable changes in storm water quality. Water quality remains within tolerable limits little noticeable effect on ecosystems no or isolated community complaints no or unlikely damage to archaeological or historical sites no likelihood of being fined	1

86. All the assessed risks are handled by providing mitigation, management or both. Special consideration and specific management sub plans are formulated for moderate and major risks. The consideration of issues in risk assessment matrix is carried out with respect to construction activities. The risk assessment process is undertaken with a risk assessment matrix and is provided in Table 4.4 below. The list of construction activities involved in the project is given in Table 4.5

4.4 Risk Assessment

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
PRE-CONSTRUCTION PHASE								
1.	Pre-construction Environmental monitoring	During the project implementation construction activities may cause to increase the pollutant concentration in ambient air	3	2	6	During the project implementation construction activities may cause to increase the pollutant concentration in ambient air thus to ascertain the current state of environment it is mandatory to have the pre-construction instrumental monitoring to maintain the existing environment.	Contractor	CSC/NHA
2.	Early mobilization of Safeguard staff	• Poor access and egress (Machinery accident and overturned) • Development of Quarrying material • Safety Risks to Monitoring Team (Risk of kidnapping due to remote location or security vulnerabilities during monitoring activities)	3	5	15	• To prepare safe designated access and egress road for construction machineries mobilization. • To provide guide to lead machineries to machinery yard. • To provide flagman to control machineries movement. • Coordinate with local law enforcement for patrolling and emergency response. • Arrange for transportation to return at safe areas before afternoon.	Contractor	CSC/NHA

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
CONSTRUCTION PHASE								
	Safety/ security Issue	Ensuring the safety of personnel remains paramount amidst the looming threat of potential (kidnappings and targeted attacks Theft of equipment/materials)	3	5	15	• Coordinate with local law enforcement for regular patrols and emergency response • Deployment of rangers at working site and campsite • Arrange for transportation to return workers to campsite before afternoon. • Conduct security briefings and training for all construction workers. • Install security cameras and fencing around the construction site. • Employ security personnel to patrol construction site and storage areas. • Use identification badges or passes for authorized personnel.		

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
1	Haul Routes, transportation of raw material for Road Works (Sub-Base and Base Course) of Lot-1 Road (Shikarpur-Kundhkot),	• Improper haul routes may cause the community inconvenience and incident hazards • Dust emissions on the haul routes may deteriorate the ambient air quality. • Noise • Safety Concerns	3	2	6	• All trucks carrying construction material will have to travel on the defined routs. • All trucks carrying construction material will be covered with tarpaulin • Speed limit of 20km/h will be followed by all trucks carrying construction material. • manage traffic flow, communicate construction plans to residents, and local law enforcement agencies	Contractor's Project Manager/ EHS person	ES-CSC/ PIU-NHA/ADB
2	Vegetation removal for construction activities	• Any tree cutting due to construction of road and its rehabilitation activities may cause the tree cutting if present within Row. In BOQ around 6,300 trees are to be uprooted. • Habitat Loss	3	3	9	• No hunting and poaching will be allowed • replant vegetation in affected areas, • Compensatory trees will be planted (1:4 ratio) • Trees cutting is inevitable in ROW, prior permission from CSC/PIU will be obtained and the PIU will be responsible through EASL section of NHA	EASL	PIU-NHA/ADB
3	Development of construction waste disposal areas for disposal of waste from Shikarpur-Kundhkot, Road works	• During the construction waste material will be generated which will require safe disposal. Therefore, waste disposal site/s should be identified before to start the construction.	3	2	6	• A total of five locations have been selected for site waste disposal, before to utilize these sites the contractor will get permission from CSC.	Contractor's Project Manager/ EHS person	ES-CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
		• Pollution, • health hazards				• Implement proper waste segregation, recycling, and disposal practices, establish designated waste disposal areas for camp waste		
4	Development of Quarrying material and borrow areas for obtaining the construction material for road dualization works of sub-project lot-1 (Sub-Base and Base Course),	• Improper quarrying and borrow area may cause environmental damages like dust emissions, soil erosion • Soil erosion • disruption of natural drainage • Water flow disruption	3	2	6	Approval for such site is under process as may be approved by the RE of CSC will be used for quarrying purposes. • natural drainage patterns, use silt fences and sedimentation basins • No river bed material will be allowed to use for this project. • avoid disrupting natural water flow patterns	Contractor's Project Manager/ EHS person	ES-CSC/ PIU-NHA/ADB
5	Development of construction facilities (Camp site batching plant and asphalt plant site etc)	• The duration of the construction activity for the Shikarpur-Kundhkot, Road development is expected to be two years and a considerable amount of work force will be engaged. As a result, worker camps will need to be developed and ancillary facilities will need to be provided such as electricity, washrooms for labor with suitable effluent and sewage disposal facilities as well as water for their everyday use for drinking and bathing etc.	3	2	6	• In order to prevent a nuisance, specific locations shall be designated for development of the labor camps. All necessary facilities and amenities shall be provided in these camps such as electricity, sufficient supply of water, solid and liquid effluent waste disposal facilities etc. • use aesthetically pleasing designs, buffer zones between facilities and surrounding zone	Contractor's Project Manager/ EHS person	ES-CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
		• Solid waste (construction, municipal and hazardous waste) • The batching and asphalt plant location near to any sensitive receptor may cause the potential social (community movement, movement of vehicles, privacy issues) and environmental impacts (air & noise pollution and water contamination). • Health and safety of community and the workers could be impacted during construction activities in operational phase of asphalt and batching plants at the project. • Environmental Impacts/issues Air and noise pollution from plant operations Soil and water contamination Disruption to local ecosystem				• Compensatory plantation to be scheduled when construction works near ends. • Preparation of photographical and botanical inventory of vegetation before clearing the site should be ensured. • The contractor has selected a land near the Rd 64+650km near Shikarpur PARCO to develop a complex (campsite plan). • Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. • The contractor should ensure that Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste; • Camp waste will be disposed off at designated area • While site for asphalt plant and batching plant is located (28°02'57"N 68°52'18"E) near Shikarpur at RD km 69+400		

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• no SR is located within a radius of 500m from the batching and asphalt plant site. • Implement emission control devices/dust controller Regular monitoring of emissions and noise levels Proper waste management and spill prevention protocols will be implemented		
6.	Site Preparation/Mobilization of machines at site and Site Clearing for road works for construction of additional carriageway.	• Exposed to high-speed moving vehicles /(Struck by high-speed vehicle and may lead to fatality) • Expose to hit by any moving vehicle • Poor access and egress (Machinery accident and overturned)	5	2	10	• To install traffic cone and safety warning signage to indicate man at work. • To provide flagman to control traffic flow. • Conduct Tool Box Talk on life traffic hazard prior to survey work. • Wearing of safety helmet, safety shoes/ boots and high visibility safety vest should be made mandatory. • To prepare safe designated access and egress road for construction machineries mobilization.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
7.	Construction activities Earth Work, Road Work (Sub-Base and Base Course	• Damage to existing utilities, disruption to services, safety hazards. • Poor compaction leading to road failure, inadequate drainage causing erosion. • Air pollution • Expose to inhalation of mineral dust. (Potential to sustain multiple respiratory Problems) • Noise • COVID-19 • Security and safety of workers	3	3	9	• Conduct thorough utility surveys before excavation. • Coordinate with utility companies for relocation and marking of services. • Sprinkling of water twice a day • Minimize the work during peak hours of SR site and maintain the machines accordingly • Ensure proper grading and drainage systems are in place. • Use quality materials for the sub-base and base course. • Body temperature monitoring through Thermal Scanner or other devices to monitor the body temperature of each employee entering/leaving the site or at camp. • Coordinate with local law enforcement agencies and deployment of rangers at site with workers during construction • Regular maintenance/tunning of construction machinery • use of temporary noise shields/barriers especially at sensitive receptors.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• Regular water sprinkling near the SRs, to control the dust		
8.	Asphaltic Layers (Base Course and Wearing Course)	• Air pollution • fumes, heat generation • Noise	3	2	6	• Use low-emission asphalt mixtures and technologies. • Monitor and mitigate heat impact on local vegetation. • Everybody wearing of facemask, safety boots, gloves and hard hat at the work place. • Regular maintenance/tunning of construction machinery	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB
9.	Construction Culverts, Retaining Walls and Toe Walls, Causeways and RCC Bridges and flyover extensions,	• Potential sedimentation, alteration of watercourses. • Alteration of water flow, mixing of concrete during pouring and disruption to aquatic habitats. • Falling of objects and workers • Dust emission • Noise during the construction hours	3	3	9	• Ensure proper sizing and design of culverts to maintain natural water flow. • Implement measures to control the concrete mixing with surface/running water to avoid the disturbance of aquatic life • Use proper fall arrest system and safety harness during working at height • Daily TBT conducting and issue work permits for workers working at height	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• Proper water sprinkling on access road and working site • Avoid usage of machines/equipment with extra noise, installation of silencers if needed • use of temporary noise shields/barriers especially at sensitive receptors. • Regular water sprinkling near the SRs, to control the dust		
10	Traffic Issue due to Earth Work, Road Work (Sub-Base and Base Course, Surface Course, Culverts, Retaining Walls and Toe Walls, Causeways, Construction/rehabilitation of RCC Bridges, Drainage and Anti Erosion Works, Slope Protection Works, Ancillary Works) and additional carriageway	Traffic congestion due to machinery movement, construction activities, etc.	3	3	9	• Ensure the road will be properly demarcated with sign board • Development of comprehensive designated road plan to regulate heavy and light machineries in order to avoid accidents and traffic congestion. • Installation of traffic warning signs, safety cones and enforce traffic regulations during transportation of materials and machinery. • Proper diversion plan will be implemented • Ensured skilled drivers and site supervisor presence on-site for supervision	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
11	Health and Safety during the construction activities	• Inconvenience to Community including their Health and Safety during the construction hours.	5	3	15	• Work areas outside the project site, especially where machinery is involved, will be roped off and will be constantly monitored to ensure that local residents, particularly children stay away. Also, no machinery will be left unattended, particularly in running condition. • Local communities in the project area will be briefed on traffic safety, especially women who are the main care providers to children. • Speed limit of 20 km/hr. will be maintained by all project related vehicles and night-time driving of project vehicles will be limited where possible. • Educate drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport. • The movements of the labor and site staff engaged for the project will be restricted to the project site and the Contractor will ensure that the female students/staff of the institutions and offices in the project area do not face any privacy or safety issues due to the labor and site staff.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
		• Occupational Health and Safety during the construction hours	5	3	15	• Ensuring that all workers are provided with and use appropriate Personal Protective Equipment (helmet, hand gloves, boots, masks etc.); • Follow standard practices of safety checks as prescribed before use of equipment; • Provide on-site Health and Safety Training for all site personnel; • Local labor will be actively sought out by the contractor, thereby reducing or completely eliminating the need for work camps. Local labor can reduce social concerns, as these people will return to their homes at night and act in accordance with accepted community norms. • Monitoring will be required to ensure that the health and safety plan based on contract specifications is followed. • Cement feed hopper areas will be inspected daily to ensure compliance with the requirement of dust masks.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB
12	Material transportation and Construction of additional carriageway for	• Dust emissions during the construction hours	3	3	9	• Regularly water sprinkling the sites and roads/streets	Contractor's Project Manager/ EHS person	Environment Specialist of

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
	(Earth Work, Road Work (Sub-Base and Base Course, Surface Course, Culverts, Retaining Walls and Toe Walls, Causeways, Construction//rehabilitation of RCC Bridge extension, Drainage and Anti Erosion Works, Slope Protection Works, Ancillary Works) and additional carriageway					• Use covered trucks while hauling powder construction materials • Dust mask will be provided to the workers.		CSC/ PIU-NHA/ADB
		• Noise during the construction hours	3	2	6	• Limit night work in residential areas • Avoid usage of machines/equipment with extra noise, installation of silencers if needed • use of temporary noise shields/barriers especially at sensitive receptors.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB
		• Infringement of pedestrian and vehicle traffic during the construction hours	3	3	9	• Provide safe area for trucks and machineries • Proper barricading of the construction site with designated entry and exit points. • Carry out construction by stages, aware the population about construction activities • Provide effective road signs, temporary safety bridges as alternative walk way, protective barricades. • Provide adequate lighting on the site	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• Provide adequate lighting in the places where passers-by or entry by public is likely		
13	Operational phase/Living phase of Camp and plants sites and daily construction activities carried at site	• Solid waste (construction, municipal and hazardous waste)	5	3	15	• Solid waste generated during at construction and camp sites should be safely disposed of at designated waste disposal sites; • Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. • The contractor should ensure that Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste; • Recyclable material will be taken out of the waste stream for recycling. All recyclable waste (e.g., paper, packaging material, plastics, aluminum foils etc.) to be collected, and sold locally for re-use into respective recycling industry. • No open burning to be allowed in the vicinity of the project area. • Training of Employees, involved in the transportation of hazardous	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						material regarding emergency procedures should be ensured; • A comprehensive plan for construction waste should be adopted; as given in SSEMP.		
		• Water resources and Quality including surface water and water storage ponds/water logged area along the road, Health and safety (health risks to workers and associated communities)	3	2	6	• No equipment washing is allowed in any surface water bodies ((canal) and water storage ponds along the road) throughout the project implementation period; • No wastewater shall be dumped into any water bodies and water storage ponds along the road) • Wastewater from labor camp and construction site should be canalized into septic tanks without contacting ground. • Septic tanks should be timely emptied by a hired septic truck and transported to legally approved treatment facility or dumpsite • Fuel storage, equipment maintenance, repair workshops, and vehicle washing areas shall be stationed at least 300m away from any water body • Camps should be designed to be self-contained to reduce demand	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						on infrastructure and services of nearby communities; • Formulation and implementation of a training program for GOP site workers residing in construction camps comprised of a brief on camp rules, an orientation on awareness about the local area and cultural norms;		
		• Erosion and Soil Contamination at active construction sites	5	3	15	• Petroleum products, hazardous materials and wastes should be stored covered from precipitation, on an impermeable surface, and secured from acts of vandalism • Fuel tanks shall be installed on an impermeable ground in a bunded area with capacity of 110% of fuel tank. • Avoid soil contamination with petroleum products, lubricants, or hazardous materials during equipment maintenance and repair, field refueling, and hazardous material handling • Organize spill response kit at each construction site for collection and storage of contaminated soil and provide training for workers on use of spill response kit	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• Maintain proper record keeping and documentation on waste management. • All hazardous material waste should be handed over to certified vendors for recycling or treatment to avoid		
		• Stockpile erosion during the construction hours	3	3	9	• All stockpiles should be managed to reduce dust emissions; • Stockpiles should be located downwind of sensitive receptors; • Stockpiles emitting dust should be sprayed with water prior to moving; • If a stockpile is within 300 m of sensitive receptors, precautions should be taken to avoid dust generation, including using of a reusable stockpile cover and fencing to form a high barrier to prevent wind lifting and dispersing. Settling ponds, silt fences and screens should be used to prevent sediment transport into surface water/drain.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB
		• Noise and Vibration during the construction hours	3	5	15	• Avoid locating machinery and equipment near sensitive receptors (near building). • Schedule noisy activities towards the middle of the day.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• Ensure that all pieces of machinery are equipped with proper silencers and exclude those that are improper state for minimizing noise generation at source. • Ensure workers and drivers are provided with appropriate PPE including ear protective equipment. • Using Low-level vibration equipment near sensitive receptors (near residual `buildings).		
		• Traffic Congestion during the construction hours	3	3	9	• Provide a temporary passage way for general traffic. • Locate parking of machinery in designated sites only. • Adjustment of working hours to local traffic patterns, e.g., avoiding major transport activities during rush hours. • Clear signs shall be installed in view of public, warning people of potential dangers, such as moving vehicles, hazardous materials, etc.; all dangerous sites should be secured from unauthorized access. • Speed breakers will be constructed at critical pedestrian crossings	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
		• Fuel Spills during the construction hours	2	3	6	• Check that vehicles are regularly maintained to prevent fuel and oil leakages and to meet national regulative requirements. • Stop the operation of leaking machinery and replace with those in proper working condition. • Store equipment for cleaning up spillages properly to ensure it is easily available when needed. • Clean the area of spillage immediately to prevent potential contamination of soil and groundwater using a dedicated absorbent material.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB
		• Dust generation and smoke during the construction hours	3	3	9	• All dust generating roads should be watered to suppress dust formation during movement of vehicles, as frequent as necessary depending on circumstances. • Trucks carrying earth, sand or stone should be covered with tarpaulins or other suitable cover. • Ensure that all vehicles and machinery are fitted with appropriate emission control equipment, maintained frequently and serviced to the manufacturers' specifications.	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB

SR. NO	CONSTRUCTION ACTIVITY	IMPACTS	LIKELIHOOD	CONSEQUENCE	RISK SCORE	MITIGATION MEASURES	IMPLEMENTED BY	MONITORED BY
						• Smoke from internal combustion engines should not be visible for more than ten seconds.		
14	Sensitive receptors disturbance due to construction of road and its ancillary facilities	• Inconvenience due to construction activities to SRs. • Construction activities may cause the increase in air emission, noise levels and construction waste disposal near the SR.	3	5	15	• Provision of SSEMP and subplan may be implemented with letter and spirit. • Regular water sprinkling near the SRs, to control the dust • Use of low noise machinery during the construction • Regular maintenance/tunning of construction machinery • Implementation of Dust management plan, OHS plan, Waste Management plan etc	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU-NHA/ADB
14	Natural Hazards (Flooding, earthquake)	• May cause the damage to the project activities and workforce.	3	5	15	• The implementation of the project should 100% in compliance with the approved drawings and SSEMP may raise the profile	Contractor's Project Manager/ EHS person	Environment Specialist of CSC/ PIU/ADB

87. The specific mitigation measures for the risks assessed in Table 4.4 above, have been super imposed on the project layout as shown in Figure 4.2 below, and followed by details of the mitigation measures.

88. Figure 4.2 and Table 4.5 below, will be made part and parcel of the construction drawings and shall be available with the Engineer and Contractor at Site. In circumstances, where any unforeseen risk emerges during the currency of the contract, same shall be reflected with the proposed mitigation measures by updating the foregoing and shall be issued with the prior approval of the Employer.

89. Certainly! Here's a table given below outlining potential environmental impacts and mitigation measures for various activities involved in the construction for sub-project Lot-1 that passes through sensitive receptor areas:

Figure 4-2: Map Showing the Location of Mitigation Measure at Camp Asphalt plant

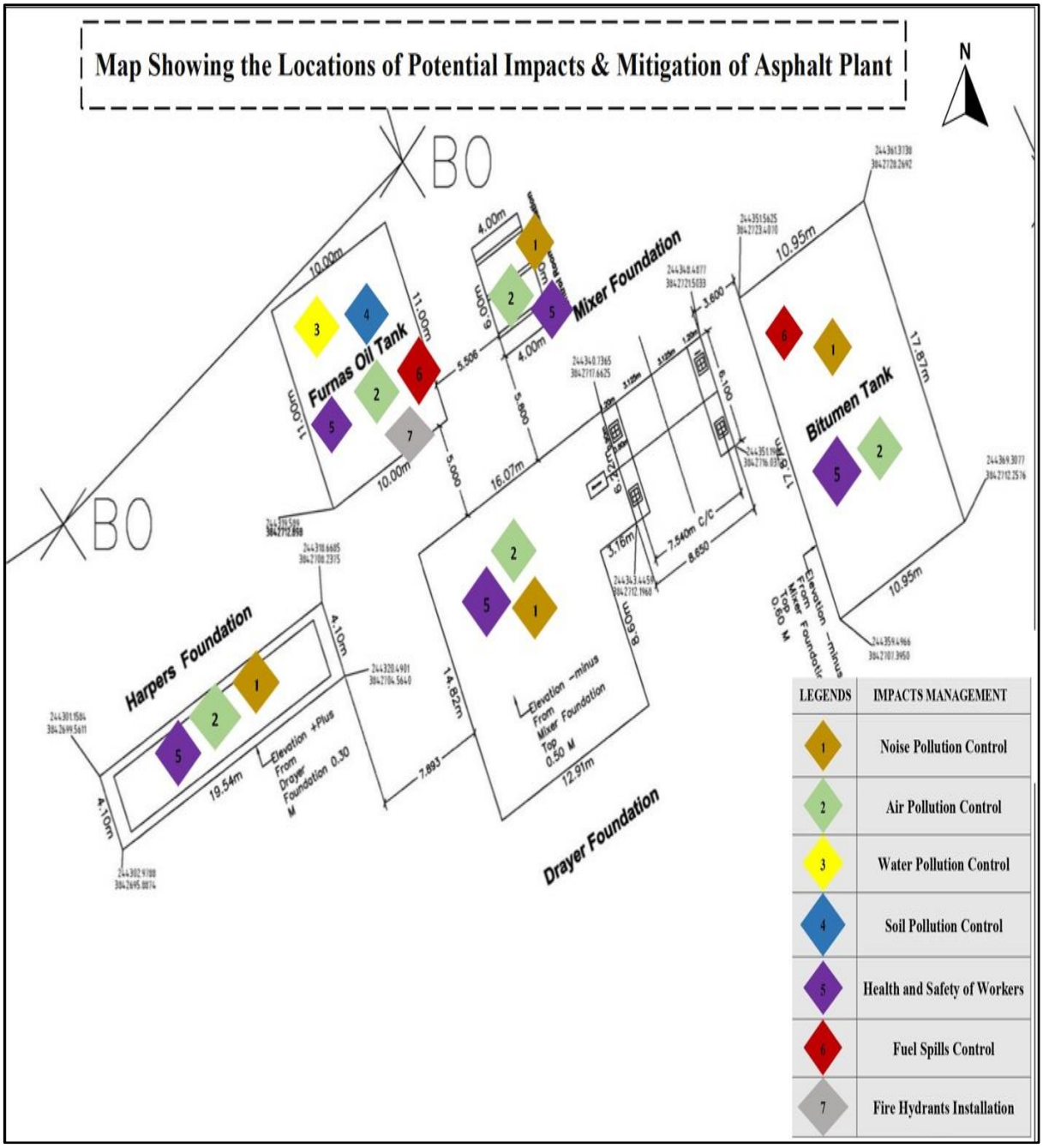
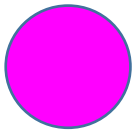
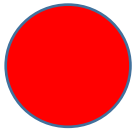


Table 4-5: Environmental Issues and Mitigation Measure (The Environment Management Plan)

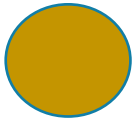
Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
Haul Routes	Air and noise pollution, soil erosion and Vibration	• Use designated routes, implement speed limits, schedule transport during off-peak hours, maintain vehicles to reduce emissions, install noise barriers, and implement dust suppression techniques (Water sprinkling). • On-site maintenance of construction vehicles and equipment will be avoided, as far as possible. • Construction vehicle will be inspected before first use at a project site located near sensitive noise receptors and at least once during construction for compliance with noise reduction measures. • Any Activity outside of normal construction hours will be minimized or avoided completely when located in the vicinity of sensitive noise receptors. • Machinery/equipment noise will be reduced at source by proper design, maintenance and repair of construction machinery and equipment. Noise from vehicles and power generators will be minimized by use of proper silencers and mufflers. • Excessive noise creating equipment will not be allowed to operate and will be replaced.	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

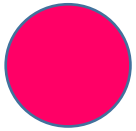
Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
		• Blowing of horns will be prohibited on access roads to project site. • Speed limit of 20 km/h will be observed and enforced for construction traffic			
Vegetation/Bushes removal for construction	Habitat destruction, soil erosion Air Pollution	• restore vegetation in cleared areas, limit clearing to necessary areas, and implement erosion control measures such as sediment traps and silt fences. • Spraying of water will be adopted at and around the project site to control dust emissions. Since there will be a high level of suspended dust in the project area due to the earth works, thus sprinkling of water on road surfaces, including haulage routes, will be undertaken regularly during construction. • Trucks carrying spoil materials will have tarpaulin covers to prevent spills during haulage. • SPM will be monitored at the main dust-creating sites such as crushers, and dust masks will be issued to workers. • The need for large stockpiles shall be minimized by careful planning of the supply of materials from controlled sources. Stockpiles should not be located within 500m of schools, hospitals or other public amenities and shall be covered with tarpaulins when not in use and at the end of the working day to enclose dust. If large stockpiles (>25m^3) of crushed materials	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
		are necessary, they should be enclosed with side barriers and also covered when not in use. • Aggregate material will be delivered to the batching plant in a damp condition, and water sprays will be applied, if needed, to reduce dust emissions. • A minimum distance of 300 meters will be ensured between the batching plant(s)) and the nearest receptor(s) such as hospitals, schools, communities etc.			
Bridges extension (RCC), culvert construction and camp construction	Water Pollution	• No equipment washing is allowed in any surface water bodies throughout the project implementation period; • No wastewater shall be dumped into any water bodies • Wastewater from labor camp and construction site should be canalized into septic tanks without contacting ground. • Septic tanks should be timely emptied by a hired septic truck and transported to legally approved treatment facility or dumpsite • Fuel storage, equipment maintenance, repair workshops, and vehicle washing areas shall be stationed at least 300 m away from any water body	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
Traffic Management at local road crossing and social sites 	Traffic Congestion	• Provide a temporary passage way for general traffic. • Locate parking of machinery in designated sites only. • Adjustment of working hours to local traffic patterns, e.g., avoiding major transport activities during rush hours. • Clear signs shall be installed in view of public, warning people of potential dangers, such as moving vehicles, hazardous materials, etc.; all dangerous sites should be secured from unauthorized access. • Speed breakers will be constructed at critical pedestrian crossings	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB
Occupational Health and Safety 	Accidents, Health Risks to Workers and community	• Ensuring that all workers are provided with and use appropriate Personal Protective Equipment (helmet, hand gloves, boots, masks etc.); • Follow standard practices of safety checks as prescribed before use of equipment; • Provide on-site Health and Safety Training for all site personnel; • Stop the work at sensitive area during the peak hours • Local labor will be actively sought out by the contractor, thereby reducing or completely eliminating the need for work camps. Local labor can reduce social	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
		concerns, as these people will return to their homes at night and act in accordance with accepted community norms. • Monitoring will be required to ensure that the health and safety plan based on contract specifications is followed. • Cement feed hopper areas will be inspected daily to ensure compliance with the requirement of dust masks.			
	Community Health and Safety	• Work areas outside the project site, especially where machinery is involved, will be roped off and will be constantly monitored to ensure that local residents, particularly children stay away. Also, no machinery will be left unattended, particularly in running condition. • Local communities in the project area will be briefed on traffic safety, especially women who are the main care providers to children. • Speed limit of 20 km/hr. will be maintained by all project related vehicles and nighttime driving of project vehicles will be limited where possible. • Educate drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport.	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
		• The movements of the labor and site staff engaged for the project will be restricted to the project site and the Contractor will ensure that the female students/staff of the institutions and offices in the project area do not face any privacy or safety issues due to the labor and site staff.			
	Soil Contamination and siltation	• It will be ensured that spill prevention trays are provided and used during refueling. Also, on-site maintenance of construction vehicles and equipment will be avoided as far as possible. In case on-site maintenance is unavoidable, tarpaulin or other impermeable material will be spread on the ground to prevent contamination of soil. • Regular inspections will be carried out to detect leakages in construction vehicles and equipment and all vehicles will be washed in external commercial facilities. • Fuels, lubricants and chemicals will be stored in covered bounded areas, underlain with impervious lining. Appropriate arrangements, including shovels, plastic bags and absorbent materials will be available near fuel and oil storage areas.	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
	Waste Management (Hazardous and Non-Hazardous)	• Excavated material from water distribution network cells will be stored at site and it will be used as cover after laying of transmission lines. • All types of combustible and non-combustible waste including plastic or glass bottles and cans will be temporarily stored on site and later sold/handed over to a waste/recycling contractor who will utilize these wastes for recycling purposes. • Waste management training for all site staff to be included in Contractor's training plan. • Fuel storage areas and generators will have secondary containment in the form of concrete or brick masonry bunds. The volume of the containment area should be equal to 120% of the total volume of fuel stored. • Fuel and hazardous material storage points must be included in camp layout plan to be submitted for approval. Hazardous material storage areas shall include a concrete floor to prevent soil contamination in case of leaks or spills. Fuel tanks will be checked daily for leaks and all such leaks will be plugged immediately. • Designated vehicles/batching plant wash down and refueling points must be included in camp layout plan to be submitted for approval.	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
	Camp Effluent, Batching and asphalt Plant operational phase	• It will be ensured that no untreated effluent is released to the environment. • A closed sewage treatment system including soak pits and septic tank will be constructed to treat the effluent from the construction/labor camps. • Sewage treatment system will be installed at each respective labor camp based on the number of laborers residing at the respective camp. • Wastewater from laundry, kitchen washings and showers will be disposed-off into soak pits or septic tank (where soak pit cannot be constructed) and after treatment it will disposed of in TMA provided drains in the project area. • Soak pits will be built in absorbent soil and shall be located away from a water well, hand pump or surface water body. Soak pits in non-absorbent soil will not be constructed. • Ensure that the soak pits remain covered all the time and measures are taken to prevent entry of rainwater into them. • Sprinkling of grey water or sewage will not be allowed; in case the septic tank gets filled with sludge, septic tank shall be emptied through vacuum truck and material shall be transferred to treatment facility or approved municipal drain.	The project Manager and Environment and Safety Staff will implement	The Environment Specialist of CSC will monitor and if so required will guide the contractor	The PMU-ES will verify and will report to ADB

Legends	Issues	Specific Mitigation Measures	Role of Contractor	Role of CSC	Role of PMU & ADB
		• Water being released from batching and Asphalt plant(s) must be treated as per requirements of SEQS prior to release to sewerage system/any other water body. • Sewage at the end of construction period to be disposed of in nearest municipal drains after getting approval from concerned municipal authorities. • Implement emission control devices/dust controller Regular monitoring of emissions and noise levels Proper waste management and spill prevention protocols will be implemented			
	Improper haul routes may cause the community inconvenience and incident hazards	• All trucks caring construction material will have l travel on the defined routs. • restrict haulage during peak hours	The project Manager and Environment and Safety Staff will implement	The Environment Specialist will monitor and if so, required will guide the contractor	The PMU-ES will verify and will report to ADB
	Natural Hazards (Flooding, earthquake)	The implementation of the project should 100% in compliance with the approved drawings	The project Manager and Environment and Safety Staff will implement	The Environment Specialist will monitor and if so, required will guide the contractor	The PMU-ES will verify and will report to ADB

5 INSTRUMENTAL ENVIRONMENTAL MONITORING PLAN

90. Monitoring Plan is an essential part of the SSEMP. It is Contractor's contractual obligation to implement the SSEMP. In this regard, Contractor has engaged full time technical staff capable of carrying out the suggested measures in the SSEMP. The detail of environmental monitoring schedule and frequency is given in Table 5.1 and Table 5.2

5.1 Objectives of Environmental Monitoring

91. The main objectives of the monitoring will be to:

- Monitor the actual project impact on physical, biological and socio-economic environment.
- Check the implementation status of SSEMP.
- Recommend mitigation measures for any unexpected impact or where the impact level exceeds from stringent values (national and international standards)
- that anticipated in the SSEMP
- Ensure compliance with legal and community obligations including safety on construction sites.

92. The mmonitoring tests outlined in Table 5.1 below shall be performed through SEPA/federal certified environmental laboratory and reports of monitoring tests would be shared with supervisory consultant for further guidance.

Table 5-1: Pre-Construction Environmental Monitoring Plan

Environmental Parameter	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibilities		
						Execution	Supervision	Monitoring
Noise	To determine the baseline sound pressure levels and to propose the mitigation measures	Ambient noise level near key receptors:	Noise Meter (24hrs)	Near Camp Site and near sensitive receptor.	Once before Site Preparation	Project Manager (PM)/ Environment specialist of Contractor (ESC)	Environment Specialist of CSC	PMU and ADB
Air Quality	To determine the the baseline air quality and to propose/adopt the mitigation measures	PM_{10}, $PM_{2.5}$, SO_2, CO, and NO_x	24-hr concentration levels	At three random receptor locations along the project area	Once before Site Preparation	PM / ESC	Environment Specialist of CSC	PMU and ADB
Groundwater Quality	To establish Groundwater quality in project Area before the commencement of works	pH, TDS, TSS, Coliform, E-coli, EC, Metals, Alkalinity, Total Hardness, Cl, F, As, etc	Water samples for comparison against SEQS / WHO parameters	At two locations around the site in the project area Camp site Nearest Water sources	Once before Site Preparation	PM / ESC	Environment Specialist of CSC	PMU and ADB
Surface Water	To determine the baseline for surface water and to propose/adopt the mitigation measures	Temperature, pH, TDS, BOD, COD, Phenols, Chloride, Copper, Lead, Manganese, Sulphate, Zinc, Silver, Boron, Barium, Iron	Water samples for comparison against SEQS	At camp construction site	Once before Site Preparation	Environment specialist of contractor	Environment Specialist of CSC	ES and ADB

Table 5-2: Construction Environmental Monitoring Plan

Environmental Parameter	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibilities		
						Execution	Supervision	Monitoring
Noise	To determine the effectiveness of noise abatement measure on sound pressure levels	Ambient noise level near key receptors:	Noise Meter (24hrs)	Near Camp Site Active Construction Site Near residential building and near sensitive receptor.	Monthly	Project Manager (PM) / Environment specialist of Contractor (ESC)	Environment Specialist of CSC	PMU and ADB
Air Quality	To determine the effectiveness of dust control program on dust at receptor level	PM_{10}, $PM_{2.5}$, O_2, CO, and NO_x	24-hr concentration levels	At three random receptor locations along the project area	Quarterly	PM / ESC	Environment Specialist of CSC	PMU and ADB
Groundwater Quality	To establish groundwater quality in project area	pH, TDS, TSS, Coliform, E-coli, EC, Metals, Alkalinity, Total Hardness, Cl, F, As etc	Water samples for comparison against SEQS /WHO parameters	At two locations around the site in the project area Camp site Nearest Water pump	Quarterly	PM / ESC	Environment Specialist of CSC	PMU and ADB
Waste water Quality	To establish waste water quality in project site	pH, TDS, TSS, EC, Metals, Alkalinity, BOD_5, COD, Total Hardness, Cl, F, As etc	Water samples for comparison against SEQS /WHO/IFC parameters	Final Discharge from the camp	Quarterly	PM / ESC	Environment Specialist of CSC	PMU and ADB
Safety precautions by workers	To prevent accidents for workers and general public	Number of near miss events and accidents Near Camp Site	Visual inspections	Construction site	Once Daily	Environment specialist of contractor	Environment Specialist of CSC	ES and ADB

Environmental Parameter	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibilities		
						Execution	Supervision	Monitoring
		Active Construction Site Near residential building and near sensitive receptor. taking place						
Soil Contamination	To prevent contamination of soil from oil and toxic chemical spills and leakages	Incidents of oil and toxic chemical spills	Visual inspections	At construction site and at vehicle and machinery refuelling & maintenance areas	Once a month	Environment specialist of contractor	Environment Specialist of CSC	PMU -ES and ADB

5.2 Pre-construction Ambient Environment Monitoring

93. Environmental Monitoring locations have been identified for Ambient Air, Noise and Water Quality monitoring. The criteria for selection of monitoring locations along with map showing environmental monitoring and sampling points are attached in Section Environmental monitoring has been conducted, started from 07 October 2023 to 10 October 2023 and results of ambient air, noise monitoring and water testing are provided as Annex-08

5.3 Environmental Awareness Training

94. The Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the SSEMP.

95. The presentation shall be conducted, as far as is possible, in the English/Urdu language. The trainings will be conducted on quarterly basis for each defined working groups. As a minimum, training should include:

- Explanation of the importance of complying with the SSEMP.
- Discussion of the potential environmental impact of construction activities.
- The benefits of complying with the health, safety and environmental procedures.
- Employees' roles and responsibilities, including emergency preparedness and response.
- Explanation of the mitigation measures against the health, safety and environmental hazards, which must be implemented when carrying out their activities.
- Explanation of the specifics of this SSEMP and its specification.
- The contractor shall keep records of all the training sessions, including names, dates and the information presented.

96. A suitable training program is to train the Contractor staff who will be involved in the Construction Phase and the professional staff from the proponent involved at the operational stage of the Project.

Table 5-3: Detail of Environmental Awareness Training

Training Provided by	Content	Trainees	Duration
Training consultants/ Organizations specializing in environmental management and monitoring	Short seminars and courses on Environmental laws and regulations, daily monitoring and supervision	➢ CAREC Lot-1 staff Contractor ➢ Project staff ➢ Project implementation staff	1 day
Training consultants/ organizations specializing in social management and monitoring	Short seminars and courses on social awareness	➢ Project staff dealing in Social/lands matters	1 day
Training consultants/ organizations specializing in Occupational, health and safety issues	Short lectures relating to Occupational Safety and Health	➢ Contractor's staff	2 days

5.4 Environmental Technical Assistance and Training Plan

97. To raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. Director Environment (EALS) should play a key role in this respect and arrange the training programs

98. Training would be required to all the three agencies including contractor, CSC, PIU, to build their capacity with the following objectives:

- Full understanding of the EMP
- Understanding of their responsibilities
- Enhance the capability to undertake their responsibilities

99. There will be three levels of trainings and CSC will maintain the training register

Table 5-4: Training of Institutions involved in Environmental Compliance

Level of Training	Responsibility	Contents
Project Induction	CSC	Overview of environmental policy of Project, Environmental approval conditions, response to environment incidents, PPEs, Environmental receptors, environmental conformances. Sanitation and Healthcare
Tool Box talks	Filed level by Contractor	Environmental aspect of managing waterways crossings, soil erosion and sedimentation control, dust & noise control, wild life protection, safety of workers, waste management etc.
Capacity Building of NHA, PIU, Contractor, and CSC national staff	International consultant to develop the training material and conduction	ADB safeguard Policy. Environmental laws, Monitoring & Evaluation of EMP, EHS guidelines, Standards, Institutional responsibilities, reporting & feed back

5.5 SSEMP Cost

100. "The cost of, environmental parameters monitoring is not included in the BOQ" suggests that within the Bill of Quantities (BOQ), which is a document detailing the items, quantities, and costs of environmental parameters monitoring have not been accounted for in terms of their costs.

101. The allocated cost for implementation of SSEMP is given in table below 5-4.

Table 5-5: Environmental Management Plan Indicative Cost

Item	Cost USD	Remarks
Mitigation Cost		
Environmental Monitoring		
Environmental Monitoring (air, noise and water for baseline) at key points	5,000	Once for air, noise and water for baseline
Environmental Monitoring (air, noise and water during construction stage) at key points	60,000	Quarterly for air, noise and water for 3 years

Training Arrangements (Training will be carried out by CSC)	50,000	Contractor will pay for the Arrangements
Hiring of Staff	**Cost in Rupees**	
Contractor Environment Specialist	195,000	39 Person months
CSC Environment Specialists (1 International + 3 National)	(130,000 +189000) 319,000	4 person months for international + 26 person months for 3 positions[23]
OHS Manager	150,000	24 months
PIU Environment Staff PIU Grievance Redress Staff	156,000 39,000	39-man months 39-man months
Equip OHS Manager its necessary accessories' stationery laptop etc. for proper monitoring of OHS activities	500,000.	Lum sum
Health safety & Environment Equipment's for Execution		
conduct-OHS Awareness trainings for employer and contractor staff and conducted courses to visitors and new comers	100,000x24	For 24 months
Road safety furniture's for Diversion plans,	5000,000	
Monthly OHS Manual	500,000	Lum sum
Vehicles	100,000	Lumpsum
Fire extinguishers	4,500	Lumpsum
PPEs	700,000	Lumpsum
Drinking water facilities	5,000	Lumpsum
First Aid	300,000	Lumpsum
Tarpaulin	10,000	Lumpsum
Borrow pits	-	Included in project cost
Disposal area	-	Included in project cost
Total Cost	100 million RS	
Note: Environmental Mitigation Cost of PKR 300 M (2.14 M) is included in PC-1		

6 ENVIRONMENTAL WORK PLANS

6.1 Construction Safety & Security Plan

102. The construction safety plan for the project covers the safety and health policy, safety rules, job safety training, vehicle safety, hazard communication program, etc.

6.2 Conduct of Work

103. Contractor and sub-contractors shall familiarize their staff and work crews with known hazards on jobsites, provide training, and ensure work proceeds in a safe and secure manner. Jobsite rules must be followed and no work shall be conducted in an unsafe manner or unsafe environment. Project and contractor staff shall not tamper with or otherwise render any safety or security measure ineffective, to include alarms, signage, notices, guardrails, lighting, or any other measure.

104. Contractor shall ensure that hazard analysis and vulnerability assessments are undertaken and completed, and that mitigations of hazards and vulnerabilities are implemented. Any hazards or vulnerabilities that cannot be mitigated to an acceptable risk level must be communicated to all work crews and visitors.

6.3 Types of Safety & Security Events

105. The variety of safety and security events, impacts, locations, levels of severity, and combinations with other elements or other emergencies makes it impossible to define and plan for every scenario. However, general types of events can be identified that may be faced by contractors, whether natural (e.g., flooding), accidental (e.g., fall), intentional (e.g., theft), or technological (e.g., communications failure). Contractor SSEMP must adequately address reasonable possibilities.

106. Listed below are safety and security events and emergencies for which Contractor shall be prepared to respond to.

- Natural events such as extreme temperatures
- Structural collapse or imminent collapse of structures or buildings
- Fire or smoke at or near works areas
- Accidental or intentional release of hazardous and non-hazardous material
- Loss of power, lighting or communications at job sites
- Collision involving private vehicles and/or construction vehicles/equipment
- Person struck by vehicle or construction equipment
- Unauthorized access onto the worksite
- Theft of material or equipment from job sites
- Vandalism or criminal acts
- Response to injuries, fatalities, medical emergencies or equipment/facility damage
- Pandemic of communicable or infectious disease

- Site evacuation, including persons with disabilities and
- Other scenarios deemed reasonable and appropriate.

6.4 Signage & Access Control

107. Proper signage shall be placed on the exterior of each worksite so that persons approaching the site from any area, sidewalk or known or anticipated access point are sufficiently informed that they are approaching a controlled area.

108. Signage must identify the site as a worksite, with restricted public entry, and warn of the potential dangers. A phone number must be provided for notification of hazardous or emergency conditions or to report suspicious or inappropriate activity.

109. Signage shall be placed within the site prohibiting unauthorized crewmembers from operating machinery or equipment for which they are not qualified or trained, informing site crews and visitors of Personal Protective Equipment (PPE) requirements and any other safety or security requirements.

110. Appropriate access controls shall be implemented at all worksites. Access control shall include barriers, fencing and gates or other methods to prevent unauthorized individuals and vehicles from entering the worksite.

111. All worksites on and along public roadways shall provide physical separation through traffic control and pedestrian control, using barrels, barriers, tape, signage, or other means as appropriate. Work performed in close proximity to traffic must comply with all SOPs set by the Contractor. Work zones must be adequately protected from live traffic.

112. Contractor shall keep entry/exit records of all construction work zone visitors. Each visitor shall be briefed and trained as appropriate about concerned hazards and dangers present at the work site before they are allowed to enter. All authorized work site visitors shall be required to wear proper personal protective equipment (PPE).

Figure 6-1: Signage to be used during construction

6.5 Drugs and Alcohol Usage

113. No person shall be working on or otherwise present at any contractor's construction site while under the influence of alcohol or any prescription drug that was not specifically prescribed to that person and taken in the directed amounts. No person shall operate any vehicle or machinery, or work in hazardous areas while under any narcotic or drug that impairs judgment or cause dizziness or drowsiness unless there is written approval by the attending physician. Particular concern shall be applied if this individual performs a safety sensitive role and/or operates equipment or machinery at the job site. Any person found in such condition must be immediately removed by the site foreman. Contractor shall enforce all alcohol and drug-free workplace policies and requirements.

114. The use of illegal drugs and alcohol is strictly prohibited on all contractors' construction project sites. As part of their Construction Safety and Security Plan, construction contractors and all subcontractors are required to have a Program that addresses the prohibited use of alcohol and drugs, including pre-placement, periodic, for cause, and post-accident/incident testing.

6.6 Fall Protection

115. Contractors are committed to 100% continuous fall protection, whenever workers are exposed to fall hazards of six feet (6') or greater. This policy applies to all personnel working for or on behalf of Contractors.

- Contractors will take all practical measures to eliminate, prevent, and control fall hazards. All work will be planned with the intent to eliminate identified fall hazards. When a fall hazard has been identified, and cannot be eliminated, then effective means of fall protection will be implemented.
- Employees who are exposed to falls of six feet (6') or greater while working on scaffolds, elevated decks, elevated platforms, low-slope roofing, stairways, stairwells, reinforced steel, and any other elevated area or equipment, and excavations with a slope greater than 40 degrees will be protected from falls. There is no set safe distance from a leading edge or perimeter that would exempt a worker from fall protection.
- Any employee who must remove a guardrail, wall or floor opening cover, or other fall protection system in the course of their work will be responsible for providing interim protection for themselves as well as others and immediately replacing the protective system when their work is complete, during breaks or at the end of the work shift.
- When no other practical means of fall protection can be used, employees will be tied off at all times utilizing a personal fall arrest system.
- Employees may work from ladders without personal fall protection when the following criteria are met:
- Working at height does not exceed 6 feet.
- Ladder is properly tied off/secured or in the case of a stepladder; legs are fully extended and spreaders are locked.
- Work does not involve working within 15 feet of a fall exposure such as an elevated slab perimeter.

6.7 Amber Lights on Vehicles

116. Amber warning lights shall be used on all vehicles in work zones to identify them in protected areas from adjacent traffic and other work or construction vehicles and to improve their visibility within traffic areas.

6.8 Hazardous Materials – Usage and Storage

117. The use of any toxic materials must be properly labeled, handled only with proper PPE, and used as directed by the manufacturer and in compliance with the safety data sheets (SDS). Use of all such materials must be in accordance with OSHA specifications.

118. All hazardous materials, if stored on site, must be properly stored in safe, designated locations in appropriate containers, and shall be adequately protected from inappropriate access. MSDS for all materials used on site must be kept at the worksite and be available for audit, or in case of accidental or intentional release or exposure. Contractor safety and security personnel shall be advised as to what material is on site and where within the site it is located to allow for any personal protective equipment (PPE) or ventilation requirements that must be followed when patrolling or handling such material. All

hazardous materials shall be disposed of through proper means and locations based on the material type.

6.9 Tools and Equipment

119. All tools and equipment shall be either securely locked up each day before leaving a worksite or shall be removed from the site. No machinery or equipment shall be left unsecured and unattended such that a non-authorized person may move, start, and/or operate such machinery or equipment.

6.10 Lighting

120. All worksites shall have adequate lighting to provide a safe and secure working environment. If natural light is insufficient for the task or to provide a safe environment and to support police, security, or patrols of worksites, supplemental lighting will be provided. If CCTV will be used, the lighting shall be sufficient to provide adequate illumination for the CCTV system.

6.11 Personal Protective Equipment (PPE) & No: of Workers

121. All personnel, including visitors to the work site locations associated with the project, shall wear the following minimum PPE:

- Head Protection: Hard hats will be properly worn at all times.
- Eye and Face Protection: Safety glasses.
- Foot Protection: All employees shall wear work boots that cover the ankle at a minimum and shall keep their footwear in good condition at all times.
- High Visibility Clothing: Employee will wear glowing jackets
- Hearing Protection: Hearing protection will be worn like ear plugs etc.
- Hand, Arm and Leg Protection: Employees will wear task specific gloves.

122. Numbers of workers depends on volume of construction activity being executed at site, workers/labors number varies with the time and construction phase of the project contractor should ensure the availability of PPEs accordingly and record of PPEs should be kept consequently. All job specific PPEs will be provided to all workers and ensure to be properly used by all workers.

6.11.1 Fire Protection & Fire Prevention

123. Temporary fire protection measures, such as fire extinguishers will be installed at required places. If a fire extinguisher is discharged for any purpose, it will be reported to a supervisor and removed from the work area.

- Combustible refuse from construction operations will not be burned or dumped anywhere on the construction site. Such refuse will be removed at frequent intervals, as needed.
- Oily rags and waste are to be stored separately in metal containers fitted with
- Self-closing lids. Trash and refuse must be placed in trash containers provided for this purpose.
- No open fires are permitted.

- A minimum clearance of 15 feet from fire hydrants must be maintained at all times for stored materials.
- All fire safety rules and signs will be observed and obeyed.
- No Smoking will be allowed nearby such points.

6.11.2 Fire Fighting

124. Wood burning will not be allowed in the camp site. Immediate and appropriate action is the key to preventing major losses due to fires. If a fire occurs, call OHS Staff immediately and assist with evacuation of the area if necessary. If possible, remove or shut off the fuel source such as removing debris or material or shutting off the fuel supply. Evacuation routes shall be kept clear. After the fire has been extinguished, a thorough investigation shall be conducted and documented.

6.11.3 Severe Weather

125. The project activities shall include procedures to address severe weather that affects construction sites, including the protection of machines/equipment and the crew working on location. Protection and hydration will be provided for workers in extreme heat. Rain must not be permitted to enter electrical equipment, which may cause electrocution to the user.

6.11.4 Housekeeping & Material Storage

126. All equipment, tools and materials will be stored, stacked, located, placed, temporarily spotted, or set up for manipulation in such a manner as to render it highly improbable that an accident/incident or injury could occur in the work area.

127. The following measures regarding housekeeping will be taken;

- All material, spoils, debris, etc. is to be cleaned-up as it accumulates and at the end of each work shift.
- Accumulation of trash and debris will not be tolerated.
- Access walkways, roadways, and fire lanes will not be blocked with material, tools, ladders, scaffolds, welding leads, air hoses or electrical cords.
- Trash containers will be placed at appropriate locations.
- Stacks of lumber, structural steel, and similar materials shall be maintained so the stack is stable, to prevent falling or collapsing. No lumber, structural steel, or similar materials will be stacked/stored above fourteen feet (14').

6.12 Security Risk

128. In view of the present security situation, the Contractor will have to make necessary security measures to avoid the risk of security. Due to the uncertainty of the attacker the measures for security will be with the orientation of precaution. The following precaution measures will be taken strictly.

- All camps will be fenced with temporary arrangement and at the entry of fenced the camp, security guards will be deployed for the security checking. All persons who enter or exit from the camp will be asked and searched. All vehicles coming inside will be thoroughly searched to avoid taking any hazardous materials. The person who is not

cooperative with the security staff for checking will be rejected to enter or exit from the gate.

- All staff working for the project from the contractor will be issued a company working card to identity and such identity card will be required to be put on the obvious position. Anyone who is not taking such cards may be asked and searched by the security person. If the person cannot answer these questions satisfactorily, they may be treated as the suspect and taken by the police deployed at the camps or from the nearby police station.
- Coordination with local police & authorities will be done to acquire more support and facilities from these authorities.

6.13 Site Inspections

129. Daily inspections of construction sites, by competent trained persons, shall be performed to ensure the physical and behavioral conformance with this Plan, the Contractor SSEMP, and applicable local, state, and Federal regulations. Each inspection shall be logged. Any findings of non-conformance shall be escalated as a safety/security finding and brought to resolution in a timely manner. For findings of imminent danger, corrective action must be taken immediately; if immediate corrective action is not possible, the job location shall be shut down until the condition can be remedied.

6.14 Construction Safety and Security Reporting

130. Anyone witnessing or otherwise having knowledge of unsafe behavior or an unsafe condition on or around the construction site shall immediately report it to the foreman, supervisor or designated Safety and Security Manager at the site. The responsible party must take immediate action to remedy the situation. If the unsafe condition or practice cannot be immediately corrected (e.g., a risk resulting from defective equipment), then work shall be halted at the impacted part of the job site. Police shall be called immediately if a life-threatening situation is present.

131. A written report following the incident shall be submitted to the PM or CM within one day of the event, to include details of the event, persons involved, time/date and work conditions of the event, action taken, and suspected/known causes of the event. A full report to be submitted within three days of the incident shall include the above information as well as detailed findings as to the cause of the event and the corrective action taken to prevent, if possible, future recurrences.

6.15 Hazards and Vulnerability Identification & Management

132. A central element of a construction safety and security program is the management of construction site hazards and vulnerabilities. A key tool to support this is a safety and security risk assessment, which identifies hazards and vulnerabilities for the physical construction aspects of the project and then develops methods to mitigate or control such risks to acceptable levels or to eliminate them. Contractor must include a methodology for assessing hazards and vulnerabilities within their work site areas. Contractor will perform the hazard and vulnerability assessment prior to performing work on the project. The outcome from the risk assessment and the plan for appropriate mitigations must be provided to the environment specialist of CSC for approval prior to the start of field work on the project.

6.16 Training

133. The Contractor shall develop a health, safety and security training program and provide instructional health, safety, and security training for all staff working at construction sites. Training shall advise all employees at construction sites of the potential hazards on the site; the knowledge and procedures to identify, mitigate, and/or avoid such hazards; and actions to be taken in the event of a health, safety, or security incident.

134. All trainings shall be conducted by a qualified competent person familiar with the work and hazards at the job sites, and deemed competent in terms of education, relevant experience, and instructional capability.

6.17 Internal Audit & Review

135. Contractor shall do internal audit & review to ensure compliance with this Plan and the Contractor's SSEMP, to ensure a safe, healthy, and secure environment, both physically and behaviorally, for workers, equipment, property, visitors and the general public at and near work sites. Internal audit maybe (i) At least once every year; (ii) after a major safety or security incident.

6.18 HSE Tool Box Talk

136. A "toolbox talk" is another term for a safety meeting. The term "Toolbox Talk" was originally used as a way to encourage building workers to have a regular documented safety meeting. The best time to do this was considered to be when they stood around the tool box in the morning before starting work, so the term Toolbox Talk was born.

137. Today the Toolbox Talk is widely accepted as a common way of ensuring consultation occurs between workers, and is a practical way to raise workers' awareness of specific problems on site. It also helps to remind workers that health and safety are an important part of the working day. Toolbox Talks should be scheduled as needed, depending on the level of risks faced on the job, or the levels of experience of the workers. Management should assess how often and for how long Toolbox Talks should be held in your company.

138. The Toolbox Talk should generally, but not necessarily, be conducted by an employee of supervisory level or with basic OHS awareness. Any issues raised that cannot be resolved should be addressed by senior management.

139. The following information should be included when completing a Toolbox Talk Form:

- names and signatures of all persons present – this is important to show who has participated in the meeting,
- topics discussed – this shows what topics were covered during the meeting,
- any job specific training or instructions that have been given in the meeting, and
- Who raised the issue or added to the discussion, to show that there has been active consultation with all persons attending the meeting, and that all parties have had a chance to raise issues rather than the Toolbox Talk just being a lecture conducted by the supervisor. Toolbox Talks are an excellent way of allowing open consultation within any business structure and should always be documented and reviewed.

7 GRIEVANCE REDRESS MECHANISM (GRM)

7.1 GRM Overview

140. The social and environmental issues relating to the implementation of the Project works and their mitigation shall be identified in the SSEMP document. However, in spite of best efforts, there is very every chance that the individuals / communities affected by the project are dissatisfied with the measures adopted to address the adverse environment or social impacts of the project. In this situation an effective Grievance Redressal Mechanism (GRM) is established to ensure timely and successful implementation of the project. It will also provide a public forum to the aggrieved to raise their objections and through conflict resolution, address these issues adequately.

141. The main objective of the GRM is to investigate charges of irregularities and complaints received from any affected person and provide an early, transparent and fair resolution. Keeping in view the findings of the baseline study, it is anticipated that the nature of such complaints maybe as following

- Problems in the location of contractor's infrastructure like camp site, etc.
- Any disruption by the civil works by contractor/s like water channel disturbance, etc.
- Non-observance of project principles as laid down in the contract documents
- Any other issue arising during the project implementation including the dust generation, tree cutting, indiscriminate disposal of solid waste, involuntary resettlement, if any, traffic issues, etc.

7.2. GRM Mechanism:

142. The formal GRM proposed and provided for this project has a three-tiered structure including: first at local/village level set-up through community involvement; second at PIU level where a formal GRC is established and operational and third at NHA (PIU/EALS) level. This will enable to resolve simpler and less complex grievances at local and project level by mobilizing local recourse and provide a higher-level review system to look into and address more difficult and complex issues that are not resolved at the PIU or local level. To ensure that all geographic reaches and relevant administrative units involved in the project are covered under the GRM, it will include

(i) first level of GRM consisting of the Displaced Person Committees (DPCs) as a grievance redress focal points for each affected village; and (ii) a project-based grievance redress committee (GRC) at PIU level and the iii) the PIU/ELAS level grievance redress focal points. The functions and responsibilities for each level of GRM are explained below.

7.2.1 First Level of GRM

143. The first level of grievance redress system includes the village level displaced person committee (DPC) selected and nominated by the displaced person from each affected village/settlement located along the project road alignment. The DPC will be presided by its president who will be selected by the committee members nominated by the displaced persons. These DPCs will be a formal node for coordination and communication with the project execution authorities and are required to act as local node for recording and redress of grievances as per their local customs and practices. The project LAR units and

the technical staff will maintain a close liaison with the DPCs to guise and assist them in recording and resolution of grievances as per provision of this LARP/EMP. In this regard, the Environmental specialist/resettlement specialist and social mobilizers will closely coordinate and work together with the DPC members and the local community to ensure grievances are recorded, investigated and discussed during DPC's meetings and guide them to explore and recommend remedial measures at their level in accordance with provisions of the resettlement plan. They will also liaise with the counterpart engineering staff, and contractors to ensure implementation of the DPC's recommendations and/or raising the complaint to sub- project GRC for review and redress if the issues are not resolved at DPC level.

7.2.2 Second Level of GRM

144. If the grievance is not resolved at village DPC level, it shall be raised to formal grievance redress mechanism which is first level of GRM. A formal complaint will be tendered with the Project GRC by the aggrieved persons or through the social mobilizers. A complaint register will be maintained by the GRC through DD/AD (land management, implementation and social) to record the complaints received covering complaint receipt date, name and address of the complainant, gist of complaint, gist of field report, decision of GRC with its communication date to the DPs and decision implementation status or elevating the complaint to next level of GRM in case of disagreement by the aggrieved Persons

145. Once the complaint is submitted with the Project GRC, it shall record it in complaint register and send acknowledgement to the affected person without delay; and initiate the process of investigation within 7 days through its technical and resettlement/environment field teams

146. After receipt of directions of GRC, the field teams including resettlement/environment specialist and Land Staff will coordinate with complainant and complete its investigation of facts in consultation with aggrieved person, DPC representatives and local community and submit its fact-finding report and recommendations to the GRC within 15 days from the receipt of complaint. Upon receipt of the fact-finding report, the GRC will summon and hear the aggrieved person and decide the complaint in light of SSEMP and communicate its decision to the PIU and aggrieved persons within next 15 days. On an overall basis,

147. The GRC will decide the grievances within 30 days of receipt of complaint in GRC. If the final decision made by GRC is not acceptable to the DPs they may advise GRC for elevation of their grievance to next higher level of GRM. However, the project based GRM will not bar aggrieved persons to avail remedies available under the court of law and they will be at liberty to approach the court of law as and when they wish to do so.

7.2.3 Third Level of GRM

148. In case the aggrieved person is unsatisfied with GRC decision, he himself or through GRC can elevate his complaint to third level of GRM i.e., at PIU/EALS in NHA HQ, within 7 days after GRC decision on complaint. Once the complaint is received at PIU/EALS along with GRC proceedings, it will be registered and the complainant will be informed accordingly. The GRC record and complainants' claim will be scrutinized and the complainant will be advised to produce any additional record in favor of his claim. After thorough review and scrutiny of the available record PIU/ EALS can visit the field to meet the complainant, collect additional information and evidence if required. Once the investigations are

completed the PIU/EALS shall get its recommendations approved by Member (aided projects) and forward them to the Project Director and the complainant accordingly within 30 days of receipt of the complaint. Moreover, the aggrieved person/party (s) is free to go to the Court of Law as and when desired.

149. **Awareness:** The stakeholders will be informed of the establishment of the PIU, GRC and GFPs through a short and intensive awareness campaign. Under the awareness campaign, the proponent will share

- Objective, function and the responsibilities of the PIU, GRC and GFPs;
- Means of accessing the PIU and the mechanics of registering a grievance at the PIU,
- GRC and GFPs;
- Operating principles of the PIU, GRC and GFPs; and contact detail

150. Additional awareness campaigns may be organized, if necessary.

7.2.4 Complaints Management Register (CMR)

151. Under the GRM, community complaint registers will be maintained by contractor and review by the RE/ARE of CSC and kept at various site offices. All complaints and grievances will be logged in these registers by RE/ARE concerned along with details including date of complaint, name and address of complainant, and description of complaint. The GRC will then fill additional details in the register including the corrective action needed, timeframe for corrective action to be taken, and person/project entity responsible for corrective action. Once the corrective action is implemented, the complainant will be informed and the GRC will document the associated details in the register including the description of action taken, date of action completed, views of the complainant regarding the corrective action, and any residual grievance.

152. The GRM will be operated in a transparent and participatory manner. Complete details of the GRM including its procedures, actions planned, and action taken will be widely disseminated particularly among the local communities, the GRM registers will remain accessible to communities and other stakeholders, and complete information of the corrective actions taken in response to the grievances will be shared with the stakeholders particularly the complainant and related community.

7.3 Constitution and Function of the GRC

153. The project based GRC will be a public forum for raising concerns and invoking conflict resolution system available within the project for addressing LAR related and other social or environmental issues adequately. The GRCs will continue to function, for the benefit of the DPs/aggrieved persons, during and after implementation of LARP/SSEMP till completion of the project.

154. The GRC will be headed by the Project Director, including DD/AD (land) or AD (environment) as member and focal person for social and environmental grievances, the Land Acquisition Collector and resettlement /environment Specialist mobilized through supervisions consultants as members. Besides, the GRC may also include one representative form District Revenue Office and Village level Displaced Persons Committees (DPCs).

155. For redress of grievances, the GRC will meet at least once in a month. For the purpose of social safeguards, the GRC will review grievances involving all resettlement issues including, compensation, relocation, and other assistance. GRC will perform following functions:

- Record grievances; categorize and acknowledge the complainants about receipt of grievances; investigate the issue and summon aggrieved persons/parties to produce the evidence and explain their claims; and resolve the grievances within stipulated time frame preferably in 30 days;
- Communicate its decisions and recommendations on all resolved disputes to Project executors and the aggrieved persons for implementation and follow the implementation progress;
- Forward the un-resolved cases, at its own or as required by the unsatisfied aggrieved parties, to PIU (second level of GRM) within an appropriate time frame with reasons recorded and its recommendations for review and resolution at second level of GRM;
- Develop an information dissemination system and acknowledge the aggrieved parties about the development regarding their grievance and decision of PIU level;
- Maintain a complaint register accessible to the all stakeholders with brief information about complaints and GRC decision with status report; and
- Maintain complete record of all complaints received by the GRC with actions taken.

156. The flow chart of the proposed redress mechanism is shown below in **Figure 7-1.**

Figure 7-1: Flow Chart of the Grievance Redress Mechanism

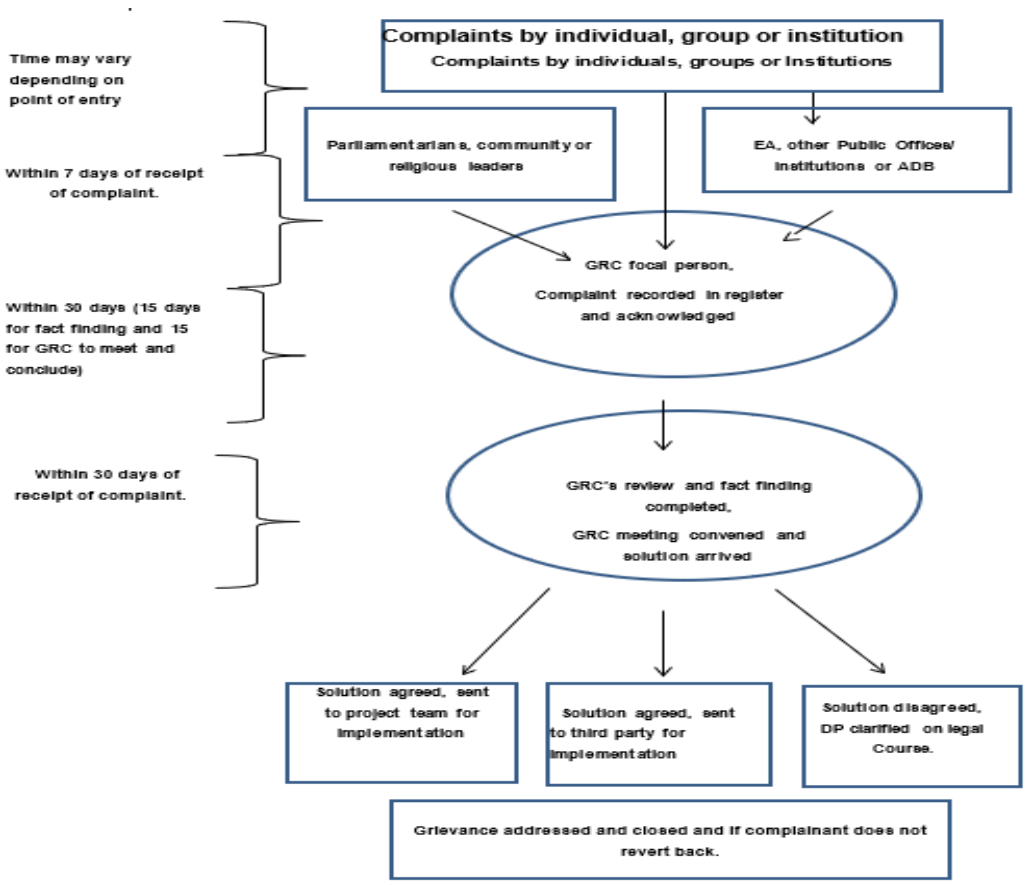


Figure 7-2: Grievance Registration form

Grievance Registration Form

Name of Complainant: _____

Date:

Received by: _____

Grievance Details: _____

_____

_____

_____

_____

Contact Details: _____

Desired Solution by Complainant

_____

_____

_____

_____

Remarks by Environmental Engineer

_____

_____

_____

_____ _____

Name & Signature / Thumb of Complainant Official Person Name & Signature

ANNEXURE'S

ANNEXURE 1 COVID 19 MANAGEMENT PLAN

Project Name: Central Asia of Regional Economic Corridor (CAREC) N-55, LOT-1

1. Introduction:

The purpose of this COVID-19 Management Plan is to outline the measures and protocols in place for the safe operation of our road construction project, [Central Asia of Regional Economic Corridor (CAREC) N-55, T-II LOT-1], which includes a campsite and working site with more than 300 workers. This plan is submitted in accordance with the Site-Specific Environmental Management Plan (SSEMP) requirements and aims to prevent the spread of COVID-19 among workers and stakeholders.

2. Objectives

The primary objectives of this COVID-19 Management Plan are:

i. To protect the health and safety of all workers on the construction site.

ii. To prevent the spread of COVID-19 within the campsite and working site.

iii. To ensure compliance with local health regulations and guidelines.

iv. To maintain project continuity while adhering to COVID-19 safety measures.

3. Responsibilities:

I. **Project Manager:** Responsible for overall implementation and oversight of COVID-19 measures.

II. **Contractor OHS Manager:** Ensures compliance with environmental, health and safety guidelines.

III. **Medical Personnel:** Available for immediate medical assistance.

IV. **Workers:** Responsible for following all COVID-19 protocols.

4. Risk Assessment:

OHS Manager will Identify and assess COVID-19 risks, considering the size and nature of the project. Risk factors may include worker density, proximity to residential areas, and local COVID-19 infection rates.

5. Communication:

M/S ZKB Establish clear communication channels for COVID-19 information dissemination, including:

- Daily briefings to workers.
- Posting signage and guidelines throughout the campsite and working site.
- Providing contact information for reporting symptoms or concerns.

6. Health Screening:

- Medical team Implement daily health screenings for all workers, including:
- Temperature checks.
- Symptom questionnaires.
- Isolation of symptomatic individuals.

7. Hygiene and Sanitation:

- OHS Officer Maintain high standards of hygiene and sanitation, including:
- Frequent hand washing stations.
- Availability of hand sanitizers.
- Regular cleaning and disinfection of common areas.
- Proper disposal of used personal protective equipment (PPE).

8. Personal Protective Equipment (PPE):

- OHS Team will ensure the availability and proper use of PPE, including:
- Masks for all workers.
- Gloves as needed.
- Face shields or goggles where necessary.

9. Social Distancing:

- OHS Team enforce social distancing measures:
- Restructure work areas to maintain a minimum of 6 feet between workers.
- Stagger work shifts or breaks to reduce crowding.
- Limit the number of individuals in shared spaces.

10. Campsite Management:

- Security team will be responsible to control the access of limited visitors to the campsite.
- Implement strict access controls.
- Maintain proper ventilation in sleeping quarters.
- Isolate and test any worker displaying symptoms.

11. Food Services:

- Implement measures to ensure safe food preparation and service.
- Promote distancing during meal times.
- Increase cleaning and disinfection of dining areas.

12. Transportation:

- Ensure vehicles are disinfected regularly.
- Limit occupancy to allow for social distancing.
- Wearing of masks during transportation.

13. Training and Awareness:

OHS team will conduct regular training sessions to ensure workers understand and adhere to COVID-19 protocols.

14. Reporting and Response:

- Establish a protocol for reporting positive cases.
- Isolate and provide medical assistance to affected individuals.
- Communicate with local health authorities as required.

15. Record Keeping:

- Maintain detailed records of all COVID-19 measures, including screenings, incidents, and responses.

16. Compliance and Monitoring:

- Regularly audit and update the COVID-19 Management Plan as needed.
- Appoint a compliance officer to oversee adherence to protocols.

17. Exit Strategy:

Develop an exit strategy for when the pandemic subsides, including the phased removal of COVID-19 measures.

18. Emergency Response:

In the event of a COVID-19 outbreak, develop a clear emergency response plan for the campsite and working site.

شکل 5: اسکریننگ

2۔ کام کی جگہ پر سکریننگ

» سائٹ میں داخل ہونے سے پہلے کارکن چہرے پر ماسک پہنیں گے اور صرف کھاتے یا پیتے وقت ہی ہٹائیں گے۔ کام کی جگہ پر تمام افراد اپنے درجہ حرارت کی انفراریڈ تھرمامیٹر سے سکریننگ کریں گے اور صحت کا چیک لسٹ فارم بھریں گے۔ ایک ہیلتھ چیک لسٹ فارم اس کتابچے میں بھی فراہم کیا گیا ہے (نمونہ چیک لسٹ 1)، چیک لسٹ میں مندرجہ ذیل سمیت دیگر امور شامل ہیں:

- کیا آپ مندرجہ ذیل کا سامنا کر رہے ہیں: کچھ دنوں سے گلے میں درد، جسم میں درد، سر درد یا بخار؟
- کیا آپ نے ایک مصدقہ کووڈ-19 کیس کے قریب رہ کر کام کیا ہے؟
- کیا آپ کا گزشتہ دو ہفتوں میں بخار، کھانسی، زکام یا گلے میں درد والے کسی شخص سے کوئی رابطہ ہوا ہے؟
- کیا آپ نے پچھلے چودہ دنوں میں ملک سے باہر سفر کیا ہے؟

3۔ تعمیراتی سائٹس پر کووڈ-19 سے بچاؤ کے لیے رہنما خطوط

1۔ سیلف چیک سکریننگ

» کووڈ-19 کی وبا کے بارے میں تازہ ترین معلومات سے آگاہ رہیں جو قومی، ریاستی اور مقامی پبلک ہیلتھ اتھارٹی کی طرف سے فراہم کی گئی ہیں۔

» کارکن اپنی صحت کی حالت کا جائزہ لے اور ان علامات پر نظر رکھے جو کووڈ-19 سے متعلق ہو سکتی ہیں۔ اگر کارکن ان علامات میں سے کوئی محسوس کرتا ہے تو کارکن کو مشورہ دیا جاتا ہے کہ وہ صحت حکام سے رابطہ کرے اور ای ایچ ایس آفیسر یا آن سائٹ سپر وائزر کو مطلع کرے۔

» اگر کسی کارکن میں کووڈ-19 کی علامات پائی جاتی ہوں تو وہ کام کی جگہ پر نہ آئے۔

شکل 4: کووڈ-19 کی علامات

» قابل قبول حد سے زیادہ درجہ حرارت رکھنے والے کارکنوں (5 منٹ کے آرام کے بعد بھی) یا ایسے کارکن جن میں کوئی علامت پائی جاتی ہو انہیں ٹھیکیدار کی طرف سے مقرر کردہ علاقے میں الگ تھلگ کیا جائے گا اور ایک طبی پیشہ ور ان کی دیکھ بھال کرے گا۔

» کارکن اور مہمان علامات کی خود جانچ پڑتال کریں اور کووڈ-19 علامات نہ پائے جانے کی تصدیق کروائیں گے۔ ہیلتھ سکریننگ چیک لسٹ (سیمپل چیک لسٹ 1) اور دستاویزات اس بات کو یقینی بنانے کے لئے کلیدی ہیں کہ کارکنوں نے خود جانچ پڑتال کی ہے۔

» ای ایچ ایس آفیسر اور آن سائٹ سپر وائزر تمام کارکنوں کو سکریننگ اور دستاویزات کی اہمیت بتائیں گے۔ چیک لسٹ اور دیگر معلوماتی مواد بھی مقامی زبان میں دستیاب ہونا چاہئے۔

4۔اشارے اور یاد دہانی

» ہر ٹول باکس میٹنگ میں کارکن اس بات کی تصدیق کریں گے کہ وہ صحت مند ہیں (سر درد، بخار، زکام یا کھانسی کی کوئی علامات نہیں) اور متعدی بیماریوں کے پھیلاؤ سے بچنے کے لیے جگہ جگہ پر وٹوکول کا خیال رکھیں گے۔

» ہر ورک سائٹ پر ایک لیمینٹیڈ کووڈ-19 حفاظتی رہنما خطوط اور ہاتھ دھونے کی ہدایات موجود ہونی چاہئیں۔

سائن ایج اور پوسٹر ایسی نمایاں جگہوں پر آویزاں ہونے چاہئیں جہاں یہ بآسانی نظر آسکیں

شکل 7: سائن ایج اور یاد دہانیاں

» قابل قبول حد سے زیادہ درجہ حرارت رکھنے والے کارکنوں (5 منٹ کے آرام کے بعد بھی) یا ایسے کارکن جن میں کوئی علامت پائی جاتی ہو انہیں ٹھیکیدار کی طرف سے مقرر کردہ علاقے میں الگ تھلگ کیا جائے گا اور ایک طبی پیشہ وران کی دیکھ بھال کرے گا۔

» کارکن اور مہمان علامات کی خود جانچ پڑتال کریں اور کووڈ-19 علامات نہ پائے جانے کی تصدیق کروائیں گے۔ ہیلتھ سکریننگ چیک لسٹ (سپیشل چیک لسٹ 1) اور دستاویزات اس بات کو یقینی بنانے کے لئے کلیدی ہیں کہ کارکنوں نے خود جانچ پڑتال کی ہے۔

» ای ایچ ایس آفیسر اور آن سائٹ سپروائزر تمام کارکنوں کو سکریننگ اور دستاویزات کی اہمیت بتائیں گے۔ چیک لسٹ اور دیگر معلوماتی مواد بھی مقامی زبان میں دستیاب ہونا چاہئے۔

5۔مناسب حفظان صحت

» کم از کم بیس سیکنڈ کے لیے اکثر صابن سے ہاتھ دھوئیں۔

» ہینڈ سینیٹائزر استعمال کریں۔

» اپنی پانی کی بوتل استعمال کریں، برتن شیئر نہ کریں۔

» اپنے ہاتھوں میں نہ چھینکیں۔

» اپنے ہاتھوں سے آنکھوں، ناک، منہ کو چھونے سے گریز کریں۔

شکل 8: موزوں حفظان صحت

ANNEXURE 2 DUST MANAGEMENT PLAN FOR ROAD CONSTRUCTION CAMPSITE AND WORKING SITE

Project Name: Central Asia of Regional Economic Corridor (CAREC) N-55, Tranche-II, Lot-1

Project Location: Shikarpur-Kundhkot

1. Introduction

This Dust Management Plan outlines the strategies and measures that will be implemented to control and minimize dust emissions at the campsite and working site during the construction of N-55, T-II, LOT-1. The plan aims to comply with environmental regulations, protect the health and safety of workers, and minimize the impact on the surrounding environment.

2. Responsibilities

2.1. Project Manager: The project manager will oversee the implementation of the dust management plan and ensure that all measures are followed.

2.2. Contractor Environmental Officer/OHS Officer: An environmental officer/OHS officer will be appointed to monitor dust control measures and compliance with environmental regulations.

2.3. Site Supervisor: The site supervisor will be responsible for supervising dust control activities on a daily basis.

3. Site Assessment and Dust Sources

3.1. Conduct an initial assessment to identify potential dust sources, including construction activities, vehicle movement, material handling, and stockpiles.

3.2. Identify sensitive receptors, such as nearby communities, schools, Hospital, Madrasas, Mosque, water bodies, and wildlife habitats

4. Dust Control Measures

4.1. Watering and Dust Suppression:

Twice a day water sprinkling will be carried out to minimize dust.

Use dust suppressants when necessary.

4.2. Road and Site Stabilization:

Apply soil stabilizers to roads and pathways.

Use gravel or similar materials on access roads to reduce dust.

4.3. Vehicle Management:

Enforce speed limits within the construction site.

Maintain vehicles to prevent excessive emissions.

Establish designated routes for vehicles to minimize dust generation.

4.4. Material Handling:

Cover and wet down materials to prevent dust during loading and unloading.

Implement dust control measures during excavation and earthwork activities.

4.5. Stockpile Management:

Cover stockpiles of materials.

Regularly wet down stockpiles to prevent dust emissions.

4.6. Equipment Maintenance:

Ensure all construction equipment is well-maintained to reduce emissions.

4.7. Waste Management:

Properly manage construction waste to prevent dust from debris.

date	Time of Sprinkling	Duration (minutes)	Area Covered (approx. meters)	Weather Conditions	Remarks/Notes
1.					
2.					
3.					
4.					
5.					
6.					

Data log book form to keep a record of water sprinkling frequency for dust management

5. Training and Awareness

5.1. Provide training to all site personnel on the importance of dust control measures and their role in implementing them.

5.2. Display informative signage regarding dust control at strategic locations on-site.

6. Monitoring and Reporting

6.1. Regularly monitor dust levels at the campsite and working site using dust monitoring equipment.

6.2. Conduct visual inspections to ensure that dust control measures are being followed.

6.3. Maintain records of dust monitoring results and inspection reports.

7. Emergency Response

7.1. Develop an emergency response plan for addressing unexpected dust-related issues promptly.

7.2. Ensure all workers are familiar with emergency response procedures.

8. Compliance with Regulations

8.1. Comply with all relevant environmental regulations and obtain any necessary permits.

8.2. Cooperate with regulatory authorities during inspections and audits.

9. Communication and Stakeholder Engagement

9.1. Communicate with local communities and stakeholders regarding the dust management plan and its objectives.

9.2. Address any concerns raised by stakeholders promptly and transparently.

10. Plan Review and Revision

10.1. Periodically review and update the Dust Management Plan as needed based on changing conditions and feedback from monitoring and stakeholders.

This Dust Management Plan will be an integral part of our commitment to minimizing dust emissions and ensuring a clean and safe working environment during the construction of N-55, Lot-1. We will regularly assess the effectiveness of these measures and make adjustments as necessary to meet our environmental and regulatory obligations.

ANNEXURE 3 BORROW AREA MANAGEMENT PLAN AND REHABILITATION PLAN FOR ROAD CONSTRUCTION

Project Name: **Central Asia of Regional Economic Corridor (CAREC) N-55, Lot-1**

Project Location: Shikarpur-Kundhkot

1. Introduction

This Borrow Area Management Plan and Rehabilitation Plan outlines the strategies and measures for the responsible management of borrow areas during the construction of N-55 LOT-1. The plan aims to ensure the sustainable use of natural resources, minimize environmental impact, and comply with relevant regulations.

2. Borrow Area Identification and Assessment

2.1. Borrow area will be identified for construction activities, such as excavation, material sourcing, and earthworks, it will be 300 meters away from the ROW.

2.2. Comprehensive environmental and geotechnical assessment will be conducted of the borrow areas to determine their suitability for extraction.

2.3. 300 meters away borrow area will be selected from sensitive receptors & ecosystems, water bodies, hospital, school, mosque and cultural heritage sites.

2. Borrow Area Management

3.1. Borrow Area Selection:

- ZKB will prioritize the use of existing borrow areas over the creation of new ones to minimize habitat disruption.
- Minimize the number of borrow areas to reduce environmental impact.
- Borrow site should have minimum setback of 300m from environmentally sensitive areas.
- No borrow pit shall be located within 100 meters from right of way.

3.2. Excavation and Material Handling:

- ZKB will implement best practices for excavation to prevent soil erosion and habitat destruction.
- ZKB will store excavated materials in designated areas to prevent soil erosion.
- To ensure that stockpile site shall be located 30 m distant from any waterway.

3.3. Site Rehabilitation:

- Plan will be developed for rehabilitation of each borrow area.
- Implement progressive rehabilitation during and after construction activities.

- Borrow pits shall be refilled as per standard practice of agricultural/barren land

3.4. Material Stockpiling:

- Properly manage stockpiles to prevent soil and material erosion.
- Implement dust control measures in stockpile areas.

3.5. Vegetation Preservation:

- Avoid the removal of mature vegetation when feasible.
- Replant native vegetation in and around borrow areas to enhance ecosystem restoration.

4. Rehabilitation Plan

4.1. Progressive Rehabilitation:

- ZKB will implement rehabilitation measures concurrently with construction activities.
- Re-contour borrow areas to match surrounding topography.

4.2. Vegetation Restoration:

- ZKB will replant native vegetation in accordance with an approved rehabilitation plan.
- Ensure adequate watering and maintenance of planted vegetation.

4.3. **Erosion Control**:

- Implement erosion control measures such as mulching, silt fences, and sediment basins.
- Monitor and maintain erosion control structures regularly.

4.4. Water Management:

- Project Manager ZKB will be responsible to divert storm water away from borrow areas.
- Implement sediment control measures to prevent sedimentation in nearby water bodies.

4.5. Monitoring and Reporting:

- Regularly monitor the progress of rehabilitation efforts.
- Maintain records of rehabilitation activities and report progress to regulatory authorities.

5. Compliance with Regulations

5.1. Comply with all relevant environmental and mining regulations.

5.2. Obtain necessary permits and approvals for borrow area excavation and rehabilitation.

6. Stakeholder Engagement and Communication

6.1. Communicate with local communities and stakeholders regarding the borrow area management and rehabilitation plan and its objectives.

6.2. Address any concerns raised by stakeholders promptly and transparently.

7. Plan Review and Revision

7.1. Periodically review and update the Borrow Area Management Plan and Rehabilitation Plan as needed based on changing conditions, feedback from monitoring, and stakeholder input.

This Borrow Area Management Plan and Rehabilitation Plan will guide our efforts to responsibly manage borrow areas and ensure their effective rehabilitation during the construction of [Insert Road Name]. We are committed to the sustainable use of natural resources and the preservation of the environment.

ANNEXURE 4 OCCUPATIONAL HEALTH AND SAFETY PLAN

1 GENERAL

Occupational Health and Safety covers all personnel working under the project and will be in line with the USEPA EHS guidelines on health and safety.

The Occupational Health and Safety program will aim to ensure that the workplace is safe and healthy by: addressing the hazards and risks at the workplace; outlining the procedures and responsibilities for preventing, eliminating and minimizing the effects of those hazards and risks; identifying the emergency management plans for the workplace or workplaces; and, specifying how consultation, training and information are to be provided to employees at various workplaces.

- Some of the risks/hazards associated with workplaces are due to working close to or at sites associated with the various project construction activities. Other risks associated with the project construction phase include risk of increase of vector borne and other different diseases.
- The following sections will be implemented during the construction phase to address and ensure workers' health and safety.

2 Screening and regular unannounced checking of workers

- As per the procedure for hiring workers, all contractors and labor agencies are required to make all prospective workers undergo medical tests to screen for diseases and sicknesses, prior to selection and employment of any worker. The contractor is also responsible for ensuring that no worker who has a criminal record is employed at the project site. It will be ensured that all workers undergo medical tests to screen diseases at source and at sites in consultation with the designated Health Officer.
- In addition to this, the PIU will also undertake sudden, unannounced checks on workers to look for diseases such as HIV, STDs, and hepatitis and take necessary steps as mandated by the Contractual agreement between the Contractor and the Worker(s).

3 Minimizing hazards and risks at the workplace.

To ensure safety at all work sites, the following will be carried out:

- Installation of signboards and symbols in risky and hazardous areas, to inform workers to be careful.
- Construction of barricades around construction sites and deep excavated pits, to cordon off and deter entry of unauthorized personnel and workers into these areas.
- Providing a safe storage site/area for large equipment such as power tools and chains, to prevent misuse and loss.
- Proper Housekeeping: Ensuring that materials are all stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse. Brick stacks will not be more than 7 feet in height and for concrete blocks they will not be more than 6 feet high.
- Removing all scrap timber, waste material and rubbish from the immediate work area as the work progresses.

- Where scaffolds are required, ensuring that each scaffold or its components shall be capable of supporting its own weight and at least 4 times the maximum intended load applied or transmitted to it. The platform/scaffold plank shall be at least 15 inches wide and

  1.5 inches thick. The rope should be capable of supporting at least 6 times the maximum intended load applied or transmitted to that rope. Pole scaffolds over 60 feet in height shall be designed by a registered professional engineer and shall be constructed and loaded in accordance with that design. Where scaffolds are not provided, safety belts/safety nets shall be provided;

- Ensure that all ramps or walkways are at least 6 feet wide, having slip resistance threads and not inclined at more than a slope of 1 vertical and 3 horizontals.
- Stacking away all excavated earth at least 2 feet from the pit to avoid material such as loose rocks from falling back into the excavated area and injuring those working inside excavated sites.
- Constructing support systems, such as bracing to adjoining structures that may be endangered by excavation works nearby.
- Install fire extinguishers and/or other fire-fighting equipment at every work site to prepare for any accidental fire hazards.

4 Provision of Personal Protective Equipment

- Risks to the health and safety of workers can be prevented by provision of Personal Protective Equipment (PPEs) to all workers. This will be included in the construction cost for each Contractor. Depending on the nature of work and the risks involved, contractors must provide without any cost to the workers, the following protective equipment:
- High visibility clothing for all personnel during road works must be mandatory.
- Helmet shall be provided to all workers, or visitors visiting the site, for protection of the head against impact or penetration of falling or flying objects.
- Safety belt shall be provided to workers working at heights (more than 20 ft.) such as roofing, painting, and plastering.
- Safety boots shall be provided to all workers for protection of feet from impact or penetration of falling objects on feet.
- Ear protecting devices shall be provided to all workers and will be used during the occurrence of extensive noise.
- Eye and face protection equipment shall be provided to all welders to protect against sparks.
- Respiratory protection devices shall be provided to all workers during occurrence of release of particulate matter, or vehicular emissions.
- Safety nets shall be provided when workplaces are more than 25 feet (7.5 m) above the ground or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors or safety belts is impractical.
- First aid kits will be made available at all times throughout the entire construction period by the respective contractors. This is very important, because most work sites will be at some distance from the nearest hospital. In addition to the first aid kits, the following measures should be in place:

- The specific PPE requirements for each type of work are summarized below.

5 PPE Requirement List

Type of Work	No of Workers	Description of PPEs
Elevated work	20	Safety helmet, safety belt (height greater than 07 ft.), footwear for Elevated work.
Handling work safety	06	Helmet, leather safety shoes, work gloves.
Welding and cutting work	04	Eye protectors, shield and helmet, protective gloves.
Grinding work	03	Respirator, earplugs, eye protectors.
Work involving handling of chemical substances	05	Respirator, gas mask, chemical-proof gloves. Chemical proof Clothing, air-lined mask, eye protectors.
Wood working	04	Hard hat, eye protectors, hearing protection, safety footwear, leather Gloves and respirator.
Concrete and masonry work	20	Hard hat, eye protectors, hearing protection, safety footwear, leather Gloves and respirator.
Excavation, heavy equipment, motor graders, and bulldozer operation	10	Hard hat, safety boots, gloves, hearing protection.

6 Provision of dispensaries by the individual contractor.

- A vehicle shall be on standby from the Project Office so that emergency transportation can be arranged to take severely injured/sick workers to the nearest hospital for immediate medical attention.
- A designated Health Officer/worker for the Project will be identified as a focal person to attend to all health and safety related issues. This employee's contact number will be posted at all work sites for speedy delivery of emergency services. The focal person shall be well versed with the medical system and facilities available at the hospital.
- Communication arrangements, such a provision of radios or mobile communication for all work sites, for efficient handling of emergencies, will be made.

7 Record Maintenance and Remedial action

- The PIU will maintain a record of all accidents and injuries that occur at the work site. This work will be delegated by the contractor to the site supervisor and regularly reviewed every quarter by project management. Reports prepared by the contractor shall include information on the place, date and time of the incident, name of persons involved, cause of incident, witnesses present and their statements. Based on such reports, the management can jointly identify any unsafe conditions, acts or procedures and recommend for the contractor to undertake certain mitigate actions to change any unsafe or harmful conditions.

8 Compensation for Injuries and Death

- Any casualty or injury resulting from occupational activities should be compensated as per the local labor laws. Where compensation is sought by the injured party, proper procedures for documentation of the case will be

followed, including a detailed report on the accident, written reports from witnesses, report of the examining doctor and his/her recommendation for treatment. Each individual contractor will be responsible for ensuring compensation for the respective workers.

9 Awareness Programs

- The CSC/PIU will undertake awareness programs through posters, talks, and meetings with the contractors to undertake the following activities:
- Dissemination sessions will clarify the rights and responsibilities of the workers regarding interactions with local people (including communicable disease risks, such as HIV/AIDS), work site health and safety, waste management (waste separation, recycling, and composting), and the illegality of poaching.
- Make workers aware of procedures to be followed in case of emergencies such as informing the focal health person who in turn will arrange the necessary emergency transportation or treatment.

10 Nomination of a Health and Safety Focal Person

- Within each site (especially if different sites are being implemented by different contractors), a Health and Safety Focal Person will be appointed. The Terms of Reference for the focal person will mainly be as follows:
- Function as the focal person/representative for all health and safety matters at the workplace;

GENERAL GUIDELINES FOR HEALTH AND SAFETY

The following points are vital to a successful health and safety program:

- No person shall be instructed or required to work under conditions that are dangerous to their health.
- Each employee is responsible to carry out works in a safe manner, including the use of Personal Protective Equipment (PPE) when required and general personal safe work practices. Each employee shall report unsafe conducts of work, preventing avoidable accidents to site personnel. Reporting shall be made to the designated, safety representative (EHS), PM or SE on site.
- Worksite shall have person(s) available on site that can translate information in relevant languages when required.
- Inductions shall take place for each individual employed at the project site, together with visitors. The induction will identify the known site safety and health risks as well as mitigating measures.

11 Ensuring Site Safety

- The most valued resources are employees, the client and the communities. It must be dedicated to providing a safe and healthful environment for employees and customers, protecting the public, and preserving contractors' properties and assets.
- The Safety Plan will assist management and employees in controlling hazards and minimizing employee and customer injuries, damage to resident's property and damage to contractors, clients and community's properties.

- All employees of the project and sub-contractors will follow this program. Noncompliance to this program by employees or sub-contractors will result in one of the following:
- Verbal Warning; if minor violation (i.e., violation resulting in non-injury/damage)
- written Warning; if second minor violation or minor injury/damage caused.
- Immediate dismissal; if third minor violation, or second minor injury/damage caused, or first Major injury/damage caused.

5۔ مناسب حفظان صحت

» کم از کم بیس سیکنڈ کے لیے اکثر صابن سے ہاتھ دھوئیں۔

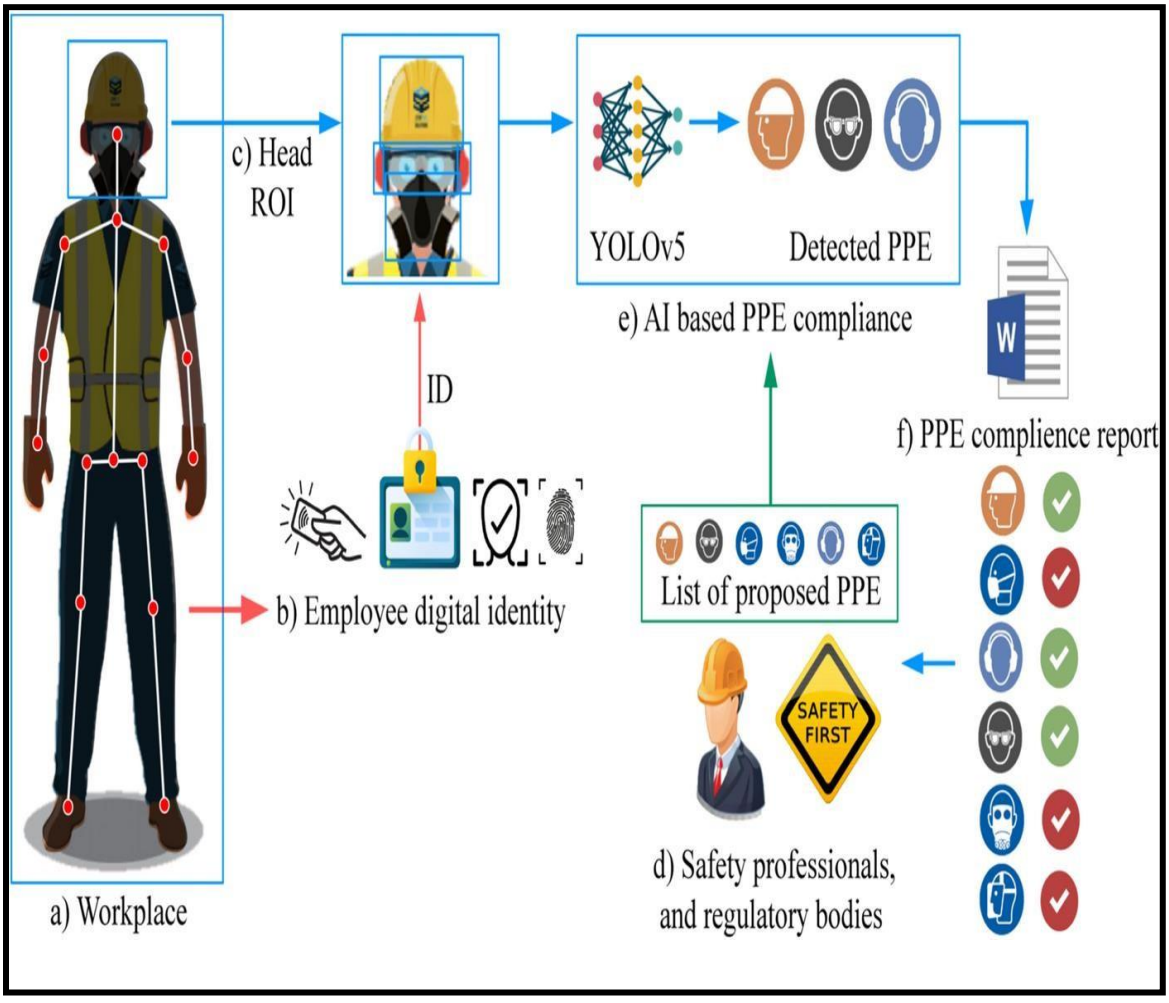
» ہینڈ سینیٹائزر استعمال کریں۔

» اپنی پانی کی بوتل استعمال کریں، برتن شیئر نہ کریں۔

» اپنے ہاتھوں میں نہ چھینکیں۔

» اپنے ہاتھوں سے آنکھوں، ناک، منہ کو چھونے سے گریز کریں۔

شکل 8: موزوں حفظان صحت



حادثہ کی تحقیقات اور اصلاحی کاروائی کا فارم

پراجیکٹ		**حادثہ کی تاریخ**	
جگہ		**حادثہ کا وقت**	
حادثہ کا عنوان			

کیا حادثہ کا اطلاعاتی فارم بھرا گیا؟ ☐ **ہاں** ☐ **نہیں**

اگر نہیں، تو پہلے حادثہ کا اطلاعاتی فارم بھریں۔

☐موت ☐وقت کا ضیاع ☐کام میں دشواری ☐طبعی امداد ☐ابتدائی طبی امداد	☐حادثہ ہونے سے بچنا ☐آلات کا نقصان ☐پراپرٹی کا نقصان ☐آگ یا دھماکہ	☐کام متاثر ہونا ☐سیکورٹی/ ممنوعہ علاقہ میں تجاوز/ چوری ☐چلتی ہوئی مشینری ☐گاڑی ☐پھیلاؤ/ اخراج	☐حکومت اداروں کو بتانے کے قابل ☐اطلاع کی ضرورت نہیں ☐خلاف ورزی ☐عوامی شکایت

سپر وائزر کا نام :	**رپورٹ بنانے والے کا نام:**
تاریخ: دستخط:	تاریخ: دستخط:

اس فارم کا استعمال حادثہ کی **بنیادی وجوہات** اور **اثر انداز کرنے والے عناصر** کا تجزیہ کرنے کے لیے کیا جاتا ہے۔ حادثات شاز و نادر ہی کسی ایک وجہ سے پیش آتے ہیں، اور اکثر ایسے متعدد عوامل ہوتے ہیں جو کسی حادثہ میں ملوث ہوتے ہیں۔

ایک **وجہ** ایک ایسی حالت ہے جو اثر پیدا کرتی ہے۔ اگر کوئی وجہ ختم ہو جائے تو اثر ختم ہو جاتا ہے۔

ایک متاثر کرنے والا عنصر ایک ایسی حالت ہے جو اثر کو متاثر کرتی ہے لیکن اثر کا سبب نہیں بنتی ہے۔ اگر اثر انداز کرنے والے عنصر کو ختم کر دیا جاتا ہے، تو ضروری نہیں کہ اثر ختم ہو جائے لیکن دوسرے طریقوں سے متاثر ہو سکتا ہے، جیسے کہ کم شدت، کم امکان، آہستہ سے آگے بڑھنا، یا اسی طرح کے دیگر اثرات۔

حادثہ کی تفصیل (اگر ضرورت ہو تو علیحدہ صفحات استعمال کریں۔ اگر قابل اطلاق ہو تو تصاویر منسلک کریں۔)

بنیادی وجہ اور تعاون کرنے والے عنصر کا تجزیہ (اگر ضروری ہو تو مزید صفحات شامل کریں)

حادثات کا تجزیہ (حادثہ کی طرف لے جانے والے واقعات کی وضاحت کریں جو اس سرگرمی کے لیے حادثہ کے معمول کے سلسلے سے مختلف تھے۔ غور کریں کہ آیا حادثہ کے معمول کے سلسلے سے ہونے والی تبدیلیاں اس واقعے کی وجوہات تھیں یا معاون عوامل) (تفصیل کے لیے **ADB** او سی ایچ ایس گائیڈ باب 6 کا حوالہ دیں)

کیا کارکنوں کی طرف سے وقوعہ تک پہنچنے والے واقعات میں کام کے مناسب حفاظتی طریقہ کار کا استعمال کیا جا رہا تھا؟ اگر نہیں تو کیوں نہیں؟
کیا کارکنوں کی جانب سے اس حادثہ تک ہونے والے واقعات میں متعلقہ قانون سازی اور معیار کی پیروی کی گئی؟ اگر نہیں تو کیوں نہیں؟
کیا کوئی مکینیکل خرابی یا نقص تھے جس کی وجہ سے یہ حادثہ پیش آیا؟ اگر ہاں، تو ذیل میں بیان کریں:
کیا مناسب حفاظتی آلات استعمال ہو رہے تھے؟ کیا کارکن مناسب ذاتی حفاظتی سامان (PPE) استعمال کر رہے تھے؟ اگر نہیں تو کیوں نہیں؟
کیا کام کی جگہ پر کسی کی حرکت حادثہ کا سبب بنا؟ اگر ہاں، تو ذیل میں بیان کریں:
کیا اس حادثہ میں کوئی غیر معمولی حالات تھے، جیسے (لیکن ان دیگر عوامل تک محدود نہیں) موسم، علاقے میں دیگر سرگرمیاں، یا کوئی اور چیز جو اس کام کے لیے عام نہیں تھی؟
کیا اس موقع پر موجود کارکنوں نے محفوظ اور مناسب انداز میں جوابی کاروائی کیا؟ ذیل میں بیان کریں:

کیا کارکنوں کو حادثہ پر کاروائی کرنے کے لیے مناسب تربیت دی گئی تھی؟ اگر نہیں، تو کونسی تربیت بہتر نتائج کی طرف لے جانے میں مدد دیتی؟
کیا اس طرح کے واقعات پر کاروائی کرنے کے لیے مناسب طریقہ کار موجود ہے؟ اگر نہیں، تو کیا طریقہ کار تیار کرنے کی ضرورت ہے؟

درج ذیل فہرست میں سے کسی بھی وجوہات اور اثر انداز کرنے والے عوامل کو چیک کریں۔ اگر ضروری ہو تو، اضافی وجوہات اور اثر انداز کرنے والے عوامل شامل کریں۔

☐بغیر تربیت کے آلات کو چلانا	☐ناکافی حفاظتی اقدامات
☐آلات کو مناسب دیکھ بھال کے بغیر چلانا	☐کارکن کی زہریلے مادوں سے ناکافی حفاظت
☐حفاظتی آلات کے بغیر یا ناقابل استعمال حفاظتی آلات کے ساتھ چلانا	☐ناکافی ذاتی حفاظتی آلات
☐حفاظتی مسئلہ کے بارے میں کارکنوں کو ناکافی انتباہ	☐ ذاتی حفاظتی آلات کا غلط استعمال
☐ناکافی رکاوٹیں	☐ناکافی روشنی
☐ناقابلِ استعمال آلات اور اوزار استعمال کرنا	☐ناکافی ہوا دار ماحول
☐مناسب سامان دستیاب نہ ہونا	☐ناکافی نگرانی
☐غلط لوڈنگ	☐ناکافی تربیت
☐ صفائی ستھرای کے ناقص طریقے	☐تھکاوٹ
☐بار بار چوٹ لگنا	☐ کارکن دیگر نشے یا ادویات جیسے مادوں کے زیر اثر
☐ٹولز/آلات کی ناقص مرمت	☐
☐خطرناک حالات (گیس، دھول، دھوئیں)	☐

اس حادثے کی وجہ کے طور پر اثر کرنے والے عوامل اور ان کی شمولیت کی فہرست بنائیں۔

ملوث	اثر کرنے والے عوامل

ذیل میں بنیادی وجہ بیان کریں:

اصلاحی کارروائی کا تجزیہ

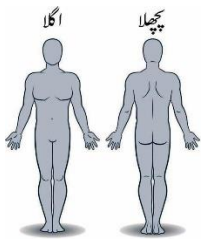
اسی طرح کے واقعے کو ہونے سے روکنے کے لیے پہلے سے کیے گئے اصلاحی اقدامات کی فہرست بنائیں۔ اس بات کی نشاندہی کریں کہ آیا اصلاحی کارروائی پہلے ہی مکمل ہے اور اس پر عمل درآمد کا ذمہ دار کون ہے۔

درست عمل	ذمہ دار شخص	عہدہ

بنیادی وجہ سے سیکھی گئی کسی بھی مزید معلومات کا خلاصہ کریں اوراسکے تجزیہ میں حصہ ڈالیں، بشمول ایسی کوئی بھی معلومات جو کارکنوں یا منصوبہ کی جگہ پر انتظامیہ کے ساتھ شیئر کرنے کی ضرورت ہے۔

حادثہ کی اطلاع کا فارم

پراجیکٹ		حادثہ کی تاریخ	
جگہ		حادثہ کا وقت	
شامل سامان		کام جو اس وقت کیا جا رہا تھا	
موسم:	☐ صاف ☐ اندھیرا ☐ بارش ☐برف ☐ تیز ہوا ☐دیگر (وضاحت)		

روشنی:	☐ مصنوعی روشنی	☐ اندھیرا	☐طلوع آفتاب	☐ دن کی روشنی ☐ شام
حادثہ کی رپورٹنگ کی سطح:				
☐موت ☐وقت کا ضیاع ☐کام میں دشواری ☐طبعی امداد ☐ابتدائی طبی امداد	☐حادثہ ہونے سے بچ گیا ☐آلات کا نقصان ☐پراپرٹی کا نقصان ☐آگ یا دھماکہ	☐کام متاثر ہونا ☐سیکورٹی/ ممنوعہ علاقہ میں تجاوز/ چوری ☐چلتی ہوئی مشینری ☐گاڑی ☐پھیلاؤ/ اخراج	☐حکومت اداروں کو بتانے کے قابل ☐ناقابلِ اطلاع ☐خلاف ورزی ☐عوامی شکایت	
ٹھیکیدار کا حادثہ ☐ ہاں ☐ نہیں		**ٹھیکیدار کا نام:**		
سپر وائزر کا نام : تاریخ: دستخط:		**رپورٹ بنانے والے کا نام:** تاریخ: دستخط:		
متاثرہ افراد (کارکن کے عہدے)				
حادثہ کی تفصیل (کیا، کب، کیوں، کون اور کیسے ہوا بیان کریں۔ اگر ضرورت ہو تو الگ الگ صفحات استعمال کریں۔ اگر قابل اطلاق ہو تو تصاویر منسلک کریں۔)				
گواہ - الگ الگ گواہوں کی رپورٹیں فراہم کریں۔				
نام	**عہدہ**	**رابطہ**		
اطلاع				
کون سی بیرونی اصلاحات کی گئی ہیں؟		**کیا اندرونی اصلاحات کی گئ ہیں؟**		
چوٹ کی معلومات (اگر قابل اطلاق ہو)				
موجودہ حالات		**پوزیشن**		
کیا زخمی شخص کو ہسپتال لے جایا گیا؟ ☐ ہاں ☐ نہیں (اگر ہاں، تو ہسپتال کا نام اور جگہ لکھیں)				
اگر قابل اطلاق ہو، تصویر پربائیں طرف چوٹ کی جگہ کی نشاندہی کریں، اور نیچے دی گئی جگہ میں وضاحت کریں۔				
گاڑی کی معلومات (اگر قابل اطلاق ہو)				
ڈرائیور کا نام:		ڈرائیور کا لائسنس نمبر:		
سال، ماڈل اور کمپنی:		ڈرائیور کا رابطہ نمبر:		

لائسنس اور پلیٹ نمبر:	انشورنس کمپنی اور پالیسی نمبر:
کیا سیٹ بیلٹ باندھی ہوئی تھی؟ ☐ ہاں ☐ نہیں	موبائل فون استعمال کیا جا رہا تھا؟ ☐ ہاں ☐ نہیں
کیا پولیس کو اطلاع دی گئی تھی؟ ☐ ہاں ☐ نہیں	پولیس آفیسر کا نام:
روڈ کی حالت: ☐ خشک ☐ پتھریلی ☐ گیلی ☐ برفیلی	
	دیگر معلومات/ منسلکات:
پھیلاؤ/ اخراج کی معلومات (اگر قابل اطلاق ہو)	
پراڈکٹ **مقدار**	**مقدار بازیافت:**
حادثہ کا ابتدائی تجزیہ:	
براہ راست وجہ (کیا/کیسے)	
بنیادی وجہ (کیوں)	
دوبارہ حادثے کو روکنے کے لیے اصلاحی اقدامات:	

نوٹ: مزید تفصیل کے لیے" **ADBحادثہ کی تحقیقات اور اصلاحی کارروائی کا فارم** " سے رجوع کریں۔

Project:		**Incident Date:**	
Location:		**Incident Time:**	
Incident Title:			

Has the Incident Notification Form been completed? ☐ Yes ☐ No

If not, complete the incident notification form before completing this form.

☐ Fatality ☐ Lost Time ☐ Restricted Work ☐ Medical Aid ☐ First Aid	☐ Near Miss ☐ Equipment Damage ☐ Property Damage ☐ Fire/Explosion	☐ Business Interruption ☐ Security/Trespass/Theft ☐ Mobile Equipment ☐ Vehicle ☐ Spill/Release	☐ Government Reportable ☐ Non-reportable ☐ Contravention ☐ Public Complaint

Report Prepared by: Signature: Date:	**Supervisor's Name:** Signature: Date:

This form is used to help analyze incident **root causes** and **contributing factors**. Incidents rarely arise due to one single cause, and there are often multiple contributing factors that are involved in an incident.

A **cause** is a condition that produces an effect. If a cause is eliminated, the effect is eliminated.

A **contributing factor** is a condition that influences the effect but does not cause the effect. If the contributing factor is eliminated, the effect is not necessarily eliminated but may be influenced in other ways, such as being less severe, less likely, proceeding more slowly, or other similar effects.

DESCRIPTION OF INCIDENT (Use separate pages if required. Attach photos if applicable.)

Root Cause and Contributing Factor Analysis (add more pages if necessary for any section)

LEADING EVENTS ANALYSIS (Describe the events leading up to the incident that were different to a normal sequence of events for this activity. Consider whether changes from normal sequences of events were causes or contributing factors to the incident.) (Refer to Chapter 6 of the ADB OCHS Guide for detail)

Were the proper safe work practices and procedures being used by the workers in the events leading up to the incident? If not, why not?

Were relevant legislation and standards being followed by the workers in the events leading up to the incident? If not, why not?
Were there any mechanical failures or defects that led to the incident? If yes, describe below:
Were the proper safety devices in place and being used? Were workers using proper personal protective equipment (PPE)? If not, why not?
Did the actions or lack of actions of anyone at the worksite contribute to the incident? If yes, describe below:

Were there any unusual conditions that contributed to the incident, such as (but not limited to) weather, other activities in the area, or anything else that was not typical for the task?
Did the workers present at the incident respond in a safe and appropriate way? Describe below:
Were the workers adequately trained to respond to the incident? If not, what training would have helped to lead to a better outcome?
Are there adequate procedures in place to respond to similar incidents? If not, what procedures need to be developed?
Check any causes and contributing factors from the following list. If necessary, add additional causes and contributing factors.

☐ Operating equipment without training ☐ Operating equipment without proper care ☐ Operating equipment without safety devices in place or with inoperable safety devices ☐ Inadequate warning to workers of a safety issue ☐ Inadequate barriers or barricades ☐ Using defective tools or equipment ☐ Proper equipment unavailable ☐ Improper loading ☐ Poor housekeeping practices ☐ Repetitive action injury ☐ Poor maintenance of tools/equipment ☐ Hazardous conditions (gas, dust, fumes)	☐ Inadequate site security ☐ Inadequate worker protection from toxic substances ☐ Inadequate PPE ☐ Improper use of PPE ☐ Inadequate lighting ☐ Inadequate ventilation ☐ Inadequate supervision ☐ Inadequate training ☐ Fatigue ☐ Worker(s) under the influence of substances such as alcohol o medications ☐ ☐ ☐

List the contributing factors and their involvement as a cause of the incident.

Contributing Factors	Involvement

Describe the root cause (s) below:

Corrective Action Analysis

List the corrective actions already taken or planned to prevent a similar incident from occurring. Indicate whether the corrective action is already complete and who is responsible for implementing it.

Corrective Action	Person Responsible	Status?

Summarize any further information learned from this root cause and contributing factor analysis, including any information that needs to be shared with the workers or worksite management.

Project:		**Incident Date:**	
Location:		**Incident Time:**	
Equipment Involved:		**Operation in Progress:**	

Weather: ☐ Clear ☐ Dark ☐ Rain ☐ Snow ☐ High Winds ☐ Other (describe):

Visibility: ☐ Artificial Light ☐ Dark ☐ Dawn ☐ Daylight ☐ Dusk

Reporting Level of Incident:

☐ Fatality ☐ Lost Time ☐ Restricted Work ☐ Medical Aid ☐ First Aid	☐ Near Miss ☐ Equipment Damage ☐ Property Damage ☐ Fire/Explosion	☐ Business Interruption ☐ Security/Trespass/Theft ☐ Mobile Equipment ☐ Vehicle ☐ Spill/Release	☐ Government Reportable ☐ Non-reportable ☐ Contravention ☐ Public Complaint

Contractor Incident: ☐ Yes ☐ No **Contractor name:**

Report Prepared by: Signature: Date:	**Supervisor's Name:** Tel. No. Date:

AFFECTED PERSONS (Worker Positions)

DESCRIPTION OF INCIDENT (Describe what, when, why, who and how. Use separate pages if required. Attach photos if applicable.)

WITNESSES- Provide separate witness reports

Name	Position	Contact Information

NOTIFICATIONS

What internal notifications have been made?	What external notifications have been made?

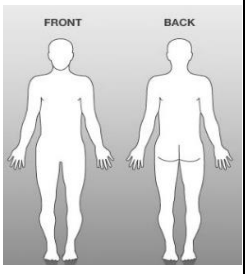
INJURY INFORMATION (if applicable)

Position:	Current condition:

Was injured person(s) taken to hospital? Yes ☐ No ☐

(If yes, provide name and location of the hospital)

Indicate the area of injury, if applicable, on the diagram to the right, and describe the injury in the space below:



VEHICLE INFORMATION (if applicable)	
Driver's Name:	Driver's License No.:
Year, Make & Model:	Driver's Phone Number:
License Plate or Serial Number:	Insurer and Policy No.:
Was seat belt done up? ☐ Yes ☐ No	Was a cell phone being used? ☐ Yes ☐ No
Were police notified? Yes ☐ No ☐	Name of police officer:
Road conditions: ☐ Dry ☐ Gravel ☐ Wet ☐ Icy	Other Info/Attachments:

Product: **Volume:** **Quantity Recovered:**
Initial Causal Analysis of Incident:
Direct Cause: (what / how)
Root Cause: (why)
Corrective Actions to Prevent Recurrence:

Note: Refer to the "Root Cause Investigation & Corrective Action Form" for further detail.

ANNEXURE 5 EMERGENCY RESPONSE PLAN

Purpose

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

(i) Ensure all personnel and visitors to the office/job sites are given the maximum protection from unforeseen events.

(ii) Ensure all personnel are aware of the importance of this procedure to protection of life and property.

Emergency Preparation and Response Measure Scope

The emergency management program is applied to all 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

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.

Nomination of Project In Charge

Sr. #	Name	Designation	Contact No.
1	Khalil Jibran	General Manager	03132705777
2	Munawar Hussain	Site Project Manager	0300-7504064
2.	Aqeel Ur Rehman	Environmental Specialist	+92-3110583383
4	Wakeel Badsha	Admin Manager	03343416347

Emergency Response Team (ERT)

Emergency Response Team shall be formatted 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 "Emergency Contact Numbers".

Detail of Emergency Response Team

Sr. #	Designation		Contact No.	Responsibilities
1	Admin Manager	Wakeel Badsha	03343416347	Coordinate and oversee the overall emergency response plan. Communicate with relevant authorities, internal teams, and stakeholders during emergencies, Ensure necessary resources and support are available for the response team. Coordinate the logistical aspects of the response.
2	Manager Environment	Aqeel Ur Rehman	03110583383	Develop and update the emergency response plan. Conduct regular emergency drills and training for the team. Oversee the implementation of health, safety, and environmental protocols during emergencies. Evaluate and improve response procedures based on post-incident analysis.
3	HSE officer	Will be deputed	Will be provided	Assist in the implementation of health, safety, and environmental protocols. Participate in emergency drills and exercises.
4	Male Nurse	Will be deputed	Will be provided	Provide immediate medical assistance and first aid during emergencies. Assess and attend to the injured or affected individuals. Coordinate with medical facilities for more extensive medical needs if required
5	Fire Man	Will be deputed	Will be provided	Operate firefighting equipment and tools in the event of a fire emergency. Conduct fire suppression activities and assist in evacuation procedures. Participate in fire

				drills and ensure the maintenance of firefighting equipment.
6.	Emergency Coordinator	Munawar Hussain	0300-7504064	The Emergency Coordinator will support and advise the Site Safety Supervision as necessary. Serves as public relations spokes persons,
7.	Security Supervisor	Bagh Wali		Ensure that the exit route is regularly tested and maintained in good working order. Maintain station at the security gate or most suitable location to secure the area during any emergency such that only authorized personnel and equipment may enter, prevent access to the site of unauthorized personnel.

Action Group	Person Responsible	Responsibilities
		Assist with strong/activation of services during an emergency. Ensure vehicles and obstructions are moved to give incoming emergency vehicles access to the scene, if ambulance or emergency services are attending the site, ensure clear access and Personnel are located to direct any incoming emergency service to the site of emergency.
Rescue & Medical Team	Certified CPR/Health Safety officer	Protect the injured from further danger and weather. Provide treatment to the victim(s) to the best of their ability by first aid and then transfer to hospital. Remain familiar with the rescue activities and rescue apparatus. Assist outside medical services personnel when they arrive
General Administration Team	Wakeel Badsha and his Team	Response to support any requested general facilities for assisting Emergency Response Team in their work.
Environment Team	Environment Specialist and his team at site	In case of emergency related to the environmental pollution such as the chemical spill, oil spill into the ambient, the environment team will support the Technical advice to control and mitigate the pollution until return to the normal situation.
Other Staff and Employees	All workers at site	All other staff and employees will remain at their workstations or assembly point unless directed otherwise from Emergency Response Team. Each supervisor will ensure that all members of his work group are accounted for and keep in touch with each of their Department Head.

PROCEDURE

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

General Administration Team

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

Security Team

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

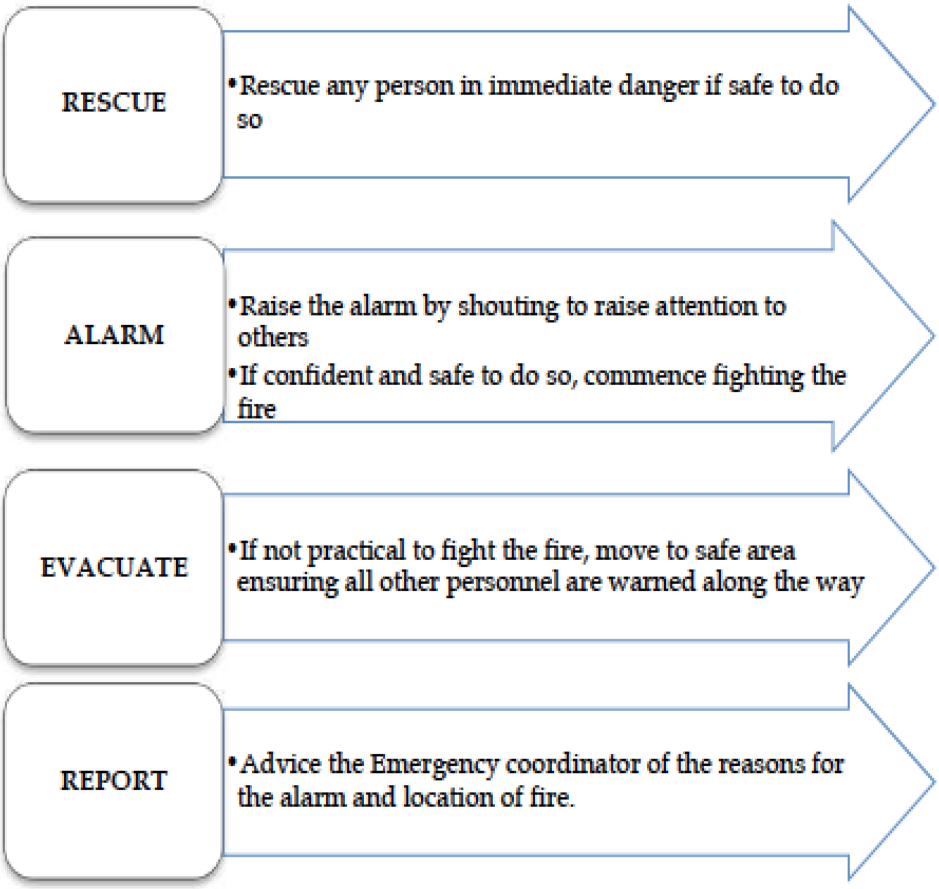
Emergency Coordinator

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

First Aid Persons

- Upon advice of medical emergency, make immediate assessment to response required and if necessary, advise security to summon ambulance or medical assistance, the qualified first aid attendant should also,
- Provide treatment to the victim(s) to the best of his/her ability.
- Ensure the safety of victims by ceasing any work activity in the area.
- Protect the injured from further danger and weather.
- Assist medical services personnel when they arrive

FIRE



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

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

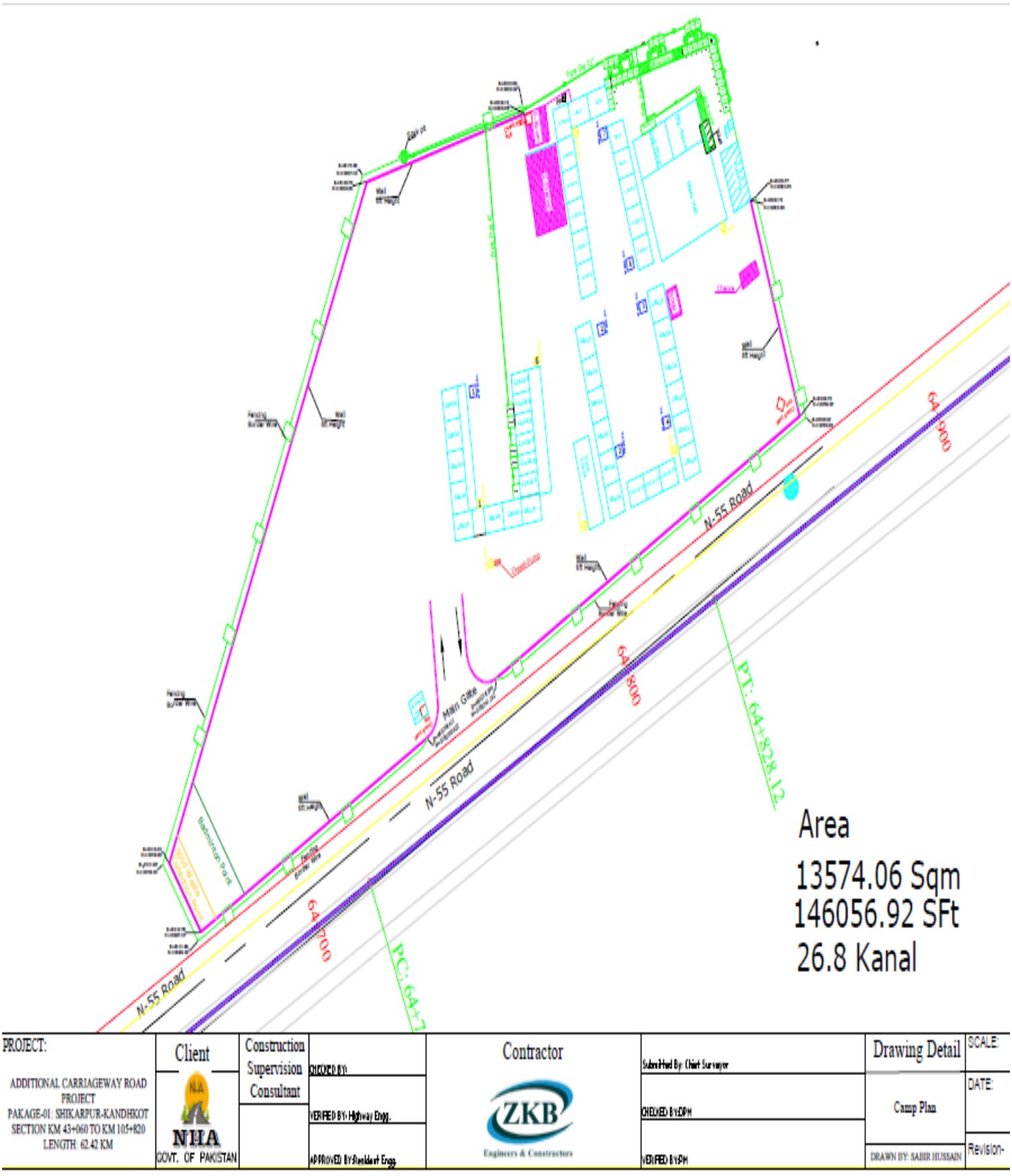
- Your name and the detail of accident
- The location of the injured person(s)
- The number of persons injured
- The extent of the injuries, if known
- What known hazards are in the area

Make the injured person as comfortable as possible

Treat the obvious injuries

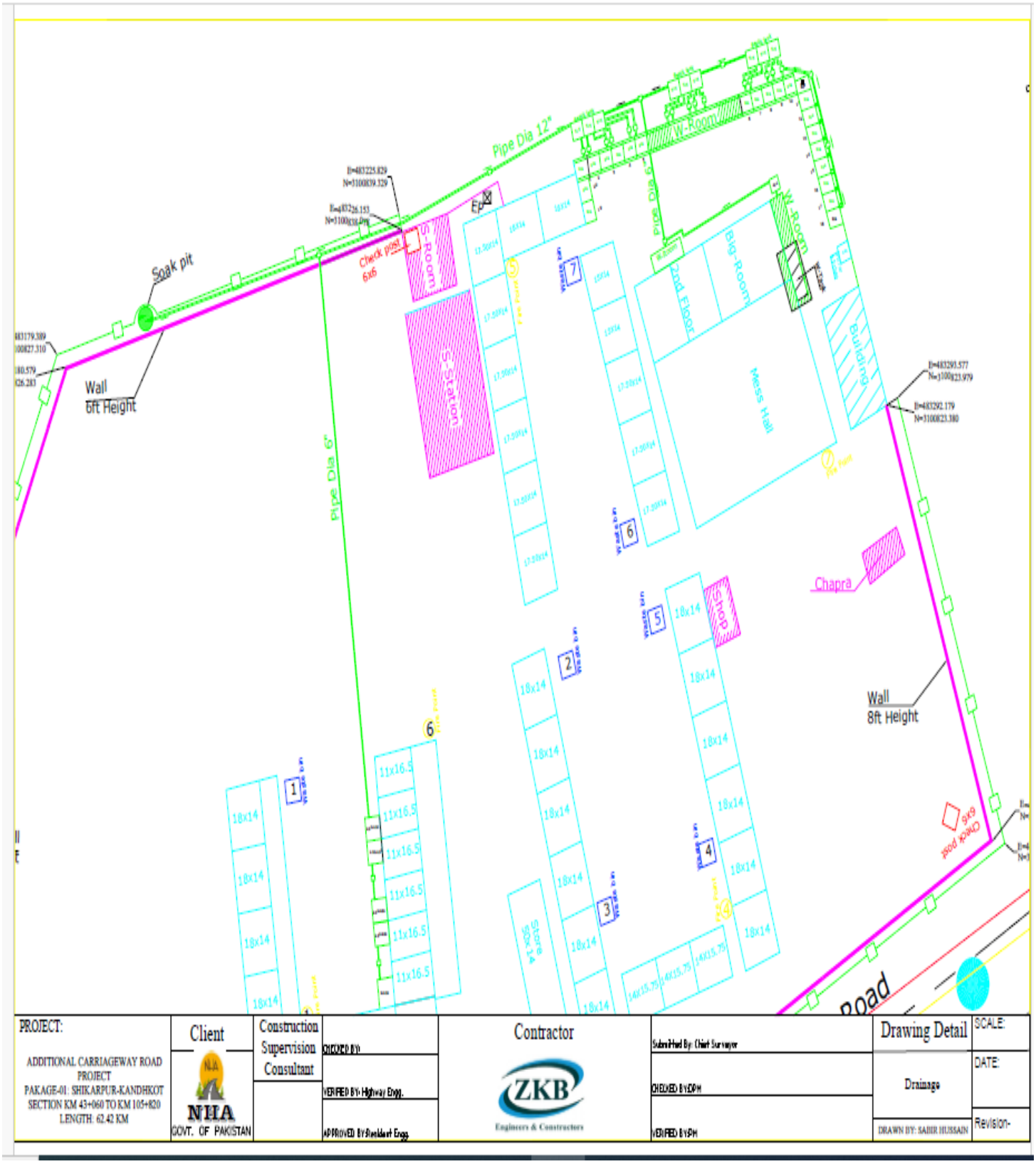
Reassure the injured person

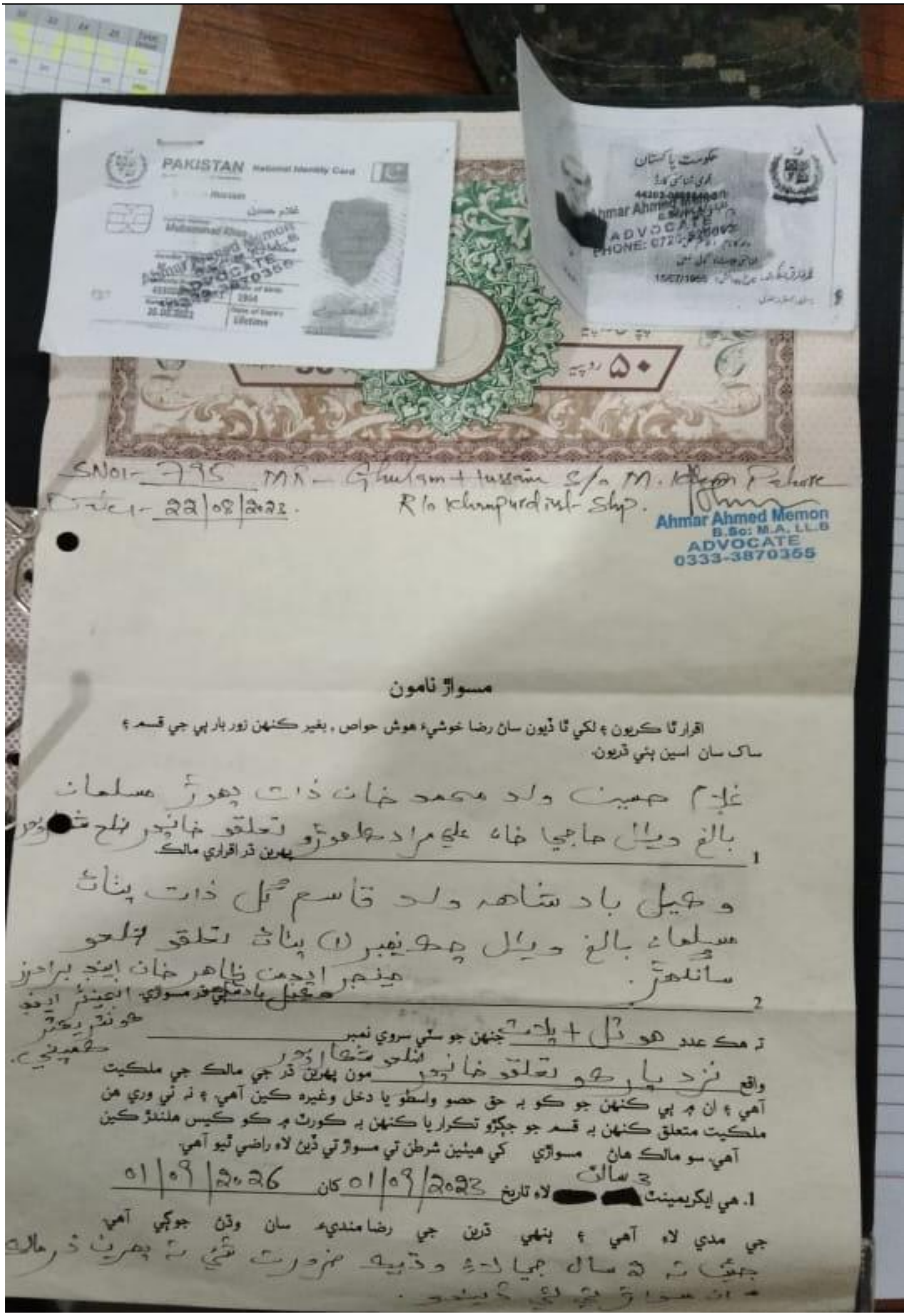
ANNEXURE 6 CAMP LAYOUT PLAN



PROJECT: ADDITIONAL CARRIAGEWAY ROAD PROJECT PAKAGE-01: SHIKARPUR-KANDHKOT SECTION KM 43+060 TO KM 105+820 LENGTH: 62.42 KM	Client: NHA GOVT. OF PAKISTAN	Construction Supervision Consultant	CHECKED BY: VERIFIED BY: Highway Engg. APPROVED BY: Resident Engg.	Contractor: ZKB Engineers & Constructors	Submitted By: Chief Surveyor CHECKED BY: DPM VERIFIED BY: PM	Drawing Detail: Camp Plan DRAWN BY: SAHIR HUSSAIN	SCALE: DATE: Revision-

Residential and Effluent layout plan




PAKISTAN National Identity Card

حکومت پاکستان

SNo1- 795 MR - Ghulam Hussain S/o M. Khan Palhoro

Date- 22/08/2023. R/o Khanpur dist- Shp.

Ahmar Ahmed Memon
B.Sc: M.A. LL.B
ADVOCATE
0333-3870355

مسواڙ نامون

اقرار ٿا ڪريون ۽ لکي ٿا ڏيون ساڻ رضا خوشيءَ هوش حواس، بغير ڪنهن زور بار يا جي قسم ۽ ساک ساڻ اسين ٻئي ڌريون.

1 [redacted] پهرين ڌر اقراري مالڪ.

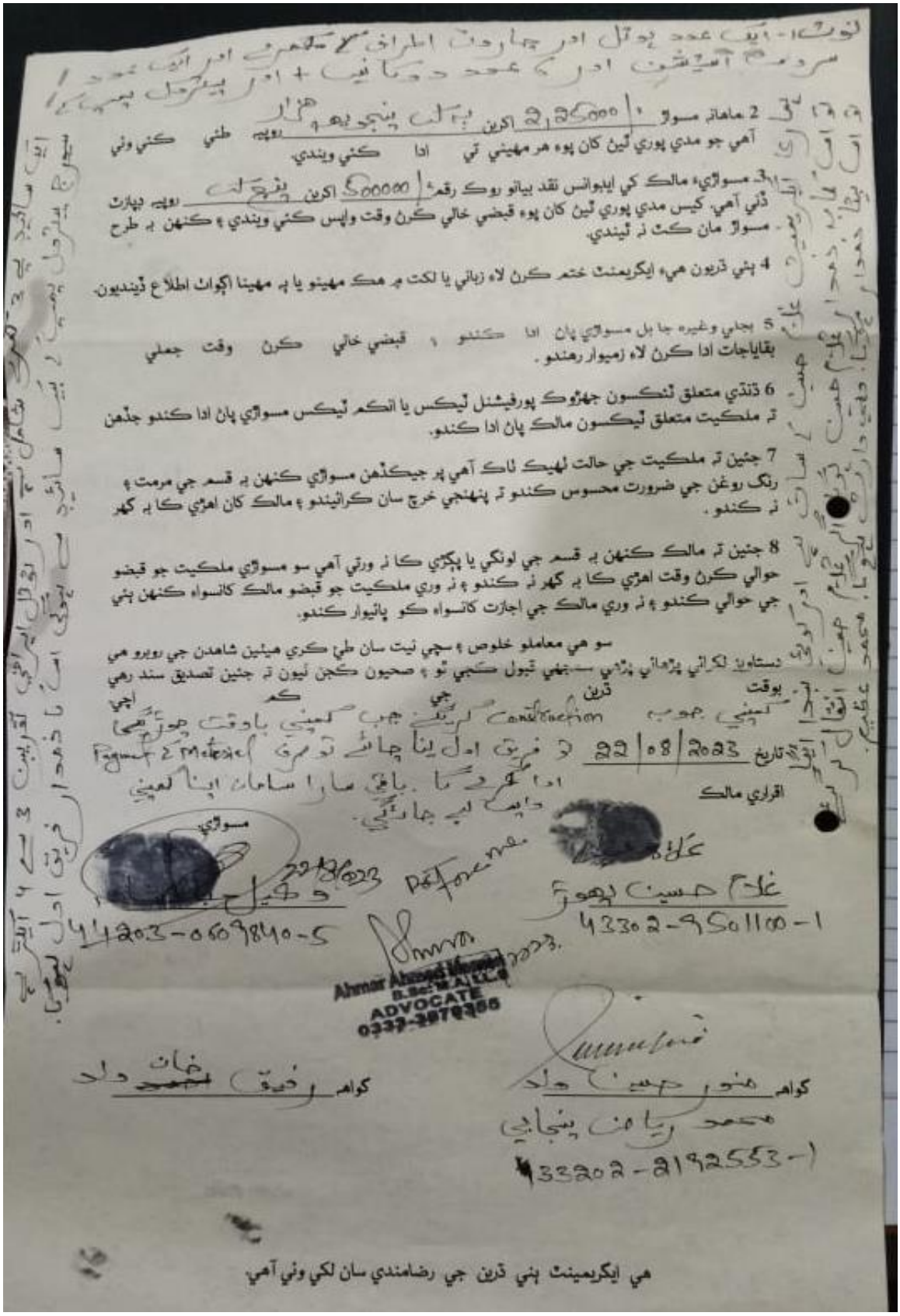
2 ٻي ڌر مسواڙي.

۽ مڪ عدد ... جنهن جو سٽي سروي نمبر ...

واقع ... مون پهرين ڌر جي مالڪ جي ملڪيت آهي ۽ ان ۾ ٻي ڪنهن جو ڪو به حق حصو واسطو يا دخل وغيره ڪين آهي ۽ نه ئي وري هن ملڪيت متعلق ڪنهن به قسم جو جهڳڙو تڪرار يا ڪنهن به ڪورٽ ۾ ڪو ڪيس هلندڙ ڪين آهي، سو مالڪ هاڻ مسواڙي کي هيٺين شرطن تي مسواڙ تي ڏين لاءِ راضي ٿيو آهي.

1. هي ايگريمينٽ [redacted] لاءِ تاريخ 01/09/2023 کان 01/09/2026

جي مدي لاءِ آهي ۽ ٻنهي ڌرين جي رضامنديءَ سان وڌڻ جوڳي آهي



هي ايگريمينٽ هني ڏرين جي رضامندي سان لکي وئي آهي

ANNEXURE 7 DAILY AND WEEKLY MONITORING CHECKLIST

Daily Monitoring Checklist

Project Name: _____ **Package #** _____

Monitoring Location: _____ **Date:** _____/_____/_____

Daily Monitoring Checklist

Description	Status	Additional Comments
A- Physical Conditions		
1- Ambient air quality		
Are dust emissions being regulated through sprinkling water on the routes being used by the Contractor?	☐ Yes ☐ No	
Are vehicle speeds being maintained to avoid excessive dust emissions at dust prone areas?	☐ Yes ☐ No	
Are vehicle properly tuned/maintained to reduce air emissions?	☐ Yes ☐ No	
2- Noise Control		
Are noise levels remained within safe limits?	☐ Yes ☐ No	
In case excessive noise levels are detected have appropriate mitigation measures been taken?	☐ Yes ☐ No	
3- Waste Material		
Has any natural drainage been disturbed or altered?	☐ Yes ☐ No	
Are the waste bins emptied regularly?	☐ Yes ☐ No	
Is food waste disposed in the open?	☐ Yes ☐ No	
Is medical waste being generated at camp sites and disposed of properly?	☐ Yes ☐ No	
4- Fuel/Lubricant		
Are the fuel tanks properly marked with their contents?	☐ Yes ☐ No	
Are the fuels and oils handled in a safe manner, ensuring no leakage or spillage?	☐ Yes ☐ No	
Any spillage of liquid waste occurred?	☐ Yes ☐ No	
If spillage occurred, managed properly?	☐ Yes ☐ No	
5- Traffic Management		
Is vehicle speed limit of 15 km/hr being followed?	☐ Yes ☐ No	
Is the movement of all project vehicles and personnel been restricted to within the work areas?	☐ Yes ☐ No	
Do all vehicles and generators have muffles to reduce noise levels whilst working close to communities?	☐ Yes ☐ No	
Movement of machinery restricted to designated routes?	☐ Yes ☐ No	
Construction vehicles, machinery and equipment parked at designated places within ROW?	☐ Yes ☐ No	
B- **Biological Conditions**		

1- Flora		
Have trees and branches from canal plantation been used as fuel wood?	☐ Yes ☐ No	
Has vegetation clearing been minimized?	☐ Yes ☐ No	
2- Fauna		
Are the drivers careful and watchful about wild and domestic animals?	☐ Yes ☐ No	
Any damage to animals?	☐ Yes ☐ No	
C- **Socio-economic**		
1- Community		
Are complaints from local communities being registered and responded to?	☐ Yes ☐ No	
Is un-necessary interference to adjoining private agriculture land avoided?	☐ Yes ☐ No	
Are damages (if any) to private property repaired and/or compensated by the Contractor?	☐ Yes ☐ No	
Are unnecessary visits to the nearby settlements avoided?	☐ Yes ☐ No	
Is Traffic Management Plan followed?	☐ Yes ☐ No	
2- Work Force		
Are safety equipments being used by the workers?	☐ Yes ☐ No	
3- Safety		
Are storage rooms containing hazardous material locked?	☐ Yes ☐ No	
Are sufficient guards for security deployed?	☐ Yes ☐ No	

Contractor Environmentalist: _____ **PIC Environmentalist:** _____

Additional Comments: _____

_____

Weekly Monitoring Checklist

Project Name: _____ **Package #** _____

Monitoring Location: _____ **Date:** _____/_____/_____

Weekly Monitoring Check List

Description	Status	Comments
A- Physical Condition		
1- Soil Conditions		
Is any soil erosion observed?	☐ Yes ☐ No	
Has the movement of Construction equipment been restricted to work areas to avoid unnecessary disturbance to the soil types?	☐ Yes ☐ No	
Have the area along the access road been visually monitored and show any sign of soil erosion?	☐ Yes ☐ No	
2- Fuel / Lubricants		
Is regular inspection carried to check leaks & spills?	☐ Yes ☐ No	
Is there any combustible or flammable material in the fuel storage area ?	☐ Yes ☐ No	
Are the fuels and oils handled in a safe manner, ensuring no leakage & Spillage ?	☐ Yes ☐ No	
Have the entire oil and fuel storage areas provided with impervious floor underneath to prevent soil contamination from leaks or spills?	☐ Yes ☐ No	
Are the spilled oil or fuel and used clean up material being disposed of properly ?	☐ Yes ☐ No	
Are the spills and leak thoroughly cleaned?	☐ Yes ☐ No	
3- Waste Material		
Is waste being stored temporarily on camp & sites within the designated area?	☐ Yes ☐ No	
Is any type of solid waste is being disposed of in the fields?	☐ Yes ☐ No	
Do the vehicles carry adequate container / trash bags for litter garbage and are they emptied at the camp site or other designated location regularly?	☐ Yes ☐ No	
4- Traffic Management		
Are the existing routes being used to access the project area?	☐ Yes ☐ No	
Are the number of routes kept to a minimum?	☐ Yes ☐ No	
Are shortcuts been used?	☐ Yes ☐ No	
Are all the vehicles and construction machinery properly maintained and tuned to maintain NEQS level?	☐ Yes ☐ No	
Are pressure horns being used?	☐ Yes ☐ No	
5- Borrow Areas		
Is necessary approval for the borrow areas been obtained from the Engineer?	☐ Yes ☐ No	
Is the top soil of the borrow pits removed and conserved for rehabilitation of borrow areas?	☐ Yes ☐ No	
Is the condition of approval for excavation of the borrow pits are being compiled with?	☐ Yes ☐ No	
Is the drainage profile of the area is maintained to avoid any impoundment of the agriculture runoff or storm water in the borrow areas?	☐ Yes ☐ No	
6- Camp Site		
Are the generator in the construction camp properly maintained?	☐ Yes ☐ No	
Is the emergency response plan available in the camp	☐ Yes ☐ No	

Contractor Environmentalist: _____ **PIC Environmentalist:** _____

Additional Comments: _____

_____

ANNEXURE 8 PRE- CONSTRUCTION/ BASELINE ENVIRONMENTAL MONITORING RESULTS

Ambient Air Monitoring at Camp Site

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Lab Report No. : 202310415-ZKB-AAQ
Invoice Bill No. : INV-ESP-410

Page: 1 of 1
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Test ID:	AAQ-202310415
Test Performed Date:	07-Oct-2023
Project Name:	CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)
Site Co-ordinates:	(28.032252°N, 68.828468°E)
Test Type & Location:	Ambient Air Quality (Continuous 24 Hrs) - Camp Site at Shikarpur
Test Performed By:	Envi Tech AL
Test Description:	Ambient Air Quality as per mentioned standards

Sr. #	Parameters / Analytes Description	Unit	Test Results	SEQS Limits	USEPA	World Bank
01	Suspended Particulate matter (SPM)	µg/m3	484	500	-	-
02	Particulate matter ($PM_{(2.5)}$)	µg/m3	32.7	75	65	25
03	Particulate matter ($PM_{(10)}$)	µg/m3	134	150	150	50
04	Carbon Monoxide (CO)	mg/m3	1.4	05	10	-
05	Sulphur Dioxide (SO_2)	µg/m3	8.7	120	365	20
06	Nitrogen Oxide (NO)	µg/m3	12.3	40	-	-
07	Nitrogen Dioxide (NO_2)	µg/m3	23.6	80	-	-
08	Ozone (O_3)	µg/m3	24.8	130	235	-

Note: Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
SEQS Limits = Sindh Environmental Quality Standard (Reference: SEQS 2016)
USEPA = United State Environmental Protection Agency
WB = World Bank
N.D. = Not Detected.

Analyzed By (Assistant analyst) | Reviewed By (Analyst) | Approved By (Chief Analyst)

Disclaimer:

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ETAL-LAB-708-FF-07 | Issue Date:03-10-22 | Issue: 03 Rev: 02

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Ambient Air Monitoring at Concrete Batching and Asphalt Plant Site

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Lab Report No. : 202310414-ZKB-AAQ
Invoice Bill No. : INV-ESP-410

Page: 1 of 1
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Test ID:	**AAQ-202310414**
Test Performed Date:	**06-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Site Co-ordinates:	**(28.049372°N, 68.8771971°E)**
Test Type & Location:	**Ambient Air Quality (Continuous 24 Hrs) - Batching & Asphalt Plant at Shikarpur**
Test Performed By:	Envi Tech AL
Test Description:	Ambient Air Quality as per mentioned standards

Sr. #	Parameters / Analytes Description	Unit	Test Results	SEQS Limits	USEPA	World Bank
01	Suspended Particulate matter (SPM)	µg/m3	408	500	-	-
02	Particulate matter (PM $_{(2.5)}$)	µg/m3	35.2	75	65	25
03	Particulate matter (PM $_{(10)}$)	µg/m3	134	150	150	50
04	Carbon Monoxide (CO)	mg/m3	0.8	05	10	-
05	Sulphur Dioxide (SO_2)	µg/m3	10.1	120	365	20
06	Nitrogen Oxide (NO)	µg/m3	12.8	40	-	-
07	Nitrogen Dioxide (NO_2)	µg/m3	22.5	80	-	-
08	Ozone (O_3)	µg/m3	37.8	130	235	-

Note: Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
SEQS Limits = Sindh Environmental Quality Standard (Reference: SEQS 2016)
USEPA = United State Environmental Protection Agency
WB = World Bank
N.D. = Not Detected.

Analyzed By (Assistant analyst) | Reviewed By (Analyst) | Approved By (Chief Analyst)

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Ambient Air Monitoring at cadit college site

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GREEN LAB CERTIFICATION

Lab Report No. : 202310416-ZKB-AAQ
Invoice Bill No. : INV-ESP-410

Page: 1 of 1
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Test ID:	**AAQ-202310416**
Test Performed Date:	**09-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Site Co-ordinates:	**(28.084984°N, 68.959747°E)**
Test Type & Location:	**Ambient Air Quality (Continuous 24 Hrs) – Cadet College Karampur**
Test Performed By:	Envi Tech AL
Test Description:	Ambient Air Quality as per mentioned standards

Sr. #	Parameters / Analytes Description	Unit	Test Results	SEQS Limits	USEPA	World Bank
01	Suspended Particulate matter (SPM)	µg/m3	324	500	-	-
02	Particulate matter (PM $_{(2.5)}$)	µg/m3	33.9	75	65	25
03	Particulate matter (PM $_{(10)}$)	µg/m3	133	150	150	50
04	Carbon Monoxide (CO)	mg/m3	1.5	05	10	-
05	Sulphur Dioxide (SO_2)	µg/m3	9.7	120	365	20
06	Nitrogen Oxide (NO)	µg/m3	14.6	40	-	-
07	Nitrogen Dioxide (NO_2)	µg/m3	25.3	80	-	-
08	Ozone (O_3)	µg/m3	27	130	235	-

Note: Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
SEQS Limits = Sindh Environmental Quality Standard (Reference: SEQS 2016)
USEPA = United State Environmental Protection Agency
WB = World Bank
N.D. = Not Detected.

Analyzed By (Assistant analyst) | Reviewed By (Analyst) | Approved By (Chief Analyst)

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Ambient Noise level Monitoring at Camp Site

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Lab Report No. : 202310419-ZKB-NA
Invoice Bill No. : INV-ESP-410

Page: 1 of 1
Reporting Date: 19-Oct-2023

Report to:	M/s. (ZKB) Zahir Khan Brothers Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Test ID:	**NA-202310419**
Test Performed Date:	**07-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Test Type & Location:	**Noise Analysis- Continuous 24 Hrs**
Test Performed By:	Envi Tech AL
Test Description:	Noise Analysis as per mentioned standards

Sr. #	Parameters / Analytes Description	Method	Unit	Test Results	SEQS Limits	USEPA (Outdoor)	World Bank
01	Camp Site at Shikarpur (GPS: 28.032252°N, 68.828468°E) - Day Time	ASTM E1686-16	dB(A)	57	75	70	70
02	Camp Site at Shikarpur (GPS: 28.032252°N, 68.828468°E) - Night Time	ASTM E1686-16	dB(A)	58	65	70	70

Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.

SEQS Limits = Sindh Environmental Quality Standard for Noise in Industrial Area,(Reference: SEQS 2016)
USEPA = United States Environmental Protection Agency
WB = World Bank
N.D. = Not Detected.

Analyzed By (Assistant analyst) | Reviewed By (Analyst) | Approved By (Chief Analyst)

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Ambient Noise Level Monitoring at Concrete batching and Asphalt plant Site

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GREEN LAB CERTIFICATION

Lab Report No. : 202310418-ZKB-NA

Invoice Bill No. : INV-ESP-410

Page: 1 of 1

Reporting Date: 19-Oct-2023

Report to:	M/s. (ZKB) Zahir Khan Brothers Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Test ID:	**NA-202310418**
Test Performed Date:	**06-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Test Type & Location:	**Noise Analysis- Continuous 24 Hrs**
Test Performed By:	Envi Tech AL
Test Description:	Noise Analysis as per mentioned standards

Sr. #	Parameters / Analytes Description	Method	Unit	Test Results	SEQS Limits	USEPA (Outdoor)	World Bank
01	Batching and Asphalt Plant at Shikarpur (GPS: 28.049372°N, 68.8771971°E) - Day Time	ASTM E1686-16	dB(A)	54	75	70	70
02	Batching and Asphalt Plant at Shikarpur (GPS: 28.049372°N, 68.8771971°E) – Night Time	ASTM E1686-16	dB(A)	55	65	70	70

Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.

SEQS Limits = Sindh Environmental Quality Standard for Noise in Industrial Area,(Reference: SEQS 2016)
USEPA = United States Environmental Protection Agency
WB = World Bank
N.D. = Not Detected.

Analyzed By (Assistant analyst)

Reviewed By (Analyst)

Approved By (Chief Analyst)

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ETAL-LAB-708-FF-10 | Issue Date:03-10-22 | Issue: 03 Rev: 02

Ambient Noise level Monitoring at site (Cadit College)

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GREEN LAB CERTIFICATION

Lab Report No. : 202310417-ZKB-NA
Invoice Bill No. : INV-ESP-410

Page: 1 of 1
Reporting Date: 19-Oct-2023

Report to:	M/s. (ZKB) Zahir Khan Brothers Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Test ID:	NA-202310417
Test Performed Date:	09-Oct-2023
Project Name:	CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)
Test Type & Location:	Noise Analysis
Test Performed By:	Envi Tech AL
Test Description:	Noise Analysis as per mentioned standards

Sr. #	Parameters / Analytes Description	Method	Unit	Test Results	SEQS Limits	USEPA (Outdoor)	World Bank
01	Infront of Cadet College (Karampur)	ASTM E1686-16	dB(A)	49	75	70	70
02	Infront of Police Check Post (Karampur)	ASTM E1686-16	dB(A)	51	65	70	70

Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.

SEQS Limits = Sindh Environmental Quality Standard for Noise in Industrial Area,(Reference: SEQS 2016)
USEPA = United States Environmental Protection Agency
WB = World Bank
N.D. = Not Detected.

Analyzed By (Assistant analyst) | Reviewed By (Analyst) | Approved By (Chief Analyst)

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Chemical Analysis of Surface water

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GREEN LAB CERTIFICATION

Lab Report No. : 202310413-ZKB-BW
Invoice Bill No. : INV-ESP-410

Page: 1 of 4
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Sample ID:	**BW-202310413**
Sample Receiving Date:	**09-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Sample Description:	**Bore Water**
Sample Type:	Liquid – Sample
Sample Collected / Submitted By:	Envi Tech AL
Date of Analysis:	09-Oct-2023 to 14-Oct-2023
Test Description:	Drinking Water Quality Testing as per mentioned standards

ANALYTICAL TEST REPORT

Sr. #	Parameters / Analytes Description	Methods	Unit	Test Results	SEQS Limits	USEPA	WHO
01	pH @ 25 °C	*APHA 4500 H	-	7.1	6.5 – 8.5	6.5 – 8.5	6.5 – 8.5
02	Total Dissolved Solids (TDS)	*APHA 2540-C	mg/L	**1727**	< 1000	-	-
03	Total Hardness as CaCo3	ASTM D 1126	mg/L	**870**	< 500	-	-
04	Color	**HACH 8025	TCU	N.D.	≤ 15	15	15
05	Turbidity	*APHA 2130	NTU	1.6	≤ 5	0.5-5.0	5
06	Nitrite	**HACH 8507	mg/L	N.D.	≤ 3	10 as N	3
07	Nitrate (NO3)	**HACH 8039	mg/L	N.D.	≤ 0.50	10 as N	50
08	Taste	*APHA 2160	-	Tasteless	Non-Objectionable	-	-
09	Odor	*APHA 2150	-	Odorless	Non-Objectionable	3 TON	Non-Objectionable
10	Chloride (Cl)	*APHA 4500 Cl	mg/L	102	≤ 250	250	250
11	Fluoride	**HACH 8029	mg/L	1.4	≤ 1.5	2.0 – 4.0	1.5

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Lab Report No. : 202310413-ZKB-BW
Invoice Bill No. : INV-ESP-410

Page: 2 of 4
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Sample ID:	**BW-202310413**
Sample Receiving Date:	**09-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Sample Description:	**Bore Water**
Sample Type:	Liquid – Sample
Sample Collected / Submitted By:	Envi Tech AL
Date of Analysis:	09-Oct-2023 to 14-Oct-2023
Test Description:	Drinking Water Quality Testing as per mentioned standards

ANALYTICAL TEST REPORT

Sr. #	Parameters / Analytes Description	Methods	Unit	Test Results	SEQS Limits	USEPA	WHO
12	Aluminum	*APHA 3111-D	mg/L	N.D.	≤ 0.2	0.05 – 0.2	0.2
13	Nickel	*APHA 3111-B	mg/L	N.D.	≤ 0.02	0.1	0.02
14	Lead (Pb)	*APHA 3111-B	mg/L	N.D.	≤ 0.05	0.015	0.01
15	Barium (Ba)	**HACH 8014	mg/L	0.5	0.7	2.0	0.7
16	Antimony (Sb)	*APHA 3111-B	mg/L	N.D.	≤ 0.005	0.006	0.02
17	Arsenic (As)	*APHA 3114-B	mg/L	N.D.	≤ 0.05	0.05	0.01
18	Boron (B)	**HACH 8015	mg/L	0.2	0.3	NS	0.3
19	Cadmium (Cd)	*APHA 3111-B	mg/L	N.D.	0.01	0.005	0.003
20	Chromium (Cr)	*APHA 3111-B	mg/L	N.D.	≤ 0.05	0.1	0.05
21	Selenium (Se)	*APHA 3114-B	mg/L	N.D.	0.01	0.01	0.01
22	Copper (Cu)	*APHA 3111-B	mg/L	N.D.	2	1	2

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ETAL-LAB-708-FF-02	Issue Date:03-10-22	Issue: 03 Rev:02

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Lab Report No. : 202310413-ZKB-BW
Invoice Bill No. : INV-ESP-410

Page: 3 of 4
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Sample ID:	**BW-202310413**
Sample Receiving Date:	**09-Oct-2023**
Project Name:	**CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)**
Sample Description:	**Bore Water**
Sample Type:	Liquid – Sample
Sample Collected / Submitted By:	Envi Tech AL
Date of Analysis:	09-Oct-2023 to 14-Oct-2023
Test Description:	Drinking Water Quality Testing as per mentioned standards

ANALYTICAL TEST REPORT

Sr. #	Parameters / Analytes Description	Methods	Unit	Test Results	SEQS Limits	USEPA	WHO
23	Cyanide (CN)	**HACH 8027	mg/L	N.D.	≤ 0.05	0.2	0.07
24	Mercury (Hg)	*APHA 3112-B	mg/L	N.D.	≤ 0.001	0.002	0.001
25	Manganese (Mn)	*APHA 3111-B	mg/L	0.1	≤ 0.5	0.05	0.5
26	Zinc (Zn)	*APHA 3111-B	mg/L	0.1	≤ 5.0	5.0	3.0
27	Residual Chlorine	**HACH 10069	mg/L	N.D.	0.2 - 0.5	-	-
28	Phenolic Compounds as Phenols	ASTM-D-1783	mg/L	N.D.	-	-	-
29	Fecal Coliform	USEPA 1604	Count/100ml	N.D.	-	-	-
30	Total Coliform	*APHA 922 B	Count/100ml	Detected	-	-	-
31	E-Coli	USEPA 1604	Count/100ml	N.D.	-	-	-

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ETAL-LAB-708-FF-02 | Issue Date:03-10-22 | Issue: 03 Rev:02

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GREEN LAB CERTIFICATION

Lab Report No. : 202310413-ZKB-BW
Invoice Bill No. : INV-ESP-410

Page: 4 of 4
Reporting Date: 19-Oct-2023

Report to:	M/s. ZKB (Zahir Khan Brothers) Shikarpur, Sindh.
Attention:	Mr. Zahir Khan Brothers

Sample ID:	BW-202310413
Sample Receiving Date:	09-Oct-2023
Project Name:	CAREC, N-55, LOT-1 from Shikarpur to Kundhkot (63km)
Sample Description:	Bore Water
Sample Type:	Liquid – Sample
Sample Collected / Submitted By:	Envi Tech AL
Date of Analysis:	09-Oct-2023 to 14-Oct-2023
Test Description:	Drinking Water Quality Testing as per mentioned standards

Note: Measurement of uncertainty, statement of conformity, opinions & Interpretations will be provided on customer Demand.
Environmental Conditions at the time of Testing; Temperature: 25 °C (±3°C) & Humidity: 48 % (± 2%).

*APHA Standard Methods for Examination of water & wastewater 23rd Edition (2017).
**HACH 8025 (HACH Edition 10, 2014), HACH 8027 (HACH Edition 09, 2014), HACH 10069 (HACH Edition 11, 2014), HACH 8029 (HACH Edition 10, 2018), HACH 8015 (HACH Edition 08, 2014), HACH 8507 (HACH Edition 11, 2019), HACH 8039 (HACH Edition 10, 2019)

SEQS Limits = Sindh Environmental Quality Standard (Reference: SEQS 2016).
WHO = World Health Organization
USEPA = United Nation Environmental Protection Agency
N.D. = Not Detected.

ENVI TECH AL

Analyzed By (Assistant analyst) | Reviewed By (Analyst) | Approved By (Chief Analyst)

Disclaimer:

- Report is Valid for current batch (sample).
- This report is not valid for any publication or judicial purposes.
- If sample is provided by the customer, Envi Tech AL is not responsible for the sample Identification and data shared by the client.
- The remaining portion of the sample shall be discarded after five working days unless otherwise instructed.

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ANNEXURE 09 RE VEGETATION PLAN

Purpose

6300 trees will be cut at CAREC Lot-1, this plan describes methods and standards for restoration of areas temporarily disturbed during road construction. The objective of re-vegetation is to restore the temporarily disturbed areas to pre-construction condition or better.

Re-Plantation Plan

- Active replantation method (by hand installation of plants) should be followed.
- For every tree that is eradicated shall be replaced by 08 trees with similar amenity potential provided.
- Following plantation scheme shall be followed as per area suitability.

- From Shikarpur-Kundhkot section, flora of the project area falls in the scrub Dry Tropical Thorn Forest Zone. This is the natural vegetation of the Indus Basin. It has the capacity to survive and grow in areas with extremely high temperatures and low precipitation. The flora consists of spiny and hard wooded species. Acacia species are the dominant one. The trees usually have short boles and low branching areas. Their usual height is 6-9 meters. The leaves are small, except in a few genera like Salvadoran and Caltrops. Main trees in the Project Area are *Acacia nilotica* (Keekar), *Eucalyptus camaldulensis* (Safaida), *Phoenix dactylifera* (Date Palm), *Dalbergiasissoo* (Shisham). *Azadirachtaindica* (Neem), *Salvadoraoleoides* (Peelu) and *Ficusreligiosa* (Peeple).
  - In median, shrub species should be installed after approval from consultant Environment Specialist.

Re-Plantation plan has been designed to

- Minimize site disturbance.
- Maximize the use of native species and/or climate adapted species.
- Maximize water conservation.
- Maximize screening of visually offensive uses (utilities, equipment, etc.).
- Use natural materials for fencing.
- Achieve visual harmony with the surrounding environment.
- Planting on side edges of road can give strength to road structure against erosion.
- Prompt establishment of fast-growing grass, shrub and tree species that are suitable for site.

Selected and Proposed Species of Plant for Plantation

Name of Plant	Origin	Sapling Height	Pictorial View
Kikar	Indigenous	At least one year Age	 Kikar Tree
Oleander	Ornamental	4.0ft or At least one year Age	
Duranta	Indigenous ornamental	At least one year Age	
Hibiscus	Indigenous	At least one year Age	
Sok chain	Indigenous	4.5ft	

Name of Plant	Origin	Sapling Height	Pictorial View
Shisham	Indigenous	4.5ft	
Phulahi	Indigenous	4.0ft	
Siris	Indigenous	At least one year Age	
Temrix	Indigenous	At least one year Age	

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Responsible Authorities

- General Manager (ZKB) will be responsible for implanting trees after accomplishment of road construction project to maintain scenic beauty of the area.
- Consultant Environment Specialist will approve plant species with the help of contractor as per his survey of the area.
- Monitoring will be carried out and success growth rate checked otherwise plan will be modified accordingly as per direction of Consultant Environment Specialist

ANNEXURE 10 GENERAL TRAFFIC MANAGEMENT PLAN (TMP)

Purpose:

General Site Traffic management plan has been developed which aims minimizing local traffic congestions during the construction activities of ZKB in the specific project area. The plan has been developed to smoothen inconvenience to the local settlement, motors and the pedestrians.

Transportation management program has been chalked out which is based on coordinated transportation management strategies which describes how the transportation will be used to minimize work zone impact.

Traffic Management:

For smooth flow of traffic in the project areas the following traffic management plan is adopted.

- Construction work will be arranged as per traffic flux / volume.
- Construction activities will be undertaken on the new alignment.
- The local public authorities will be invited for setting up traffic regulations.
- Check and monitoring system will be mentioned for controlling smooth traffic flow.
- For safety of labors / flag men fluorescent type jackets shall be used by the flagman. This will be certainly reducing the occurrences of road accidents.
- On diversions fluorescent type of sign boards shall be displayed specially on dead ends.
- The safety officer of ZKB will make round of entire project on daily basis to ensure the display of sign board / cones especially at diversions and will also fill daily safety monitoring format, and will record every incident etc on this format and will also use improvement action report format for documentation of any incident report etc,
- There should be sufficient readymade stock of traffic sign boards available in store to immediately replace the damaged or missing sign boards.
- Record of total numbers of sign boards installed and missing sign boards will be presented to OHS Manager by the safety officer on daily basis for prompt replacement.
- Report of accident occurrences will be initiated by the safety officer to OHS Manager at the soonest.
- Temporary site-specific plans shall be generated according to the safety requirement which will be applicable on all diversions, bridges, during the course of construction activities

Responsibility:

Safety officer will be responsible for all matters concerning road safety.

Complaint Register:

Record of complaints lodged from travelers, motorist pedestrians and local public shall be maintained on a complaint Register at site office for registering any complaint regarding traffic constraints etc. or even the complaints of excessive dust will be registered by the safety officer and necessary investigating measures adopted.

(Copy of format is attached with GRM Fig-9-3)

Traffic management plan for the entire project area at the specific road crossing points will be submitted separately, for the overall safety of workers of ZKB working at site, motorists and residents of the area of activity and to control occurrences of road accidents etc. ZKB shall ensure that their drivers and heavy equipment operators exercise utmost diligence in their work to avoid accidents and ensure safety and protection against accidents of all staff and labor engaged on the works and the public traveling through the work area.

ANNEXURE 11: SPILLS MANAGEMENT PLAN (CHEMICALS / OILS)

Purpose

The purpose for this procedure is to ensure that case of liquid Chemicals / oils spillage is managed in an environmentally safe and correct Manner.

Responsibilities

It is the responsibility of site foreman /Engineer to ensure compliance with this procedure and site engineer / foreman Concerned shop should be is familiar with this procedure.

Slope.

This procedure describes how to control Emergency of Chemical/ oil Spills within the project area.

Procedure:

In case of minor / major spillage the following steps are to be taken by the concerned supervisor / foreman.

(1) In case of major spillage carry all the safety items.

(2) Try to stop the sources of spillage.

(3) After stopping the source try to recover the chemical / Oil

(4) Collect all the spilled chemical / Oil in the Drums and shift the Drums to oil collection point after proper identification.

(5) Clean the surface with cotton rages and others in a specified area.

(6) Inform / Report to the Environmental Engineer and superiors.

Check the potential spillage areas to avoid such happenings in future

Training on spillage control:

Environmental engineer will arrange special training sessions to the workers ZKB and arrange rehearsal to organize spill drills from time to time and record of the trained Employees will be maintained.

ANNEXURE 12 SOLID WASTE DISPOSAL PLAN AND PROCEDURE

Solid waste disposal procedure for a construction project involves a systematic approach to manage various types of waste generated during the course of the project. Here's a tabular format for the disposal procedure for different types of waste:

Waste Type: Clinical Waste Disposal (Dispensary):

Step	Procedure	Responsible Party	Disposal Method
1	Segregation: Separate medical waste (e.g., used medical supplies, sharps, needles, used cotton, syringes bandages etc.) from other waste	On-Site Medical Staff	Use designated medical waste Bins.
2	**Collection:** Place medical waste in sealed, labeled biohazard bags or Bins.	On-Site Medical Staff	Store in a secure area within the medical dispensary.
3	**Disposal:** medical staff will coordinate with local hospitals for their waste disposal generated at site to collect and transport the waste for proper treatment and disposal.	EHS Manager	Follow national/ Sindh province regulations for medical waste disposal.

Waste Type: Office, Main Store, Workers' Living Area, and Play Yard:

Step	Procedure	Responsible Party	Disposal Method
1	Collection and Segregation of waste in designated bins, which will be placed around the camp. office, kitchen, living area and lawn	Camp In Charge	Use separate drainage systems for effluent waste.
2	Small bins should be strategically placed for waste collection. Camp in charge should segregate their waste into general waste, recyclables, and hazardous waste if applicable. This waste will be transported to	Camp In Charge	Regularly monitored and transported by using tractor trolley at nearby disposal site

	the main waste collection points		
3	Treatment: in accordance with local waste disposal regulations.	Camp In Charge	Follow local guidelines for waste disposal

Waste Type: general effluents from washrooms

Step	Procedure	Responsible Party	Disposal Method
1	Segregation: Segregate liquid effluent waste (e.g., wastewater, sewage) from solid waste.	Camp In Charge	Use separate drainage systems for effluent waste.
2	Collection: Collect effluent waste in designated Septic Tanks.	Camp In Charge	Regularly monitored and pump when required and dispose off effluent waste at approved treatment facility.
3	Treatment: Treat effluent waste in three chambered septic tank and discharge the water through pipes (having 2 feet dia) into local Nalla	Camp In Charge	Follow local guidelines for effluent treatment.

Waste Type: Kitchen Waste Disposal

Step	Procedure	Responsible Party	Disposal Method
1	Segregation: Segregate kitchen waste (e.g., food scraps, disposable utensils) from other waste.	Camp Kitchen Staff	Use separate bins for kitchen waste.
2	Collection: kitchen waste will be collected in sealed bins.	Camp Kitchen Staff	Dispose of kitchen waste at a designated composting or disposal facility.
3	Composting: Compost organic kitchen waste where possible, following local guidelines.	Camp Kitchen Staff	Follow composting procedures and local regulations.

Waste Type: Site Demolition Material Waste

Step	Procedure	Responsible Party	Disposal Method
1	Segregation: Separate demolition materials (e.g., concrete, bricks, metal, etc.) from other waste. Site-demolished materials, such as debris etc., should be sorted and stored in designated areas for recycling, reusing, or proper disposal.	Site construction Manager	Material will be segregated first and then transported into designated place.
2	Collection: Store demolition waste material temporarily at site in suitable place for the material type.	Site construction Manager	Transport the unsuitable material for landfilling process and other material will be transported for recycling centers or waste disposal sites for appropriate processing.
3	Recycling: Recycle materials like concrete and metal, where possible, according to local recycling guidelines.	Project Manager	Ensure compliance with recycling regulations.

Waste Type: Asphalt Plant Waste

Step	Procedure	Responsible Party	Disposal Method
1	Segregation: Separate asphalt waste from other waste materials.	The plant manager and operators are responsible for the proper disposal of waste generated at the asphalt plant.	Use designated areas for asphalt waste.
2	Collection: Waste material from the asphalt plant, including slush from recycling water tanks and reaming, should be collected and segregated at the plant.	Plant Manager	Transport waste material to a approved disposal point
3	Recycling: Any recyclable materials should be processed for reuse, while the remaining waste should be transported to approve	Project Manager	Ensure adherence to recycling regulations.

	disposal site, following local waste management regulations.		

General Procedures for All Waste Types:

- All waste containers should be clearly labeled to indicate the type of waste they contain.
- Regular waste audits should be conducted to ensure compliance and identify areas for improvement.
- Transport vehicles for waste disposal must adhere to safety and environmental regulations.
- All disposal activities should be documented and reported to authorities as required.

ANNEXURE 12:

Due Diligence Report: Concrete Batching Plant & Asphalt Plant Site

Project Overview:

The project involves the CAREC/T-II construction of an additional carriageway on National Highway-55, spanning from Shikarpur to Kundhkot. The due diligence focuses on the site acquisition for the concrete batching plant and asphalt plant. Both sites are situated in areas devoid of population and sensitive entities within a 500-meter radius.

Site Assessment:

1. Location and Accessibility:

The chosen locations for the concrete batching plant and asphalt plant are strategically positioned near National Highway-55, enabling convenient transportation and logistics. These sites can be precisely identified with Google coordinates 28°02'57"N 68°52'18"E at RD 69+350.
Accessibility to the sites appears optimal, ensuring convenient movement of construction materials and equipment.

2. Environmental Analysis:

Environmental assessments conducted indicate the absence of sensitive ecosystems or protected species within the vicinity.
The immediate area lacks significant flora or fauna that could be adversely affected by the establishment of the batching and asphalt plants.

3. Population and Sensitive Entities:

The 500-meter radius around both sites has been surveyed thoroughly, confirming the absence of any residential settlements, schools, hospitals, or other sensitive establishments.
No cultural or historical landmarks of significance are located within the designated radius, mitigating concerns of adverse impacts on heritage sites.

4. Regulatory Compliance:

Compliance with local, national, and international regulations concerning the installation and operation of concrete batching and asphalt plants has been thoroughly reviewed.
NOC from EPA Sindh has been acquired by NHA.

5. Infrastructure and Utilities:

Basic infrastructure such as electricity, water, and communication networks are available and accessible for both sites and contractor will use the generator for plants operation

Adequate provision for waste management and disposal has been accounted for to prevent environmental contamination.

6. Risk Assessment:

Risk assessments, including factors such as potential noise pollution, air quality impacts, and traffic congestion, have been conducted.
Mitigation strategies are proposed to address any identified risks, including noise barriers, emission control measures, and traffic management plans.

7. Community Engagement:

Despite the absence of immediate population centers, a community engagement plan has been outlined to address any concerns from neighboring areas.
Stakeholder consultations and information dissemination regarding the project's objectives and potential impacts will be conducted proactively.

Conclusion:

The due diligence conducted for the concrete batching plant and asphalt plant sites on National Highway-55, between Shikarpur and Kundhkot, demonstrates a comprehensive assessment of environmental, regulatory, and societal factors. The sites' selection reflects meticulous consideration for minimizing adverse impacts on surrounding areas. Mitigation strategies and compliance measures have been proposed to ensure responsible and sustainable operations.
This report serves as a testament to the thoroughness and adherence to best practices in site selection for critical construction components, safeguarding the successful implementation of the additional carriageway project.

Recommendations:

Continued monitoring, periodic environmental impact assessments, and proactive community engagement should be integral parts of the project's execution to ensure ongoing compliance and address any unforeseen concerns