CHECKLIST FOR PHYSICAL BASELINE CONDITIONS

PHYSICAL ENVIRONMENT

a. Type of area

- Mountainous
- Arid
- Semi-arid
- Forest
- Dense forest
- Populated
- Densely populated

Any other _____specify)

b. Landuse of area

- Agriculture
- Barren
- Built-up
- Desert
- Access road
- Wetland

Any other _____(specify)

c. Geological conditions

- is the geology of the area rocky _____
- is the origin of rocks sedimentary/igneous/metamorphic
- any other _____ (specify)

d. Seismology

- is there any record of earthquakes in the past 50 years
- presence of faults/fractures
- any other details _____ (specify)

e. Topography & soils

- are the soils mixtures of sand /silt/clay/gravel/rock/clayey silt_____
- any other _____ (specify)

Proposed site	Soil description

Other features

- Drains
- Hills
- Plain Areas
- Any other _____ (specify)

f. Climate historical data from nearest weather station ( )

Temperature	Wind	Relative humidity	precipitation	Evapotranspiration

g. Surface and Ground water

Source of surface water

- Rivers
- Hill Torrents
- Surface Ponds
- Any other_____ (Specify)
- Surface water quality visual? _____

Sources of ground water

- Wells
- Hand Pumps
- Tube wells
- Any other_____ (Specify)
- Quality and Approx. depth _____

g. Air Quality

- Is the area visually pollution free _____
- Identification of point sources (Industries Refineries, power plants) or any other _____ (specify)
- Identification of non- point sources (cars, trucks, tractors) or any other _____ (specify)

h. Liquid effluents

- liquid effluents sources (industries/household/commercial)
- if any other _____ (specify)
- Identification of any disposal source for waste water from plant _____ _____

Describe Details

i. Solid Waste

- Types of waste (Municipal, commercial, institutional, agriculture industrial, biomedical) any other _____ (Specify)
- Waste Disposal facility (Landfill, dumping stations)
- Approx. waste generated (tons/day)_____
- Responsible solid waste management authority? _____

- Waste management (Good or Poor)_____if poor, specify the reasons (lack of awareness among people, authority is not responsible enough)

j. Noise

- Sources of noise (traffic/industry or other _____(Specify)
- Areas under high noise pollution? _____

k. Natural Hazards

- Does the project area has any previous records of flooding _____
- Are there any records of drought _____
- Any other_____(Specify)

l. Nearby Infrastructures in Study Area

Sr. No.	Infrastructure	Details
1.	Transmission Line Crossing	
2.	Surface Water Body	
3.	Water Supply Line	
4.	Roads	
5.	Quarry Area	
6.	Developmental Project	
7.	Sensitive Receptor	
8.	Other (Specify)	

Sr. No.	Significant Impacts	Details

ECOLOGICAL CHECKLIST FOR ESIA/ESMP

	Data Sheet No.		**Date**	/ /	**Expert Name**			
	Location/Village			**District**	Rawalpindi	**RD/KMs.**		
	BIODIVERSITY FEATURES							
(i)	**Vegetation Description**							
	Forests (Trees, Herbs, Shrubs)	Yes/No	**Ecological Zone/Forest Type**		**Legal Status**			
	Species Composition	ROW			**No of Trees (Possibly Affected)**			
	Diameter Class	0-15 cm	16-30 cm	31-45 cm	46-50 cm	51-65 cm	66-80 cm	81-95cm	Above 95 cm
	Rangeland	Yes/No	**Agricultural Land**	Yes/No		**Crop Type**		
(ii)	**Wildlife/ Fauna Description**							
	Wildlife Protected Areas (Notified or Sensitive)							
	Mammals	Yes/No						
	Reptiles	Yes/No						
	Amphibians	Yes/No						
	Aquatic Habitat	Yes/No						
	Avifauna/Birds	Yes/No						
	Natural Wetland	Yes/No						
	Endangered Species	Yes/No						
	Other Biodiversity Features							
	Remarks/Comments:							

QUESTIONNAIRE FOR SOCIOECONOMIC BASELINE SURVEY

Date. ---------- Photo No. ---------- ID No. ----------

1. IDENTIFICATION

1.1 Name of Respondent_____

1.2 Father's Name_____ **1.3 Cell. No:** _____

1.3 Permanent Address of the Respondent:

Village: _____Town _____ Tehsil _____ District: _____

1.5 Located _____**Caste**_____

1.6 Demographic Profile of Respondent (Children up to 10 yrs (#): M_____, F _____ T_____)

Sr. No.	(a) Relationship with Respondent (See codes)	(b) Sex (See Codes)	Age (Yrs.)	(c) Education (See Codes)	(d) Name of Business/ Occupation (See Codes)		Income from Business/ Occupation (Rs. / Annum)		(e) Health Condition
					Main	Secondary	Main	Secondary	
1	Self								
2									
3									
4									
5									
6									
7									
8									
9									
10									

Demographic Codes:

a) Relationship: 1=Self, 2=Wife, 3=Son, 4=Daughter, 5=Father, 6=Mother, 7=Brother, 8=Sister, 9=Grand Father, 10=Grand Mother, 11=Sister in Law, 12=Nephew, 13=Father-in-Law, 14=Mother-in-Law, 15=Niece, 16=Uncle,17=Aunty, 18= Son-in-law, 19= Daughter, 20= S. in Law,21=D. in Law, 22= Other_____

b). Sex: 1=Male, 2=Female, 3= Transgender

c). Education: 1= Primary 2= Middle 3= Metric, 4= Intermediate, 5= Graduate, 6= Post Graduate, 7=Law, 8=Engineer, 9=MBBS, 10=Technical Diploma, 11=Dars-e-Nizami, 12=Can Read Quran, 13= Can Insert Signatures, 14= Illiterate

d). Occupations:1=Agriculturist, 2=Shopkeeper, 3=Hotel, 4=Mechanic, 5=Barber, 6=Butcher, 7=Cobbler, 8= Business, 9= Govt. Servant,10=Private Servant, 11=Labor, 12=Student, 13=House-Maid, 14=Housewife, 15=Advocate, 16=Livestock/Dairy, 17=Fishing, 18=Driver, 19=Health Related, 20=Teaching, 21=Entertainer, 22=Gone Abroad, 23=Retired/Old, 24=Other_____

e). Health: 1= Good, 2= Average, 3= Poor

1.8) Language Spoken _____**Religion**_____

1.9) Type of family system: 1.Joint: _____ 2.Nuclear_____

2. AVERAGE MONTHLY EXPENDITURE ON FOOD AND NON- FOOD ITEMS (Rs.)

Items	Expenses
Food	
Non-food	
Utilities	
Health	
Education Care	
Other	

3. HOUSING CONDITIONS

3.1 Personal_____ Rented_____ Other_____

3.2 Type of Structure

(i) Katcha_____ (ii) Semi Pacca_____ (iii) Pacca_____

4. ACCESS TO SOCIAL AMENITIES *(TICK)*

Social Amenities	Available (Yes-No)	Satisfactory (Yes-No)	Reasons for Not Satisfaction
Electricity			
Gas			
Water Supply			
Water Filtration plant			
Telephone			
Sewerage/Drainage			
Hospital			
School (Boys-Girls)			
College (Boys-Girls)			
University (Boys-Girls)			
Religious Institution			
Road			
Source of Cooking if Sui Gas is not available			

5. CREDIT UTILIZATION

5.1 Have you obtained credit during last year? Yes___ No_____ if yes, source of credit:

a) Formal b) Informal

5.2 Please write the name of relevant source

Formal source (s) _____

Informal source (s) _____

Purpose of Loan _____

6. WOMEN'S PARTICIPATION AND ROLE IN DIFFERENT HOUSEHOLD ACTIVITIES

6.1 Participation and Decision Making (Tick)

Activities	Participation Extent (%)	Decision Making Extent (%)
Household activities		
Child caring		
Farm/Crop activities		
Livestock rearing		
Sale & Purchase of properties		
Social obligations (marriage, birthday & other functions)		
Local representation (councilor/political gathering)		

7. SOURCE OF DRINKING WATER:

1. Public Water Supply 2.Hand Pumps 3. Borehole 4. Any other __

7.1 Quality of water**:** Good_____ Poor: _____

If Poor (Reason) _____

8. DOES ANY NGO EXIST IN YOUR AREA?

Yes_____ No_____

If yes, Name of NGO -: _____

8.1 Are you member of NGO? yes---------- No---------- if yes,

Role in NGO-:_____

9. PERCEPTION OF RESPONDENTS FOR ACTION ASSOCIATED WITH THE PROJECT:

Possible impacts/effects of the Project	Increase	Decrease
Employment opportunities		
Industrial Development Opportunities		
Living standard		
Unemployment		
Income generating activities		
Improvement in transport		
Mobility (Access to Resources)		
Physical Displacement		
Other specify		

10. ANY OTHER HISTORICAL /ARCHEOLOGICAL MONUMENT IN OR NEARBY THE PROPOSED PROJECT AREA?

1. Yes_____ 2. No_____ If yes, please specify

Name _____ Type_____ Distance from the proposed project ____

11. **MAJOR DISEASES COMMON IN THE PROPOSED PROJECT AREA**

_____

_____

_____

12. **IN YOUR OPINION, WHAT ARE SOME PRESSING NEEDS OF THIS AREA?**

_____

_____

_____

_____

13. **GENERAL REMARKS OF THE RESPONDENT**

_____

_____

_____

_____

14. **GENERAL OBSERVATIONS OF INTERVIEWER**

_____

_____

_____

_____

Name of Interviewer: _____ Date: _____

GENDER SURVEY

1. **Location:**

Settlement: _____

UC: _____Tehsil: _____ District: _____

2. **Identification**

2.1: Name:_____ **2.2:Father's / Husband Name:** _____

2.3: Permanent Address:

_____

2.4: Contact No._____

2.5: What is your age?

Age (year) 18 – 25_____ 26 – 35 _____

36 – 45_____ 46 and above _____

2.6: Marital status? I. Married _____ II.Unmarried _____

2.7: What is your family size? I. Male_____II. Female_____

2.8: What is your caste /ethnic group?_____

2.9: What is your language? _____

2.10: What is your qualification?

I. Illiterate _____ II. Primary_____ III. Middle _____

IV. Metric _____ V. Intermediate _____ VI. Above Inter _____

3. What are the main roles and responsibilities of women?

Roles	Involvement(%age)
Household Activities	
Income Generation Activities	
Others	

Decision Making:

Who decides the following household matters?

Men = 1, Women = 2, Both = 3.	
	Decision maker
Education where to send, whom to send	
Health facilities (from where to avail)	
Number of children to have	
Children Marriages	
What HH assets to buy and sell	
Women to work outside home	

4. Access to Social/Financial Services and Mobility

4.1 Access to Education and Skills

Are there any constraints for girls accessing education? What are the main constraints?

_____

4.2 Gender preferences for sending children to school?

_____

4.3 Are there any vocational centers/schools for girls/women? What kinds of training courses are available with these vocational centers?

_____

5. Access to Health

5.1 What kinds of health facilities are available in the area? Do women seek pre and post-natal health consultations and care? If not, what are the main constraints?_____

_____

_____

5.2 Distance from the nearest health facility in KMs? _____

5.3 What are the main health issues for men and women? Any common water borne diseases in the area?

6. Access to Drinking Water

6.1 What are the main sources of drinking water?

_____

6.2 What are the key drinking water specific issues in the area?

_____

6.3 Do women fetch water in the area from outside? Distance travelled by women _____?

6.4 Time used in fetching water? _____

7. Access to Finance

7.1 What kind of financial services (such as banking, micro-finance, and savings) are available to women?

_____

7.2 What kind of challenges/constraints women face in accessing financial services?

_____

8. Access and Control over Resources

8.1 What are the common trends of women ownership of land and assets?

_____

8.2 What kind of issues, women face in access and control over resources/assets/property?

_____

9 Access to Income Earning Opportunities

9.1 Are you involved in Income generating activities?

i) Yes _____ii) No_____

If yes, what are common activities?

i) Stitching/Embroidery_____ ii) Livestock_____ iii) Job _____ iv) other_____

9.2 What is opinion of male about the job of female, whether they like and encourage the female in jobs?

_____

9.3 Are women allowed to work outside home? What are the main constraints for women in accessing economic opportunities?

_____

9.4 Do you satisfied with the private wage/salary?

Yes _____ No _____ if No, how much it should be per day or per month (Rs.) _____

9.5 Did you allow saving your salary/income independently in a separate bank account?

yes _____ No _____, If No, why explain the reason. _____

9.6 In which area, the female employees spend their salaries or earnings on?

House construction:_____ Marriage of her children:_____ Education:_____

Kitchen:_____ Livestock: _____ Other:_____

9.7 What are the key potentials in the area for increasing women's participation in economic activities?

_____

10 What is the attitude of the husband/ in laws family in case of more girl baby births against the willing of boy baby?

_____

11 Women's Participation in Local Forums/Training Programs

11.1 What kind of local forums (formal, informal) exist in the area where women can participate?

_____

11.2 Are there any cultural norms and social constraints refraining women to participate in the local forums?

_____

11.3 What are the key potentials for engaging women in the local area development?

_____

11.4 Do women participate in training programs offered by development partners (NGOs/CSOs)? What kind of training programs has been imparted?

_____

12 Vulnerabilities (Poor, Elderly, Disabled and Widows)

12.1 What are the key vulnerabilities for women in the area?

_____

12.2 What kind of social protection mechanisms/programs for the vulnerable women?

_____

13 Have you ever faced violence from male members of the household?

Yes_____ No _____If Yes, Type

Physical_____ Mental_____ On what type of Issues?

i) Domestic_____ ii) Economic _____ iii) Others_____

14. Any complaint or voice rose against violence to NGO or Police?

Yes_____ No _____, if yes where _____

14.1 Was compensated to the affected woman? yes _____No _____

If yes, what result and consequences of that complaint? _____

If Not. Why..._____

15. Project Benefits for Women

15.1 What protective measures do you suggest regarding the project implementation?

_____

_____

15.2 How women's participation could be ensured in the project implementation? How project interventions will benefit women?

_____

_____

15.3 What are the key recommendations for maximizing project benefits for women?

_____

_____

15.4 What kind of negative impacts do this project has on women?

_____

_____

15.5 What are the pressing needs of women of the Project Area?

_____

_____

16. Existence of other development partners:

16.1 Are there any other development partners (funding agencies, CSOs/NGOs) working in this area for the socio-economic development of the communities? List down the names of the development partners.

_____

_____

16.2 What kind of development support is provided by other development partners for the socio-economic uplift of the communities in this area?

_____

_____

17. Any other concerns/comments

_____

_____

Interviewer's Signature _____

Assets Inventory and Census Questionnaire

(With this Questionnaire Socio-Economic Questionnaire will be used)

Date: ---------- ID No: --------- Coordinates _____Side (ROW) _____

1. LOCATION

1.1 Name of Setlement_____**1.2: RD No:** _____

1.3 Tehsil: _____ **1.4 District:** _____

2. IDENTIFICATION

2.1 Name of Affected Person: _____**2.2 Father's Name:** _____

2.3 NIC No: _____**2.4 Permanent Address of the Respondent:** _____

_____ **3.5:** Contact No._____

3. CATEGORY OF RESPONDENT: (TICK RELEVANT)

---

4. DETAIL OF AFFECTED PROPERTY/ASSETS

4.**1** **If land, provide following details:**

Type of Land	**Total Land** **(Acre/Kanal /Marla) Guntha**	**Affected Land** **Acre/ Kanal/Marla Guntha**	**Ownership Status of affected/acquired land (Tick the relevant**		
			Titled land	**Leased (state/private) land**	**Encroached ROW**
a) Agriculture					
b)Residential					
C) Commercial					
d) Forest/Orchard Land					
e) Wasteland					
Total Area					

4.2 identification/details of joint owners of affected/acquired land and land parcels.

Sr. No.	Name	Type of Business	% Share	Documents Available (Yes/No)
1.				
2.				
3.				

4.3 **For arable agricultural land, provide following details:**

Type of Land	Total cultivated area AH owns (Acre/Kanal/ Marla)	Affected Crop Area (Kanal)	Ownership Status	Production and Income		
				Production	Expenses	Net income
a) Crop area (Rabi)						
b) Crop Area (Khrif)						
c) Orchards Area						

4.4 Details of affected Residential Structure, Specify Category of Structure

1. Single Storey 2. Double Storey 3. Triple Storey

Structure	Type of Construction *	Nos. and size of Structure			% of affected Structures
		Nos	Type Roof	Size (sft rft)	
Room					
Veranda					
Kitchen					
Bathroom/ Latrine					
Boundary Wall (rft)					
Hand Pump/Electric Motor					
Electric Meter					
Any other					

* 1- Kacha. 2- Semi-Pacca 3- Pacca 4-Straw

4.5 Commercial Structures:

1. Single Storey 2. Double Storey 3. Triple Storey

Structure	Type and size of Structure		% Affected
	Type of Construction	Size (sft)	
Shop			
Shed			
Kiosk			
Other			

* 1- Kacha. 2- Semi-Pacca 3- Pacca 4-Straw 5- Type of Roof

4.6 Community/Public and Religious Structures Under Project Impact

1. Single Storey 2. Double Storey 3. Triple Storey

Structure	Type and size of Structure			% Affected
	Type of Construction	Type of Roof	Size (sft)	

4.7 Cattle, Structure, Specify Category of Structure

Structure	Type of Construction *	Nos. and size of Structure			% Affected
		Nos	Type of Roof	Size (sft- rft)	
Room					
Shed					
Boundary Wall					
Hand Pump/Electric Motor					
Electric Meter					
Any other					

* 1- Kacha. 2- Semi-Pacca 3- Pacca 4-Straw

4.8 Water Supply assets/ fixture affected:

Type of Asset	No.	Size (sft- rft)	Value (Rs.)	When Purchased / Installed (No. of Yrs.)	Type of Roof	% Affected
Room						
Tube well bore hole						
Bore hole of Electric water pump						
Well						
Water Box						
Other (specify)						

4.9 Details about Shareholder/Tenant, if any: _____

Sr. No.	Name	Relationship with Respondent	Type of business	Share in % age	Document Available (Yes/No)
1.					
2.					
3.					
4.					
5.					

4.10 Private Owned Trees Under Project Impact

Sr. No.	Type	Numbers	Size/age		
			Mature	Girth	Sapling
1	Non-Fruit Trees				
2	Fruit Trees				
3	Other				

4.11 Details of Govt. Affected Trees:

			Size/age

Sr. No.	Type	Numbers	Mature	Girth	Sapling
1	Non-Fruit Trees				
2	Fruit Trees				
3	Other				

4.12 Employee Description: How many employees do you have? Nos.----------

Sr. No.	Name of Employee	Nature of Employment	Average Monthly Wage (Rs.)
1			
2			
3			

5. RELOCATION OPTION

5.1 Do you have some other place to move? (Yes)_____ (No) _____

5.2 In case of Yes:

a) How far away from this place? _____(km) (b) Do you own this place? (Yes) ___ (No)____

if Yes (Where) _____

6. COMMENTS / OBSERVATIONS

6.1 General Remarks of the Respondents:

_____

6.2 Pressing Needs of the Respondent:

_____

6.3 General Observations of Interviewers:

_____

Conducted by: _____ **Date:** _____

COMMUNITY/PUBLIC CONSULTATION

1- Identification:

Date_____

Settlement:

_____

UC:_____ Tehsil:_____District: _____

Location of Meeting_____

Resource Person _____ Contact No._____

2. What types of impacts do you expect due to implementation of project in the area?

_____
_____
_____
_____
_____
_____
_____
_____

3. Questions& Response

Question	Response

4. General Remarks and suggestions of the participants:

5. General Observations of Interviewer:

List of Participants

Sr. No.	Name	Occupation	Signature/ Thumb (NIC)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

ANNEX 5-2: LIST OF SENSITIVE RECEPTORS

Section 2			
Sl.	**Sensitive Receptor**	**Latitude**	**Longitude**
1.	Imam Bargah Qasim Shareef	27°16'9.76"N	68°29'47.25"E
2.	City Medical Centre	27°16'54.80"N	68°30'20.66"E
3.	Rural Health Center Ranipur	27°16'55.54"N	68°30'22.57"E
4.	Bhatti Public School	27°16'56.36"N	68°30'28.88"E
5.	Ahlul Bait Public School	27°17'4.29"N	68°30'15.31"E
6.	Ranipur Civil Hospital	27°16'57.35"N	68°30'24.06"E
7.	Al Hajj Pir Syed Abdul Qadir Shah Jillani Public Park	27°17'15.98"N	68°30'21.38"E
8.	Hajna Shah Bodla Mazar	27°17'21.24"N	68°30'23.30"E
9.	Batool Medical Center	27°17'4.82"N	68°30'34.18"E
10.	Surhan Elementary Public School Ranipur	27°17'10.51"N	68°30'40.13"E
11.	New Iqra Computer and Coaching	27°17'18.31"N	68°30'45.22"E
12.	Ever Shine Public School	27°17'20.17"N	68°30'33.08"E
13.	Yasir Public School	27°17'19.73"N	68°30'28.51"E
14.	Government Sachal Sarmast Degree College, Ranipur	27°17'29.38"N	68°30'45.08"E
15.	Pir Syed Abdul Qadir Shah Jeelani Cricket Stadium Ranipur	27°17'31.06"N	68°30'43.03"E
16.	Rohri Canal	27°17'29.62"N	68°30'57.12"E
17.	Madni Masjid Soumra	27°19'13.74"N	68°31'16.59"E
18.	Step School Gambat Campus	27°20'35.28"N	68°32'1.20"E
19.	Dargah Ali Shah	27°20'48.93"N	68°31'52.39"E
20.	Agha Khan Hospital Laboratory	27°20'52.25"N	68°31'56.20"E
21.	Abu Zar Ghaffari Masjid	27°21'33.26"N	68°31'56.27"E
22.	Mohammadi Public School and College Gambat	27°21'49.26"N	68°32'1.04"E
23.	Dargah Aalia Ghausia Miskeenpur Shareef	27°23'20.85"N	68°33'24.75"E
24.	Baitussalam School and Masjid - Gambat	27°23'20.28"N	68°33'52.86"E
25.	Jamia Masjad and Madarsa Syed Ashique Ali Shah jelani	27°24'27.15"N	68°34'43.65"E
26.	Indus Schools of Knowledge, Moosani	27°24'46.44"N	68°36'3.49"E
27.	Jamia Masjid Ali ul Murtaza RA	27°26'30.26"N	68°37'48.32"E
28.	Government High School Khairpur	27°26'46.46"N	68°38'22.06"E
29.	Government Boys Primary School Buto Khan Chandio	27°27'0.71"N	68°38'20.30"E
30.	Government Boys High School Kouro Goth	27°30'17.76"N	68°41'39.48"E
31.	Government Boys Primary School sanghroo juneja	27°31'12.11"N	68°42'19.29"E
32.	Masjid Baba-e-Rehmat	27°31'59.86"N	68°42'42.04"E
33.	Government Dispensary Khanpur	27°31'25.76"N	68°42'29.70"E
34.	Shah Hussain Dargah Khairpur	27°32'6.71"N	68°42'53.89"E
35.	Maddie School	27°34'18.13"N	68°44'45.89"E
36.	Govt High school Wisrio Wahan	27°36'17.12"N	68°47'17.56"E
37.	Jamia Masjid Wisrio Wahan	27°36'19.13"N	68°47'20.36"E

Section 2			
Sl.	**Sensitive Receptor**	**Latitude**	**Longitude**
38.	Government Primary School Qazi Khooh	27°36'36.45"N	68°47'31.59"E
39.	Haji Muhammad Kamail u Jan School	27°37'12.42"N	68°47'39.60"E
40.	Jamia Masjid Karamabad	27°37'15.80"N	68°47'47.28"E
41.	Basic Health Unit Gagri	27°38'7.46"N	68°48'43.64"E
42.	Bilal masjid Baberloi	27°39'2.20"N	68°50'12.50"E
43.	Govet Girls High School Babarloi	27°38'58.48"N	68°50'10.71"E
44.	Jamia Masjid Doonhon Ibrahim Shah Doonhon Babarloi	27°38'55.34"N	68°49'56.36"E
45.	Markazi Imam Bargah Doonhon Ibrahim Shah Babarloi	27°38'57.33"N	68°50'2.89"E
46.	The Smart School Baberloi Campus	27°39'9.05"N	68°50'20.84"E
47.	Basic Health Unit Babarloi Sukkur	27°39'20.52"N	68°50'19.75"E
48.	SIUT Hospital Sukkur	27°39'40.21"N	68°50'58.05"E
49.	Mirwah Canal	27°39'40.18"N	68°51'11.51"E
50.	Masjid Ali Ul Murtaza	27°39'46.09"N	68°51'19.75"E
51.	Government Boys Primary School Tando Mir Muhammad	27°40'0.73"N	68°51'25.59"E
52.	Basic Health Unit Tando Thatti Sukkur	27°39'50.12"N	68°51'36.94"E
53.	Masjid Bab Al Hawaij	27°40'1.62"N	68°51'31.80"E
54.	Government Ata Hussain ShahDegree College	27°40'3.65"N	68°51'54.51"E
55.	Noor Pur Masjid Dargah Rohri	27°39'54.91"N	68°52'29.17"E
56.	Dargah Shah Khair Wand	27°40'2.28"N	68°52'56.71"E
57.	Government Girls Primary School Nandhi Patni	27°39'39.24"N	68°53'9.97"E
58.	The Aror University Of Art, Architecture, Design & Heritage Rohri	27°39'40.44"N	68°54'2.75"E
59.	Jamia Masjid Aror	27°39'31.75"N	68°54'1.47"E
60.	Jamia Masjid	27°39'47.41"N	68°54'7.89"E
61.	Muhammadi Masjid	27°39'53.78"N	68°54'44.64"E
62.	Allama Iqbal Open University Regional Center Sukkur	27°39'58.94"N	68°55'24.21"E
63.	Local Masjid	27°40'5.24"N	68°55'39.53"E
64.	Government Boys Elementary School Mevo Khan Sahib Khan Jiskani	27°40'24.36"N	68°55'58.75"E

Section 7			
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
1	Harvard College of Commerce and Science	72.998594	33.612931
2	Government College of Commerce	72.995231	33.61258
3	Ujala School System	72.985984	33.617552
4	Kohinoor Textile Mills Mosque	72.979744	33.617484
5	Punjab College of Commerce	72.975686	33.623002
6	University of Wah	72.790459	33.741755
7	Nasheman Institute of Special Education	72.788962	33.743046
8	Froebel's International School Peshawar Road	72.974239	33.623763
9	Quaid-e-Azam International Hospital	72.973104	33.624688
10	SKANS International Islamic School	72.965755	33.623598
11	NUST College of Electrical and Mechanical Engineering	72.960163	33.622366
12	Army Public School Golra	72.95496	33.626279
13	Masjid Jafria	72.943377	33.626482
14	Jamia Masjid Farooq-e- Azam	72.91467	33.646632
15	Jamia Majid Ghousia Tarnol	72.91282	33.652145
16	Grace International Hospital	72.887988	33.663503
17	Health Aid College of Nursing	72.887428	33.663611
18	Alfalah Hospital	72.852926	33.676441
19	National Excellenec Institute	72.840105	33.686088
20	Government Associate College for Women Taxila	72.824736	33.7054
21	Taxila Bypass Masjid	72.814607	33.712415
22	Jamia Masjid Ghosia	72.804393	33.721422
23	Wahdat Colony Playground	72.804039	33.722368
24	New Lasani Medical Complex	72.804257	33.728758
25	Wah International Hospital	72.804808	33.732987
26	Haider Mosque	72.800006	33.73505
27	Mashal Degree College for Women	72.791333	33.740965
28	Jamia Masjid Al-Habib	72.788795	33.739893
29	COMSATS University Islamabad	72.7868	33.74371
30	Iqbal Memorial Hospital & Diagnostic Center	72.781635	33.743321
31	PWCT01-Virtual University	72.781962	33.744039
32	Rawal Surgical Hospital Wah Cantt	72.782569	33.743854
33	Graveyard Wah Cantt	72.770035	33.7467
34	Alain Hospital	72.762804	33.75192
35	Al-Moeed Hospital	72.753734	33.755341
36	Government boys High School Losar Sharfoo Taxila	72.749467	33.75372
37	Wise Montessori Campus	72.738276	33.759297
38	Froebel's International School	72.728224	33.761722
39	Dar-ul-Madina. Girls Primay & Secondary school	72.726351	33.76224
40	PWCT04- Virtual University Wah Model Town Campus, Wah Cantt	72.724469	33.76782
41	Jamia Masjoid-e-Ibrahim	72.718134	33.77259
42	Lalarukh Graveyard	72.720835	33.776126
43	Bilal Masjid	72.719111	33.778364

Section 7			
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
44	Imambargah Qasr-e-Shabbir, Wah Cantt	72.71818	33.77875
45	Umer Masjid	72.718916	33.78085
46	Saint Paul High School Girls Campus	72.720587	33.781076
47	Sharif Hospital	72.718538	33.782562
48	CB Public Boys School & College, Lalarukh Wah Cantt	72.720491	33.785501
49	Superior College Wah Cantt	72.719833	33.787599
50	Ayesha Mosque	72.720942	33.789616
51	Federal Science Degree College	72.721593	33.788559
52	CB Play gROUND	72.720948	33.791407
53	Noor Hospital Wah Cantt	72.720642	33.79295
54	Punjab Group of Colleges, GT Road, Wah Cantt	72.707004	33.803654
55	Qadir Town Graveyard	72.703041	33.807509
56	Mualij Homeopathic Hospital Hassanabdal	72.698068	33.807708
57	Presentation convent High school	72.696961	33.809255
58	Fud International School	72.691781	33.810988
59	Jamia Masjid Fatima (RA)	72.691208	33.811045
60	The Educator Abdalian Campus	72.691805	33.813111
61	Hassan Medical and Surgical Complex	72.689101	33.81403
62	Government Girls Elementary Model School	72.680824	33.82225
63	Cadet College Hassanabdal	72.676758	33.819331
64	NADRA Registration Centre	72.67707	33.822159
65	Majid Hanfia	72.668234	33.822356
66	Dar-ul Uloom Muhammadia Ghousia Gulzare Madina	72.667995	33.821795
67	Minhas Masjid	72.658871	33.824071
68	Government Associate College Hassanabdal	72.652767	33.825059
69	Masjid Qaba Madni	72.636998	33.824098
70	Graveyard Burhan	72.633331	33.825325
71	Jamia Masjid Dhoke Molian	72.610673	33.819639
72	Mosque Anwar-e-Madina	72.620305	33.820439
73	Al Abbas Hospital	72.79482	33.738528
74	Swedish College of Engineering And Technology, Wah Cantt	72.72058	33.770795
75	Islamabad Model College	72.913693	33.650088
76	Noor Hospital	72.908828	33.649018
77	Tariq Dawakhana	72.850962	33.674475
78	Darbar Shah Jhani Sarkar	72.851263	33.673708
79	B-17 Lake	72.832997	33.694964
80	Jamia Masjid Sddiq-e-Akbar	72.808645	33.715815
81	POF Institute of Technology	72.783831	33.74508
82	Health Care Lab	72.772594	33.746886
83	IDC Lab and Diagnostic Center	72.770658	33.746652
84	Masjid Jamia Usman	72.764435	33.748986
85	Noorani Masjid	72.746927	33.756518
86	Wah OInstitute of Safety and Technology-WIST	72.719603	33.791587

Section 7			
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
87	Madni Masjid	72.713876	33.796003
88	Jamia Masjid Shan-e-Sahaba	72.708895	33.798287
89	Jamia Masjid Qadir Town	72.704401	33.805057
90	Punjab Academy of Sciences	72.680791	33.817918
91	Benchmark School	72.997215	33.614283
92	East West Law College Hassanabdal	72.62314	33.821399

	Section 8		
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
1.	Name Sensitive Receptors	Longitude	Latitude
2.	Masjid Khadija tul Qubra	72.028263	34.010709
3.	Government High School Wattar	72.073893	34.005695
4.	Graveyard Wattar	72.073383	34.006394
5.	LB School	72.072984	34.005056
6.	Hira Public School Wattar	72.069485	34.006323
7.	Beaconhouse Nowshera Campus	72.059193	34.00855
8.	Jamia Usmania	72.057478	34.005994
9.	Kabul River	72.051522	34.009512
10.	JR.PFC Football Ground	72.050756	34.007343
11.	EI-8The Peace School & College	72.048639	34.008179
12.	Jamia Darul Huda	72.048666	34.007432
13.	Roots Millennium Schools River Tree Campus	72.045949	34.008267
14.	Piece College GT Road Hakeemabad Nowshera	72.046413	34.010177
15.	Nowshera College of Nursing & Health Sciences	72.043092	34.009942
16.	Ripha International College Nowshera	72.040836	34.007217
17.	Masjid Peer Sabaq	72.041606	34.007521
18.	City Degree College and School Nowshera	72.039817	34.008633
19.	Jamia Tehseen-ul-Quran	72.035254	34.009032
20.	Sarhad University Center Hakeeemabad	72.031872	34.006759
21.	School of Armour	72.022505	34.010379
22.	Zia-ul-Haq Stadium	72.019275	34.006995
23.	Polo Ground	72.016011	34.006386
24.	Cantt Children Park	72.016079	34.010685
25.	Local Masjid	72.0136	34.009
26.	N.C.B Mosque	72.011604	34.008508
27.	Cantonment Board PRAK	72.012759	34.00856
28.	Cantt Rose Garden	72.009567	34.009842
29.	Army Public School and College	72.008669	34.008057
30.	Madni Masjid	72.008154	34.005516
31.	Polo Ground	72.005083	34.010794
32.	Jinnah Park (Comapny Bagh)	72.00278	34.011533
33.	Government High School Shame ky Bhattian	72.000716	34.008507

	Section 8		
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
1.	Name Sensitive Receptors	Longitude	Latitude
34.	F.G Degree College	72.000176	34.006996
35.	Masjid Ameer Muavia	71.999723	34.00564
36.	School of Artillary Pakistan	72.000898	34.004548
37.	Haroon Medical Hall Nowshera Cantt	72.004782	34.003718
38.	School of Artillery Mosque	71.998756	34.002821
39.	Mediks International Hospital	71.995548	34.006653
40.	Nowhsera Combined Millitary Hospital	71.993241	34.003549
41.	Government Post Graduate College Nowshera	71.989267	34.005911
42.	Eid Gah Nowshera	71.98843	34.008047
43.	Government High School Number Two for Boys	71.986356	34.005734
44.	Hockey Football Ground	71.984746	34.003832
45.	Masjid-e-Usmania	71.984158	34.003078
46.	Doctor Mamoona Riffat's Clinic	71.980682	34.005303
47.	Daffodil's Schooling System (Girls-Senior)	71.979682	34.003835
48.	Daffodil's Schooling System (Boys Senior)	71.979723	34.003206
49.	FG Degree College for Boys Nowshera Cantt	71.976407	34.002384
50.	Muhammad Islam Surgical Hospital Urologist & Laparoscopic Surgeon	71.967481	34.006117
51.	Jamia Masjid	71.961717	34.010816
52.	Government High School Khat Kali	71.957563	34.011019
53.	The peace School and College Nowshera	71.953364	34.012563
54.	Ali Surgical Center	71.954023	34.011019
55.	Zakir Eye Center	71.953588	34.010956
56.	Amanullah Khan Medical and Nursing Institute Nowshera	71.950512	34.011543
57.	Masjid TMA Nowshera	71.94851	34.011571
58.	Jamia Masjid Railway	71.939497	34.009607
59.	Pakistan Public School and College	71.933474	34.009107
60.	Al-Noor Masjid	71.931285	34.012722
61.	The Little Angels Model School Amangarh Nowshera	71.930977	34.008612
62.	Doctor Abdul Ali Clinic	71.929774	34.008022
63.	Darbar Sheikh Abdul Ghafoor	71.926866	34.010969
64.	Sheikh Abdul Ghafoor Graveyard	71.925972	34.010599
65.	Masjid Zafar Ali Khan	71.898534	34.007967
66.	Doctor Sadaf Sarwar Maternity Home	71.895289	34.008792
67.	Government Higher Secondary School Pir Pia	71.891411	34.010937
68.	Doctor Shehzad Clinic	71.890687	34.009433
69.	Masjid Umar Bin Abdul Aziz	71.869279	34.008788
70.	Muslim College Azakhel Campus	71.853011	34.010907
71.	IRM Center Azakhel	71.850271	34.008109
72.	NADRA Office Azakhel	71.823236	34.009675
73.	Al-Rabiah Orphan School and College	71.819076	34.007813
74.	Sabawoon Education Academy	71.817036	34.008511

	Section 8		
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
1.	Name Sensitive Receptors	Longitude	Latitude
75.	The Educatos Pabbi Campus	71.812991	34.008899
76.	Neelub School	71.81267	34.010622
77.	Masjid Khan Jomat	71.812403	34.010225
78.	Darwesh diabetes research institute	71.809689	34.008929
79.	Darbar Sheikh Shahbaz Baba (RA)	71.802242	34.007018
80.	Pabbi Janazgah	71.79811	34.007593
81.	Mian Rashid Hussain Shaheed Memorial Hospital	71.798212	34.009133
82.	Masjid Zuraab Baba	71.795793	34.006674
83.	Makki Masjid	71.793165	34.01003
84.	Masjid Molana Muhammad Asif Sahab	71.787238	34.008204
85.	Allied School Pabbi	71.788933	34.009235
86.	The Institute CENNA	71.786774	34.010806
87.	Masjid Bilal Khudrezai	71.784763	34.012831
88.	My School Pabbi	71.782653	34.010458
89.	Doctor haseena imdad gyne and obs clinic	71.774292	34.012974
90.	NADRA Office Pabbi	71.769641	34.01279
91.	Jamia Islamia Pabbi Peshawar	71.765799	34.013329
92.	Doctor Nighat Health Care	71.765687	34.012419
93.	Masjid Maaz Ibn-e-Jabbar	71.763759	34.011451
94.	Government Degree College Pabbi	71.760488	34.013026
95.	Maternity Clinic	71.75854	34.013059
96.	Makkah Mdecical Center & Laboratory Services	71.758181	34.01422
97.	Frontier Public School	71.757363	34.013433
98.	Jamia Masjid Nasir Kale	71.756682	34.012418
99.	Eidhi Center Pabbi	71.754688	34.013767
100.	Masjid Azkhail	71.753813	34.015628
101.	Aurangzerbabad Cemetery	71.752138	34.015703
102.	Irham Model School and Taleem-ul-Quran Academy	71.736075	34.017578
103.	Masjid Tahiri	71.736958	34.017938
104.	Masjid Abbu Bakar Siddique (RA)	71.738328	34.017665
105.	Government High School Tarru Jabba	71.729027	34.01646
106.	Clinic Doctor Muhammad Jahangir Khan	71.729547	34.015068
107.	Mercy Educational Complex	71.683608	34.019391
108.	Al-Haram Green Masjid	71.66984	34.015431
109.	Crescent Model School	71.665652	34.021037
110.	Masjid-e-Rehmatulil Alamin	71.665442	34.022446
111.	Peshawar Garden Mosque	71.661282	34.015622
112.	Masjid-e-Mustafa	71.660162	34.021147
113.	Masjid-e-Umar (RA)	71.656943	34.017741
114.	Jamia Masjid Madina	71.896134	34.009517
115.	Government Girls Degree College, Pirpai	71.8883	34.010224
116.	Ghazi Model School & College Pabbi New Branch	71.821212	34.009713

	Section 8		
Sl.	**Name Sensitive Receptors**	**Longitude**	**Latitude**
1.	Name Sensitive Receptors	Longitude	Latitude
117.	Darbar Hazrat Abdul Shakoor Malang Bab (RA)	71.662229	34.0184
118.	The City School Nowshera Campus	72.043533	34.008614
119.	Garison Ground Nowshera Cantt	72.009523	34.006368
120.	Government Degree College	71.997585	34.007443
121.	CMH Mosque	71.994296	34.003122
122.	Catholic Church	71.994566	34.002254
123.	Graveyard	71.96622	34.004674
124.	Jamia Masjid Akramabad	71.965352	34.005652
125.	Graveyard Khatkalay	71.961549	34.006856
126.	Masjid Allah-u-Akbar	71.961358	34.008019
127.	Lady Doctor Asma Arif Maternity Home	71.948779	34.011245
128.	Learning Tree School	71.936437	34.010292
129.	Masjid Sheikh Abdul Ghafoor	71.927441	34.010084
130.	Masjid Gandher Baba	71.917165	34.008676
131.	Local Masjid	71.913926	34.010044
132.	Jamia Riyaz-ul-Jannah	71.906027	34.008209
133.	Masjid Bilal	71.905101	34.010344
134.	Masjid Ayesha	71.903696	34.010158
135.	Masjid Siddiqu-e-Akbar	71.892247	34.011858
136.	Masjid Umar-e-Farooq	71.888549	34.008725
137.	Azakhel Park	71.875733	34.00741
138.	IBM Computer Academy	71.85644	34.006542
139.	Majid Ameer Muavia (RA)	71.846167	34.006742
140.	Masjid Abu Hurraira (RA)	71.831043	34.012023
141.	Jamia Siddiqia	71.811656	34.007133
142.	Zahoor Eye Hospital	71.786537	34.011231
143.	Shaheenabad Masjid	71.767172	34.009703
144.	Jamal English Education Academy	71.76272	34.012593
145.	Muhammadi Masjid	71.739937	34.013945
146.	Masjid Madina	71.727956	34.012964
147.	Railway Station Taru Jabba	71.72815	34.01673
148.	Jamia Masjid Sanan Bin Salma	71.697812	34.01668
149.	Governmnet High School Number one	71.985161	34.005877
150.	Cantt Hospital	71.991089	34.004204
151.	Dream College of Nursing Nowshera	71.888547	34.00945
152.	Masjid Rehman	71.721285	34.018831
153.	Masjid Tarnab CNG Filling Station	71.71522	34.0168
154.	Mercy Pak School College & Vocational Training Institute	71.683837	34.01818
155.	STEP School Khyber Campus	71.678588	34.018605
156.	Nasirpur Railway Station	71.677706	34.018685
157.	Quaid-e-Azam Institute of Legal Studies, Nowshera	72.039065	34.008339

Annex 7-1: List of other interested parties and minutes of their consultations.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
Islamabad Capital Territory				
1.	23-10-2024	Islamabad Wildlife Management Board (IWMB)	Ms. Ume Habiba, Director Wildlife	• The NESPAK team visited the subject office to brief the officials regarding the Project and share details. • The official told that N-5 road is passing nearby Margalla national park. Therefore, care should be taken while designing and construction of road to protect the wildlife. • The official requested NESPAK team to submit the Project details along with the RoW of the road. The IWMB official will then physically verify the site. • The official told that NoC will be required from IWMB before the start of construction activities.
2.	23-10-2024	CDA Environment	Mr. Rana Kashif, Horticulture (west)	• The NESPAK team visited the subject office to brief the officials regarding the Project and share details. • The official appreciated the proposed Project due to the traffic congestion situation on N5 road. • The E&S team was requested to coordinate with CDA throughout the Project. The official also told that the EIA/IEE matters are dealt by Federal EPA.
3.	22-10-2024	Archaeology Department	Mr. Arshad Ullah-Deputy Director	• The official told that no cultural notified site is present near the N-5 in Islamabad Capital Territory. However, on site verification will still be required to confirm once the detailed design will be finalized and unground demarcation will be completed (as required).. • The official recommended to incorporate the chance find procedure to NESPAK team.
4.	22-10-2024	Federal Environment Protection Agency	Mr. Bin Yamin, Assistant Director	The NESPAK's relevant environment and social team briefed the official regarding the proposed Project. The official provided following suggestions: • All stakeholders should be taken on board and consultation should be carried out at each stage. • Measures should be taken to minimize cutting of trees.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				Following points must be considered while preparing Environmental Impact Assessment report: • Identification of location for construction camps alternate routes for traffic flow during construction • Arrangements for material storage and transport • Alternate routes shall be provided in consultation with Traffic Police to the residents and commuters. • Dust control mitigations shall be recommended to the contractor • Demolition waste shall be properly disposed if it cannot be reused.
5.	September – October 2024	NHA Environment, Afforestation and Land Section (EALS)	Mr. Farid Khan Ms. Nosheen Butt	Team is in close coordination with the EALS section of NHA for the land ownership. EALS Section wrote the letters to concerned regional maintenance offices and Road Asset Management Department (RAMD) for the provision of available ROW data, land ownership status/record and record of encroachment and lease within the ROW. Based on these letters, consultants visited the concerned maintenance offices to obtain the respective data.
Khyber Pakhtunkhwa Province				
6.	03-10-2024	Environmental Protection Agency- Khyber Pakhtunkhwa	Mr. Sami Ullah, Director General Mr. Mumtaz Ali Wazir, Deputy Director Legal	• Overall, EPA was in favor of the proposed Project. The official briefed about advantages of the proposed Project as its implementation will benefit all the neighborhood along the route. Traffic congestions in the Project Area will be reduced. • E&S Consultant must fill and submit Schedule-I form provided in Khyber Pakhtunkhwa Environmental assessment rules, 2021 to agency through NHA and specified study must be submitted to EPA for obtaining NOC prior to start of work. • Collection of environmental, social and ecological baseline data must be ensured through primary means using field visit checklists and socio-economic tools; • Alternate routes shall be provided in consultation with Traffic Police to the residents, educational institutions and road users for their movement and to avoid the chaotic situation of traffic at this bottleneck;

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
7.	03-10-2024	Forest Department	Mr. Kifayatullah Baloch, Chief Conservator Forest Department	• No specific reserve forest and important area exist in the vicinity of the Project ROW however; the proponent will request cutting of trees from Forest department via letter. The concerned Divisional Forest Officers will visit the site with the NHA and E&S officials to verify the trees. • Tree cutting should be avoided up to maximum level; and • A feasible provision of budget for tree plantation plan should be included in the Project cost
8.	03-10-2024	Wildlife Department	Iftikhar uz Zaman, Conservator Wildlife department Mr. Ali Gohar, GIS Expert/ Range Officer	• The official appreciated that the E&S team is conducting meaningful consultations with the department prior to the start of the Project • The official told that no as such impact is envisaged on wildlife. The concerned District Forest Officer (DFO) will be directed to verify and provide the No objection certificate if required.
9.	03-10-2024	Directorate of Archaeology and Museums Government of Khyber Pakhtunkhwa	Mr. Faheem Shahzad, Section Officer	• The official told that no archeological site exists near the proposed section (Peshawar to Nowshera). However, he suggested to incorporate the procedure of any accidental and chance of finding any historical / archeological site during the execution of work.
10.	14-10-2024	Social Welfare & Women Development Complex Peshawar Division	Mr. Qayum Khan- Deputy Director	The official provided following suggestions: • Facilities of rest by areas and public toilets for the passengers should be provided. • At Bus Stop, waiting room for passengers should be constructed. • Prayer area must be provided for passengers. • Maximum skilled & unskilled labor should be hired from the local community during the Project construction activities so that local people can take maximum benefit of the Project. • Occupational health and safety should be taken care with respect during construction of the road. • Physical and livelihood disturbance should be avoided/minimized.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				• During the construction period safe movement of the pedestrian should be ensured and proper Traffic Management Plan (TMP) should be devised. • Awareness among the students should be created about the Project. Traffic should be managed properly in school hours during the construction work. • Awareness among the population about the risks associated the Project activities and mitigation measures should be adopted. • The environment of the most part of Project Area is friendly, but due to construction activities dust & air pollution may lead to respiratory diseases. Medical camp should be established in the area during the period of construction. • The official briefed about advantages of the proposed Project as its implementation will benefit all the neighborhood along the route; • Traffic congestions in the Project Area will be reduced.
11.	18-11-2024	KP Social Welfare Department (Child Protection Unit - CPO) KP Directorate of Social Welfare	Mr. Akhtar Muneer – Child Protection Officer Mr. Nayyab Ali - Social Case worker Mr. Haris Khan, Social Case worker	The official provided following suggestions/recommendations: • Build waiting rooms for commuters to provide shelter from harsh weather conditions. • Construct underground pedestrian crossings as they are more feasible and can also serve commercial purposes (e.g., shops). • Recommend underground passes in nearby and adjacent crowded areas. • Install visible signboards with clear instructions and emergency contact numbers. • Develop a green belt adjacent to the road with small forested areas and a playground for children. • Remove billboards in the area to reduce distractions for drivers.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				• Road Divider Installation: Install road dividers to prevent glare from opposite traffic
12.	19-11-2024	KP Social Welfare Department (Women Empowerment) KP Directorate of Social Welfare	Mr. Noor Muhammad, District Social welfare Officer Mr. Sardar Ali, District Social welfare Officer (NGO) Mr. Sahib, auxiliary works Musa Khan, Junior Clerk	The official provided following suggestions/recommendations • Passenger waiting rooms • Zebra crossing provision for the local population • Schools are located adjacent to the road; special precautions need to be considered • Road blockage during construction may cause traffic congestion and traffic Jam, careful planning is required • Overhead bridges and flyover need to be designed
13.	19-11-2024	Labour Department Government of Khyber Pakhtunkhwa KP Directorate of labour	Mr. Irfan, Director Labour Mr. Zaheer, PA to Director labour Mr. Azhar, Assistant Director Administration	The official provided following suggestions: • Compliance with Minimum wages and local labour laws to be ensured • Discourage child labour and forced labour • Implementation of CSR activities to support local people • Development of robust Environmental and Social Management plan to minimize the negative impacts on the community

14.	19-11-2024	Secours Islamique France (Islamic Relief France)
		Non-Governmental Organization
			Mr. Asif Anwar, livelihood Officer
			Mr. Mansoor Ahmed, Meal Officer KP
			Ms. Sanam – Distribution Assistant,
			Ms. Azra, Meal Assitant,
			Ms. Beenish, Livelihood Assistant
				The official provided following feedback:
				• Positive Impacts and Suggestions
				  ○ Benefits of the Project, Reduction in accidents and traffic congestion.
				  ○ Improved business opportunities and growth for local communities.
				• Potential Issues that may arise during construction,
				  ○ the Project construction may lead to environmental impacts and social issues in the area.
				  ○ Resettlement of local residents and disruption to livelihoods are potential negative outcomes.
				  ○ Social disconnection between the two sides of the area could occur due to road division
				  ○ Construct flyovers, overhead bridges, and fencing to prevent road accidents, especially involving children.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				○ Address traffic congestion during construction and operational phases. • Mitigation Measures the stakeholder suggested are, ○ To coordinate with all stakeholders in and around the area. ○ Compensate affected individuals through proper resettlement packages. ○ Address livelihood disruptions by providing alternative means of income (e.g., skill development programs). ○ Tree plantation in affected areas to minimize environmental impact. • Community Support Initiatives ○ Launch skill development programs such as mobile repair training, poultry farming, and indoor poultry farms. ○ Provide seeds to encourage kitchen gardening in the community.
15.	19-11-2024	Foundation for Rural Development- (FRD) Non-Governmental Organization	Ms. Shumaila Murtaza, Meal Manager Ms. Sana Ibraheem, HR	The official provided following suggestions: • Concerns: ○ Possible tree cutting for the Project. ○ Issues for local women during the construction phase (e.g., accessibility and safety). ○ Issues related to Parda (Religious sensitivity) in the local Area ○ Gender Based Violence (GBV) ○ Transportation issues in the area • Recommendations during construction Phase: ○ Focus on greenery and reforestation efforts post-construction. ○ Design separate transport stops for men and women for cultural sensitivity. ○ Initiatives for the protection of women like Ababeel force etc.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				○ Construct waiting rooms, zebra crossings, and flyovers to enhance pedestrian safety. ○ Ensure school road accessibility to avoid blockages that inconvenience residents. ○ Prioritize safety measures such as fencing, flyovers, and pedestrian crossings ○ Initiate compensation and community programs to reduce social and economic disruption. • Operational Phase Recommendations ○ Capacity Building, Conduct training programs on gender-based violence (GBV) and local demand-driven skills. ○ Form committees involving women for inclusive planning and execution. ○ Infrastructure Enhancements ○ Build underpasses and overhead bridges for safer pedestrian access. ○ Separate transport stops for men and women.
Punjab Province				
16.	10-10-2024	Environmental Protection & Climate Change Department	Mr. Waseem Ahsan (Director – EIA) Mr. Noor Ahmad (Deputy Director – EIA)	• Official direct to seek NOC and approval from EPA as per the regulatory requirement prior to initiate the work. • Dust control in the area should be ensured. Dust suppressors (salt / water) preferably $CaCl_2$ should be sprayed on roadside. • Ensure minimal impact to nearby cities and communities. • Construction camps and asphalt plants should be installed away from the population. • Asphalt plants should preferably have a built-in pollution control technology. • Construction material disposal and transportation should be done properly as per existing laws.
17.	10-10-2024	Tourism, Archaeology and Museums Department	Ms. Sadaf Zafar (Additional Secretary)	• The official recommended that access roads to nearby tourist/ archeological sites should also be planned.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
			Mr. Iqbal Khan Manj (Deputy Director – Admin)	• Archaeological sites within 200 – 300 ft. of distance from the Project area of impact should be avoided as much as possible. • Concerns were shown regarding the safety of Nicholson Tower which is located at Tarnol Pass on main GT Road in Rawalpindi to Burhan package. • A list of important archaeological sites of Punjab was shared with the consultant for assistance. It was preliminary observed that no notified archeological site exists in nearby ROW of N5. • Further meetings will be arranged for future planning at ESIA stage once the design of each package will be finalized.
18.	14-10-2024	Wildlife Department	Mr. Khurram Amin (Additional Secretary-Technical)	• It was suggested that wildlife corridors should be considered in the Project design and special measures must be considered for crossing of these wildlife if encountered. • Maps with marked species territory and protected areas will be provided by the wildlife department at later stage after finalization of ROW/ design to the consultants for assistance.
19.	14-10-2024	Forest Department	Mr. Sajid Mahmood (Deputy Director – Admin) Mr. Haroon Abdullah (Assistant Director – Admin)	• The official informed that the median and roadside/ canal side/ railway line side plantation in whole Punjab is a protected forest area. • He shared list of relevant Division Forest Officers (DFOs) of Punjab who will provide relevant data to the consultant. • The official requested consultants to provide site plans and road maps to DFOs.
20.	10-10-2024	Social Welfare and Baitulmaal Department	Mr. Aslam Section Officer (Social Welfare) Mr. Shahid Iqbal Saroya – Section Officer – 0345-4042799 Mr. Muhammad Asif – PA to SS – 0333-4136827	• The official told that local people should be given employment opportunities in the proposed Project. • The official told that child labor should be strictly prohibited and due care and consideration should be given to the community health and safety
21.	21-11-2024	Child protection & Welfare Bureau Home Dept. Govt. of Punjab	Mr. Waseem Abbas – Media Officer Mr. Asif Nadeem – Social Protection Officer	The official discussed following points:

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				• Provision for safe road crossing should be ensured, and overhead bridges should be constructed at suitable intervals to facilitate pedestrian movement. • Appropriate signage should be installed to indicate speed limits, particularly in areas near schools, to enhance safety for children. • Roads in the vicinity of schools should be fenced to prevent children from crossing haphazardly. • These measures are essential to minimize the risk of road accidents and ensure the safety of children and other pedestrians.
22.	21-11-2024	Women Development Department Govt. of Punjab	Ms. Naeem Afzal – Deputy Secretary Planning Mr. Shabbir Hussain – Admin Officer	The official discussed following points: • A dedicated pink lane should be established on the highway to ensure the safety and convenience of women commuters. • Road underpasses should be constructed to prevent dangerous crossings and ensure safe passage for women. • Separate bus stops should be designated exclusively for women to reduce the risk of harassment and ensure their safety. • The design of the road should restrict public access to these specific stops, ensuring a secure environment for women. • Clear signboards should be placed along the road to indicate speed limits and provide other essential instructions for drivers. • Accessibility for women with disabilities should be incorporated, with proper indicators and instructions to cater to their specific needs.
23.	21-11-2024	Office of the DG Labour welfare Labour & Human resource Department Govt. of Punjab	Mr. Zubair Hassan Rajput	The official discussed following points: • Workers should receive their salaries on time, ensuring compliance with minimum wage standards. For example, with a minimum wage of 37,000 PKR, the daily wage should be calculated as 37,000 divided by 26, resulting in 1,423 PKR per day.

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				• Compliance with daily working hours regulations must be ensured, and workers should be granted appropriate rest periods. • Personal protective equipment (PPE) such as long shoes, gloves, goggles, and helmets should be provided during construction activities, along with other necessary workplace safety precautions. • Overtime should be limited to a maximum of two hours per day. • Female employees should be entitled to maternity leave in accordance with labor laws. • Employers are required to sign contracts with employees, and an appointment letter should be provided to each worker. • Employees must be given relevant Standard Operating Procedures (SOPs) and Job Descriptions (JDs). • Signboards must be installed at construction sites to promote safety, and all activities should comply with the Occupational Health and Safety Act of Punjab.
24.	21-11-2024	Punjab Rural Support Program (PRSP) Non-Governmental Organization	Nadeem Akram Siddiqui – Transport Officer – 0334-4201065	The official discussed following points: • Dividers should be installed along the highway with adequate width and height to prevent glare from oncoming traffic, ensuring better visibility and safety. • The socio-economic impact of the Project should be assessed, and compensation should be provided to local communities who are displaced or otherwise affected by the Project. • Workers and local residents may be impacted by dust and pollution during construction. Continuous water sprinkling should be implemented to minimize these environmental issues. • Tree plantation activities should be carried out promptly after the clearing of land, helping to restore the environment. • Upon Project completion, safety signs and toll-free emergency numbers should be displayed prominently, with specific

Sr. No.	Date	Department/ Organization	Name/Designation	Concerns / Suggestions
				attention to women's safety. Emergency contact numbers and rescue services should be easily accessible at suitable locations along the route. • Rest areas should be provided at 20-25-kilometer intervals, equipped with dispensaries, public washrooms, and law enforcement officers for added security. • Female staff should be employed in law enforcement agencies and ambulance services to ensure that women are catered to in a sensitive and appropriate manner during their travel. • Anti-fog measures should be implemented on the highway as per standard practices to improve visibility during low-visibility conditions.
25.	18-10-2024	NHA Maintenance Office	Mr. Iftekhar Sajid – GM Maintenance North Punjab (Regional Office Punjab) 0313-4319914	Team visited the regional office Punjab and met GM-Maintenance North Punjab. The official ensured to support the consultant in all aspects for the preparation of RAP documents and also provided the ROW data of Package 7. The office also facilities the team during the site reconnaissance and onsite briefing of available ROW. The team also requested to share the encroachment data and lease data on which the official responded that the encroachment data is not much reliable and updated however he assured to share the lease data with consultant for the priority packages.

Annex 8-1: Outline of Project Level Emergency Preparedness and Response Plan (EPRP)

1. BACKGROUND
2. POLICY AND GUIDELINES
    - 2.1 AIIB ESF - Emergency Preparedness Plan
    - 2.2 OSHA 3122
    - 2.3 OSHA 3990 and 29 CFR 1910.1030
3. SCOPE OF PLAN
4. MANAGEMENT OF EPRP
    - 4.1 Importance of the EPRP
    - 4.2 Purpose of the Plan
    - 4.3 Application of this EPRP
5. EPRP MANAGEMENT STRUCTURE
    - 5.1 Introduction
    - 5.2 The Emergency Response Team (ERT)
        - 5.2.1 Membership
        - 5.2.2 Meetings
        - 5.2.3 Meeting Place
        - 5.2.4 Function
    - 5.3 Incidence Response Center (IRT)
    - 5.4 The IRT
        - 5.4.1 Organization
        - 5.4.2 Resources
        - 5.4.3 Funding
        - 5.4.4 Emergency Contact List
        - 5.4.5 Reporting
    - 5.5 Training
6. PREVENTION
    - 6.1 Introduction
    - 6.2 Emergency Risk Management

Annex 10–1: Environmental Code of Practices (ECPs)

Introduction

The objective of the Environmental Code of Practices (ECPs) is to address all potential and general construction related impacts and risks during implementation of the Project. The ECPs consist of environmental and social management guidelines to be followed by the contractors for sustainable management of all environmental and social issues. These ECPs shall be annexed to the general conditions of all the contracts, including subcontracts, carried out under the Project.

The list of ECPs prepared for the Project is given below.

- ECP 1: Waste Management
- ECP 2: Fuels and Hazardous Goods Management
- ECP 3: Water Resources Management
- ECP 4: Drainage Management
- ECP 5: Soil Quality Management
- ECP 6: Erosion and Sediment Control
- ECP 7: Top Soil Management
- ECP 8: Topography and Landscaping
- ECP 9: Borrow Areas Development & Operation
- ECP 10: Air Quality Management
- ECP 11: Noise and Vibration Management
- ECP 12 Protection of Flora
- ECP 13: Protection of Fauna
- ECP 14: Road Transport and Road Traffic Management
- ECP 15: Construction Camp Management
- ECP 16: Cultural and Religious Issues
- ECP 17: Construction and Operation Phase Security

Contractors will prepare site specific management plans, namely Construction Environmental and Social Action Plan (CESAP) and Occupational Health and Safety Plan, in compliance with World Bank and Government Regulation and guidelines and based on the guidance given in the ECPs. The CESAP and OHS Plan will form the part of the contract documents and will be used as monitoring tool for compliance. It is mandatory for the main contractors procured directly by the project to include these ECPs in their subcontracts. Violation of the compliance requirements will be treated as non-compliance leading to the corrections or otherwise imposing penalty on the contractors.

ECP 1: Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	The Contractor shall • Develop site specific waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to supervision consultant for approval. • Organize disposal of all wastes generated during construction in the designated disposal sites approved by the Project. • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate and reuse or recycle all the wastes, wherever practical. • Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route. • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. • Provide refuse containers at each worksite. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal. • Potable water should be supplied in bulk containers to reduce the quantity of plastic waste (plastic bottles). Plastic bag use should be avoided.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	The Contractor shall • Collect chemical wastes in 200 liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. • Store, transport and handle all chemicals avoiding potential environmental pollution. • Store all hazardous wastes appropriately in bunded areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at approved locations. • Construct concrete or other impermeable flooring to prevent seepage in case of spills.

ECP 2: Fuels and Hazardous Goods Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuels and hazardous goods.	Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.	The Contractor shall • Prepare spill control procedures and submit them for supervision consultant approval. • Train the relevant construction personnel in handling of fuels and spill control procedures. • Store dangerous goods in bunded areas on top of a sealed plastic sheet away from watercourses. • Refueling shall occur only within bunded areas. • Store and use fuels in accordance with material safety data sheets (MSDS). Make available MSDS for chemicals and dangerous goods on-site. • Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site. • Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored; and ensure personnel trained in the correct use. • Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. • Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. • Store and use fuels in accordance with material safety data sheets (MSDSs).

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Store all liquid fuels in fully bunded storage containers, with appropriate volumes, a roof, a collection point and appropriate filling/decanting point. • Store hazardous materials above flood level considered for construction purposes • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. • Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. • Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials.

ECP 3: Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous material and Waste	Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage	The Contractor shall • Follow the management guidelines proposed in ECPs 1 and 2. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems.
Discharge from construction sites	Construction activities, sewerages from construction sites and work camps may affect the surface water quality. The construction works will modify groundcover and topography changing the surface water drainage patterns of	The Contractor shall • Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials. • Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	the area. These changes in hydrological regime lead to increased rate of runoff, increase in sediment and contaminant loading, increased flooding, and effect habitat of fish and other aquatic biology.	• Divert runoff from undisturbed areas around the construction site. • Stockpile materials away from drainage lines • Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot. • Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This should be done in every exit of each construction vehicle to ensure the local roads are kept clean.
Soil erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor shall • Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion. • Ensure that roads used by construction vehicles are swept regularly to remove dust and sediment. • Water the loose material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g., high winds).
Construction activities in water bodies	Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and other aquatic biology.	The Contractor Shall • Dewater sites by pumping water to a sediment basin prior to release off site – do not pump directly off site. • Monitor the water quality in the runoff from the site or areas affected by dredge/excavation plumes, and improve work practices as necessary. • Protect water bodies from sediment loads by silt screen or other barriers. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		chemical wastes). These substances must not enter waterways or storm water systems. • Do not discharge cement and water curing used for cement concrete directly into water courses and drainage inlets.
Drinking water	Untreated surface water is not suitable for drinking purposes due to presence of suspended solids and ecoli.	The Contractor Shall • Provide the drinking water that meets NEQS standards. Drinking water to be chlorinated at source, and ensure presence of residual chlorine 0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time.

ECP 4: Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	The Contractor shall • Prepare drainage management procedures and submit them for supervision consultant approval. • Prepare a program to prevent/avoid standing waters, which supervision consultant will verify in advance and confirm during implementation. • Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line. • Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there. • Rehabilitate road drainage structures immediately if damaged by contractors' road transports. • Build new drainage lines as appropriate and required for wastewater from construction yards connecting to the available nearby recipient water bodies. Ensure wastewater quality conforms to NEQS, before it is being discharged into the recipient water bodies.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Ensure that there will be no water stagnation at the construction sites and camps. • Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion. • Protect natural slopes of drainage channels to ensure adequate storm water drains. • Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem.
Ponding of water	Health hazards due to mosquito breeding	• Do not allow ponding of water especially near the waste storage areas and construction camps. • Discard all the storage containers that are capable of storing of water, after use or store them in inverted position.

ECP 5:Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor shall • Strictly manage the wastes management plans proposed in ECP1 and storage of materials in ECP2. • Construct appropriate spill contaminant facilities for all fuel storage areas. • Establish and maintain a hazardous material register detailing the location and quantities of hazardous substances including the storage, and their disposals. • Train personnel and implement safe work practices for minimizing the risk of spillage. • Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Remediate the contaminated land using the most appropriate available method.
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	The Contractor shall • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds.

ECP 6: Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Clearing of construction sites	Cleared areas and slopes are susceptible for erosion of top soils, which affects the growth of vegetation and causes ecological imbalance.	The Contractor shall • Prepare site specific erosion and sediment control measures and submit them for supervision consultant approval. • Reinstate and protect cleared areas as soon as possible. • Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turf/tree plantations.
Construction activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, and (ii) destruction of aquatic environment by erosion and/or deposition of sediment damaging the spawning grounds of fish	The Contractor shall • Locate stockpiles away from drainage lines. • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds. • Remove debris from drainage paths and sediment control structures. • Cover the loose sediments of construction material and water them if required. • Divert natural runoff around construction areas prior to any site disturbance. • Install protective measures on site prior to construction, for example, sediment traps. • Install ‘cut off drains’ on large cut/fill batter slopes to control water runoff speed and hence erosion.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Observe the performance of drainage structures and erosion controls during rain and modify as required.
Soil erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor shall • Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion. • Ensure that roads used by construction vehicles are swept regularly to remove sediment. • Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds).

ECP 7: Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	The Contractor shall • Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. • Remove unwanted materials from top soil like grass, roots of trees and similar others. • The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. • Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. • Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. • Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bunding of the soil layers, water penetration and revegetation
Transport	Vehicular movement outside ROW or temporary access roads will affect the soil fertility of the agricultural lands	• Limit equipment and vehicular movements to within the approved construction zone. • Plan construction access to make use, if possible, of the final road alignment.

ECP 8: Topography and Landscaping

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

ECP 9: Borrow Areas Development & Operation

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Development and operation of borrow and quarry areas	Borrow and quarry areas will have impacts on local topography, landscaping and natural drainage.	The Contractor shall • Prepare borrow area management plan and submit the plan for supervision consultant approval. • Use only approved quarry and borrow sites • Identify new borrow and quarry areas in consultation with Project Director, if required. • Reuse excavated or disposed material available in the project to the maximum extent possible. • Store top soil for reinstatement and landscaping. • Develop surface water collection and drainage systems, anti-erosion measures (berms, revegetation etc.) and retaining walls and gabions where required. Implement mitigation measures in ECP 3: Water Resources Management, ECP 6: Erosion and Sediment Control • The use of explosive should be used in as much minimum quantity as possible to reduce noise, vibration and dust. • Control dust and air quality deterioration by application of watering and implementing mitigation measures proposed in ECP 10: Air Quality Management • Noise and vibration control by ECP 11: Noise and Vibration Management.

ECP 10: Air and Dust Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	The Contractor shall • Prepare air quality management plan (under the Pollution Prevention Plan) and submit the plan for supervision consultant approval. • Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. • Operate the vehicles in a fuel efficient manner. • Cover hauls vehicles carrying dusty materials moving outside the construction site. • Impose speed limits on all vehicle movement at the worksite to reduce dust emissions. • Control the movement of construction traffic. • Water construction materials prior to loading and transport. • Service all vehicles regularly to minimize emissions. • Limit the idling time of vehicles not more than 2 minutes.
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	The Contractor shall • Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors. • Focus special attention on containing the emissions from generators. • Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites. • Service all equipment regularly to minimize emissions. • Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations.
Construction activities	Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard, and also can affect the local crops;	The Contractor shall • Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted. • Minimize the extent and period of exposure of the bare surfaces. • Restore disturbed areas as soon as practicable by vegetation/grass-turfing. • Store the cement in silos and minimize the emissions from silos by equipping them with filters. • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations. • Not water as dust suppression on potentially contaminated areas so that a liquid waste stream will be generated. • Crushing of rocky and aggregate materials shall be wet-crushed, or performed with particle emission control systems. • Not permit the burning of solid waste.

ECP 11: Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	The Contractor shall • Prepare a noise and vibration management plan (under the Pollution Prevention Plan) and submit the plan for supervision consultant approval. • Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures. • Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site.
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall • Appropriately site all noise generating activities to avoid noise pollution to local residents. • Use the quietest available plant and equipment. • Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. • Install acoustic enclosures around generators to reduce noise levels. • Fit high efficiency mufflers to appropriate construction equipment. • Avoid the unnecessary use of alarms, horns and sirens.
Construction activity	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall • Notify adjacent landholders prior any typical noise events outside of daylight hours. • Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions. • Employ best available work practices on-site to minimize occupational noise levels. • Install temporary noise control barriers where appropriate. • Notify affected people if major noisy activities will be undertaken, e.g. blasting. • Plan activities on site and deliveries to and from site to minimize impact. • Monitor and analyze noise and vibration results and adjust construction practices as required. • Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas.

ECP 12: Protection of Flora

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

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Supply appropriate fuel in the work camps to prevent fuel wood collection.

ECP 13: Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities	The location of construction activities can result in the loss of wild life habitat and habitat quality,	The Contractor shall • Prepare a plan for protection of fauna and submit the plan for supervision consultant approval. • Limit the construction works within the designated sites allocated to the contractors. • Check the site for animals trapped in, or in danger from site works and use a qualified person to relocate the animal.
	Impact on migratory birds, its habitat and its active nests	The Contractor shall • Not be permitted to destruct active nests or eggs of migratory birds. • Minimize the tree removal during the bird breeding season. If works must be continued during the bird breeding season, a nest survey will be conducted by a qualified biologist prior to commence of works to identify and locate active nests. • If bird nests are located/ detected within the ledges and roadside embankments then those areas should be avoided. • Petroleum products should not come in contact with the natural and sensitive ecosystems. Contractor must minimize the release of oil, oil wastes or any other substances harmful to migratory birds' habitats, to any waters, wetlands or any areas frequented by migratory birds.
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas	The Contractor shall • Restrict the tree removal to the minimum numbers required. • Relocate hollows, where appropriate. • Fell the hollow bearing trees in a manner which reduces the potential for fauna mortality. Felled trees will be inspected after felling for fauna and if

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow animals to move of their own volition.
Night time lighting	Lighting from construction sites and construction camps may affect the visibility of night time migratory birds that use the moon and stars for navigation during their migrations.	The Contractor shall • Use lower wattage flat lens fixtures that direct light down and reduce glare, thus reducing light pollution, • Avoid flood lights unless they are absolutely required. • Use motion sensitive lighting to minimize unneeded lighting. • Use, if possible, green lights that are considered as bird's friendly lighting instead of white or red colored lights. • Install light shades or plan the direction of lights to reduce light spilling outside the construction area.
Construction camps	Illegal poaching	The Contractor shall • Provide adequate knowledge to the workers regarding protection of flora and fauna, and relevant government regulations and punishments for illegal poaching. • Ensure that staff and Subcontractors are trained and empowered to identify, address and report potential environmental problems.

ECP 34: Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road-users.	The Contractor shall • Prepare a traffic management plan and submit the plan for supervision consultant approval. • Strictly follow the Project's 'Traffic Management Plan' and work with close coordination with the Traffic Management Unit.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Prepare and submit additional traffic plan, if any of his traffic routes are not covered in the Project's Traffic Management Plan, and requires traffic diversion and management. • Include in the traffic plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, road signs etc. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the National Traffic Regulations.
	Accidents and spillage of fuels and chemicals	The Contractor shall • Restrict truck deliveries, where practicable, to day time working hours. • Restrict the transport of oversize loads. • Operate vehicles, if possible, to non-peak periods to minimize traffic disruptions. • Enforce on-site speed limit. • Report any accident within 12-24 hours.

ECP 45: Construction Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	The Contractor shall • Prepare a construction camp management plan ensuring labor influx management and submit the plan to NTDC, WB and supervision consultant for approval. • Locate the construction camps within the designed sites or at areas which are acceptable from environmental, cultural or social point of view.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. • Submit to the supervision consultant for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. • Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters.
Construction Camp Facilities	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	Contractor shall provide the following facilities in the campsites • Consider impacts of camps on local communities, keep distance and educate workers on code of conduct. • Adequate housing for all workers. • Safe and reliable water supply, which should meet NEQS. Drinking water to be chlorinated at source, and ensure presence of residual chlorine 0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time (WHO guideline). • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by location. The minimum number of toilet facilities required is one toilet for every ten persons. • Treatment facilities for sewerage of toilet and domestic wastes. • Storm water drainage facilities. • Paved internal roads.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Provide in-house community/common entertainment facilities. Dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	The Contractor shall • Ensure proper collection and disposal of solid wastes within the construction camps. • Insist waste separation by source; organic wastes in one container and inorganic wastes in another container at household level. • Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. • Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Fuel supplies for cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the natural flora and fauna	The Contractor shall • Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass. • Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking. • Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the project area, and relevant government regulations and punishments on wildlife protection.
Health and Hygiene	Increased risk of communicable diseases and burden on local health services to be transmitted including malaria, exacerbated by inadequate health and safety practices.	The Contractor shall • Provide adequate health care facilities within construction sites. • Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. • Initial health screening of the laborers coming from outside areas. • Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work. • Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellant sprays during rainy season in offices and construction camps and yards. • Not dispose food waste openly as that will attract rats and stray dogs. • Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices.
Safety	In adequate safety facilities to the construction camps may create security problems and fire hazards	The Contractor shall • Provide appropriate security personnel (police or private security guards) and enclosures to prevent unauthorized entry in to the camp area. • Maintain register to keep a track on a head count of persons present in the camp at any given time. • Encourage use of flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones. • Provide appropriate type of firefighting equipment suitable for the construction camps • Display emergency contact numbers clearly and prominently at strategic places in camps. • Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Social and cultural aspect for Camp setup	Labor Influx in the project area will have risk of social conflict, illicit behavior and crime, burden on and competition for public service provision	The Contractor will • The Contractor will schedule construction time particularly near the settlements, to cause least disturbance to the local population, particularly women. • Contractor will take due care of the local community and observe sanctity of local customs and traditions by his staff. Contractor will warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions. • The Contractor will carry out the construction activities in such a way that the open defecation timings by the local community should not be affected. The normal defecation timings are early in the morning and at late in the evening. So, the Contractor will have to take care of these timings. • During construction activities, if privacy of the nearby households is affected, the Contractor will inform the house owner to make some arrangements. Similarly, Contractor will take care as much as possible that the construction activities should not affect the privacy. • The Contractor will also ensure that noise and light pollution from the labor camp is kept at minimal levels especially at night. • Ensure an operational Grievance Mechanism, accessible to the public, is available.
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	The Contractor shall • Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. • Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed. • Give prior notice to the laborers before demolishing their camps/units. • Maintain the noise levels within the national standards during demolition activities.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Different contractors should be hired to demolish different structures to promote recycling or reuse of demolished material. • Reuse the demolition debris to a maximum extent. Dispose remaining debris at the designated waste disposal site. • Handover the construction camps with all built facilities as it is if agreement between both parties (contactor and land-owner) has been made so. • Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner.

ECP 56: Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near religious and cultural sites	Disturbance from construction works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	The Contractor shall • Communicate to the public through community consultation regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. • Not block access to cultural and religious sites, wherever possible. • Restrict all construction activities within the foot prints of the construction sites. • Stop construction works that produce noise (particularly during prayer time) should there be any mosque/religious/educational institutions close to the construction sites and users make objections. • Take special care and use appropriate equipment when working next to a cultural/religious institution. • Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		offence to recommence work in the vicinity of the site until approval to continue is given. • Provide separate prayer facilities to the construction workers. • Show appropriate behavior with all construction workers especially women and elderly people. • Allow the workers to participate in praying during construction time. • Resolve cultural issues in consultation with local leaders and supervision consultants. • Establish a mechanism that allows local people to raise grievances arising from the construction process. • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works so as to maintain effective surveillance over public health, social and security matters.

ECP 17: Construction and Operation Phase Security

Project Activity/ Impact Source	Impacts /Concerns	Mitigation Measures/ Management Guidelines
Construction Phase	Inadequate construction site security poses a significant risk to assets, construction materials and property. Theft/vandalism of assets, materials and property would increase construction costs and cause delays in project completion.	The Contractor shall: • Provide appropriate security personnel (i.e. security guards) to prevent unauthorized entry into the camp area. • Employ night watchman for periods of significant on-site storage or when the area necessitates. • Ensure all assets (i.e., tools, equipment, etc.) and construction materials at construction site are identified, inventoried and tracked as closely as possible. All assets should be clearly labeled and marked. Keep records of tool serial numbers and check inventory on a regular basis.

Project Activity/ Impact Source	Impacts /Concerns	Mitigation Measures/ Management Guidelines
		• All tools and equipment should have a check out/in system, if not in use should be secured and stored in a proper place to prevent theft or loss. Provide storage sheds for the secure storage of equipment and tools when not in use. • Ensure there is proper fencing around construction site perimeter. Fencing should be chain-link at least 2.4 m high and secured with a steel chain and lock. If possible the entire site should be fenced; if this is not possible, make sure construction trailer and any equipment storage areas are fenced. • Ensure construction site has controlled access points (one or two entry points at most), allowing for close monitoring of comings and goings from the site. • Workers should be easily identified and have credentials that indicate site access. • No trespassing signs should be posted in conspicuous areas throughout the job site. • List of employees who have after hour access to the property should be available to the BWB and local authorities. • Ensure job site is properly lighted at night. Well-lit areas should include any office trailers and equipment storage trailers. Floodlights operated by sensors should also be installed where appropriate. • Pre-employment screening investigations should be used to verify the applicants relating to their employment, education and criminal history background.
	Improper security measures may pose security risk for construction workers and especially foreign staff on construction sites.	The Contractor shall: • Prepare site specific security plan. • Maintain register to keep track of number of persons present in the camp at any given time. • Provide appropriate security personnel at job sites as mentioned above.

Project Activity/ Impact Source	Impacts /Concerns	Mitigation Measures/ Management Guidelines
		• Ensure proper fencing as mentioned above. • Ensure controlled access points to job site as mentioned above. • Ensure works have easily identified credentials as mentioned above. • Ensure job sites are properly lighted at night, as mentioned above.
Operation Phase	Vandalism/damage (including use of explosives) and theft of infrastructure (i.e. metals and etc.).	• Ensure strategic infrastructure sites are secure and fenced with controlled access points. Fencing should be chain-link at least 2.4 m high and secured with a steel chain and lock.

Annex 10-2: Plantation Plan

The basic purpose of afforestation/plantation of suitable species in the project area is to reduce the risk been made due to different construction activities for the proposed project. The expected risk made will be compensated by planting of saplings to enhance green cover and improve the overall environment of the area. Afforestation will not only reduce the risk been made but will also increase the Green cover, carrying capacity and aesthetics of the area along with many positive aspects and impacts.

Plantation will be done after the construction work immediately. Plantation of indigenous trees species is highly important to maintain the biodiversity and ecological balance. It is also important to prevent global warming, soil erosion and pollution. Afforestation purifies the environment and helps in reducing the carbon dioxide level. Along with the importance of construction, the afforestation activity will further help in enhancing the socio-economic condition of the area and project sustainability.

Note: *The National Highway Authority and Forest Department may be engaged for carrying out the proposed activates.*

IMPORTANCE OF TREE PLANTATION

- Trees contribute to their environment by providing oxygen, improving air quality, climate amelioration, conserving water, preserving soil, and supporting wildlife.
- Trees control climate by moderating the effects of the sun, rain and wind. Leaves absorb and filter the sun's radiant energy, keeping things cool in summer.
- Trees also preserve warmth by providing a screen from harsh wind.
- Trees also lower the air temperature and reduce the heat intensity of the greenhouse effect by maintaining low levels of carbon dioxide.
- Both above and below ground, trees are essential to the eco-systems in which they reside.
- Trees absorb and store rainwater which reduce runoff and sediment deposit after storms. This helps the ground water supply recharge, prevents the transport of chemicals into streams and prevents flooding.
- Trees, shrubs and turf also filter air by removing dust and absorbing other pollutants like carbon monoxide, sulfur dioxide and nitrogen dioxide.

OBJECTIVES

- To Restore native species
- To improve the quality of air and reduce its pollution
- To add color to the landscape and enhances the beauty of the environment
- To uplift the quality of our living environment through active planting, proper maintenance and preservation of trees together with other vegetation.
- To Protect and conserve flora and fauna of the project area.
- To attract rain which is a positive impact on the project area at all.
- To reduce sedimentation by plantation in the project area which will act as protection wall against wind born dust particles.

AREA ENHANCEMENT PLAN

Plants will be raised along the nearby available project area or along roads, two on either side of the road. Distance from the outer boundary of the ROW and between two plants will be kept as 4 meters. Total number of plants to be planted is **25,500** Number for Section 2 , **23,420** for Section 7, and **34,980** Number for Section 8.

**The Forest Department or concerned authority may update the standards of planting and choice of species as per the requirements and suitability.*

Trees Recommended

Following trees are recommended for plantation, along this portion of the road on both sides.

Sr. No.	Local Name	*Scientific Name*
Peshawar – Nowshera Section		
1.	Mulberry	*Morus alba*
2.	Chir Pine	*Pinus roxburghii*
3.	Bottle Brush	*Callistemon spp*
4.	Phulai	*Acacia Modesta*
Rawalpindi –Burhan Section		
5.	Sukh Chain	*Pongamia pinnata*
6.	Bottle Brush	*Callistemon spp*
7.	Kikar & Phulai	*Acacia nilotica & Modesta*
8.	Sirris	*Acacia lebbek*
9.	Jacarnda	*Jacaranda moniosifolia*
10.	Silver Oak	*Grevillea robusta*
11.	*Shisham*	*Dalbergia sissoo*
12.	Jaman	*Eugenia jambolina*
13.	Kachnar	*Bauhinia variegate*
Ranipur - Rohri Section		
14.	Babul	*Acacia nilotica*
15.	Neem	*Azadirachta indica*
16.	Shisham	*Dalbergia Sisso*
17.	Parkinsonia	*Parkinsonia aculeata*

Cost

Break-up of Expenditure per Avenue kilometer @ Rs. 1500/- per diem: Break-up of Expenditure per Avenue kilometer or 250 plants @ Rs. 1500/- per diem:

FIRST YEAR

Sr. No.	Item	Quantity	Rate	Amount (Rs.)
1.	Layout	1 Av.km	2 MD/Av.km	3000.00
2.	Digging of Pits 2.5 ft. each 2.5x250 = 625 cft.	625 cft.	5 MD/Av.km	7500.00
3.	Cost of Plants including	250 No.	Rs100/- plant	25,000.00
4.	Cost of planting of plants	250 No.	Rs. 25/- plant	6250.00
5.	Carriage of plants from private nursery to site including loading/unloading	250 No.	Rs. 10/- plant	2500.00
6.	Cost of Manure and Bhall (silt) including carriage	1 Av. Km		20,000.00
7.	H/watering 50 times 250x50 with water bowser, one driver and one coolie	12500 no.	5MD/per %0	100,000.00
8.	Weeding twice 250x2	500 no.	2 MD/per %	15,000.00
9.	Reopening of Pits twice (250x2)/cft/pit	500 cft.	2 MD/per %	15,000.00
10.	Unforeseen			5885.00
Total				200,135.00

SECOND YEAR

Sr. No.	Item	Quantity	Rate	Amount (Rs.)
1.	Cost of Plants 20% Restocking	50 No.	Rs.100/- plant	5,000.00
2.	Cost of planting	50 No.	Rs. 25/- plant	1250.00
3.	Carriage of plants	50 No.	Rs. 10/- plant	500.00
4.	H/watering 50 times with water bowser, one driver and one coolie	12500 no.	5MD/per %0	100,000.00
5.	Reopening of Pits twice (250x2)	500 cft.	2 MD/per %	1,5000.00
6.	Weeding twice 250x2	500 no.	2 MD/per %	1,5000.00
7.	Unforeseen			1250.00
Total				1,38,000.00

THIRD YEAR

Sr. No.	Item	Quantity	Rate	Amount (Rs.)
1.	Cost of Plants 10% Restocking 25 No.	25 No.	Rs.100/- plant	2500.00
2.	Cost of planting	25 No.	Rs. 25/- plant	625.00
3.	Carriage of plants	25 No.	Rs. 10/- plant	250.00
4.	H/watering 40 times x250 no.	10,000 no.	5MD/per %0	75000.00
5.	Reopening of Pits twice (250x2)	500	5MD/per %0	3850.00
6.	Unforeseen			2875.00
Total				85,100.00

FOURTH YEAR

Sr. No.	Item	Quantity	Rate	Amount (Rs.)
1.	H/watering 30 times	7500 no.	5MD/per %0	56350.00
5.	Pruning and cleaning of plants	250 no.	5MD/per %0	1875.00
6.	Unforeseen			1875.00
Total				60,100.00

FIFTH YEAR

Sr. No.	Item	Quantity	Rate	Amount (Rs.)
1.	H/watering 30 times	7500 no.	5MD/per %0	52350.00
5.	Pruning and cleaning of plants	250 no.	5MD/per %0	1875.00
6.	Unforeseen			1875.00
Total				56,100.00

Cost for raising 1 Av. Km and Maintenance or 250 plants in a single row: = Rs.539,435/-
For 5 years

Peshawar Nowshera Section
Total cost for **35,000** plants and their maintenance for 5 years = **PKR. 75,520,900/-**

Rawalpindi Burhan Section
Total cost for **23,500** plants and their maintenance for 5 years = **PKR. 50,706,890/-**

Ranipur to Rohri Section
Total cost for **25,500** plants and their maintenance for 5 years = **PKR. 55,022,370/-**

The above calculations and standards are approximate and tentative provided on the basis of available data which may be updated by the implementing agency as per actual, during implementation.