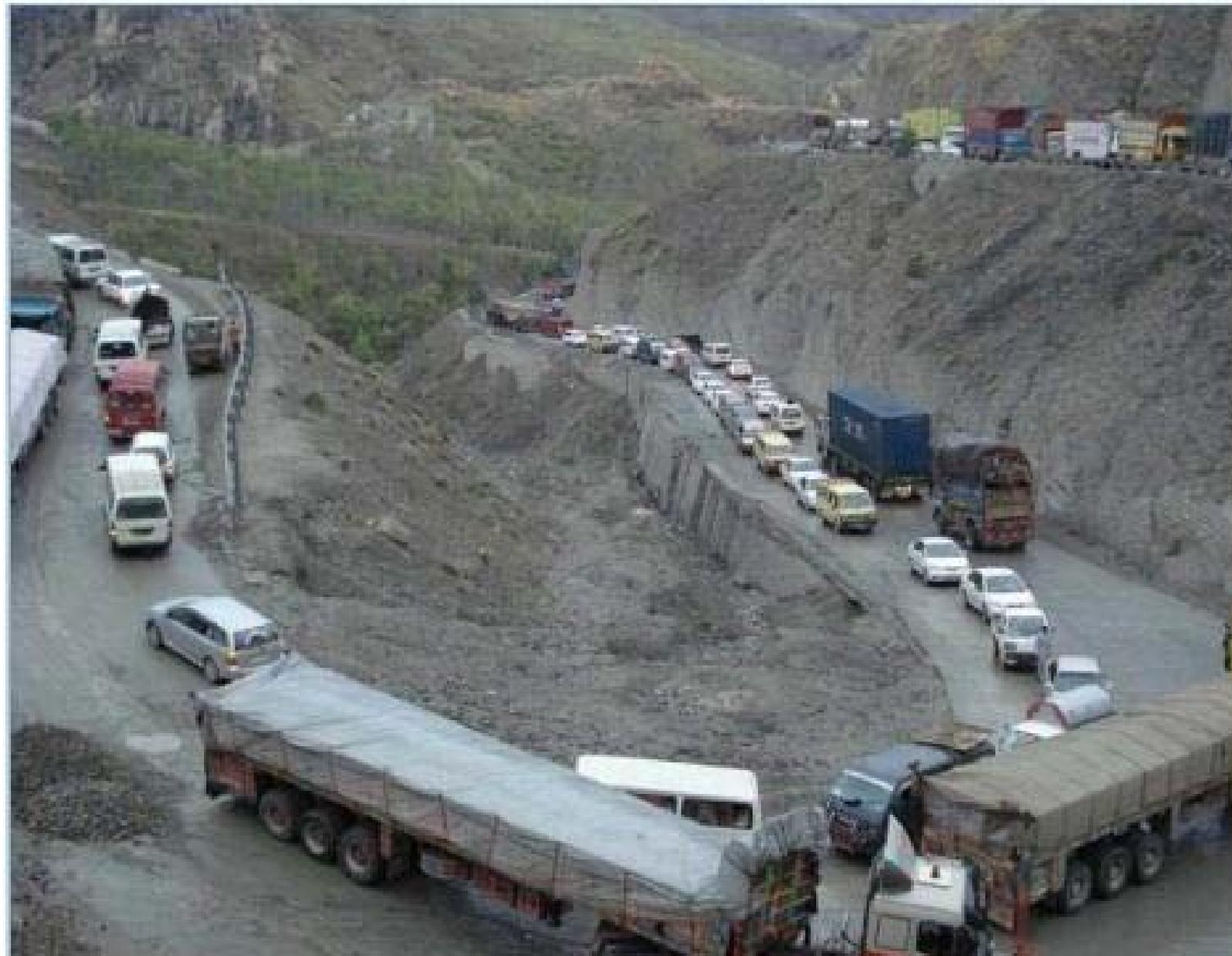




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**STRENGTHENING & IMPROVEMENT OF PESHAWAR - TORKHAM ROAD
KHYBER AGENCY, FATA**

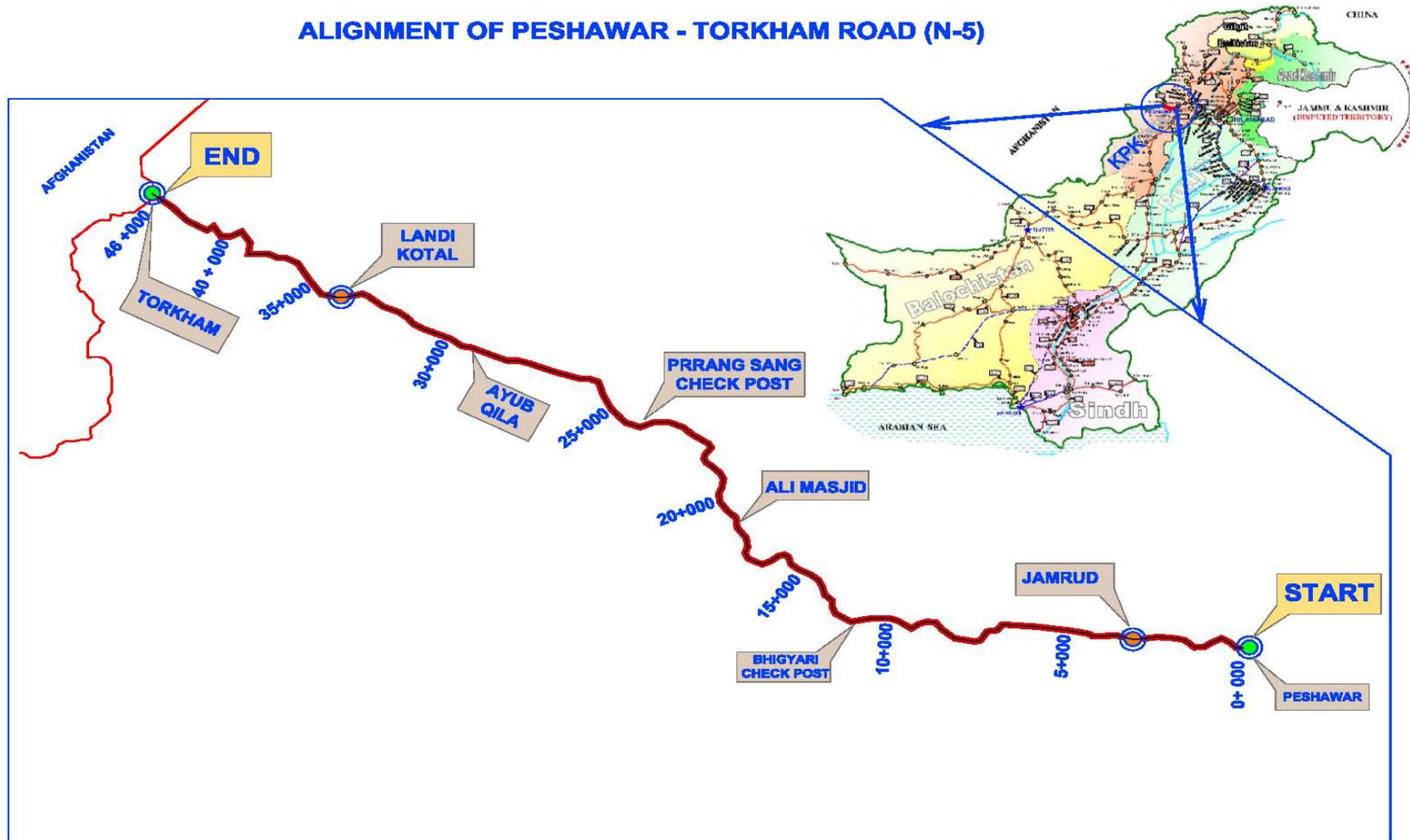
**MONTHLY PROGRESS REPORT # 12
November 2013**

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ALIGNMENT OF PESHAWAR - TORKHAM ROAD (N-5)



EXECUTIVE SUMMARY

Peshawar – Torkham road is an integral part of National Highway (N-5), a vital piece of the nation’s infrastructure, which connects Pakistan with Afghanistan at Torkham border and plays an important role in the economic activities as well as providing timely logistic support to the security agencies deployed in Khyber Agency. The project “Strengthening & Improvement of Peshawar Torkham Road” is funded with United State Agency for International Development (USAID) grant amounting to USD 67 Million and implemented by FATA Secretariat as project proponent through Frontier Works Organization (FWO) as EPC (Engineer, Procure, and Construct) Contractor.

The 46 KM Peshawar – Torkham road (PTR) has been split into multiple sections for designing / construction purposes due to inherited site specific conditions such as live traffic corridor, gigantic hilly terrain, safety and security restrictions etc.

Major work components on section – I (KM: 0+000 To 9+000) of the strengthening & improvement project have been completed. The first 09 KM achievement resulted in increased traffic capacity, decreased congestion, reduced travel time and improved safety along the traffic corridor.

Key construction achievements made against section – I since October 15, 2012 upto the end of November 2013:

- Earthwork: 100 %
- Sub Base: 100 %
- Aggregate Base Course: 100 %
- Asphaltic Base Course: 100 %
- Asphaltic Wearing Course: 100 %
- Pavement Marking 100 %
- Culverts: 89 %
- Retaining Walls: 100 %
- Pavement marking of section-I completed.
- Longitudinal drainage construction continued in section – I.
- An overall amount of USD 7.137 million (71.5%) certified for payment to the Contractor as against the agreed amount of USD 9.978 million in the first PIL.

An overview of major activities in section – II & III is presented below:

- PC-1 for section – II already approved by FDWP and approval of the corresponding PIL amounting to USD 9.383 million is in process by USAID.
- Detailed design and quantity estimation of section - III completed & PC-1 almost ready for approval by FDWP.
- Bulk earthwork and roadway excavation continued in section – II & III of the project.
- WBM and Asphalt paving work (Base Course first layer) completed for 600m length of section-II.

- Boring/ concreting of working piles continued at Bridge # 02 (KM: 9+560). To-date, 13 No's piles have been completed out of 36 No's piles, while work on 04 No's piles is in progress.
- Rebar cage erection of girder at bridge # 02 (KM: 9+560) continued.
- Construction continued on 28 No's cross drainage structures in section – II & III.
- Traffic switched onto diversions from KM: 9+700 To 12+700 & 15+500 To 18+200.
- Public utility (OFC) relocations continued while shifting / raising of Electric HT lines are awaited.
- Calibration of 02 No's batching plant (KM: 16+000) have been completed, while production at 01 No. plant have been commenced during the reporting month.

Major activities in section – IV & V are summarized below:

- Earthwork & sub-base paving work in section – IV (KM: 19+000 To KM: 26+000) & section – V (KM: 26+000 To KM: 34+000) continued.
- Traffic between KM: 22+200 To 26+200, 27+300 To 28+100 and 31+600 To 32+600 of section IV & V switched onto diversions.
- During the reporting period, the contractor teams were able to work 24 days of 30 available working days due to EID holidays.
- FWO was constantly pressed for demonstrating good environmental practice in conformity with the construction environmental management plan.

INTRODUCTION

1.1 PROJECT BACKGROUND

The Federally Administered Tribal Area (FATA) Secretariat of the Government of Pakistan (GoP) under the Quick Impact Projects (QIPs) in the Khyber Agency has inked an agreement with USAID for financial assistance in the form of a Grant for Strengthening and Improvement of 46 KM long existing two-lane, two-way carriageway from Peshawar to Torkham (N – 5). The Project will support the GoP in improving accessibility to the remotely located areas of Khyber agency and enhance logistic support to law enforcing agencies, besides assisting trade between Pakistan and Afghanistan. The Sponsoring agency for the Peshawar Torkham Road Project is FATA secretariat, headed by Additional Chief Secretary FATA. The Executing agency is Frontier Works Organization (FWO).

Table: 1

Civil Works Package Features						
Physical Limits	Peshawar to Torkham					
Feature	Section – I	Section – II	Section – III	Section – IV	Section – V	Section – VI
Kilometers	0+000 to 9+000	9+000 to 14+000 (Revised)	14+000 to 19+000 (Revised)	19+000 to 26+000 (Revised)	26+000 to 34+000 (Revised)	34+000 to 46+000 (Revised)
Black Top	Total 12.3 meter (7.3 meter carriageway & 2.5 meter treated shoulders on either side)					
Completion Period	807 Calendar Days					

1.2 SCOPE OF WORK

The project involves widening, strengthening and improvement of the existing two lane carriageway, including construction of new cross drainage structures, bridges, rigid pavements and earth retaining structures spread over 46 KM. At a first stage, the FATA Secretariat has undertaken to contract out section – I of the project from KM: 0 +000 To KM: 9 + 000. Length of each package varies according to topographical features and live traffic conditions along the project route.

Being an EPC form of contract, FWO is fully responsible for design and construction of the project in conformity with the NHA's specifications and standard engineering practices. NESPAK is providing design and quality control services to FWO. While AGES Consultants has been entrusted with the Construction Monitoring and Evaluation Services including Quality Assurance and Environmental Monitoring of the project on behalf of the USAID Pakistan Mission.

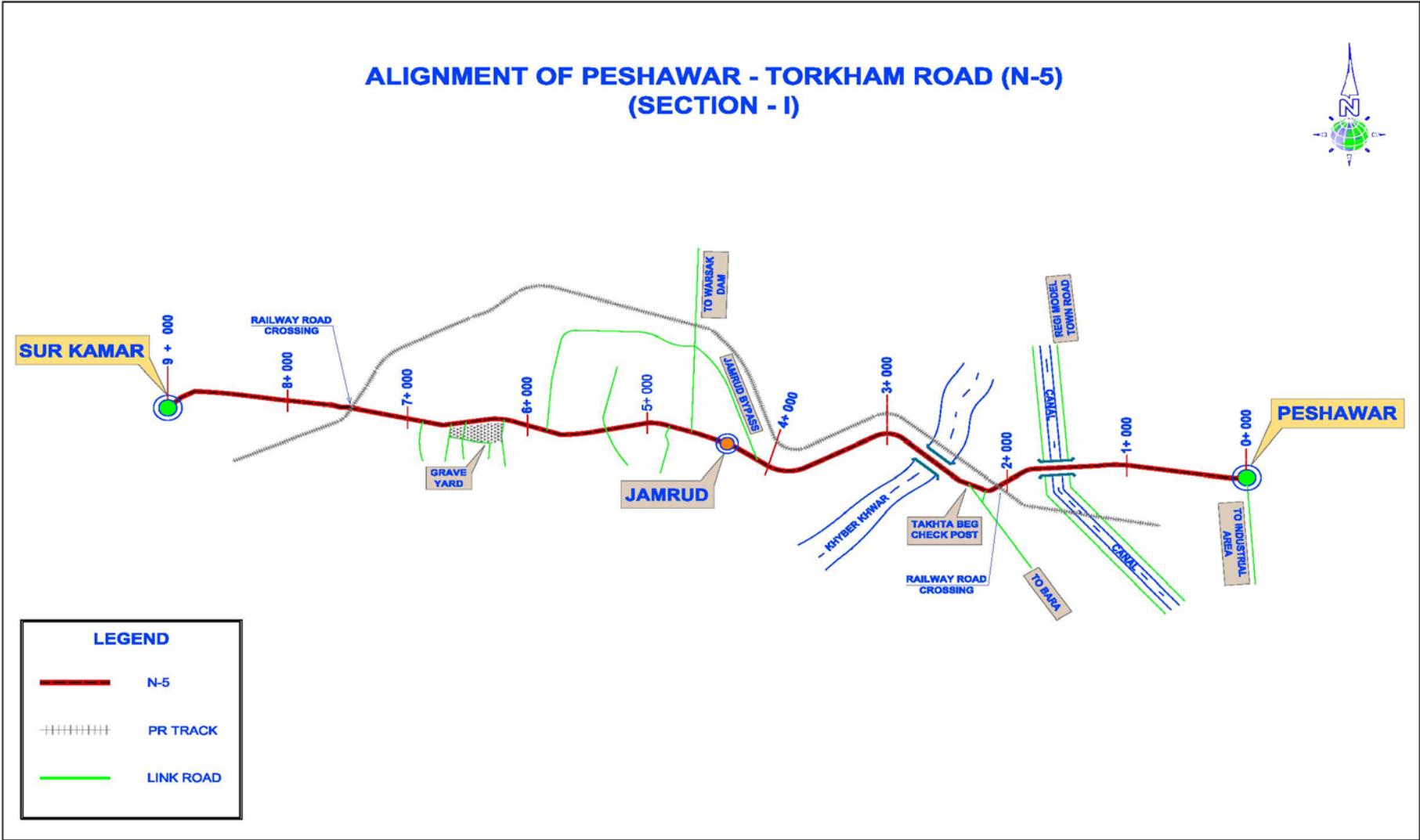
1.3 GENERAL CONTRACT DATA

1.	Name of Project	Strengthening and Improvement of Peshawar Torkham Road (N-5) Khyber Agency FATA
2.	Project Construction Cost	US \$ 67 Million
3.	Donor Agency	USAID PAKISTAN
4.	Donor's Agency Representative	Engr. Farhat Ali Shah Banori, USAID/COR
5.	Sponsoring Agency	FATA Secretariat, Peshawar
6.	Sponsoring Agency Representative	Mr. Roshan Mahsud, Project Director, PMU FATA
7.	Executing Agency	Frontier Works Organization (FWO)
8.	Executing Agency Representative	Col. Zahid (Project Director FWO)
9.	M&E Consultants	AGES Consultants
10.	M&E Consultants Representative	Engr. Aziz-ul- Haq, Project Manager
11.	Time for Completion	807 Calendar Days
12.	Mode of Construction Contract	EPC (Engineer, Procure and Construct) Contract
13.	Chronology	
	Signing of MoU (USAID–FATA–NHA)	Sep 18, 2012
	Signing of Consultancy Contract (USAID – AGES)	Sep 30, 2012
	M&E Consultants Mobilization	Oct 01, 2012
	Project Date of Commencement	Oct 15, 2012
	Project Date of Completion	Dec 31, 2014

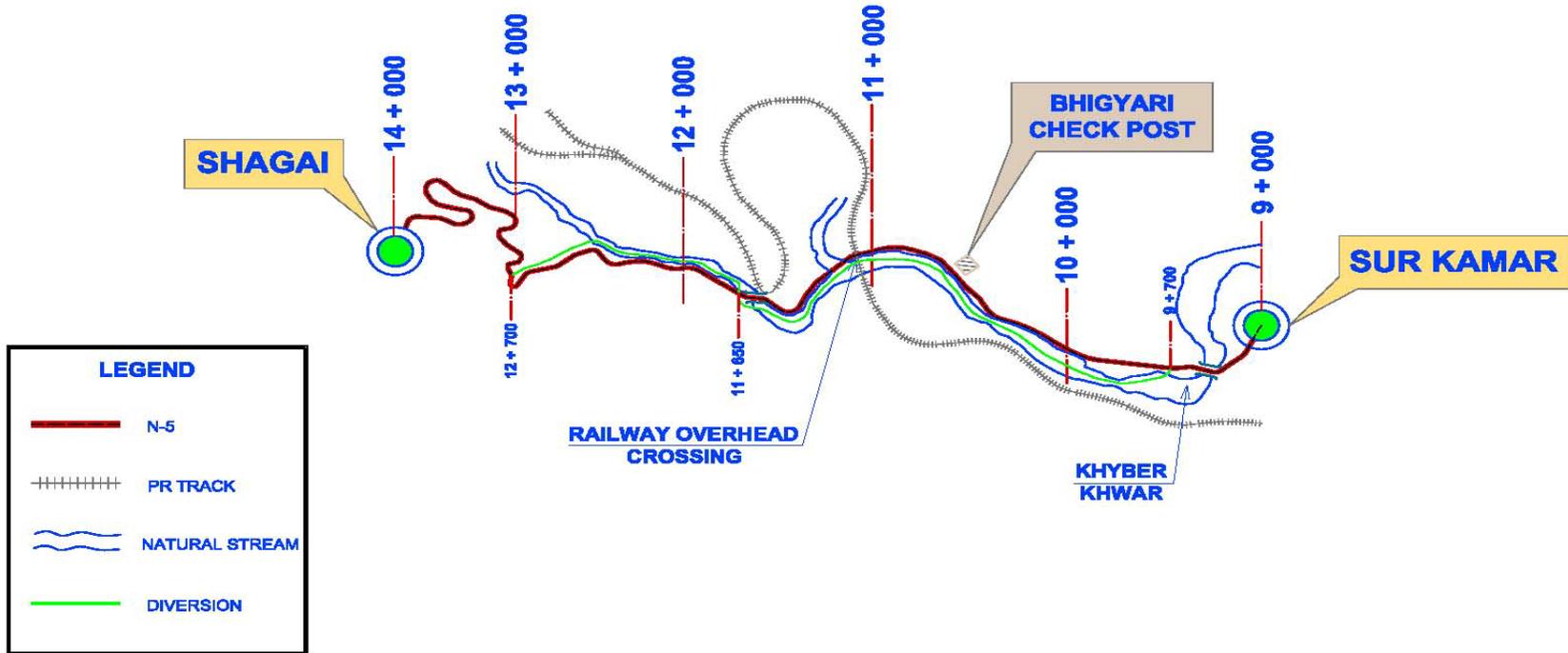
1.4 SECTIONS DATA

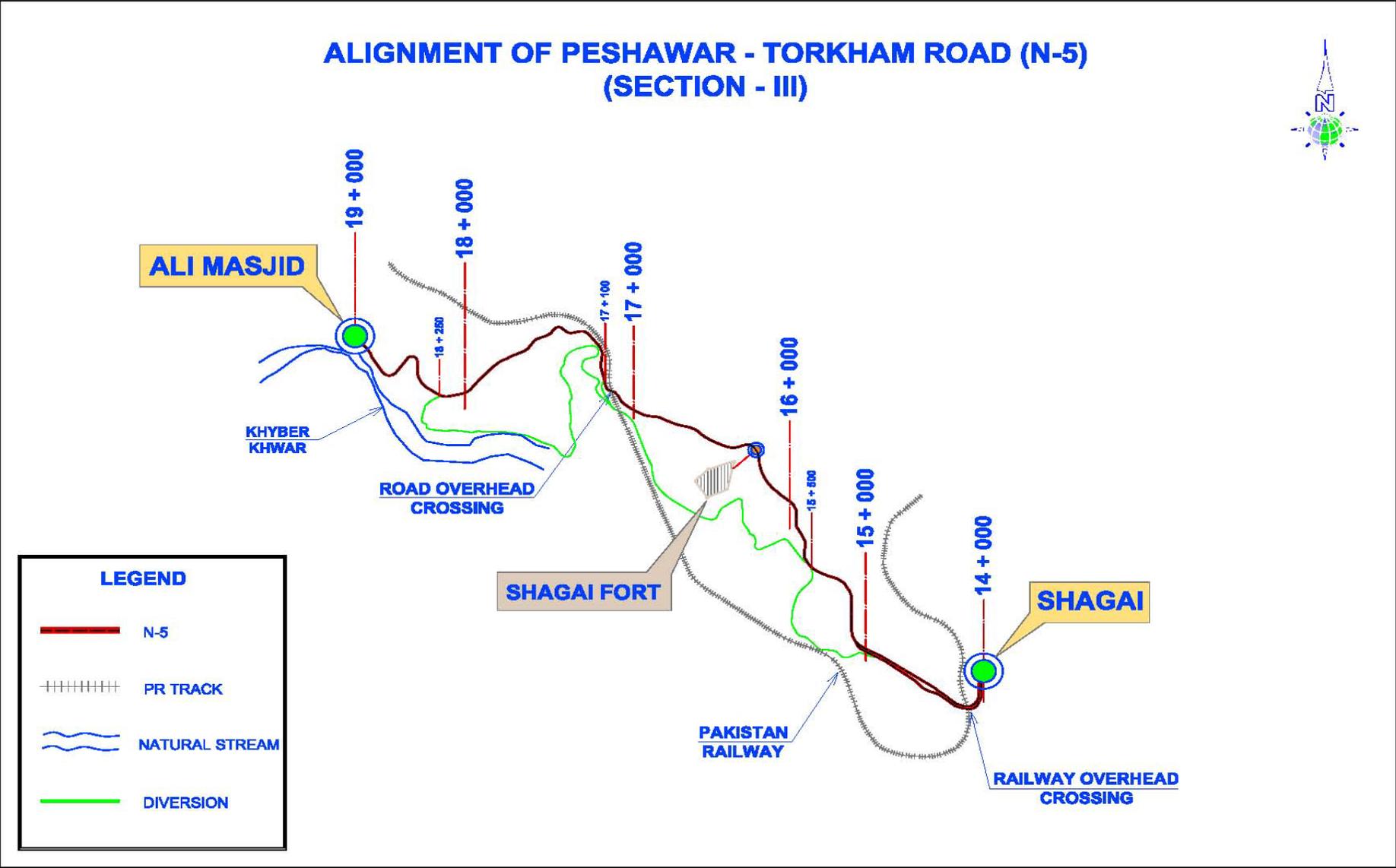
1.	Name of Package	Section – I (CH: KM: 0+000 to CH: KM: 9+000)
2.	PC-1 Cost (Section – I)	Rs. 937.939 Million (US \$ 9.978 M)
3.	Approval of PC – 1 (Section – I)	Nov 20, 2012
1.	Name of Package	Section – II (CH: KM: 9+000 to CH: KM: 14+000)
2.	PC-1 Cost (Section – II)	Rs. 985.266 Million (US \$ 9.383 M)
3.	Approval of PC – 1 (Section – II)	Oct 08, 2013

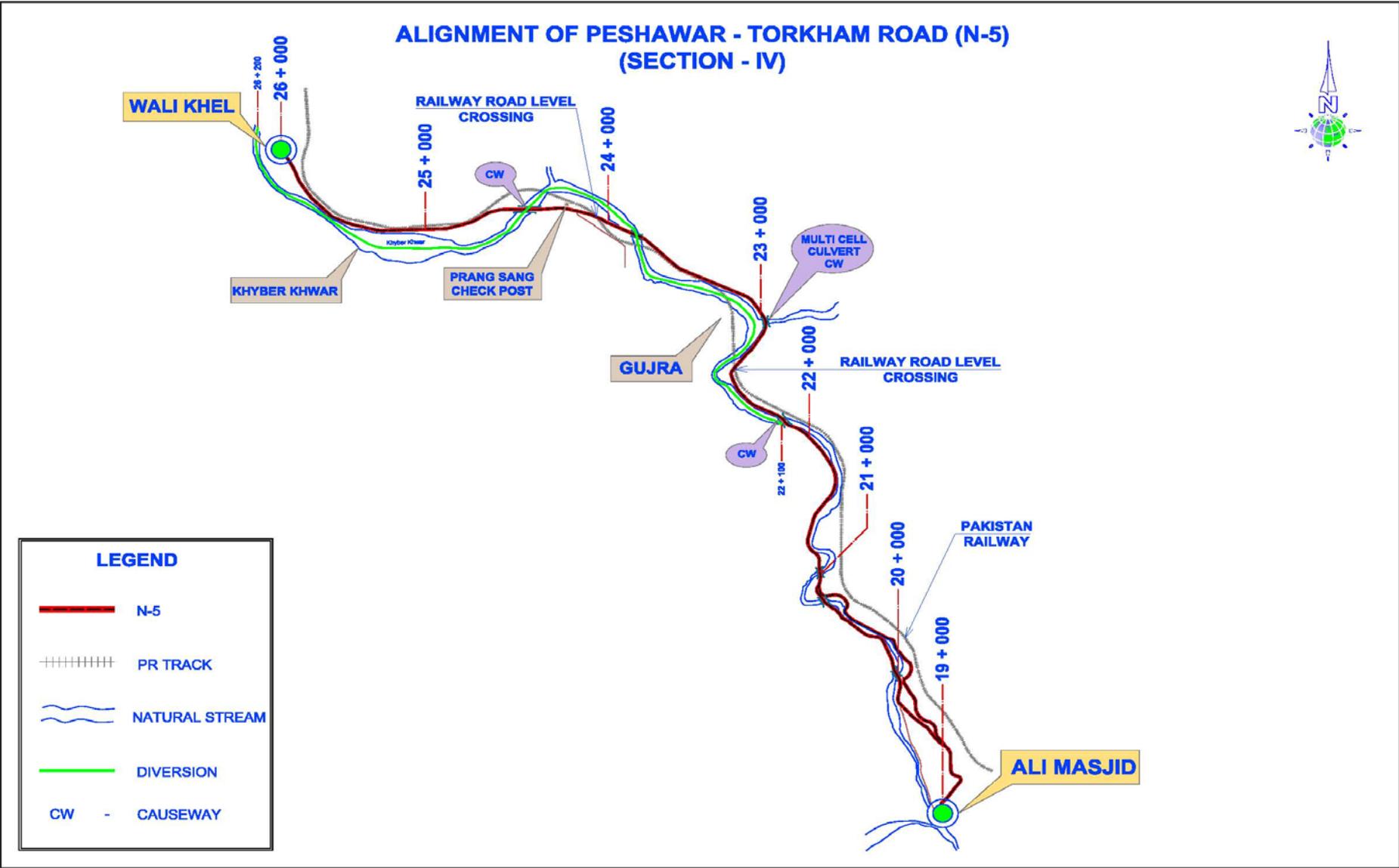
1.5 ALIGNMENT SKETCHES

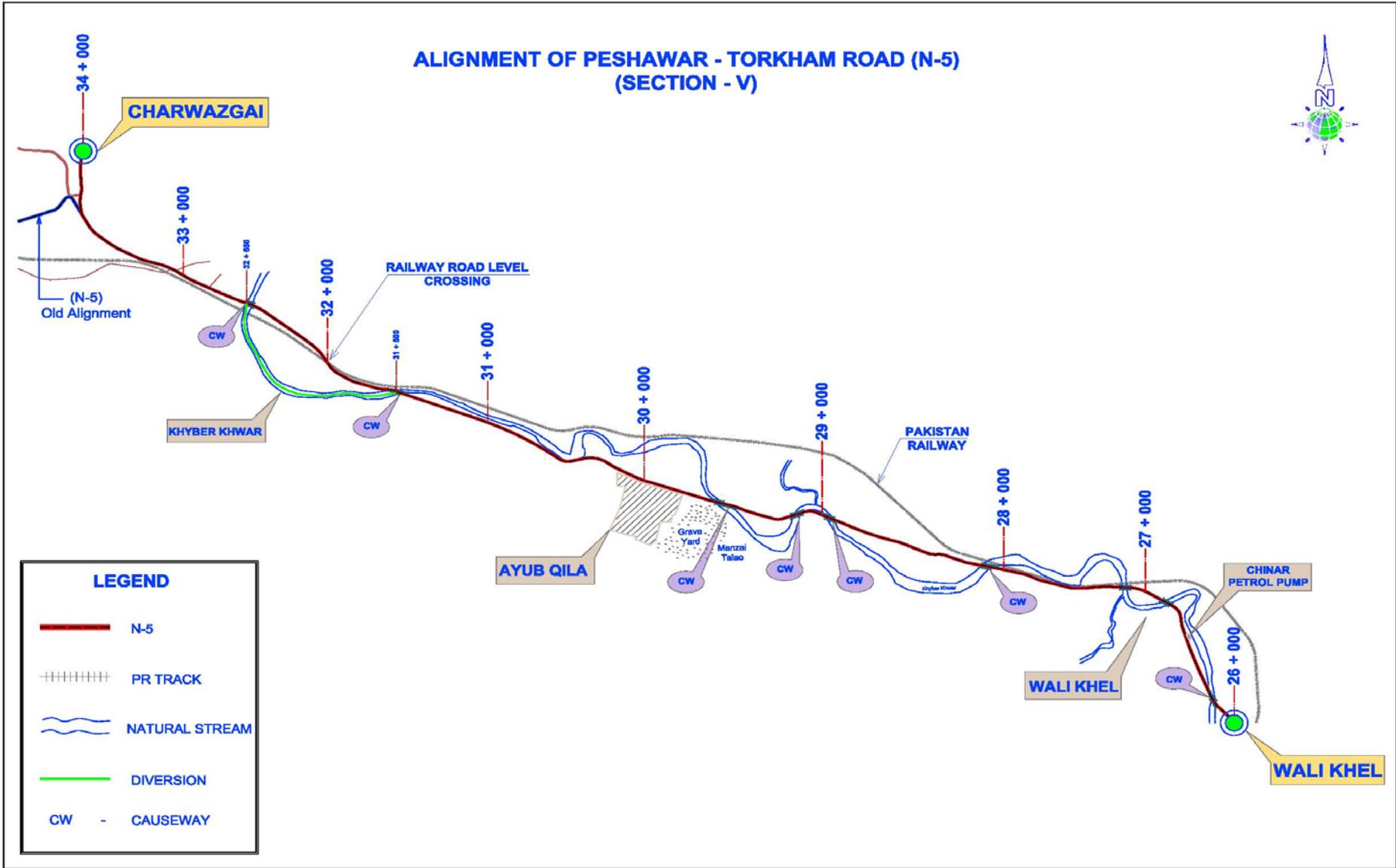


ALIGNMENT OF PESHAWAR - TORKHAM ROAD (N-5) (SECTION - II)

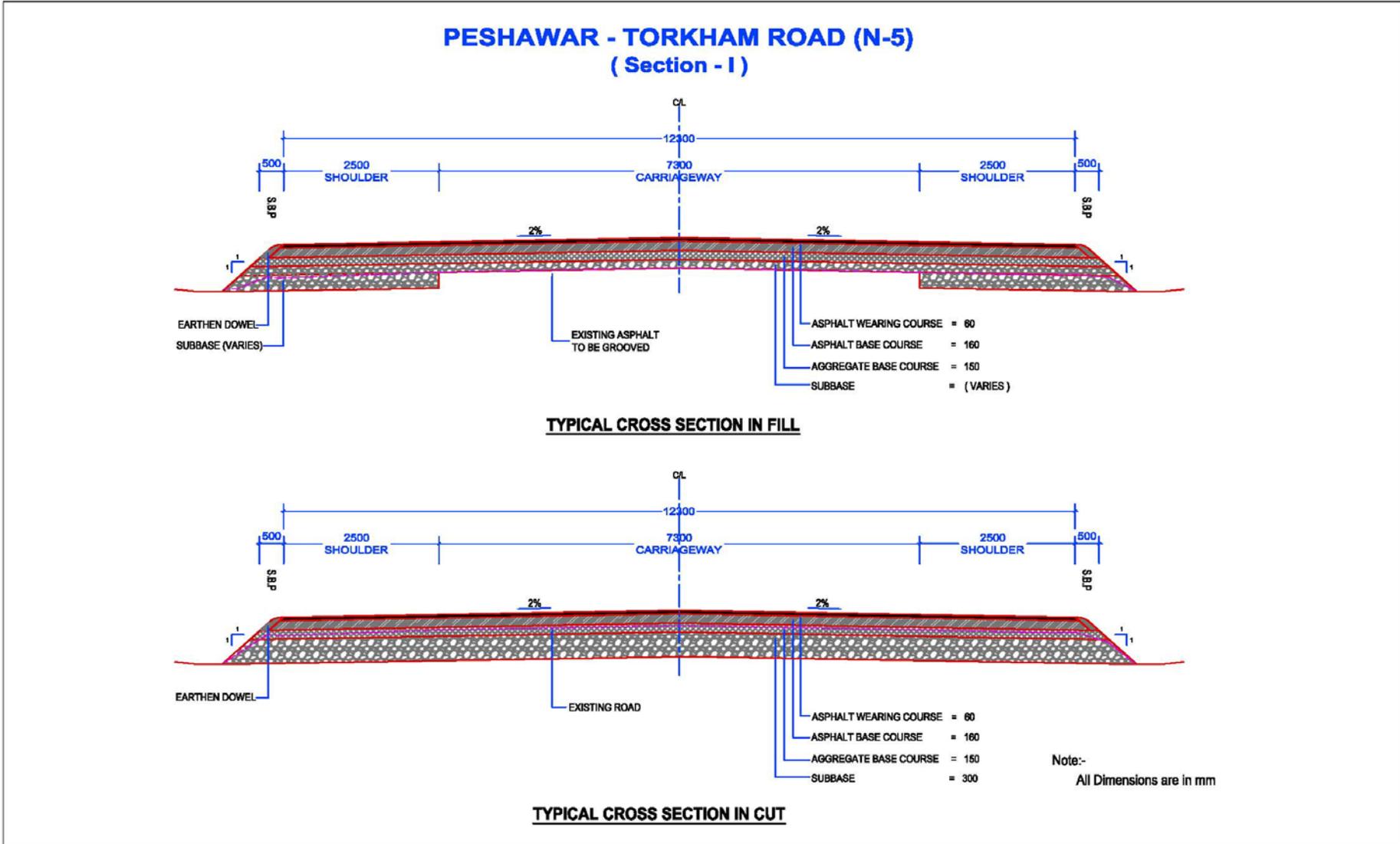


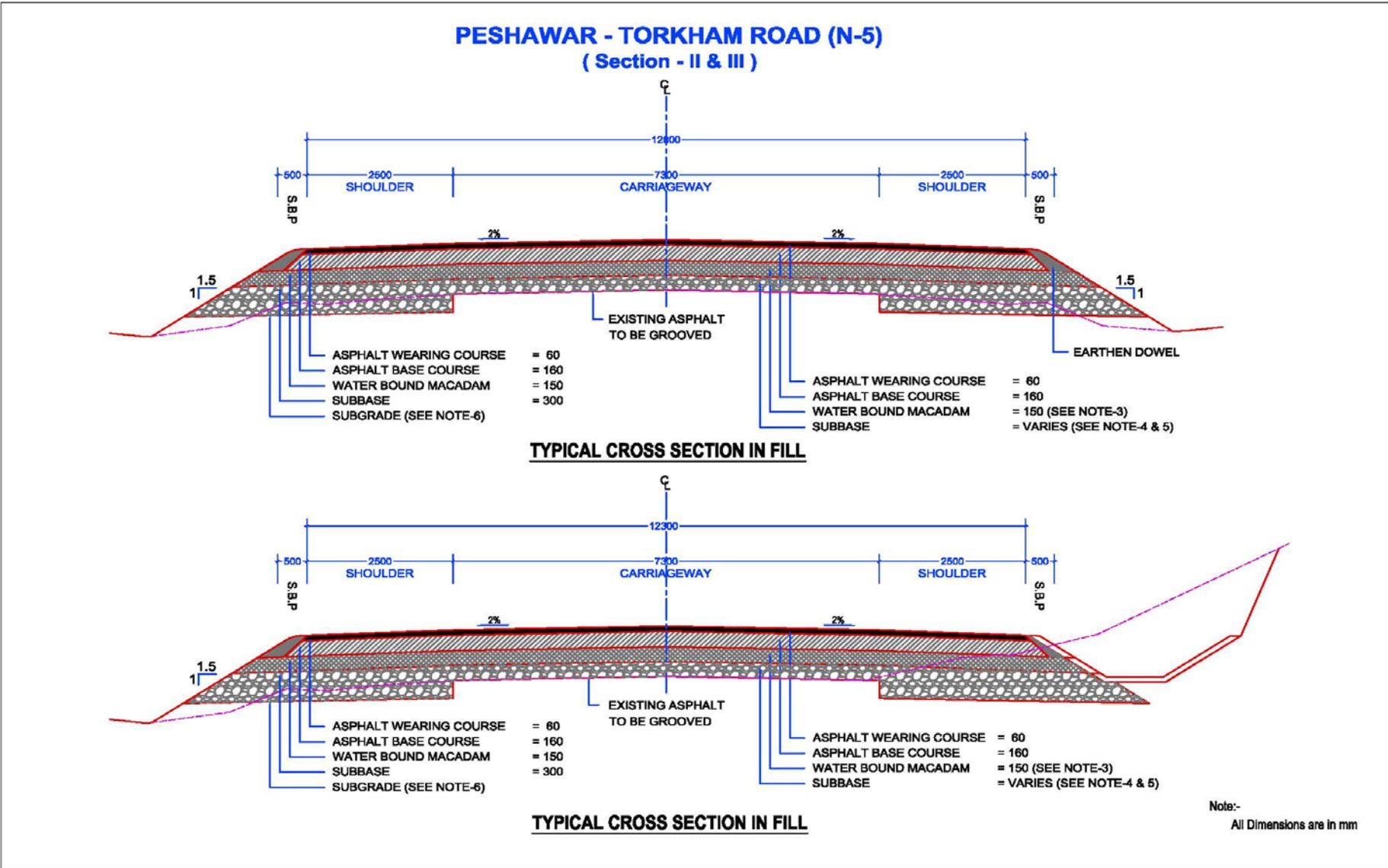


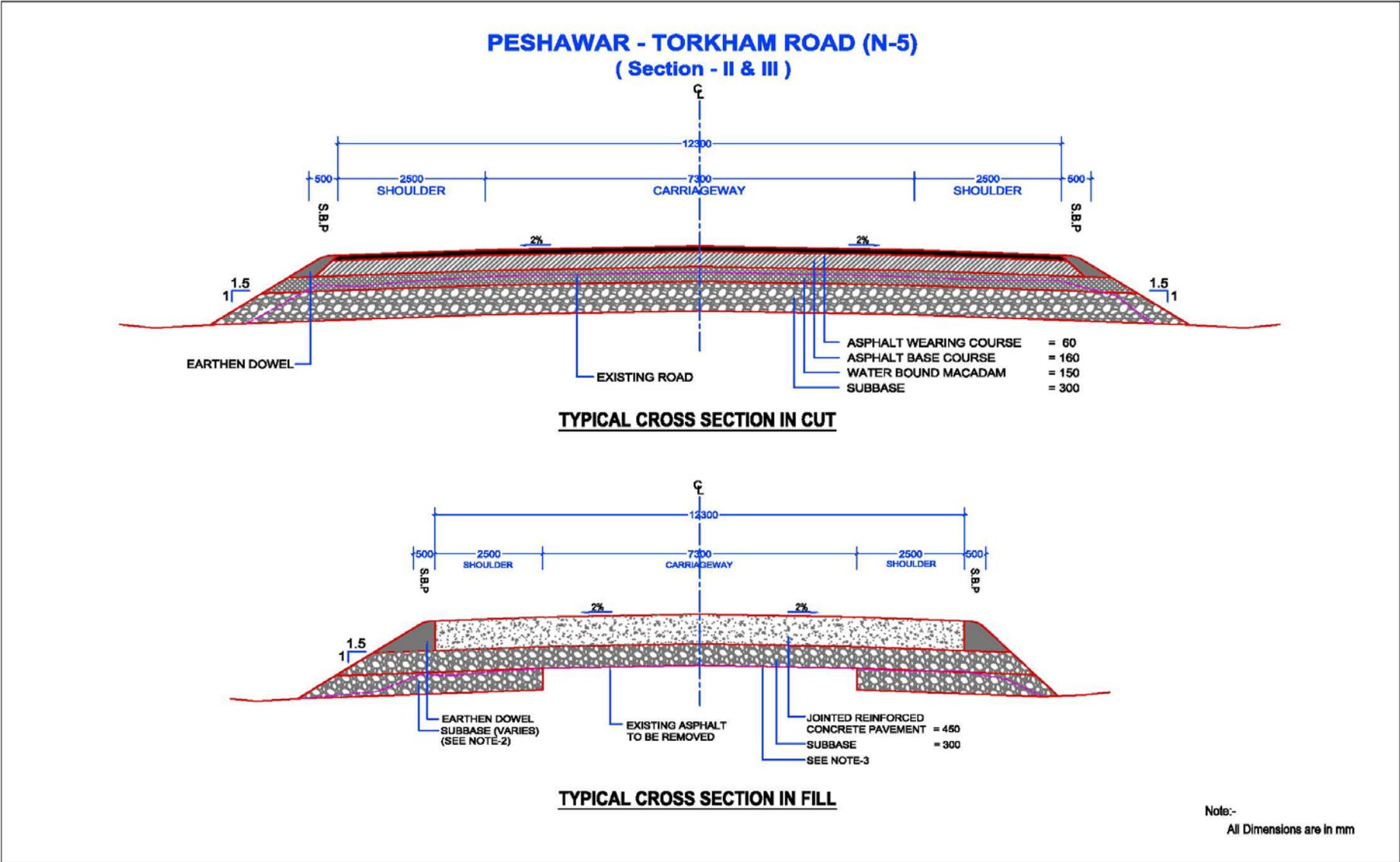




1.6 TYPICAL CROSS SECTIONS OF ROAD







M&E SERVICES & PROGRESS OF ACTIVITIES

2.1 MAJOR ACTIVITIES DURING THE REPORTING MONTH – NOVEMBER 2013

- Key construction achievements made against section – I by the end of November 2013 are :-
 - Retaining Walls were taken from 88% to 100%
 - Culverts were taken from 88.62% to 89.22%
 - Roadside drains were taken from 19% to 32%
- Detailed technical comments on proposed cost estimate & design / drawings for section – III of the project shared with FWO/NESPAK during the reporting period. PC-1 for section – III is almost ready for approval by FDWP.
- Detailed technical comments on proposed PC-1 for Bridge #02 (KM: 9+560), #10 (KM: 23+750) & Multi-cell Culvert (KM: 11+190) of the project shared with FWO/NESPAK during the reporting period.
- M&E Consultants continued to monitor the Construction activities during the reporting month and conducted requisite material sampling & testing as per NHA's guidelines.
- Work continued to finalize the detailed design & ground survey from KM: 19+861 To 46+000.
- During the reporting month, the M&E consultants attended coordination meetings at FATA Secretariat.
- M&E consultants continued to liaise with relevant stakeholders about project and address environmental, planning and other concerns relating to the strengthening / improvement of the vital national traffic corridor.
- M&E Consultants attended coordination meetings held in the office of CRE NESPAK in the reporting month.
- Actively participated in on-site discussions with FWO/NESPAK regarding ongoing construction activities.
- FWO was constantly pressed for demonstrating good environmental practice in conformity with the construction environmental management plan.
- Total percent time elapsed upto 30th November 2013 is 51.05 %.

2.2 MATTERS REQUIRING ATTENTION

2.2.1 COMPLEX CONSTRUCTION ALONG HIGH VOLUME TRAFFIC CORRIDOR

The 10 KM stretch of Sec-II & III of the project involves construction of rigid pavement (JRCP) in full width with shoulders for 4.6 KM length & single lane for 1.65 KM length of loops. Flexible pavement may be opened for traffic after 24 hours or so. However, rigid pavement will need 21-28 days to attain its maximum strength. Again the temperature variation in the project area needs to be taken into consideration. Traffic management / diversion seems to be a major hurdle. Therefore, a construction methodology / method statement elaborating at least the following points needs to be shared by FWO/NESPAK as to:

- how will FWO take care of traffic management where diversion is not possible;
- how will FWO ensure that the pavement has attained the desired strength before putting it into operation;
- how will FWO ensure concreting in odd temperature; and
- how will FWO ensure curing of the proposed 45 cm thick rigid pavement?

2.2.2 COMPLEXITY IN MAINTAINING TRAFFIC ON DIVERSIONS & REDUCING IMPACT TO TRAVELLING PUBLIC

Diversions of 12.05 KM have been provided at regular intervals b/w KM: 09+000 To 35+000. However, substandard condition of the diversion tracks including potholes, bumpy and dusty surface, diesel fumes of multi-axle trucks etc. made life miserable for the road commuters as well as adjacent population. Peak hour traffic congestion and frequency of occurrence regularly escalated. Any traffic accident on the corridor results in rapid deterioration of traffic movement and even complete blockage of diversions.

In order to ensure smooth traffic movement along the corridor, minimizing impact on traffic, keeping dust & noise disturbance to a minimum, a higher level of communication and liaison would be required throughout the work period to manage the expectations of stakeholders, road users and locals.

2.2.3 DELAY IN UTILITIES IDENTIFICATION / SHIFTING FROM CONSTRUCTION CORRIDOR

Since the P-T road project traverses through the rolling / hilly terrain of Khyber agency, proper records of the underground utilities like water supply, sewerage lines and telephone cables etc. is seldom available, and the utilities usually get identified during the construction activities. Similarly, shifting of overhead electrical lines (including poles) got delayed due to nonpayment of relevant dues by FWO and cumbersome procedures involved for clearances / approvals / permissions from the concerned departments.

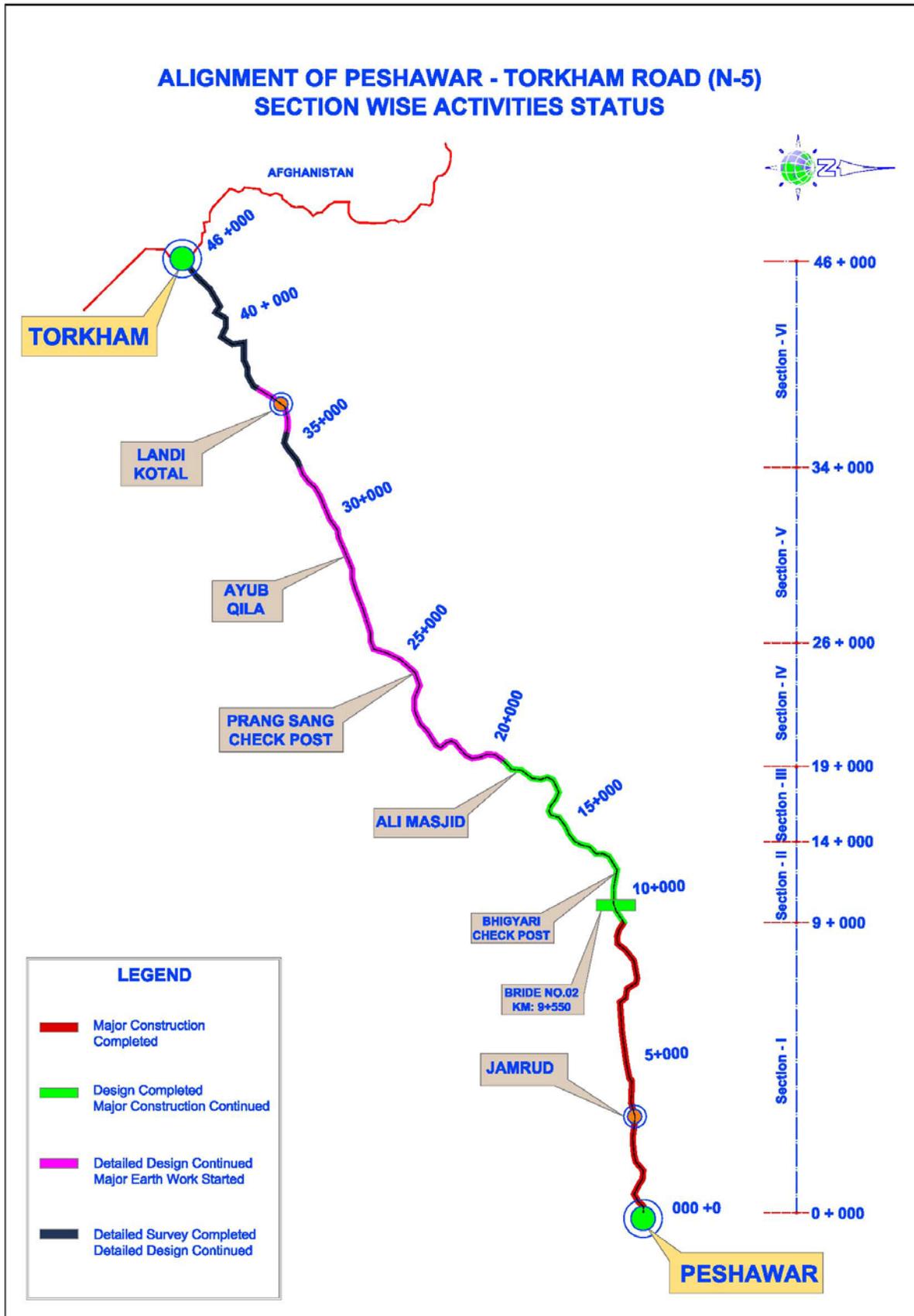
The cited encumbrances put a constraint on the contractor's capacity to undertake construction work in an un-interrupted and continuous manner. Being an EPC contractor,

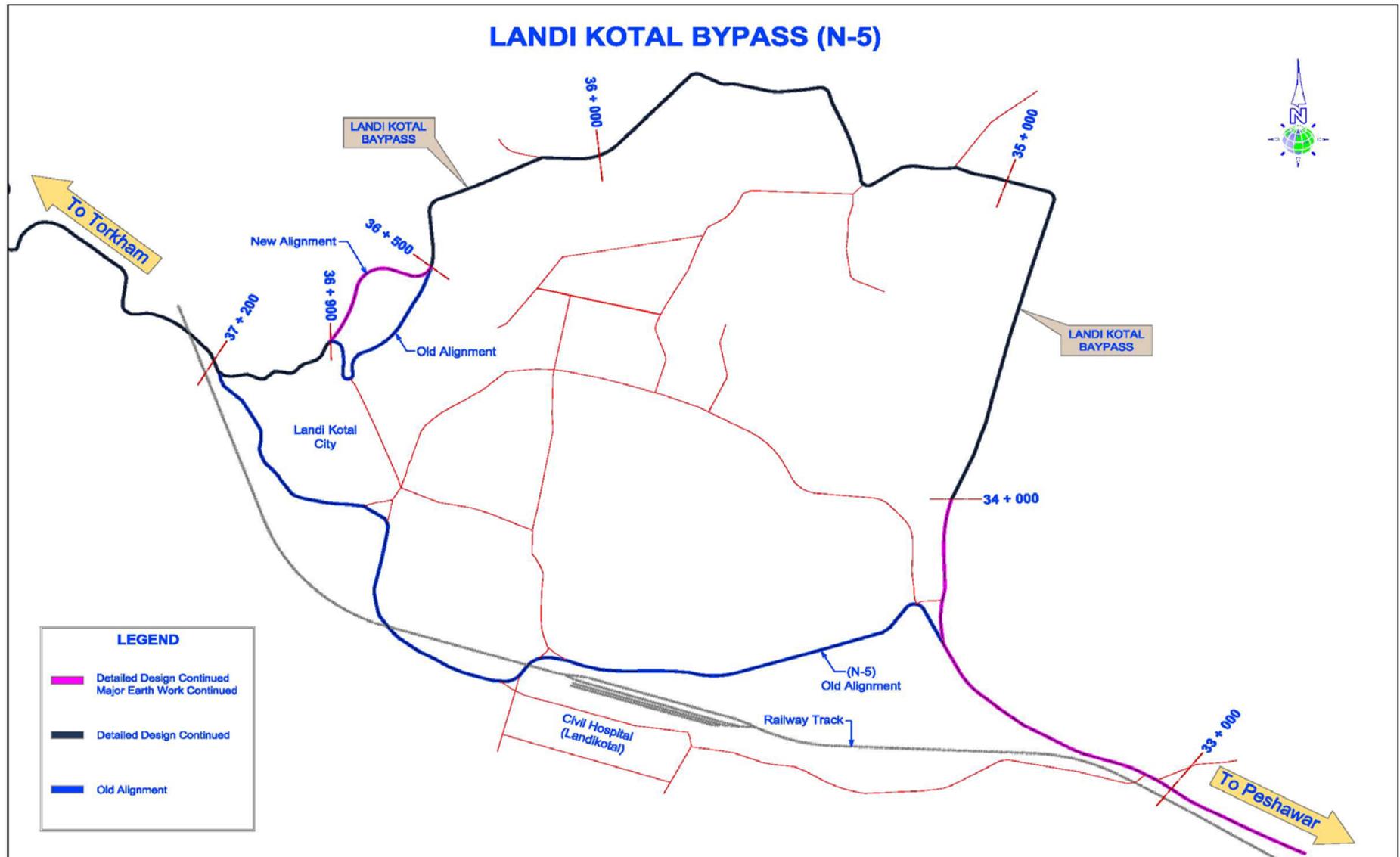
FWO is responsible for identification, coordination, payment and shifting of utilities lines from the construction zone.

2.2.4 ENVIRONMENTAL COMPLIANCE

FWO needs to focus more on environmental compliance measures due to inherited site specific conditions such as live traffic corridor, heavy traffic, hilly terrain, and residential and commercial areas along the road.

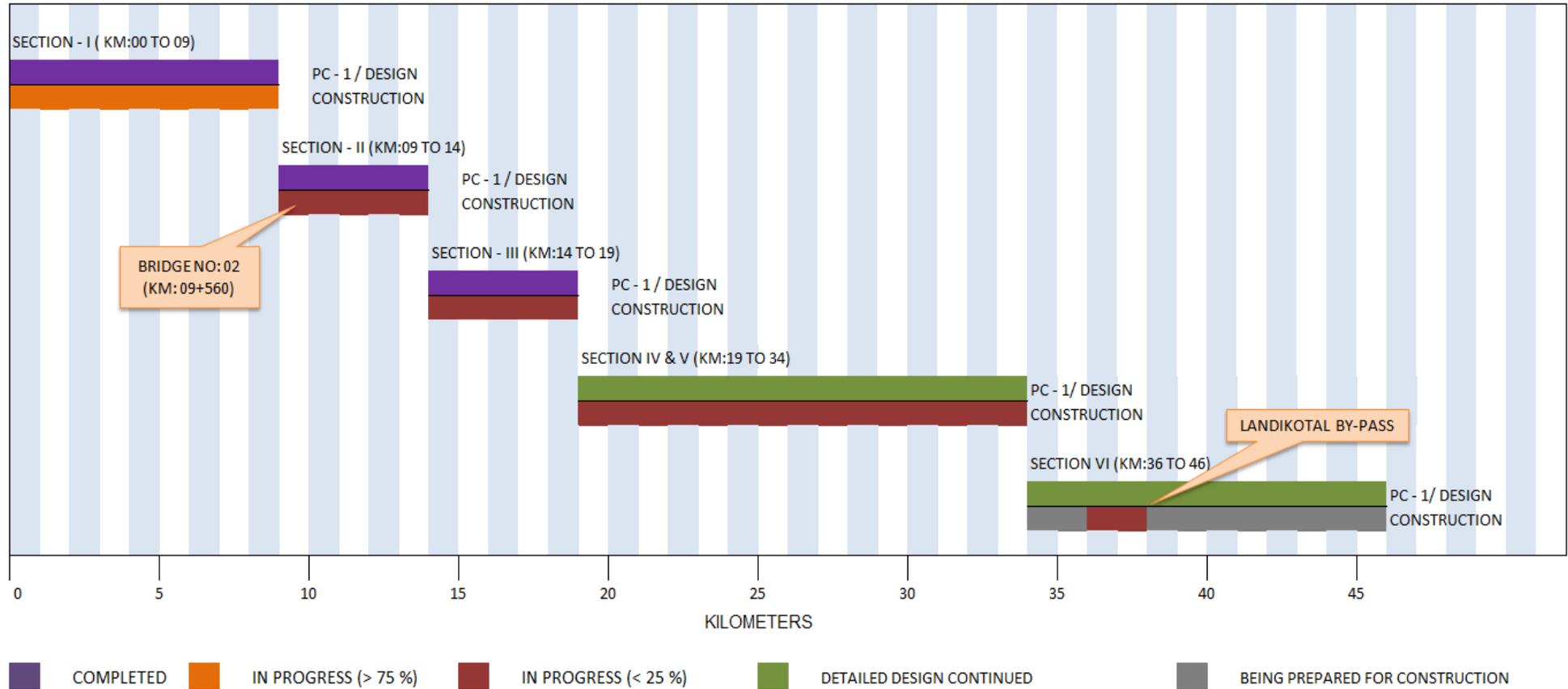
2.3 SECTION WISE ACTIVITIES STATUS





CIVIL WORKS PROGRESS STATUS

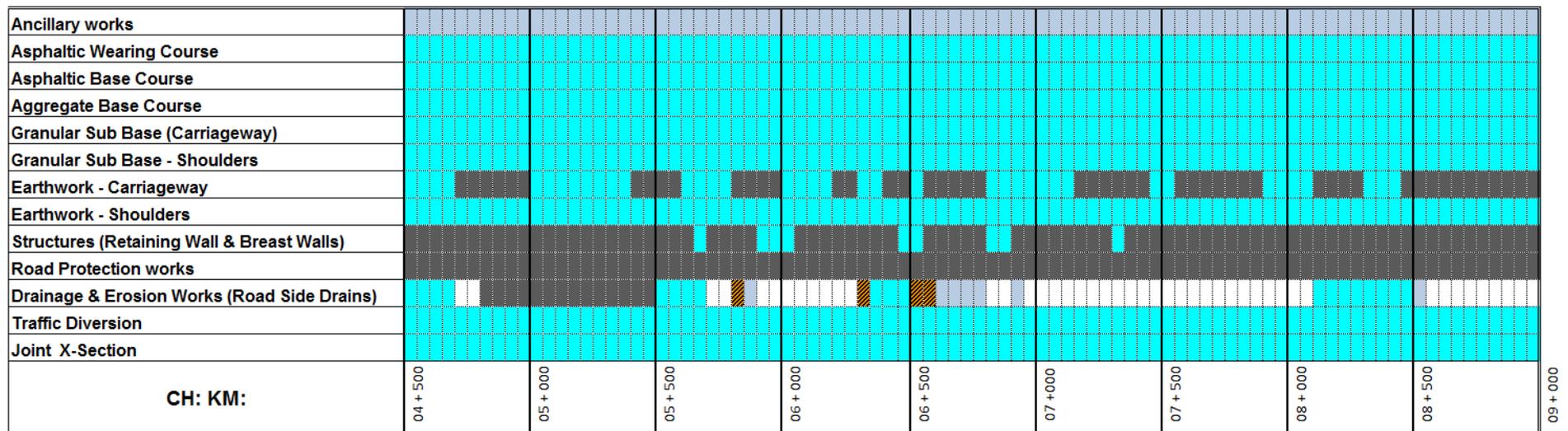
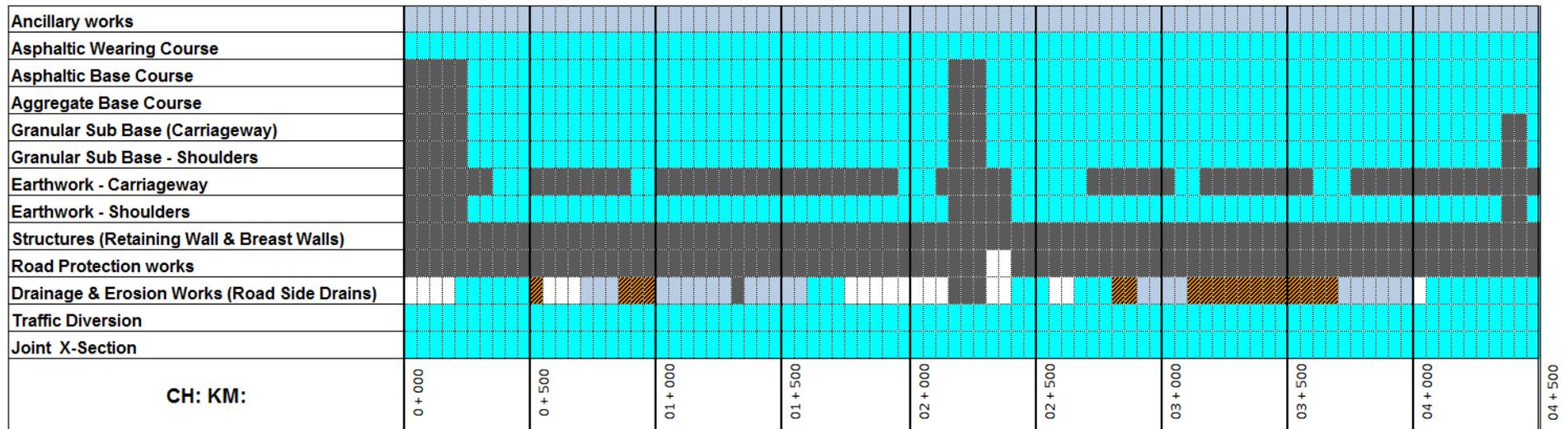
3.1 OVERALL PROGRESS STATUS



3.2 SECTION - I CUMULATIVE MILESTONE WISE PROGRESS STATUS

BILL NO	DESCRIPTION	MILESTONE UNIT	NUMBER OF MILESTONES	AMOUNT AS PER MILESTONE (US \$)	TOTAL AMOUNT (US \$)	PROGRESS UPTO PREVIOUS MONTH			PROGRESS IN THIS MONTH			MILESTONE WISE COMULATIVE PROGRESS		
						MILESTONE ACHIEVED	AMOUNT (US \$)	PROGRES \$ %	MILESTONE ACHIEVED	AMOUNT (US \$)	PROGRES \$ %	MILESTONE ACHIEVED	AMOUNT (US \$)	PROGRESS %
1	EARTH WORK	KM	9	6,339.85	57,058.65	9.00	57,058.65	100.00	-	-	-	9.00	57,058.65	100.00
2	SUB BASE AND BASE COURSE													
i	GRANULAR SUB BASE	KM	9	111,763.61	1,005,872.49	9.00	1,005,872.49	100.00	-	-	-	9.00	1,005,872.49	100.00
ii	AGGREGATE BASE COURSE	KM	9	73,611.56	662,504.04	9.00	662,504.04	100.00	-	-	-	9.00	662,504.04	100.00
iii	ASPHALTIC BASE COURSE	KM	9	416,608.69	3,749,478.21	9.00	3,749,478.21	100.00	-	-	-	9.00	3,749,478.21	100.00
3	SURFACE COURSES AND PAVEMENT	KM	9	213,785.71	1,924,071.39	9.00	1,924,071.39	100.00	-	-	-	9.00	1,924,071.39	100.00
4a	STRUCTURES (RETAINING WALL/BREAST WALL)	JOB	1	38,812.31	38,812.31	0.88	34,154.83	88.00	0.12	4,657.48	12.00	1.00	38,812.31	100.00
4b	STRUCTURES (CULVERTS)													
I	WIDENING AND REPAIR OF EXISTING CULVERTS AT RD 1+290 & 5+692	NUMBER	2	10,657.55	21,315.10	-	-	-	-	-	-	-	-	-
II	CONSTRUCTION OF NEW CULVERTS (No. of Span x Span Width x Height)													
	1 x 2 x 1.5	NUMBER	7	19,268.30	134,878.10	6.90	132,951.27	98.57	0.10	1,926.83	1.43	7.00	134,878.10	100.00
	1 x 3 x 1.5	NUMBER	3	25,204.07	75,612.21	1.92	48,391.81	64.00	0.03	756.12	1.00	1.95	49,147.94	65.00
	2 x 3 x 1.5	NUMBER	2	40,950.75	81,901.50	2.00	81,901.50	100.00	-	-	-	2.00	81,901.50	100.00
	3 x 3 x 1.5	NUMBER	1	54,597.59	54,597.59	1.00	54,597.59	100.00	-	-	-	1.00	54,597.59	100.00
	5 x 3 x 1.5	NUMBER	1	75,007.57	75,007.57	1.00	75,007.57	100.00	-	-	-	1.00	75,007.57	100.00
5a	DRAINAGE & EROSION WORKS (ROAD SIDE DRAIN)													
i	DRAIN TYPE D-1 & D-2 (COVERED)	KM	5.5	249,002.78	1,369,515.29	1.03	255,227.85	18.64	0.75	186,752.09	13.64	1.78	441,979.93	32.27
ii	DRAIN TYPE D-1a & D-2a (UNCOVERED)	KM	3	110,128.52	330,385.56	0.60	66,077.11	20.00	0.63	68,830.33	20.83	1.23	134,907.44	40.83
iii	DRAIN TYPE D-3 (Converted to D-2 type)	KM	1.5	135,439.74	203,159.61	0.25	33,859.94	16.67	0.10	13,543.97	6.67	0.35	47,403.91	23.33
5b	ROAD PROTECTION WORKS (100 M)	JOB	1	11,047.54	11,047.54	-	-	-	-	-	-	-	-	-
6	ANCILLARY WORKS COMPLETE IN ALL RESPECT	JOB	1	54,375.49	54,375.49	0.47	25,556.48	47.00	-	-	-	0.47	25,556.48	47.00
7	DIVERSION	KM	9	12,978.72	116,808.48	9.00	116,808.48	100.00	-	-	-	9.00	116,808.48	100.00
8	PLANTATION OF TREES (450 Nos)	KM	9	1,297.87	11,680.83	-	-	-	-	-	-	-	-	-
TOTAL PROJECT COST (SECTION-I)					9,978,081.96		8,323,519.21	83.42		276,466.81	2.77		8,599,986.03	86.19

3.3 SECTION - I PAVEMENT CONSTRUCTION PHYSICAL PROGRESS STATUS



LEGEND



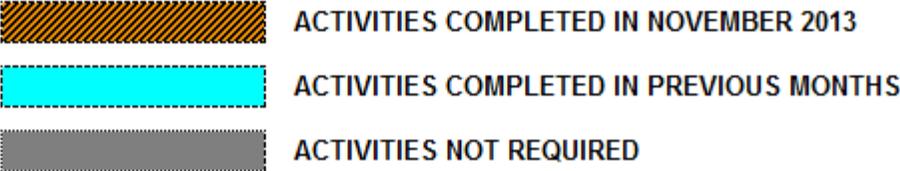
WORKS COMPLETED IN NOVEMBER 2013
 WORKS COMPLETED IN PREVIOUS MONTHS
 PARTIAL COMPLETION



SINGLE LANE TRAFFIC MAINTAINED
 ITEM NOT REQUIRED

3.4 SECTION - I CULVERTS PHYSICAL PROGRESS STATUS

RCC Railing	Deleted - Replaced with Pipe Culvert Extension				Deleted										
Roll Pointing															
RCC Slab Cast in situ															
Flooring/Cut-off wall/ Rip rap															
Back Filling															
Bed plate/Curtain wall															
Stone Masonry (Wing Walls)															
Stone Masonry (Abutments/ Pier)															
Lean Concrete															
Structural Excavation															
Dismantling of Existing Structure															
Activity															
KM	1+230	2+611	3+081	4+480	4+590	5+202	5+354	5+905	6+050	6+191	6+501	6+648	6+883	7+384	

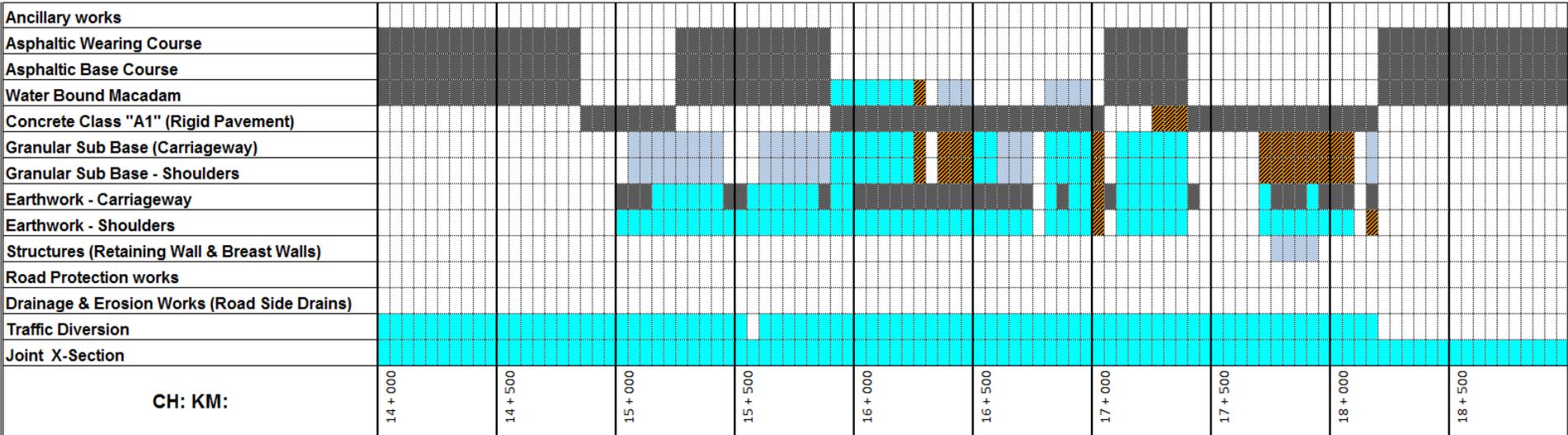


3.6 SECTION - II CULVERTS PHYSICAL PROGRESS STATUS

RCC Railing	U/S side																									
	D/S side																									
Roll Pointing	Abt No1																									
	Abt No2																									
Flooring/Cut-off wall/ Riprap	B/W Abts																									
RCC Slab/Precast Pannels																										
Bed plate/Curtain wall	Abt No1																									
	Abt No2																									
Back filling	Abt No1																									
	Abt No2																									
	B/W Abts																									
Stone Masonry (Wing Walls)	U/S side																									
	D/S side																									
Stone Masonry (Abutments/ Pier)	Abt No1																									
	Abt No2																									
Lean Concrete	Abt No1																									
	Abt No2																									
Structural Excavation	Abt No1																									
	Abt No2																									
Dismantling of Existing Structure																										
Pavement Type	Rigid/Flex	Flexible	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid	Rigid								
Construction Sequence (FW/HW)		FW	FW	FW	FW	HW LHS	HW RHS	FW	FW	HW LHS	HW RHS	HW LHS	HW LHS	FW	FW	HW LHS	HW RHS	FW	FW	HW LHS	HW RHS	FW	FW	FW	FW	
Size of Culvert (No. of Span*Width*Height)		1*2*3	1*2*2.5	1*2*4.5	1*3*4	1*2*2.5	1*2*3	1*2*2.5	1*2*2.5	1*2*3	1*2*2.5	1*3*4.5	1*2*2.5	1*3*2.5	1*2*4.5	1*2*3	1*2*3	1*2*2.5								
KM as per site		10+050	10+502	10+562	10+602	10+788		10+961	11+372	11+691			12+337	12+460			13+212									
KM as per Drawing		10+025	10+500	10+571	10+615	10+790	10+850	10+965	11+375	11+690	11+840	12+200	12+336 (skew)	12+460	12+975	13+215	13+325	13+650								



3.7 SECTION - III PAVEMENT CONSTRUCTION PHYSICAL PROGRESS STATUS



LEGEND

- WORKS COMPLETED IN NOVEMBER 2013
- WORKS COMPLETED IN PREVIOUS MONTHS
- PARTIAL COMPLETION
- SINGLE LANE TRAFFIC MAINTAINED
- ITEM NOT REQUIRED

3.10 BRIDGE NO. 2 PHYSICAL PROGRESS STATUS

BRIDGES	DESCRIPTION	TOTAL	COMPLETED	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	REMARKS
KM: 09+560														
BRIDGE NO: 02	Piles	36	13											
	Pile Caps	4												
	Abutments/ Piers	4												
	Transom	4												
	Prestressed Girder	15												
	Deck Slab / Barrier	3												
	Expansion Joint	4												
	Approach Slab	2												

QUALITY TEST REPORTS

4.1 SUB BASE COURSE FIELD DENSITY TEST REPORT

S.No	Location (KM)	Description	Station (KM)	MMD (g/cc)	OMC (%)	Adj.MDD (g/cc)	M.C (%)	Achieved Compection	Required Compection	Test Results	Remarks
1	26+000 ~ 26+075 H/W	Sub Base	26+050	2.419	5.3	2.407	4.7	98.1	98	Pass	

4.2 WATER BOUND MACADAM FIELD DENSITY TEST REPORT

S.No	Location (KM)	Description	Station (KM)	MMD (g/cc)	OMC (%)	Adj.MDD (g/cc)	M.C (%)	Achieved Compection	Required Compection	Test Results	Remarks
1	9+000 ~ 9+200 F/W	WBM	9+130	2.375	5.2	2.349	3.1	100.2	100	Pass	
2	9+200 ~ 9+300 F/W	WBM	9+285	2.375	5.2	2.333	3.5	93.9	100	Fail	Note 01
3	9+300 ~ 9+375 F/W	WBM	9+360	2.375	5.2	2.337	4	100.9	100	Pass	
4	9+200 ~ 9+300 F/W	WBM	9+230	2.375	5.2	2.328	3.1	94.8	100	Fail	Note 01
5	9+375 ~ 9+425 F/W	WBM	9+400	2.375	5.2	2.334	3.1	96	100	Fail	Note 01
6	9+750 ~ 9+850 F/W	WBM	9+780	2.375	5.2	2.374	2.7	100.1	100	Pass	
7	9+200 ~ 9+300 F/W	WBM	9+230 L/S	2.375	5.2	2.325	3.5	101.1	100	Pass	

Note 01. Subsequent layers placement and compaction postpond until previous layer properly compacted / accepted

4.3 COMPRESSIVE STRENGTH OF BRICK

Specimen No.	Identification (Trade Mark)	Compressive Strength (Kg/cm ²)					Average Strength (kg/cm ²)	Test Results
		Dimensions of Half Brick (cm)		Area (cm ²)	Load in (KN)	Achieved Strength (kg/cm ²)		
		Length	Width					
1	PR 1	11.3	10.5	118.65	265	227.7	229.5	Pass
		11	10.3	113.3	257	231.3		
2	PR 1	11.1	10.4	115.44	236	208.5	204.1	Pass
		10.8	10.3	111.24	218	199.8		
3	PR	11	10.5	115.5	151	133.0	144.0	Pass
		10.5	10.9	114.45	174	155.0		
4	PR	10.9	10.5	114.45	182	162.2	156.0	Pass
		11	10.7	117.7	173	149.9		
Required Strength (kg/cm ²)						140.8		

4.4 ABSORPTION TEST OF BRICK

Specimen No.	Identification (Trade Mark)	Absorption (%) of Full (Total) Bricks				Average Absorption (%)	Test Results
		Oven Dry Weight in (grams)	SSD Weight (grams)	Weight of Water (grams)	Individual Absorption (%)		
1	PR 1	2725	3263	538	19.7	19.4	Pass
2	PR 1	2742	3265	523	19.1		
3	PR	2357	2912	555	23.5	23.5	Pass
4	PR	2488	3070	582	23.4		
Required Absorption (%)						16.7	

4.5 ASPHALTIC BASE COURSE QUALITY TESTS REPORT

Paving Date	% A.C By Wt of Mix Pb								Bulk Sp. Gr. (Gmb)	Maximum Sp.Gravity (G _{mm})	% Air Voids (V _a)	VMA (%)	VFA (%)	Stability (Kg)	Loss of Stability (%)	Flow (0.01") (0.25mm)
		2"	1½"	3/4"	#4	#8	#50	#200								
19-Nov-13	3.6	100	97.7	64.2	30.5	20.6	7	3.1	2.389	2.525	5.4	13.59	60.3	1394	16.7	11.9
25-Nov-13	3.56	100	100	62.9	29.6	20.7	7.5	3.3	2.388	2.534	5.8	13.6	57.5	1259	15.3	11.9
28-Nov-13	3.3	100	100	62.4	29.2	21.1	8.5	4.6	2.389	2.538	5.6	13.04	57.2	1402	15.1	10.8
JMF LIMITS	3.1 ~ 3.7	100	93~100	59~73	24 ~ 38	19 ~ 27	3.8~11.8	3.7~5.7	-	-	4 ~ 8	13 % Min	55 ~ 75	1000 Kg Min	25% Max	8 ~ 14 at (0.01")

4.6 ASPHALTIC BASE COURSE 1ST LAYER CORE COMPACTIONS

S.No	Core No.	Testing Date	Covered Area	KMs	Offset From C/L	Wt. in Air (g)	WT. IN Water(g)	SSD. WT (g)	Volume (cc)	Density (g/cc)	Lab. Density (GMB)	Achieved Compaction	Required Compaction	Remarks
1	C-1	25-Nov-13	9+750 ~ 9+850	9+770	2.5m L/S	1484.5	855.8	1487.3	631.5	2.351	2.408	97.6	97	OK
2	C-2			9+830	5.0m R/S	1671.5	972.4	1677.8	705.4	2.370	2.408	98.4	97	OK
3	C-3		9+850 ~ 9+950	9+865	1.7m L/S	1345.5	785.4	1349.1	563.7	2.387	2.408	99.1	97	OK
4	C-4			9+920	4.7m R/S	1372	798	1375.9	577.9	2.374	2.408	98.6	97	OK
1	C-1	28-Nov-13	8+970 ~ 9+070	8+975	4.0m R/S	1531	887	1537.5	650.5	2.354	2.389	98.5	97	OK
2	C-2			9+040	2.7m L/S	1475	860	1483.2	623.2	2.367	2.389	99.1	97	OK
3	C-3		9+070 ~ 9+170	9+090	3.5m R/S	1561	905	1567.2	662.2	2.357	2.389	98.7	97	OK
4	C-4			9+145	4.7m R/S	1519	885.2	1528.4	643.2	2.362	2.389	98.9	97	OK
5	C-5		9+170 ~ 9+270	9+180	3.2m R/S	1481	861.1	1487	625.9	2.366	2.389	99.0	97	OK
6	C-6			9+250	4.1m L/S	1437	833.9	1440.8	606.9	2.368	2.389	99.1	97	OK
7	C-7		9+270 ~ 9+370	9+290	4.0m R/S	1755	1026.2	1762.4	736.2	2.384	2.389	99.8	97	OK
8	C-8			9+300	3.2m L/S	1548	900.2	1553.9	653.7	2.368	2.389	99.1	97	OK
9	C-9		9+370 ~ 9+400	9+380	2.8m L/S	1372	783.8	1378	594.2	2.309	2.389	96.7	97	OK

4.7 CORE THICKNESS OF ASPHALTIC BASE COURSE 1ST LAYER

S.No	Core No.	Testing Date	Covered Area	KMs	Off Set From C/L	Cores Thickness (cm)				Average Thickness (cm)	Required Thickness (cm)	Remarks
						1	2	3	4			
1	T-1	24-Nov-13	9+750 ~ 9+850	9+770	4.9m L/S	8.8	8.5	8.4	8.6	8.6	8.0	OK
2	T-2			9+830	2.0m R/S	10.7	10.9	10.9	11	10.9	8.0	OK
3	T-3		9+850 ~ 9+950	9+865	3.5m L/S	8.2	8.1	8	8.2	8.1	8.0	OK
4	T-4			9+920	0.8m R/S	8.5	8.5	8.4	8.5	8.5	8.0	OK
1	T-1	28-Nov-13	8+970 ~ 9+070	8+975	3.4m R/S	9.4	9.7	9.7	9.3	9.5	8.0	OK
2	T-2			9+040	1.3m L/S	8.4	8.7	7.9	8.2	8.3	8.0	OK
3	T-3		9+070 ~ 9+170	9+090	4.1m R/S	8.7	8.1	8.5	8.4	8.4	8.0	OK
4	T-4			9+145	2.0m L/S	7.9	7.8	8.1	7.9	7.9	8.0	OK
5	T-5		9+170 ~ 9+270	9+180	3.6m R/S	8.3	8.1	7.6	8.4	8.1	8.0	OK
6	T-6			9+250	4.8m L/S	8.6	8.6	8.9	8.2	8.6	8.0	OK
7	T-7		9+270 ~ 9+370	2+290	3.1m R/S	9.6	9.6	9	9.3	9.4	8.0	OK
8	T-8			9+300	3.9m L/S	8.4	8.7	8.7	8.1	8.5	8.0	OK
9	T-9		9+370 ~ 9+400	9+380	4.2m R/S	8.8	8.9	9.3	9.1	9.0	8.0	OK

4.8 SUMMARY OF SUB-BASE MATERIAL QUALITY TESTS REPORT

S.No	Location (KM)	Description	Sieve Analysis							MDD (g/cc)	OMC %	L.A %	Sand Equivalent	CBR% at		Specific gravity	Plastic Index	Remarks
			2"	1"	3/8"	#4	#10	#40	#200					0.1"	0.2"			
1	25+000 ~ 26+000	Sub Base	100	82.3	55.1	39.4	27.2	15	9	2.419	5.3	42.9	19.1	55	80	2.758	-	
2	17+000 ~ 18+000	Sub Base	100	82.6	54.5	39.8	26.1	12.5	7.3	2.364	6.1	32.2	30.6	61	76	2.711	N.P	
Specification Limits for Sub Base			100	55~85	40~70	30~60	20~50	10~30	5~15	-	-	50% Max	25% Min	50% Min		-	6 Max	
Total Nos.of Tests			2							2	2	2	2	2	2	2	2	

4.9 SUMMARY OF SUB-GRADE AND EARTHFILL MATERIAL QUALITY TESTS REPORT

S.No	Location (KM)	Description	Sieve Analysis							MDD (g/cc)	OMC %	L.A %	Sand Equivalent	CBR% at		Specific gravity	Plastic Index	Remarks
			2"	1"	3/8"	#4	#10	#40	#200					0.1"	0.2"			
1	12+000 ~ 13+000	Sub Grade	100	83.8	58.6	41.6	24.7	12.5	7	2.260	7.6	-	-	28	43	2.622	6.41	Roadway excavated material
Specification Limits			-	-	-	-	-	-	-	-	-	-	-	30% Min		-	10 Max	
Total Nos.of Tests			1							1	1	1	1	1	1	1	1	

4.10 SUMMARY OF MUD MATERIAL QUALITY TESTS REPORT

S.No	Location (KM)	Description	Sieve Analysis							Liquid Limit	Plastic Limit	Plastic Index	Remarks
			2"	1"	3/8"	#4	#10	#40	#200				
1	9+600 Bridge No.1	Mud Material/ Slurry of Pile	100	100	100	100	95.6	90	73.8	27.7	18.66	9	
2			10	100	100	100	88.9	84.3	80.4	33.8	21.56	12.2	
Total Nos.of Tests			2		2					2	2	2	

4.11 SUMMARY OF WATER BOUND MACADAM QUALITY TESTS REPORT

S.No	Location (KM)	Station	Sieve Analysis					MDD (g/cc)	OMC %	L.A (%)	Flakiness Index	Elongation (%)	Soundness (%)	Specific gravity	Remarks
			3"	2½"	2"	1½"	¾"								
1	9+000 ~ 9+400	9+180	100	97.7	69.3	14.6	3.3	2.375	5.2	-	-	-	-	2.622	
2	16+000 ~ 16+100	16+025	100	91.5	71.5	51.5	10.1	-	-	-	-	-	-	-	
3	16+900 ~ 17+000	16+950	100	95.2	79.1	48.2	13.9	2.316	5.0	30.3	-	-	-	-	
4	16+950 ~ 17+000	16+980	98.7	87.5	62.7	30.3	3.2	-	-	-	-	-	-	-	
Specification Limits for Sub Base			100	90~100	25~75	0~15	0~5	-	-	45% Max	15% Max	15% Max	12% Max	-	
Total Nos.of Tests			4					2	2	1	-	-	-	1	

4.12 SUMMARY OF WATER BOUND MACADAM QUALITY TESTS REPORT

S.No	Location (KM)	Description	Station	Sieve Analysis			Sand Equivalent	Liquid Limit	Plastic Limit	Plastic Index	Remarks
				3/8"	#8	#100					
1	KM: 10+000	Stone Dust	9+180	100	97.1	13.1		-			Pass
2	KM: 17+000	Stone Dust	16+950	100	98.9	8.9	77.2	-			Pass
3	Crush Plant	Stone Dust	-	100	99.7	8.1		-			Pass
Specification Limits for Sub Base				100	85~100	10~30		-	-	6 Max	
Total Nos.of Tests				3			1	-	-	-	

4.13 SUMMARY OF AGGREGATE QUALITY TESTS REPORT FOR CONCRETE

S.No	Location	Station (KM)	Description	Sieve Analysis													FM	L.A %	Sand Equivalent	Specific Gravity	Flackiness & Elongation Index	Remarks
				2"	1½"	1"	¾"	½"	3/8"	#4	#8	#16	#30	#50	#100	#200						
1	Culvert Lean	11+691	Aggregate	94.7	-	62.3	-	28.0	-	8.9	-	-	-	-	-	-	-	-	-	-	-	Sieve analysis for Lean Concrete
	Specification Limits			95~100	-	35~70	-	10~30	-	0~5	-	-	-	-	-	-	-	-	-	-	-	
2	Stock Pile	Bridge No.2	38mm Agg	100	100	67.1	17.9	6.5	5.5	2.8	-	-	-	-	-	-	-	-	-	-	-	Sieves Analysis for A-3 Concrete
			19mm Agg	-	-	100	72.4	36.1	29.2	2.9	-	-	-	-	-	-	-	-	-	-	-	
	Combined Grading	30 & 70 %	100	100	90.1	52.6	26.9	21.3	2.0	-	-	-	-	-	-	-	-	-	-	-	-	
	Specification Limits			100	95~100	-	35~70	-	10~30	0~5	-	-	-	-	-	-	-	-	-	-	-	
	Stock Pile	Bridge No.2	Sand	-	-	-	-	-	100	99.7	98.4	92.2	69.5	29.3	5.8	2.6	2.1	-	-	-	-	Natural Sand
Specification Limits			-	-	-	-	-	100	95~100	-	45~80	-	10~30	2~10	0~3	2.3~3.1	-	-	-	-	-	

4.14 SUMMARY OF AGGREGATE QUALITY TESTS REPORT FOR ASPHALTIC BASE COURSE

S.No	Location	Description	Sieve Analysis													FM	L.A %	Sand Equivalent	Specific Gravity	Flackiness & Elongation Index	Remarks
			2"	1½"	1"	¾"	½"	⅜"	#4	#8	#16	#30	#50	#100	#200						
1	Asphalt Plant Stock Pile	Bin #1 , 22%	100	100	48.4	2.1	0.1	-	-	-	-	-	-	-	-	-	-	-	2.641	-	
2	Asphalt Plant Stock Pile	Bin #2 , 28%	-	-	100	58.3	2.3	0.5	0.1	-	-	-	-	-	-	-	-	-	2.639	-	
3	Asphalt Plant Stock Pile	Bin #3 , 21%	-	-	-	100	95.5	84.4	17.7	0.6	-	-	-	-	-	-	-	-	2.603	-	
4	Asphalt Plant Stock Pile	Bin #4 , 29%	-	-	-	-	-	100	99.6	81.6	-	-	26.5	-	12.7	-	-	-	-	-	
Combined Grading			100	100	89	66.7	49.7	46.9	32.5	23.8	-	-	7.7	-	3.7	-	-	-	-	-	
JMF Limits			100	93~100	-	59~73	-	-	24~38	19~27	-	-	3~11	-	3.2~5.2	-	-	-	-	-	

4.15 SUMMARY OF CONCRETE COMPRESSIVE STRENGTH

Description	Casting date	Testing date	Age	Load in (KN)	Length (cm)	Dia (cm)	Area (cm ²)	Load (Kg)	Strength (Kg/cm ²)			Remarks
									Achieved	Average	Required	
Concrete Class "A-3" Bridge No.2 Pile No.4 Abutment No.1	29/Oct/2013	5/Nov/2013	7 Days	486	30.48	15.24	182.4	49557	271.7	269.5	210	OK
				478	30.48			48742	267.2			
				482	30.48			49150	269.5			
Concrete Class "A-3" Bridge No.2 Pile No.5 Pier No.1	31/Oct/2013	7/Nov/2013	7 Days	465	30.48	15.24	182.4	47416	260.0	260.0	210	OK
				470	30.48			47926	262.8			
				460	30.48			46906	257.2			
Concrete Class "A-3" Bridge No.2 Pile No.8 Abutment No.1	11/Nov/2013	18/Nov/2013	7 Days	477	30.48	15.24	182.4	48640	266.7	264.2	210	OK
				456	30.48			46498	254.9			
				485	30.48			49455	271.1			
Concrete Class "A-3" Bridge No.2 Pile No.1 Abutment No.1	12/Nov/2013	19/Nov/2013	7 Days	407	30.48	15.24	182.4	41502	227.5	227.9	210	OK
				415	30.48			42318	232.0			
				401	30.48			40890	224.2			
Concrete Class "A-1" Drain Top Slab R.D:0+332 ~ 0+384	18/Nov/2013	25/Nov/2013	7 Days	289	30.48	15.24	182.4	29469	161.6	162.9	158	OK
				288	30.48			29367	161.0			
				297	30.48			30285	166.0			
Concrete Class "A-3" Bridge No.2 Pile No.1 Abutment No.1	29/Oct/2013	26/Nov/2013	28 Days	648	30.48	15.24	182.4	66077	362.3	346.0	280	OK
				630	30.48			64241	352.2			
				579	30.48			59041	323.7			
Concrete Class "A-3" Bridge No.2 Pile No.5 Pier No.1	31/Oct/2013	28/Nov/2013	28 Days	650	30.48	15.24	182.4	66281	363.4	349.4	280	OK
				635	30.48			64751	355.0			
				590	30.48			60162	329.8			

ENVIRONMENTAL COMPLIANCE MONITORING

Environmental Compliance Officer:

Shabir Ahmad Khan

Road Section under Construction:

Section-I KM: 0+000 to KM: 9+000

Section-II KM: 9+000 to KM: 14+000

Section-III KM: 14+000 to KM: 19+000

Section-IV KM: 19+000 to KM: 26+000

Section-V KM: 26+000 to KM: 36+000

Persons Consulted at Site:

Mr. Mohammad Ali; Inspector FWO

Mr. Abdur Rehman; Site Engineer FWO

Mr. Sajid; Site Engineer NESPAK

Mr. Mazher Iqbal; Surveyor FWO

Mohammad Usman; Surveyor FWO

Mr Mohammad Miraj; Surveyor FWO

Work Status:

- Work in progress.
- Work Stopped
- Work Completed

Quality of Environment Compliance:

- Good
- Satisfactory
- Poor

Issues at site:

- Non availability of Environment Specialist/ Expert on site from FWO / NESPAK side.
- No Health and Safety arrangement at work sites.
- No first aid box and Ambulance arrangement at site.
- No road's traffic signs and speed checking sign boards for the safety of people.
- No records of EHS (Environment, Health and Safety) plans.
- Non availability of personal protective equipment.

Environmental Monitoring Check List for the Site

S. #	Activity	Mitigation Measures	Monitoring indicators	Observations
Construction Phase				
1	Use of heavy equipment	a. Set protocols for vehicle Maintenance. b. Checking of fuel level deliveries and use. c. Checking pipes and joints for leaks. d. Tightening generator and fuel lines. e. Preventing over filling of main storage and vehicle tanks. f. Heavy equipment should not be parked under the tree to avoid soil compaction and damage to the roots of the trees.	Soil contaminations, stability and erosion	The Contractor staff and site supervisors maintain the machinery in proper condition. Heavy machinery is parked in fenced area near the main camp at Jamrud. As this area has no vegetation/trees, therefore, no vegetation damage has occurred. Usually heavy machinery is used for carrying material from quarry area, therefore, advised FWO staff to follow the compacted routes. Contractor's machinery normally gets its maintenance inside the camps. FWO staff is advised to set protocols for vehicle maintenance and regular inspection may please be carried out by the H&S Inspector, as per required H&S plan.
2	Flood protection	a. Culverts should be provided to control flood damages and provision of safety of Embankments. b. Road protection work along the river side. c. Construction of retaining wall d. New causeways for the smooth flow of water during rainy seasons and flooding.	Road protection and Safety	Flood protection measures works as part of road improvement have been started like culverts for smooth flow of water during rainy season and sewerage disposal and retaining walls etc. During site visit, it was noticed that culverts for disposal of flood and sewerage water have been completed in whole segment of section-I, while road side drainage along the banks are in progress. Culverts construction at section-II and III are in progress. (Please refer to photos # 06, 07)
3	Handling and transportation of hazardous waste	a. Prevent dumping of hazardous materials especially near villages and water bodies. b. Burn waste oil that is not readily reusable. c. Recyclable material should not contain heavy metals that are inflammable,	Soil Contamination and Safety	No action is required at present stage.

		investigate and use less toxic alternative products. d. Prohibit use of waste oil as cooking oil.		
4	Handling of solid Waste	a. Site manager would be responsible for the collection and disposal of solid waste. b. Training of site personnel in waste management and chemical waste handling procedures. c. Separation of chemical waste for special handling. d. Recording system for the amount of waste generated recycled and reused. e. Proper storage and site practices to minimize the potential for damage or contamination of construction materials. f. General refuse would be stored in enclosed bins to separate from construction materials g. A reputable waste collection firm should be engaged by the contractor to remove the general refuse from the site.	Toxicity, Soil Contamination and Pollution	No waste segregation observed at construction site. FWO should share their solid waste management plan. The construction material in main store is generally kept in good condition; however at site it is not stored/ placed properly. The sub-Contractors also do not follow Environment, Health and Safety protocols. There is no arrangement for solid waste disposal at site. Although mixing of refuse with construction material was not found at site but at the same time no special bins or collector have been seen to collect refuse systematically. It has been advised especially to the subcontractors having contracts of culverts, to provide solid waste storage bin at their respective sites. No chemical waste has been observed in the project area.
5	Construction crews and camps	a. Check accommodations for site crew and maintain it in good condition. b. Avoid as much clearing of vegetation as possible. c. Provide temporary sanitation on site such as pit latrines (assuring the water table is enough and soil and geology of appropriate composition). d. Use local or regional labor. e. Screen potential crew members of HIV and tuberculosis. f. Provide education and enforce guidelines on contact with local residents. g. Set guidelines for prohibiting poaching	Surface and ground water pollution and conflicts with locals.	Both construction crews and camps are maintained in a best manner at army accommodation, where all basic facilities like washrooms, kitchen, TV lounge, café shop etc. are available. These army camps have been renovated by the FWO for labor camps. The quality of food provided is good. Other protocols given like hygienic water etc. are satisfactory. Sub-contractor and some workers are local inhabitants of the area. FWO staff is adequately educated to follow strict guidelines from their senior to interact with locals. Domestic livestock can be seen at site but the camp is away and protected, so no entrance of live stocks had been found during site visits.

		<p>and collection of plants.</p> <p>h. Provide adequate quantities and good quality food and cooking fuel.</p> <p>i. If the water is stored for drinking water should meet the WHO standards and if it is used for construction purpose then it should be clearly demarcated.</p> <p>j. No domestic pets or livestock are allowed on the site.</p>		(Please refer to photo # 01)
6	Material handling use and storage	<p>a. Material should be appropriately secured to ensure safe passage b/w the destinations during transportation. Loads shall have proper cover to prevent spillage and contractor is responsible for any clean up resulting from failure.</p> <p>b. Materials from borrow site should be directly transported and deposited to the site where it has to be used. Stockpiles should be positioned and sloped to create less visual impact. No foreign materials generated or deposited should remain on the site after completion of the activity and the areas affected by stockpiling should be reinstated.</p> <p>c. Over spray of bitumen products outside the road surface and on the vegetation should be prevented.</p> <p>d. Concrete mixing on the ground shall not be allowed.</p> <p>e. Use wet gravel on site.</p> <p>f. Avoid falling the drainage water directly into the sensitive area.</p> <p>g. All runoff from batching plant should be strictly controlled and cement contaminated water should be collected,</p>	Dust pollution	<p>Material securing, load prevention of spillage and other visual impacts should be reduced as much as possible by appropriate measures.</p> <p>FWO staff has been advised to provide safe passage to dumpers which usually carry material. Neither concrete batching plant was present nor any water storage observed at site.</p> <p>Loaded vehicles did not have proper cover to prevent spillage.</p> <p>The concrete mixing on the ground was not found at site.</p> <p>The contaminated water disposals were not appropriate.</p> <p>Generally the Sub Contractors are not following the material handling protocols at sites, especially at culvert construction sites.</p> <p>The material transportation from borrow sites are directly transported and deposited, where required.</p>

		<p>stored and disposed of at the designated site.</p> <p>h. Used empty cement bags should be collected and stored to deliver these to recycling plant.</p> <p>i. Contaminated water storage facilities should not be allowed to over flow and appropriate protection from rain should be implemented.</p>		
7	Materials extraction Quarrying , logging	<p>a. Identify the most environmentally sound source of materials that is within budget.</p> <p>b. Use materials from local road cuts first but only if it produces a suitable, durable aggregate for embankment fill, or surface stabilization materials.</p> <p>c. On removal of materials, the area should be restored and be treated with erosion control measures.</p> <p>d. Develop logging quarrying and borrowing plans and take into account accumulative effects.</p> <p>e. Take photos of site before initiating excavation, that restoration can match the original site characteristics as much as possible. Site quarries and gravel pits so that they are not visible to travelers on the roads,</p> <p>f. Monitor adherence to plans and impacts of extraction and modify as necessary.</p> <p>g. Restore area so it is suitable for sustainable use after extraction is completed.</p> <p>h. Install drainage structures to direct water away from pits.</p> <p>i. Implement safety protocols to minimize</p>	<p>Change in landscape & Creation of water ponds.</p>	<p>FWO officials are neither sharing and providing their logging, quarrying and borrowing plans nor any relevant photos.</p> <p>FWO staff does not care safety protocols. The personal protective equipments were also not provided to staff members. Therefore, advised FWO staff to follow safety protocols while working.</p> <p>During site visit, it was observed that the new quarry area is located inside water streams at KM: 11+500. Generally no rehabilitation work is being made with respect to quarry logging environmental protocols by the FWO itself.</p> <p>(Please refer to photo # 04)</p>

		<p>risks from falling rock or debris, collapsing quarry walls or accidental falls from clefts.</p> <p>j. Discuss with local community the option of retaining walls pits as water collection ponds for cattle, crops or similar use.</p>		
8	Site clearing or leveling	<p>a. Minimize disturbance of native flora during construction.</p> <p>b. Minimize the amount of clearing of small areas for active work one at a time.</p> <p>c. Avoid use of herbicides. Any use should follow health and safety procedures to protect people and the environment.</p> <p>d. Herbicide should be used according to the manufacturer specifications</p> <p>e. Clear without destroying large plants and turf where possible and preserve for replanting in temporaries nurseries.</p> <p>f. Move earth and vegetation only during dry periods, Store top soil for re-spreading if vegetation must remove during wet periods; disturb ground only just before the actual construction.</p> <p>g. Use erosion control measures such as hay bales</p> <p>h. Re-vegetate the recovered plants and other appropriate local flora immediately after equipment is removed from site.</p>	<p>Loss of vegetation, soil erosion and stability, surface water pollution and occupational health of workers and community.</p>	<p>As the area is almost rugged and without vegetation, so there is no impact on vegetation at site. Moreover at present time, the excavation is continued at the shoulders of the existing road which is already cleared. The plantation along the whole Peshawar-Torkham road should be started with specific species identified according to the provision in Environment Management Plan.</p> <p>In this respect FWO should coordinate with forest department.</p> <p>There is no herbicides used at site and the soil conservation measures are also not required, as the area is leveled or rocky nature and the soil consist of sand, silt and gravels which are more compacted.</p>
9	Excavation , cutting , and filling	<p>a. Cover Pile with plastic sheeting, prevent run off with hay bales, or use similar measures.</p> <p>b. Place fence around excavation.</p> <p>c. Investigate shallow over excavation and no excavation alternatives.</p> <p>d. Have construction crews and supervisors be alert for buried historic, religious, and</p>	<p>Soil erosion and stability and surface water contamination</p>	<p>The excavation is started at the shoulders of the existing road in shallow depth of about half meter and also at rocks. Others mitigation measures are either appropriate or not required. During site visit following irregularities were found which require proper attention to be removed.</p> <ul style="list-style-type: none"> • At KM. 10+400, 14+600, 16+300, 16+500, 17+625 and 18+225 excavations of rocks and structural

		<p>cultural objects and provide them with procedures to follow if such objects are discovered. Provide incentives for recovery of objects and disincentives for their destruction.</p> <p>e. Ensure excavation is accompanied by well-engineered drainage.</p> <p>f. Don't fill the flow line of a watershed. Even in arid areas, occasional rains may create strong water flow in channels.</p> <p>g. Use good engineering practices, for instance don't use soil alone. First lay a bed of rock and gravel.</p> <p>h. Balance the cuts and fills whenever possible to minimize the earth work movement.</p> <p>i. Water sprinkling should be carried out at the temporary access road and all the areas prone to dust pollution.</p>		<p>excavation of culvert continued but no safety protocols & personal protection measures were observed during site visit. During rocks excavation even traffic was not stop which may prove very dangerous for life of people.</p> <p>During excavation process of culverts fence is required around all sites and appropriate engineering drainages for flow line of watershed, proper dumping of excavated materials and sprinkling of water.</p>
10	Traffic Control	<p>a. Efforts should be made to accommodate the traffic along the road as far as practically possible.</p> <p>b. Provision of sign boards directing the drivers about the diversions.</p> <p>c. Contractor staff should be trained and put on the duty to manage the traffic during the construction activates taking place along the road.</p> <p>d. Temporary by pass if possible should be avoided as involved clearing of land.</p> <p>e. Max allowable speed for heavy machinery on the site should not exceed 20Km/hr.</p> <p>f. Keep road partly closures to a minimum Maintain safe passage of vehicles/pedestrians at all times</p>	Health and Safety for the local population and workers.	<p>As far as Traffic control is concerned, it can flow along the road or on the same road or at diversion. FWO has arranged diversion as well as existing Kacha track along the road for traffic management but no proper signboards at any location were observed during visit. Therefore, advised FWO officials to clearly mark all diversion by installing temporary sign boards (having reflective materials for night time visibility) for driver's guidance.</p> <p>The contractor's staff at construction site also helps the people in traffic control. Heavy machinery speed limit sign boards were not observed on site but because of activities under way, heavy machinery cannot move faster.</p> <p>At the road, heavy vehicles like NATO containers are mostly found, which need speed check limit</p>

		<p>g. Conduct work that requires road closure at times when traffic volume is low</p> <p>h. Schedule truck sand deliveries for periods of low traffic</p>		signboards. Similarly, others traffic arrangements are also required to take place immediately.
11	Blasting	<p>a. Minimize blasting.</p> <p>b. Take safety precautions to protect workers and others from being injured by flying or falling rocks and avalanches and</p> <p>c. Provide Person protection equipment to the workforce.</p>	Noise pollution and occupational safety	Currently rock excavation is continued at section-II and III for widening of road, and if blasting may needed then safety protocols might be required,.
12	Source of building materials	<p>a. Develop logging, quarrying and borrowing plans that take into account cumulative effects</p> <p>b. Monitor adherence to plans and impacts of extraction practices. Modify as necessary</p> <p>c. Fill in quarries and pits before abandoning</p> <p>d. Control runoff into pit</p>	Damage aquatic ecosystems erosion , siltation, Harm terrestrial ecosystems and vector-borne diseases	Generally safety protocols have not been seen or followed at quarry sites. The new quarry site is in the centre of stream at KM. 11+500. (Please refer to photos # 04, 05)
13	Dust	<p>a. Water spraying</p> <p>b. trucks should be covered with tarpaulins</p>	Nuisance to the public, undermining the air quality and water contamination	At this site visit water sprinkling vehicle was observed at some places, but still dust pollution at KM 9+200, 16+00, 18+225 and 31+300. (Please refer to photos # 08, 09, 10)
14	Borrow Areas	These impacts are reversible through a diligent restoration process which must be put in place by the contractor and approved by the Highway Division.	Landscape rugged and interfere with the aesthetics of the area; pose danger to livestock and children; hold stagnant water and they take up agricultural land.	There were no activities at site regarding borrow area use. Moreover, barrow areas are still to be identified, if required.

15	Damages of existing infrastructure	<ol style="list-style-type: none"> Locate different infrastructure on opposite side of road Determine locations of water pipes, electricity pylons etc. and design scheme to avoid damages. 	Facilities to the locals	The officials of PTCL and FWO were asked to take care of cables at the time of excavation at sites, especially at culverts. It was also advised to FWO/NESPAK personals that PTCL Department must be informed before starting excavation activities.
16	Health & Safety of the workers	<ol style="list-style-type: none"> Prepare and implement a site Health and Safety Plan. Exclude the public from site. Ensure that workers use Personal Protective Equipment Provide Health & Safety Training (including process of transmission of HIV/AIDS) for all personnel; Follow documented procedures for all site activities; Keep accident reports and records 	Workers and the public are at risk from accidents on site	<p>The contractor FWO generally follows Health and Safety requirements in the camps but does not keep H&S requirements at sites where construction works are being carried out. Therefore, advised FWO officials to prepare H&S plan and to follow H&S protocols at site and also to prepare documentation records of accidents, illness and treatments etc.</p> <p>It is very necessary to provide H&S trainings to the workers and ensure personal protective equipment's to all the workers including the sub contractor's labors. The first aid box at site and ambulance may also be provided.</p> <p>(Please refer to photos # 02, 05, 06, 07, 09)</p>
17	Local Employment	Contractor' should employ at least 50% of workforce from communities in vicinity of work site	Economic benefits of local people	Being an Army organization, the contractor FWO has regular employees. In case of subcontract/sublet of any small component to local contractor, local labor is hired.
18	Others concerns like Resettlement etc.	<ol style="list-style-type: none"> Resettlement if any Access roads or pedestrian of local peoples Infrastructure like telephone line, sewerage, water supply disturbance etc Social Conflict with locals 	Social and Resettlement Management	<p>The Peshawar-Torkham road construction is continued on existing road corridor; therefore, no resettlement issue is involved. Infrastructure like access roads to local people, sewerage, telephone line etc requires proper care and management. The Social problems observed during site visit are given below, which may kindly be address accordingly.</p> <ul style="list-style-type: none"> Drain construction activities at section I are in progress at many places like KM 0+900. Dumping of excavated material in grave yard at KM 5+630. To avoid social conflict, excavated material

				must shift to some other suitable place. (Please refer to photo # 02)
Operation and Maintenance of newly constructed road				
19	Road maintenance	<ul style="list-style-type: none"> a. Monitor and Maintain drainage structures and ditches including culverts. Clean out culverts and side channels. b. Fill mud holes and pot holes with good quality gravels, removed downed trees and limbs obscuring road ways. c. Use water from settling basin and retention ponds for road maintenance. 	Road Maintenance	Most of the segment in section-I of the road construction has been completed. The side drainage system construction like water disposal channel along the road is in progress.
20	Use and maintenance of equipment's	Install concrete pads, drains and oil/water separators in areas where vehicles and equipment maintenance and fueling will occur regularly.	Water and soil pollution	No compliance at site. The required protocol may please be followed.
21	Accidents of hazardous materials	<ul style="list-style-type: none"> a. In case of spill, there should be a relevant department dealing with it. in accordance with emergency plan ; b. A road administration department should be established after the completion of the project which will administer the hazardous substances 	Accidents cases	No compliance at site. The required protocol may please be followed.
22	Vehicle management	<ul style="list-style-type: none"> a. Vehicle with excessive noise should be prohibited to travel on the road. b. Public should be educated about the noise and the air pollution and how to keep the road clean. 	Visual inspection	No compliance. The required protocol may please be followed.

APPENDICES

6.1 CONTRACTOR IPC's

IPC No:	AMOUNT CLAIMED		DATE OF SUBMISSION BY CONTRACTOR TO FATA	DATE OF SUBMISSION BY FATA TO USAID	DATE OF CERTIFICATION BY M&E CONSULTANTS	AMOUNT CERTIFIED BY M&E CONSULTANTS	
	US \$	EQUIVALENT PKR				US \$	EQUIVALENT PKR
1	1,444,442	135,777,548	23-May-13	28-May-13	28-Jun-13	597,641	56,178,279
2	2,494,227	234,453,311	28-Jun-13	2-Jul-13	26-Jul-13	2,494,227	234,453,311
3	2,382,898	223,992,366	26-Jul-13	31-Jul-13	29-Aug-13	2,268,345	213,224,394
4	1,738,259	163,396,356	3-Sep-13	11-Sep-13	25-Sep-13	1,096,902	103,108,788
5	696,562	163,396,356	24-Sep-13	3-Oct-13	23-Oct-13	680,293	63,947,570

6.2 RECORD OF COORDINATION MEETINGS / JOINT SITE VISITS

Date	Meeting	Participants	Venue
26-Nov-13	Coordination Meeting	USAID, FATA , 11 Corps, M&E Consultants, FWO, NESPAK	FATA Secretariat Peshawar
28-Nov-13	Coordination Meeting	M&E Consultants, FWO, NESPAK	CRE NESPAK Office

6.3 MOBILIZATION OF M&E STAFF

The following members of the M&E Team were mobilized as various activities of the project progressed. Other staff members will be mobilized according to demand of work load.

PROJECT MANAGER OFFICE – STAFF DEPLOYMENT

S. No.	Name	Designation	
1	Aziz-ul-Haq	Project Manager	ROAD COMPONENT
2	Nasir-ul-Mulk	Project Advisor	
3	Abdul Hakeem	Senior Technical Specialist	
4	Shabir Ahmad Khan	Environmental Compliance Officer	
5	Amjad Saeed	Mid-Level Specialist	
6	Saqib Maqbool	Junior Engineer	
7	Arshad Khan	CAD Operator	
8	Sohail Anjum	Senior Surveyor	
9	Abdul Waheed	Manager Admin/Finance	
10	Amir Habib	IT Officer	
11	Muhammad Bilal	Assistant Accountant	
12	Faizan Khan	Computer Operator	
13	-	Field Monitor Social	OTHER CONSTRUCTION COMPONENT
14	Anwar Dad	Quantity Surveyor	
15	Waqar ul Mulk	Junior Architect	
16	Naeem Jan	Senior Surveyor	
17	Muhammad Waqas	Survey Assistant	
18	Muhammad Ayaz	Survey Assistant	
19	Muhammad Zeeshan Atta	Survey Assistant	
20	Sana ullah	Accountant	
21	Hamid Ullah	Computer Operator	

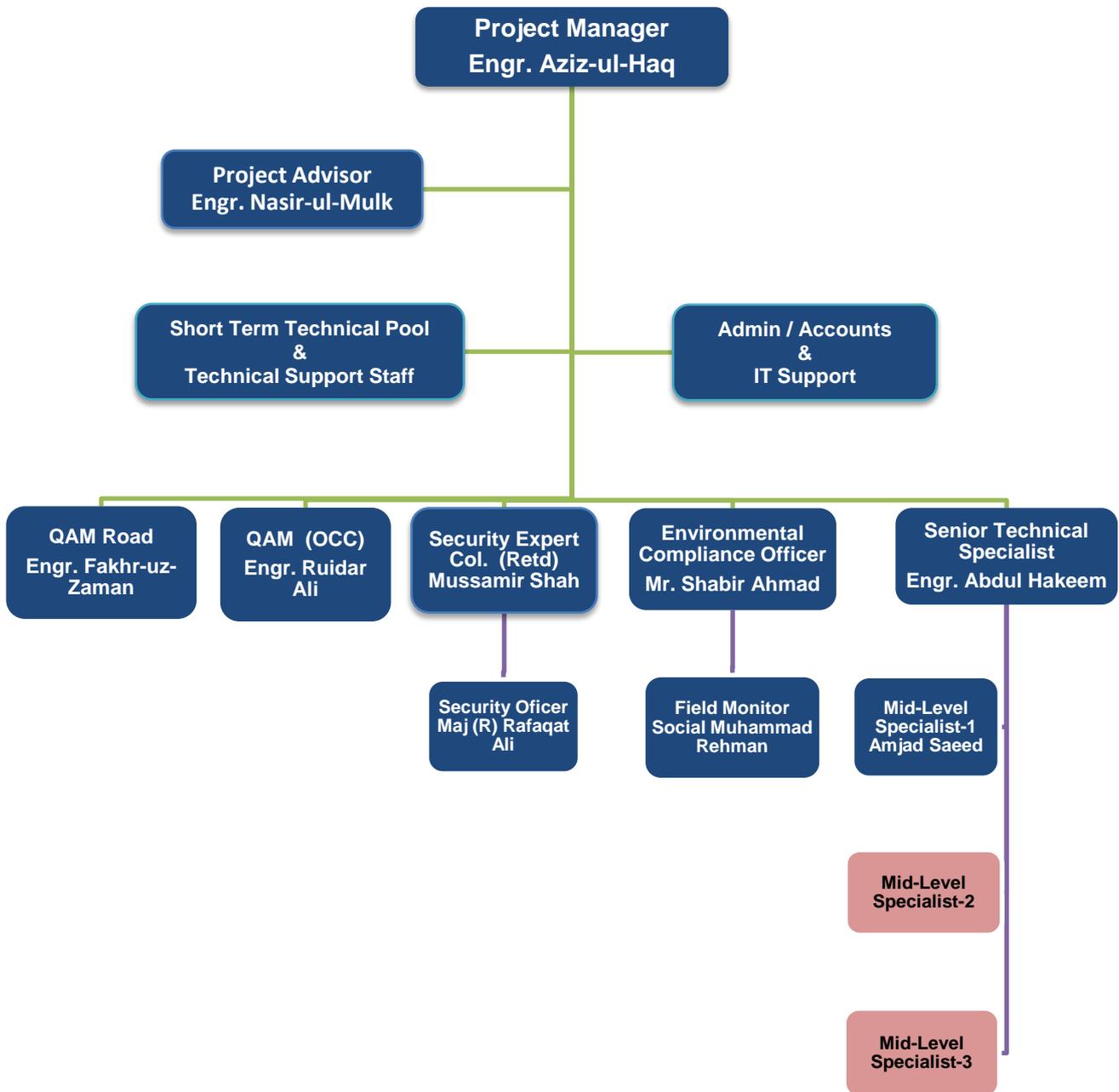
QAM Office (Road Component)

S. No.	Name	Designation
1	Fakhr-uz-Zaman	Quality Assurance Manager (Road)
2	Muhammad Khrushid	M&E Specialist Road
3	Muhammad Ilyas	Field Manager M&E
4	Muhammad Ibrar	Office Engineer
5	Rasheed Khan	Field Monitor Road
6	Muhammad Sher	Field Monitor Road
7	Muhammad Qasim Wazir	Field Monitor Road
8	Tariq Ibrahim Khan	Quantity Surveyor
9	Asad Khan	CAD Operator
10	Ihsan Ullah	Accountant
11	Hafiz ur Rehman	Assistant Accountant
12	Nasir Alam	Admin Officer
13	Umar Shah	Assistant Office Admin
14	Hamid Ali	Computer Operator

Laboratory Staff (Road Component)

S. No.	Name	Designation
1	Gul Zada	Material Engineer
2	Amjad Ali Khan	Senior Lab. Technician
3	Khan Umar	Senior Lab. Technician
4	Shakeel Akbar	Lab. Technician
5	Noor Ali Jan	Lab. Technician
6	Mujeeb Khan	Assistant Lab. Technician
7	Babar Naeem	Assistant Lab. Technician

6.4 ORGANIZATION CHART FOR CMEP OFFICE, PESHAWAR



LEGEND:

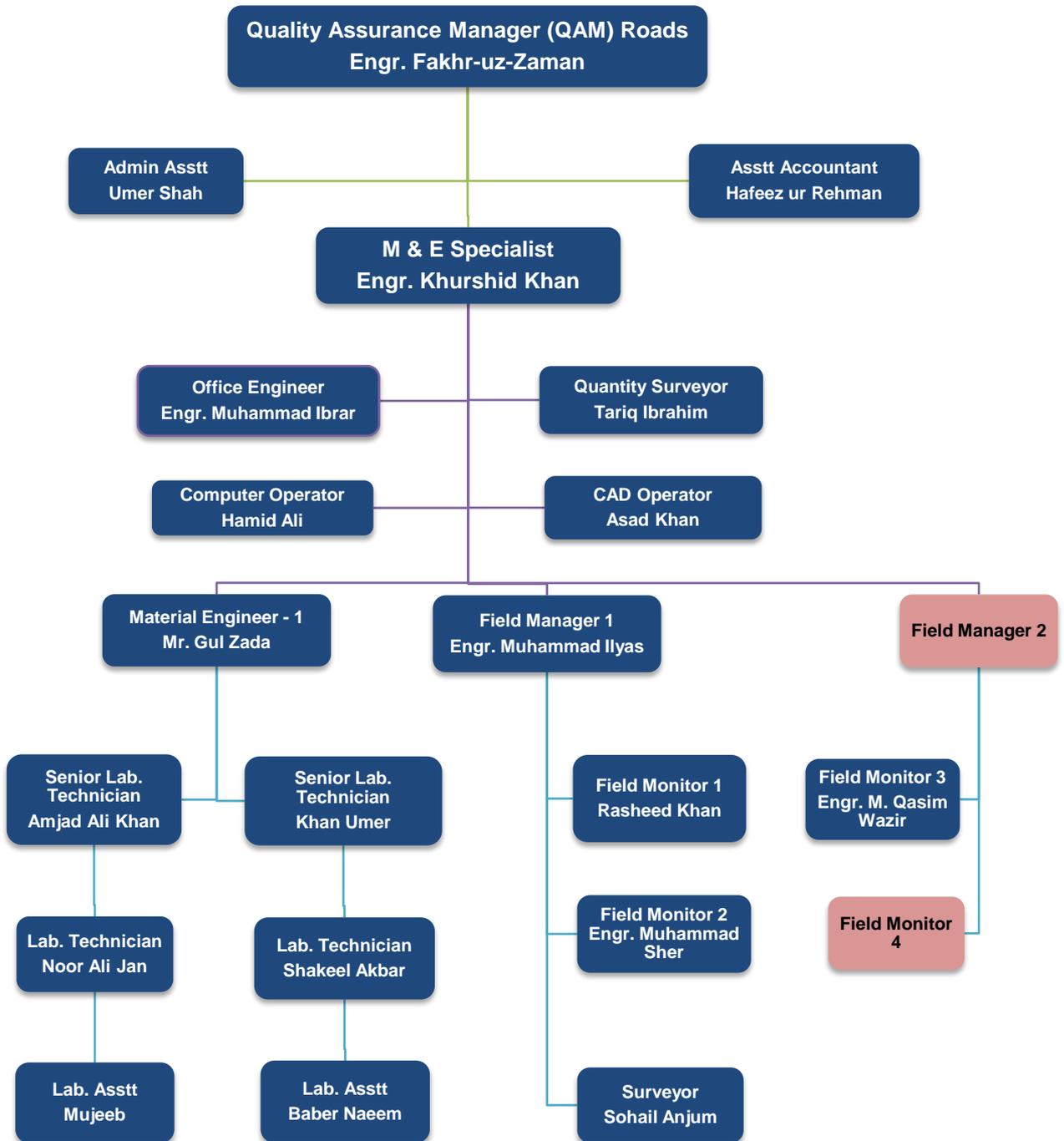


Mobilized



To be mobilized with expansion of work

6.5 ORGANIZATION CHART FOR ROAD COMPONENT OF CMEP PROJECT



LEGEND:



Mobilized



To be mobilized with expansion of work

PROJECT PHOTOGRAPHS

PAVEMENT



KM 9+000 To 9+100

(Half Width LHS) Prime coat application in progress



KM 9+000 To 9+150

(Half Width RHS) Prime coat application in progress



KM 9+000 To 9+200

(Half width RHS) Asphalt concrete base course 1st layer final rolling in progress



KM 9+000 To 9+200

(Half Width RHS) M&E Consultants checking loose thickness of Asphaltic concrete base course 1st layer



KM 9+100 To 9+300

(Half width LHS) M&E Consultant checking fine aggregate over water bound macadam



KM 9+750 To 9+950

(Half width LHS) Initial breakdown of asphalt concrete base course 2nd layer in progress



KM: 11+200

Dismantling of existing causeway in progress



KM: 11+850 To 12+075

(Full width) Embankment formation in progress



KM: 11+850 To 12+075

(Full width) Grooving in existing pavement in progress



KM: 12+800 To 12+850

(LHS widening portion) Roadway excavation in progress



KM: 13+150

(Full width) Embankment leveling/ grading in progress



KM: 13+150 To 13+300

(Full width) Grooving in existing pavement in progress.



KM: 14+550 To 14+600 LHS Roadway excavation & shifting of surplus material in progress.



KM: 15+925 To 16+300 (Full width) Water bound macadam ready for Inspection / Testing



KM 16+100 (LHS) Fully operational crush plant



KM 16+775 To 16+975 (Full width) Water bound macadam dry compaction in progress



KM 17+800 To 17+950 (Full Width) Sub base top layer leveling & grading in progress



KM 17+800 To 17+950 (Full Width) Sub base top layer leveling & grading in progress



KM 18+175 To 18+225 (Half width LHS) Sub base top layer compaction in progress



KM 23+225 To 23+325 (Half width LHS) Embankment 1st layer spreading in progress



KM 27+650 To 27+700 (Half width RHS) Sub base 1st layer spreading in progress



KM 27+700 To 27+800 (Half width RHS) Sub base 1st layer watering in progress



KM 33+175 To 33+250 (Half width LHS) Sub grade 1st layer compaction in progress



KM 33+300 To 33+400 (LHS widening portion) Sub grade top layer grading in progress



KM 33+500 To 33+600 (LHS widening portion) Sub grade top layer compaction in progress



KM 33+900 To 33+975 (Half width RHS) Sub base 1st layer compaction in progress

STRUCTURES



Bridge # 02 KM: 9+560

Post tensioned girders cage erection and tendons installation in progress



Bridge # 02 KM: 9+560

Pile boring in progress



Culvert KM: 10+050

Form work preparation & reinforcement for bed plate in progress



Culvert KM: 10+502

Stone masonry construction in progress



Culvert KM: 10+562

Stone masonry construction in progress



Culvert KM: 10+602

Stone masonry construction in progress.



Culvert KM: 10+850

M&E Consultants inspecting compaction activity of backfill material



Multi cell culvert KM: 11+190

Lean concrete laying from Transit mixer in progress



Culvert KM: 11+840

Compaction of foundation bed in progress in progress



Culvert KM: 13+333

Lean concrete of abutments in progress



Culvert KM: 16+316

Stone pitching of culvert bed in progress



Culvert KM: 16+618

Stone masonry construction of wing wall in progress



Culvert KM: 17+010

Stone masonry construction of wing wall in progress



Culvert KM: 18+146

Compaction of backfill in progress



Drain KM: 0+375 To 0+450

LHS Brick masonry of drain type D-2 in progress



Drain KM: 3+760 To 3+875

RHS Excavation for drain in progress



Drain KM: 6+300 To 6+350

LHS Brick masonry construction in progress



KM: 10+175 To 10+300

LHS Stone masonry of retaining wall in progress



KM: 10+700 To 10+750

LHS Retaining wall stone masonry in progress



KM: 10+965 To 10+985

LHS Retaining wall stone masonry in progress

FIELD / LAB TESTING



KM: 26+050 Field density test of Sub base by M&E Consultants & NESPAK



KM: 9+360 Field density test of water bound macadam by M&E Consultants & NESPAK



KM: 16+025 Sample collection of water bound macadam by M&E Consultants



KM: 9+220 Sample collection of Asphaltic base course by M&E Consultants



KM: 9+200 Bridge # 02

Casting of class A-3 concrete cylinder



KM: 16+300 Calibration of concrete batching plant in the presence of M&E Consultants

ENVIRONMENTAL MONITORING



(Photo # 01) Outside view of FWO camp at Jamrud



(Photo # 02) Construction of side drain at KM: 0+900 needs H&S protocol



(Photo # 03) KM: 9+200 Safety measures should be adopted during bridge construction



(Photo# 04) KM: 9+500 Concrete crush plant and quarry area.



(Photo # 05) KM: 16+000 FWO crush plants needs proper H&S protocol



(Photo # 06) KM: 16+300 Safety measures should be adopted during the construction of culvert



(Photo # 07) KM: 16+500 Culvert, construction material and solid waste needs proper placement



Photo # 08) KM: 12+850 Water sprayed to control dust pollution



(Photo # 09) KM: 18+225 Water sprinkled to control dust pollution.



(Photo# 10) KM: 31+300 Dust pollution needs sprinkling of water



(Photo # 11) KM: 33+500 Compaction of sub base activity needs personal protection equipments and traffic signs