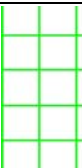

Package-4

Sl. No.	Land Slide Zone No.	Raod Marking (KM)	Design Chainage (KM)	Number of Bore-holes
1	B-18	172+010	170+120	1
2	B-05	172+100	170+220	1
3	B-07	174+800	172+880	2
4	B-10	200+140	196+690	2
5	B-14	209+420	205+460	2

***Bore Log & Core Samples
Photographs
B-18***



Project Name		Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.										BPC Consultant INDIA (P) Ltd.																		
Client Name		M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.										 2nd Floor,NATARAJ BHAWAN,Haripal,Hooghly,712405. (WB) www.bpcipl.com																		
Work Order No.		NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																												
BORE / CORE LOG DATA SHEET																														
Job Code - P160																														
Chainage (km)		172+010		Sliding Zone		LS_B18		No. of Core (C)		24																				
Borehole No.		1		Commencement Date		19.05.2017		No. of SP Test (S)		6																				
Ground Elevation (m)		785.9672		Completion Date		25.05.2017		No. of Undisturbed (U)		0																				
Method of Boring		Rotary Drilling		Standing Water Level		13.05 M BELOW G.L.		No. of Disturbed (D)		5 (D - 1 & S - 4)																				
Borehole Diameter		150 mm & 75 mm		Termination Depth		30.00 M BELOW G.L.		No. of Water Sample (W)		1																				
Description of Soil Stratum & Rock Methology		Stratum Elevation As per R.L (m)		Hatching Pattern		Elevation As per R.L (m)		Run Length (m)		Type of Sample		SPT Values (Blows for every 15 cm penetration)			N Values IS-2131		Corrected N"		Total Core Length (cm)		TCR (%)		RQD (%)		Colours of return Water		Water Loss		Angle of Fracture	
		From	To			From	To					15cm	15cm	15cm																
Very Stiff to Hard, Light Yellowish, Clayey Silt with little sand & broken siltstone pices. (CL) 0.00 m to 5.00 m		785.9672			785.4672	-	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Yellowish	-	-					
					784.9672	784.5172	-	S	11	13	15	28	-	-	-	-	-	-	-	-	-	-		-	-	-				
					783.9672	783.5172	-	S	13	15	17	32	-	-	-	-	-	-	-	-	-	-		-	-	-				
					782.9672	782.5172	-	S	15	16	19	35	-	-	-	-	-	-	-	-	-	-		-	-	-				
					781.9672	781.5172	-	S	19	21	26	47	-	-	-	-	-	-	-	-	-	-		-	-	-	-			
Brownish, Fine grained highly fracture Weak Sandy Shale. 5.00 m to 12.00 m		780.9672			780.9672	-	S	3cm / 44B	Re	Re	>100	70	-	-	-	-	-	-	-	-	-	-	Yellowish	-	-					
					780.9372	-	R1	-	-	-	-	-	28	28	NIL	-	-	-	-	-	-	-		-	-					
					779.9672	1.00	R2	-	-	-	-	-	29	29	NIL	-	-	-	-	-	-	-		-	-	-				
					778.9672	1.00	R3	-	-	-	-	-	43	43	NIL	-	-	-	-	-	-	-		-	-	-				
					777.9672	1.00	R4	-	-	-	-	-	36	36	NIL	-	-	-	-	-	-	-		-	-	-				
					776.9672	1.00	R5	-	-	-	-	-	40	40	NIL	-	-	-	-	-	-	-		-	-	-				
					775.9672	1.00	R6	-	-	-	-	-	42	42	12	-	-	-	-	-	-	-		-	-	-				
					774.9672	1.00	R7	-	-	-	-	-	36	36	NIL	-	-	-	-	-	-	-		-	-	-				
					773.9672	1.00	R8	-	-	-	-	-	74	74	NIL	-	-	-	-	-	-	-		-	-	-	-			
					772.9672	1.00	R9	-	-	-	-	-	71	71	44	-	-	-	-	-	-	-		-	-	-	-			
Greyish / Dark greyish, Moderately fracture Strong Shale. 12.00 m to 16.00 m		773.9672			773.9672	1.00	R10	-	-	-	-	-	79	79	40	-	-	-	-	-	-	-	Greyish	-	-					
					771.9672	1.00	R11	-	-	-	-	-	74	74	14	-	-	-	-	-	-	-		-	-					
					770.9672	1.00	R12	-	-	-	-	-	23	23	NIL	-	-	-	-	-	-	-		-	-	-				
Highly Weathered, Dark greyish, Very weak Shale. 16.00 m to 18.00 m		769.9672			769.9672	1.00	R13	-	-	-	-	-	NIL	NIL	NIL	-	-	-	-	-	-	-	Greyish	-	-					
					768.9672	1.00	R14	-	-	-	-	-	73	73	NIL	-	-	-	-	-	-	-		-	-					
Fresh, Greyish, Fine grained slightly fracture Strong Sandy Shale. 18.00 m to 20.00 m		767.9672			767.9672	-	S	2cm / 50B	Re	Re	>100	49	-	-	-	-	-	-	-	-	-	-	Greyish	-	-					
					767.9672	1.00	R15	-	-	-	-	-	81	81	22	-	-	-	-	-	-	-		-	-					
					766.9672	1.00	R16	-	-	-	-	-	35	35	11	-	-	-	-	-	-	-		-	-	-				
					765.9672	1.00	R17	-	-	-	-	-	35	35	NIL	-	-	-	-	-	-	-		-	-	-				
Dark greyish, highly fracture Shale with laminated sandstone observed. 20.00 m to 27.00 m		765.9672			765.9672	1.00	R18	-	-	-	-	-	72	72	NIL	-	-	-	-	-	-	-	Greyish	-	-					
					763.9672	1.00	R19	-	-	-	-	-	48	48	NIL	-	-	-	-	-	-	-		-	-	-				
					762.9672	1.00	R20	-	-	-	-	-	37	37	NIL	-	-	-	-	-	-	-		-	-	-				
					761.9672	1.00	R21	-	-	-	-	-	44	44	20	-	-	-	-	-	-	-		-	-	-				
					760.9672	1.00	R22	-	-	-	-	-	48	48	33	-	-	-	-	-	-	-		-	-	-				
					759.9672	1.00	R23	-	-	-	-	-	81	81	68	-	-	-	-	-	-	-		-	-	-				
					758.9672	1.00	R24	-	-	-	-	-	78	78	51	-	-	-	-	-	-	-		-	-	-				
					756.9672	1.00	R25	-	-	-	-	-	73	73	45	-	-	-	-	-	-	-		-	-	-				
Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)																														
Slip Plane - 22 m																														
** Measurement not possible due to heavy broken small pieces.																														

➤ **LS- B18 (BH-1) & CHAINAGE(km)- 172+010**



PICTURE 01: BH- 1 (Depth-20.00 to 21.00m)



PICTURE 02: BH-1 (Depth-21.00 to 22.00m)



PICTURE 03: BH-1 (Depth-22.00 to 23.00m)



PICTURE 04: BH-1 (Depth-23.00 to 24.00m)



PICTURE 05: BH-1 (Depth-24.00 to 25.00m)



PICTURE 06: BH-1 (Depth-25.00 to 26.00m)



PICTURE 07: BH- 1 (Depth-26.00 to 27.00m)



PICTURE 08: BH-1 (Depth-27.00 to 28.00m)



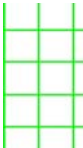
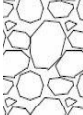
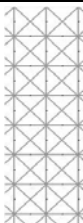
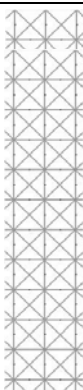
PICTURE 09: BH-1 (Depth-28.00 to 29.00m)



PICTURE 10: BH-1 (Depth-29.00 to 30.00m)

***Bore Log & Core Samples
Photographs
B-05***



Project Name		Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.										BPC Consultant INDIA (P) Ltd.									
Client Name		M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.										 2 nd Floor, NATARAJ BHAWAN, Haripal, Hooghly, 712405. (WB) www.bpci.com									
Work Order No.		NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																			
BORE / CORE LOG DATA SHEET																					
Job Code - P160																					
Chainage (km)		172+100			Sliding Zone			LS_B05			No. of Core (C)			22							
Borehole No.		1			Commencement Date			17.05.2017			No. of SP Test (S)			9							
Ground Elevation (m)		787.2333			Completion Date			24.05.2017			No. of Undisturbed (U)			0							
Method of Boring		Rotary Drilling			Standing Water Level			10.34 M BELOW G.L.			No. of Disturbed (D)			9 (D - 1 & S - 8)							
Borehole Diameter		150 mm & 75 mm			Termination Depth			30.00 M BELOW G.L.			No. of Water Sample (W)			1							
Description of Soil Stratum & Rock Methology		Stratum Elevation As per R.L (m)		Hatching Pattern	Elevation As per R.L (m)		Run Length (m)	Type of Sample	SPT Values (Blows for every 15 cm penetration)			N Values IS-2131	Corrected N"	Total Core Length (cm)	TCR (%)	RQD (%)	Colours of return Water	Water Loss	Angle of Fracture		
		From	To		From	To			15cm	15cm	15cm										
Very Stiff to Hard, Greyish / Brownish, Clayey Sandy Silt with little gravels / pebbels size Claystone mixed. (CL) 0.00 m to 4.00 m		787.2333			786.7333	-	D	-	-	-	-	-	-	-	-	-	-	-	-		
					786.2333	785.7833	-	S	6	7	9	16	-	-	-	-	-	-	-		
					785.2333	784.7833	-	S	9	11	14	25	-	-	-	-	-	-	-	-	
					784.2333	783.7833	-	S	11	14	17	31	-	-	-	-	-	-	-	-	
Pocket Layer Brownish, Deposited Cobbles / gravels size Claystone. 4.00 m to 5.00 m		783.2333			783.2333	-	S	7cm / 47B	Re	Re	>100	74	-	-	-	-	-	-	-		
					783.2333		1.00	R1	-	-	-	-	-	22	22	Nil	Brownish	Partial	-		
					782.2333																
Compacted, Brownish / Greyish, Clayey Sandy Silt with little gravels size claystone mixed. (CL) 5.00 m to 9.00 m		782.2333			782.2333	-	S	42	10cm / 47B	Re	>100	70	-	-	-	-	-	-	-		
					781.2333		-	S	46	5cm / 40B	Re	>100	67	-	-	-	-	-	-		
					780.2333		-	S	40	4cm / 42B	Re	>100	64	-	-	-	-	-	-		
					779.2333		-	S	45	12 cm / 49 B	Re	>100	62	-	-	-	-	-	-		
Brownish / Greyish, highly fracture Weak Shale. 9.00 m to 15.00 m		778.2333			778.2333	-	S	2 cm / 50 B	Re	Re	>100	60	-	-	-	-	-	-	-		
					778.2333	777.2333	1.00	R2	-	-	-	-	-	24	24	Nil	Brownish	Full water loss	*		
					777.2333		1.00	R3	-	-	-	-	-	15	15	Nil					
					776.2333		1.00	R4	-	-	-	-	-	12	12	Nil					
					775.2333		1.00	R5	-	-	-	-	-	33	33	Nil					
					774.2333		1.00	R6	-	-	-	-	-	33	33	Nil					
					773.2333		1.00	R7	-	-	-	-	-	32	32	Nil					
Brownish, highly fracture Sandy Shale. 15.00 m to 26.00 m		772.2333			772.2333	-	R8	-	-	-	-	-	52	52	Nil	Brownish				Full water loss	35°
					771.2333		1.00	R9	-	-	-	-	-	32	32		Nil				
					770.2333		1.00	R10	-	-	-	-	-	34	34		Nil				
					769.2333		1.00	R11	-	-	-	-	-	42	42		Nil				
					768.2333		1.00	R12	-	-	-	-	-	28	28		Nil				
					767.2333		1.00	R13	-	-	-	-	-	26	26		Nil				
					766.2333		1.00	R14	-	-	-	-	-	23	23		Nil				
					765.2333		1.00	R15	-	-	-	-	-	38	38		Nil				
					764.2333		1.00	R16	-	-	-	-	-	37	37		Nil				
					763.2333		1.00	R17	-	-	-	-	-	33	33		Nil				
Fresh, Greyish / dark greyish, Slightly fracture Strong Shale with laminated Sandstone observed. 26.00 m to 30.00 m		762.2333			761.2333	-	R18	-	-	-	-	-	38	38	Nil	Greyish Colour	Partial	50°			
					760.2333		1.00	R19	-	-	-	-	-	73	73				42		
					759.2333		1.00	R20	-	-	-	-	-	72	72				46		
					758.2333		1.00	R21	-	-	-	-	-	74	74				55		
					757.2333		1.00	R22	-	-	-	-	-	79	79				59		
Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)																					
Slip Plane - 11.00 m																					
** Measurement not possible due to heavy broken small pieces.																					

➤ **LS- B05 (BH-1) & CHAINAGE(km)- 172+100**



PICTURE 15: BH-11 (Depth-9.00 to 10.00m)



PICTURE 12: BH-1 (Depth-10.00 to 11.00m)



PICTURE 13: BH-1 (Depth-11.00 to 12.00m)



PICTURE 14: BH-1 (Depth-12.00 to 13.00m)



PICTURE 15: BH- 1 (Depth-13.00 to 14.00m)



PICTURE 16: BH-1 (Depth-14.00 to 15.00m)



PICTURE 17: BH-1 (Depth-15.00 to 16.00m)



PICTURE 18: BH-1 (Depth-16.00 to 17.00m)



PICTURE 19: BH-1 (Depth-17.00 to 18.00m)



PICTURE 20: BH-1 (Depth-18.00 to 19.00m)



PICTURE 21: BH- 1 (Depth-19.00 to 20.00m)



PICTURE 22: BH-1 (Depth-20.00 to 21.00m)



PICTURE 23: BH-1 (Depth-21.00 to 22.00m)



PICTURE 24: BH-1 (Depth-22.00 to 23.00m)



PICTURE 25: BH-1 (Depth-23.00 to 24.00m)



PICTURE 26: BH-1 (Depth-24.00 to 25.00m)



PICTURE 27: BH-1 (Depth-25.00 to 26.00m)



PICTURE 28: BH-1 (Depth-26.00 to 27.00m)



PICTURE 29: BH-1 (Depth-27.00 to 28.00m)



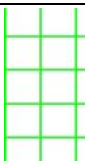
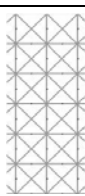
PICTURE 30: BH-1 (Depth-28.00 to 29.00m)

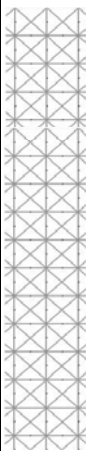
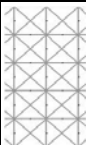
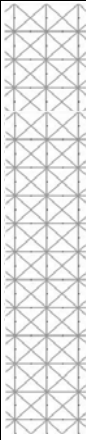


PICTURE 31: BH-1 (Depth-29.00 to 30.00m)

***Bore Log & Core Samples
Photographs
B-07***



Project Name :		Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.						BPC Consultant INDIA (P) Ltd.  2nd Floor,NATARAJ BHAWAN,Haripal,Hooghly,712405. (WB) www.bpciopl.com										
Client Name :		M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.																
Work Order No. :		NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																
BORE / CORE LOG DATA SHEET																		
Job Code - P160																		
Chainage (km)	174+800		Sliding Zone		LS_B07		No. of Core (C)		12									
Borehole No.	1		Commencement Date		19.05.2017		No. of SP Test (S)		2									
Ground Elevation (m)	700.7300		Completion Date		21.05.2017		No. of Undisturbed (U)		0									
Method of Boring	Rotary Drilling		Standing Water Level		7.01 M BELOW G.L.		No. of Disturbed (D)		3 (D - 1 & S - 2)									
Borehole Diameter	150 mm & 75 mm		Termination Depth		15.00 M BELOW G.L.		No. of Water Sample (W)		1									
Description of Soil Stratum & Rock Methology	Stratum Elevation As per R.L (m)		Hatching Pattern	Elevation As per R.L (m)		Run Length (m)	Type of Sample	SPT Values (Blows for every 15 cm penetration)			N Values IS-2131	Corrected N"	Total Core Length (cm)	TCR (%)	ROD (%)	Colours of return Water	Water Loss	Angle of Fracture
	From	To		From	To			15cm	15cm	15cm								
Brownish / greyish, Sandy Clayey Silt with little broken Siltstone mixed. (CL) 0.00 m to 1.00 m	700.7300			700.2300	-	D	-	-	-	-	-	-	-	-	-	-	-	-
Brownish, Highly fracture Soft Shale. 1.00 m to 9.00 m	699.7300			699.7300	699.7100	-	S	2 cm / 47 B	Re	Re	>100	97	-	-	-	-	-	-
				699.7300		1.00	R1	-	-	-	-	-	9	9	Nil	Brownish	Completely	:
				698.7300		1.00	R2	-	-	-	-	-	12	12	Nil			
				697.7300		1.00	R3	-	-	-	-	-	10	10	Nil			
				696.7300		1.00	R4	-	-	-	-	-	14	14	Nil			
				695.7300		1.00	R5	-	-	-	-	-	17	17	Nil			
				694.7300		1.00	R6	-	-	-	-	-	20	20	Nil			
				693.7300		1.00	R7	-	-	-	-	-	23	23	Nil			
				692.7300		1.00	R8	-	-	-	-	-	26	26	Nil			
				691.7300		1.00	R9	-	-	-	-	-	Nil	Nil	Nil			
Completely Weathered, Greyish, Very soft Shale. 9.00 m to 11.00 m	691.7300			691.7300	690.7300	-	S	10 cm / 48 B	Re	Re	>100	58	-	-		Greyish	Partial	53°
				690.7300		1.00	R10	-	-	-	-	Nil	Nil	Nil				
				689.7300		-	S	12 cm / 46 B	Re	Re	>100	57	-	-	-			
				689.7300		1.00	R11	-	-	-	-	21	21	Nil				
Greyish / Dark greyish, highly fracture Shale with laminated sandstone observed. 11.00 m to 15.00 m	689.7300			688.7300	687.7300	1.00	R12	-	-	-	-	-	30	30	Nil	50°		
				687.7300		1.00	R13	-	-	-	-	-	31	31	Nil			
				686.7300		1.00	R14	-	-	-	-	-	27	27	Nil			
				685.7300														
Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)																		
Slip Plane - 8.00 m																		
** Measurement not possible due to heavy broken small pieces																		

Project Name		Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.						BPC Consultant INDIA (P) Ltd.																						
Client Name		M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.						 2 nd Floor, NATARAJ BHAWAN, Haripal, Hooghly, 712405. (WB) www.bpciopl.com																						
Work Order No.		NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																												
BORE / CORE LOG DATA SHEET																														
Job Code - P160																														
Chainage (km)		174+800		Sliding Zone		LS_B07		No. of Core (C)				19																		
Borehole No.		2		Commencement Date		27.05.2017		No. of SP Test (S)				6																		
Ground Elevation (m)		712.9246		Completion Date		02.06.2017		No. of Undisturbed (U)				0																		
Method of Boring		Rotary Drilling		Standing Water Level		19.25 M BELOW G.L.		No. of Disturbed (D)				6 (D - 1 & S - 5)																		
Borehole Diameter		150 mm & 75 mm		Termination Depth		25.00 M BELOW G.L.		No. of Water Sample (W)				1																		
Description of Soil Stratum & Rock Methology		Stratum Elevation As per R.L (m)		Hatching Pattern		Elevation As per R.L (m)		Run Length (m)		Type of Sample		SPT Values (Blows for every 15 cm penetration)			N Values (S-2/131		Corrected N"		Total Core Length (cm)		TCR (%)		ROD (%)		Colours of return Water		Water Loss		Angle of Fracture	
		From	To			From	To					15cm	15cm	15cm																
Hard, Yellowish, Sandy Clayey Silt with little gravels / pebbles size siltstone mixed. (CL) 0.00 m to 3.00 m		712.9246			712.4246		-	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					711.9246	-	S	10	18	27	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					710.9246	-	S	13	21	33	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Greyish / Brownish, Highly fracture Soft Shale. 3.00 m to 13.00 m		709.9246			709.9246	-	S	6cm / 55B	Re	Re	>100	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					708.9246	1.00	R1	-	-	-	-	-	-	20	20	NIL	Brownish													
					707.9246	1.00	R2	-	-	-	-	-	-	23	23	NIL														
					706.9246	1.00	R3	-	-	-	-	-	-	32	32	NIL														
					705.9246	1.00	R4	-	-	-	-	-	-	25	25	NIL														
					704.9246	1.00	R5	-	-	-	-	-	-	20	20	NIL														
					703.9246	1.00	R6	-	-	-	-	-	-	18	18	NIL														
					702.9246	1.00	R7	-	-	-	-	-	-	30	30	NIL														
					701.9246	1.00	R8	-	-	-	-	-	-	26	26	NIL														
					700.9246	1.00	R9	-	-	-	-	-	-	23	23	NIL														
					699.9246	1.00	R10	-	-	-	-	-	-	32	32	NIL														
		Completely Weathered, Greyish, Very soft Shale. 13.00 m to 15.00 m			699.9246			699.9246	1.00	R11	-	-	-	-	-	NIL	NIL	NIL	Greyish											
								698.9246	-	S	8cm / 55B	Re	Re	>100	53	-	-	-												
								697.9246	1.00	R12	-	-	-	-	-	-	NIL	NIL							NIL					
		Greyish / Dark greyish, Highly fracture Poor Sandy Shale. 15.00 m to 25.00 m			697.9246			697.9246	-	S	11cm / 46B	Re	Re	>100	52	-	-	-							Partial					
				697.9246	1.00	R13		-	-	-	-	-	-	20	20	NIL														
				696.9246	1.00	R14		-	-	-	-	-	-	NIL	NIL	NIL														
				695.9246	-	S		3cm / 56B	Re	Re	>100	50	-	-	-															
				695.9246	1.00	R15		-	-	-	-	-	-	21	21	NIL														
				694.9246	1.00	R16		-	-	-	-	-	-	26	26	NIL														
				693.9246	1.00	R17		-	-	-	-	-	-	32	32	NIL														
				692.9246	1.00	R18		-	-	-	-	-	-	18	18	NIL														
				691.9246	1.00	R19		-	-	-	-	-	-	24	24	NIL														
				690.9246	1.00	R20		-	-	-	-	-	-	28	28	NIL														
				689.9246	1.00	R21		-	-	-	-	-	-	15	15	NIL														
				688.9246	1.00	R22		-	-	-	-	-	-	15	15	NIL														
				687.9246	1.00	R22		-	-	-	-	-	-	15	15	NIL														
Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)																														
Slip Plane - 9.00 m																														

➤ **LS- B07 (BH-1 & BH-2) & CHAINAGE(km)- 174+800**



PICTURE 32: BH- 1 (Depth-1.00 to 2.00m)



PICTURE 33: BH-1 (Depth-2.00 to 3.00m)



PICTURE 34: BH-1 (Depth-3.00 to 4.00m)



PICTURE 35: BH-1 (Depth-4.00 to 5.00m)



PICTURE 36: BH-1 (Depth-5.00 to 6.00m)



PICTURE 37: BH-1 (Depth-6.00 to 7.00m)



PICTURE 38: BH- 1 (Depth-7.00 to 8.00m)



PICTURE 39: BH-1 (Depth-8.00 to 9.00m)



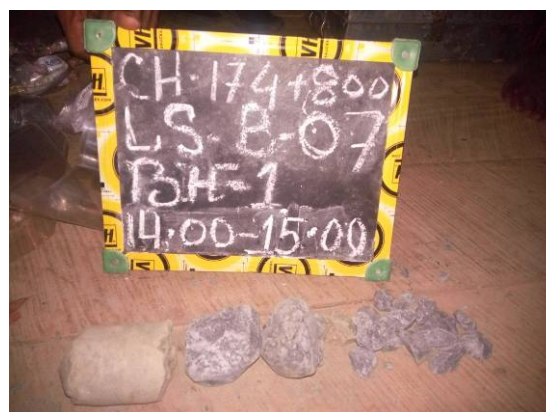
PICTURE 40: BH-1 (Depth-10.00 to 11.00m)



PICTURE 41: BH-1 (Depth-12.00 to 13.00m)



PICTURE 42: BH-1 (Depth-13.00 to 14.00m)



PICTURE 43: BH-1 (Depth-14.00 to 15.00m)



PICTURE 44: BH- 2 (Depth-3.00 to 4.00m)



PICTURE 45: BH-2 (Depth-4.00 to 5.00m)



PICTURE 46: BH-2 (Depth-5.00 to 6.00m)



PICTURE 47: BH-2 (Depth-6.00 to 7.00m)



PICTURE 48: BH-2 (Depth-7.00 to 8.00m)



PICTURE 49: BH-2 (Depth-8.00 to 9.00m)



PICTURE 50: BH- 2 (Depth-9.00 to 10.00m)



PICTURE 51: BH-2 (Depth-10.00 to 11.00m)



PICTURE 52: BH-2 (Depth-11.00 to 12.00m)



PICTURE 53: BH-2 (Depth-12.00 to 13.00m)



PICTURE 54: BH-2 (Depth-7.00 to 8.00m)



PICTURE 55: BH-2 (Depth-15.00 to 16.00m)



PICTURE 56: BH- 2 (Depth-17.00 to 18.00m)



PICTURE 57: BH-2 (Depth-18.00 to 19.00m)



PICTURE 58: BH-2 (Depth-19.00 to 20.00m)



PICTURE 59: BH-2 (Depth-20.00 to 21.00m)



PICTURE 60: BH-2 (Depth-21.00 to 22.00m)



PICTURE 61: BH-2 (Depth-22.00 to 23.00m)



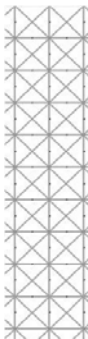
PICTURE 62: BH- 2 (Depth-23.00 to 24.00m)

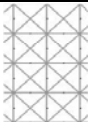
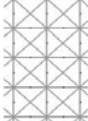
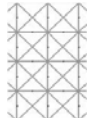


PICTURE 63: BH-2 (Depth-24.00 to 25.00m)

***Bore Log & Core Samples
Photographs
B-10***



Project Name :		Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.						BPC Consultant INDIA (P) Ltd.										
Client Name :		M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.						 2nd Floor,NATARAJ BHAWAN,Haripal,Hooghly,712405. (WB) www.bpci.com										
Work Order No. :		NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																
BORE / CORE LOG DATA SHEET																		
Job Code - P160																		
Chainage (km)		200+140		Sliding Zone		LS_B10		No. of Core (C)		12								
Borehole No.		1		Commencement Date		20.05.2017		No. of SP Test (S)		3								
Ground Elevation (m)		438.4879		Completion Date		25.05.2017		No. of Undisturbed (U)		0								
Method of Boring		Rotary Drilling		Standing Water Level		6.62 M BELOW G.L.		No. of Disturbed (D)		3 (D - 0 & S - 3)								
Borehole Diameter		150 mm & 75 mm		Termination Depth		15.00 M BELOW G.L.		No. of Water Sample (W)		1								
Description of Soil Stratum & Rock Methology	Stratum Elevation As per R.L (m)		Hatching Pattern	Elevation As per R.L (m)		Run Length (m)	Type of Sample	SPT Values (Blows for every 15 cm penetration)			N Values IS-2131	Corrected N"	Total Core Length (cm)	TCR (%)	RQD (%)	Colours of return Water	Water Loss	Angle of Fracture
	From	To		From	To			15cm	15cm	15cm								
Very Stiff to Hard, Greyish / Yellowish, Silty Clay / Clayey Silt with little broken Siltstone pieces. (CI) 0.00 m to 3.00 m	438.4879			437.4879		-	S	11	13	20	33	-	-	-	-	-	-	-
					437.0379		-	S	8	10	14	24	-	-	-	-	-	-
Brownish / Greyish, Fine grained highly fracture Sandy Shale. 3.00 m to 5.00 m	435.4879			435.4879		-	S	15cm / 68B	Re	Re	>100	78	-	-	-	-	-	-
					435.3379		1.00	R1	-	-	-	-	-	20	20	NIL	*	
					434.4879		1.00	R2	-	-	-	-	-	36	36	NIL		
Brownish / Greyish, Fine grained moderately fracture Sandstone. 5.00 m to 8.00 m	433.4879			433.4879		1.00	R3	-	-	-	-	-	67	67	NIL	35°		
					432.4879		1.00	R4	-	-	-	-	-	75	75		NIL	35°,60°
					431.4879		1.00	R5	-	-	-	-	-	71	71	NIL	-	
Fresh, Greyish / Dark greyish, Strong Shale. 8.00 m to 15.00 m	430.4879			430.4879		1.00	R6	-	-	-	-	-	71	71	24	47°		
					429.4879		1.00	R7	-	-	-	-	-	74	74		18	38°
					428.4879		1.00	R8	-	-	-	-	-	81	81	54	50°	
					427.4879		1.00	R9	-	-	-	-	-	67	67	36		45°
					426.4879		1.00	R10	-	-	-	-	-	78	78	70	-	
					425.4879		1.00	R11	-	-	-	-	-	79	79	77	-	
					424.4879		1.00	R12	-	-	-	-	-	79	79	62	-	
					423.4879													
Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)																		
Slip Plane - 7.5 m																		
** Measurement not possible due to heavy broken small pieces.																		

Project Name :		Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.						BPC Consultant INDIA (P) Ltd.												
Client Name :		M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.																		
Work Order No. :		NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016						2 nd Floor, NATARAJ BHAWAN, Haripal, Hooghly, 712405. (WB) www.bpci.pl.com												
BORE / CORE LOG DATA SHEET																				
Job Code - P160																				
Chainage (km)		200+140		Sliding Zone		LS_B10		No. of Core (C)				18								
Borehole No.		2		Commencement Date		20.05.2017		No. of SP Test (S)				2								
Ground Elevation (m)		451.2235		Completion Date		27.05.2017		No. of Undisturbed (U)				0								
Method of Boring		Rotary Drilling		Standing Water Level		10.21 M BELOW G.L.		No. of Disturbed (D)				2 (D - 0 & S - 2)								
Borehole Diameter		150 mm & 75 mm		Termination Depth		20.00 M BELOW G.L.		No. of Water Sample (W)				1								
Description of Soil Stratum & Rock Methology	Stratum Elevation As per R.L (m)		Hatching Pattern	Elevation As per R.L (m)		Run Length (m)	Type of Sample	SPT Values (Blows for every 15 cm penetration)			N Values (S-2131)	Corrected N"	Total Core Length (cm)	TCR (%)	RQD (%)	Colours of return Water	Water Loss	Angle of Fracture		
	From	To		From	To			15cm	15cm	15cm										
Hard, Greyish / Brownish, Silty Clay / Clayey Silt with little broken siltstone pieces. (Cl) 0.00 m to 2.00 m	451.2235			450.2235		-	S	8	15	21	36	-	-	-	-	-	-	-		
Highly Weathered, Greyish / Brownish, highly fracture Shale. 2.00 m to 4.00 m	449.2235			449.2235		-	S	58	5cm / 51B	Re	>100	-	-	-	-	-	-	-		
				449.2235	449.0235	1.00	R1	-	-	-	-	-	17	17	NIL	Brownish	Completely	40°		
				448.2235	448.2235	1.00	R2	-	-	-	-	-	26	26	NIL			25°		
Moderately Weathered, Greyish / Brownish, moderately fracture Strong Shale. 4.00 m to 8.00 m	447.2235			447.2235		1.00	R3	-	-	-	-	-	66	66	NIL	Greyish	Partial	15°		
				446.2235	446.2235	1.00	R4	-	-	-	-	-	73	73	NIL			15°		
				445.2235	445.2235	1.00	R5	-	-	-	-	-	22	22	NIL			-		
				444.2235	444.2235	1.00	R6	-	-	-	-	-	40	40	NIL			5°-10°		
				443.2235	443.2235															
Fresh, Dark greyish, Strong Shale with laminated sandstone observed. 8.00 m to 20.00 m	443.2235			443.2235		1.00	R7	-	-	-	-	-	75	75	38	Dark Greyish	Partial	-		
				442.2235	442.2235	1.00	R8	-	-	-	-	-	79	79	67			15°		
				441.2235	441.2235	1.00	R9	-	-	-	-	-	84	84	74			5°-15°		
				440.2235	440.2235	1.00	R10	-	-	-	-	-	77	77	74			5°-10°		
				439.2235	439.2235	1.00	R11	-	-	-	-	-	74	74	73			Measurement not possible		
				438.2235	438.2235	1.00	R12	-	-	-	-	-	76	76	74					
				437.2235	437.2235	1.00	R13	-	-	-	-	-	76	76	43					
				436.2235	436.2235	1.00	R14	-	-	-	-	-	79	79	77					
				435.2235	435.2235	1.00	R15	-	-	-	-	-	79	79	34					
				434.2235	434.2235	1.00	R16	-	-	-	-	-	77	77	56					
				433.2235	433.2235	1.00	R17	-	-	-	-	-	82	82	32			-		
				432.2235	432.2235	1.00	R18	-	-	-	-	-	83	83	67			-		
				431.2235	431.2235															

Re: Refusal	R : Run	RQD : Rock Quality Designation	TCR : Total Core Recovery	U* : UDS Could not be collected (Slipped)
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Slip Plane - 8 m.

➤ **LS- B10 (BH-1 & BH-2) & CHAINAGE(km)-200+140**



PICTURE 64: BH- 1 (Depth-4.00 to 5.00m)



PICTURE 65: BH-1 (Depth-5.00 to 6.00m)



PICTURE 66: BH-1 (Depth-6.00 to 7.00m)



PICTURE 67: BH-1 (Depth-7.00 to 8.00m)



PICTURE 68: BH-1 (Depth-8.00 to 9.00m)



PICTURE 69: BH-1 (Depth-9.00 to 10.00m)



PICTURE 70: BH- 1 (Depth-10.00 to 11.00m)



PICTURE 71: BH-1 (Depth-11.00 to 12.00m)



PICTURE 72: BH-1 (Depth-12.00 to 13.00m)



PICTURE 73: BH-1 (Depth-13.00 to 14.00m)



PICTURE 74: BH-1 (Depth-14.00 to 15.00m)



PICTURE 75: BH-2 (Depth-2.00 to 3.00m)



PICTURE 76: BH- 2 (Depth-3.00 to 4.00m)



PICTURE 77: BH-2 (Depth-7.00 to 8.00m)



PICTURE 78: BH-2 (Depth-8.00 to 9.00m)



PICTURE 79: BH-2 (Depth-9.00 to 10.00m)



PICTURE 80: BH-2 (Depth-11.00 to 12.00m)



PICTURE 81: BH-2 (Depth-13.00 to 14.00m)



PICTURE 82: BH- 2 (Depth-14.00 to 15.00m)



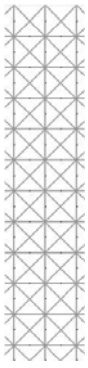
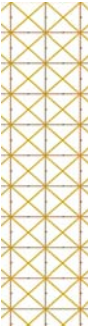
PICTURE 83: BH-2 (Depth-15.00 to 16.00m)

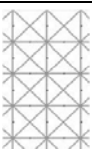
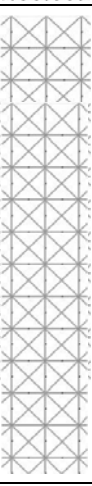
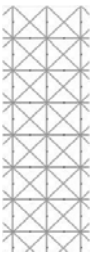


PICTURE 84: BH-2 (Depth-19.00 to 20.00m)

***Bore Log & Core Samples
Photographs
B-14***



Project Name :	Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.				BPC Consultant INDIA (P) Ltd.  2 nd Floor, NATARAJ BHAWAN, Haripal, Hooghly, 712405. (WB) www.bpciopl.com													
Client Name :	M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.																	
Work Order No. :	NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																	
BORE / CORE LOG DATA SHEET																		
Job Code - P160																		
Chainage (km)	209+420		Sliding Zone		LS_B14		No. of Core (C)		15									
Borehole No.	1		Commencement Date		28.05.2017		No. of SP Test (S)		0									
Ground Elevation (m)	765.8570		Completion Date		04.06.2017		No. of Undisturbed (U)		0									
Method of Boring	Rotary Drilling		Standing Water Level		4.00 M BELOW G.L.		No. of Disturbed (D)		0									
Borehole Diameter	75 mm		Termination Depth		15.00 M BELOW G.L.		No. of Water Sample (W)		1									
Description of Soil Stratum & Rock Methology	Stratum Elevation As per R.L (m)		Hatching Pattern	Elevation As per R.L (m)		Run Length (m)	Type of Sample	SPT Values (Blows for every 15 cm penetration)			N Values (S-2131)	Corrected N"	Total Core Length (cm)	TCR (%)	RQD (%)	Colours of return Water	Water Loss	Angle of Fracture
	From	To		From	To			15cm	15cm	15cm								
Greyish / Dark Greyish, Highly fracture Weak Shale with thinly bedded laminated Sandstone observed of some layer. 0.00 m to 8.00 m	765.8570	757.8570		765.8570	764.8570	1.00	R1	-	-	-	-	-	17	17	NIL	Greyish	Completely	**
	764.8570			763.8570	1.00	R2	-	-	-	-	-	34	34	NIL				
	763.8570			762.8570	1.00	R3	-	-	-	-	-	24	24	NIL				
	762.8570			761.8570	1.00	R4	-	-	-	-	-	14	14	NIL				
	761.8570			760.8570	1.00	R5	-	-	-	-	-	28	28	NIL				
	760.8570			759.8570	1.00	R6	-	-	-	-	-	22	22	NIL				
	759.8570			758.8570	1.00	R7	-	-	-	-	-	22	22	NIL				
	758.8570			757.8570	1.00	R8	-	-	-	-	-	22	22	NIL				
Greyish / Brownish, Fine grained highly fracture Poor Sandstone. 8.00 m to 15.00 m	757.8570	750.8570		757.8570	756.8570	1.00	R9	-	-	-	-	-	26	26	NIL	Greyish	Partial	**
	756.8570			755.8570	1.00	R10	-	-	-	-	-	16	16	NIL				
	755.8570			754.8570	1.00	R11	-	-	-	-	-	14	14	NIL				
	754.8570			753.8570	1.00	R12	-	-	-	-	-	23	23	NIL				
	753.8570			752.8570	1.00	R13	-	-	-	-	-	23	23	NIL				
	752.8570			751.8570	1.00	R14	-	-	-	-	-	17	17	NIL				
	751.8570			750.8570	1.00	R15	-	-	-	-	-	20	20	NIL				
	Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)																	
Slip Plane - 7.5 m																		
** Measurement not possible due to heavy broken small pieces																		

Project Name :	Consultancy Services for additional Topographical, Geotechnical Survey for widening and upgradation of NH-54 from km 8.00 to km 380.00 in the State of Mizoram.				BPC Consultant INDIA (P) Ltd.  2 nd Floor, NATARAJ BHAWAN, Haripal, Hooghly, 712405. (WB) www.bpcipl.com															
Client Name :	M/s National Highways and Infrastructure Development Corporation Limited. (NHIDCL), Delhi.																			
Work Order No. :	NHIDCL/NH-54/DPR-Add. Survey/2016/168 dated on 16.12.2016																			
BORE / CORE LOG DATA SHEET																				
Job Code - P160																				
Chainage (km)	209+420		Sliding Zone		LS_B14		No. of Core (C)		25											
Borehole No.	2		Commencement Date		07.06.2017		No. of SP Test (S)		0											
Ground Elevation (m)	786.9631		Completion Date		16.06.2017		No. of Undisturbed (U)		0											
Method of Boring	Rotary Drilling		Standing Water Level		14.52 M BELOW G.L.		No. of Disturbed (D)		0											
Borehole Diameter	75 mm		Termination Depth		25.00 M BELOW G.L.		No. of Water Sample (W)		1											
Description of Soil Stratum & Rock Methology	Stratum Elevation As per R.L (m)		Hatching Pattern	Elevation As per R.L (m)		Run Length (m)	Type of Sample	SPT Values (Blows for every 15 cm penetration)			N Values IS-2131	Corrected N"	Total Core Length (cm)	TCR (%)	RQD (%)	Colours of return Water	Water Loss	Angle of Fracture		
	From	To		From	To			15cm	15cm	15cm										
Highly to Moderately Weathered, Brownish / Greyish, Fine grained fracture Poor Sandstone. 0.00 m to 2.00	786.9631	784.9631		786.9631	785.9631	1.00	R1	-	-	-	-	-	43	43	21	Light Greyish colour	Completely	76°		
																				30°
Fresh, Greyish / Light Brownish, Strong Shale. 2.00 m to 5.00 m	784.9631	781.9631		784.9631	783.9631	1.00	R3	-	-	-	-	-	78	78	NIL			60°		
																			75°	
																		75°		
Highly Weathered, Greyish, Fine grained highly fracture Very poor Shale with thinly bedded laminated Sandstone observed of some layer. 5.00 m to 18.00 m	781.9631	768.9631		781.9631	780.9631	1.00	R6	-	-	-	-	-	33	33	NIL	Greyish colour	Partial	*		
	Greyish / Dark greyish, Fine grained highly fracture Shale with thinly bedded laminated Sandstone. 18.00 m to 25.00 m			768.9631	761.9631		768.9631	767.9631	1.00	R19	-	-	-	-	-			20	20	NIL

Re: Refusal R : Run RQD : Rock Quality Designation TCR : Total Core Recovery U* : UDS Could not been Collected (Slipped)

Slip Plane - 6.50 m

**** Measurement not possible due to heavy broken small pieces**

➤ **LS- B14 (BH-1 & BH-2) & CHAINAGE(km)- 209+420**



PICTURE 85: BH- 1 (Depth-0.00 to 1.00m)



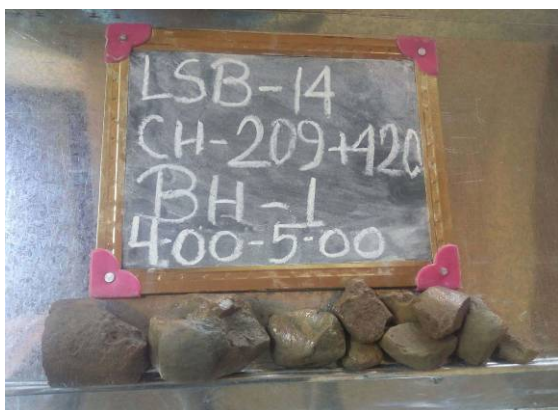
PICTURE 86: BH-1 (Depth-1.00 to 2.00m)



PICTURE 87: BH-1 (Depth-2.00 to 3.00m)



PICTURE 88: BH-1 (Depth-3.00 to 4.00m)



PICTURE 89: BH-1 (Depth-4.00 to 5.00m)



PICTURE 90: BH-2 (Depth-5.00 to 6.00m)



PICTURE 91: BH- 1 (Depth-6.00 to 7.00m)



PICTURE 92: BH-1 (Depth-7.00 to 8.00m)



PICTURE 93: BH-1 (Depth-8.00 to 9.00m)



PICTURE 94: BH-1 (Depth-9.00 to 10.00m)



PICTURE 95: BH-1 (Depth-10.00 to 11.00m)



PICTURE 96: BH-1 (Depth-11.00 to 12.00m)



PICTURE 97: BH- 1 (Depth-12.00 to 13.00m)



PICTURE 98: BH-1 (Depth-13.00 to 14.00m)



PICTURE 99 BH-1 (Depth-14.00 to 15.00m)



PICTURE 100: BH-2 (Depth-0.00 to 1.00m)



PICTURE 101: BH-2 (Depth-1.00 to 2.00m)



PICTURE 102: BH-2 (Depth-2.00 to 3.00m)



PICTURE 103: BH- 2 (Depth-3.00 to 4.00m)



PICTURE 104: BH-2 (Depth-4.00 to 5.00m)



PICTURE 105: BH-2 (Depth-5.00 to 6.00m)



PICTURE 106: BH-2 (Depth-6.00 to 7.00m)



PICTURE 107: BH-2 (Depth-7.00 to 8.00m)



PICTURE 108: BH-2 (Depth-8.00 to 9.00m)



PICTURE 109: BH- 2 (Depth-9.00 to 10.00m)



PICTURE 110: BH-2 (Depth-10.00 to 11.00m)



PICTURE 111: BH-2 (Depth-11.00 to 12.00m)



PICTURE 112: BH-2 (Depth-12.00 to 13.00m)



PICTURE 113: BH-2 (Depth-13.00 to 14.00m)



PICTURE 114: BH-2 (Depth-14.00 to 15.00m)



PICTURE 115: BH- 2 (Depth-15.00 to 16.00m)



PICTURE 116: BH-2 (Depth-16.00 to 17.00m)



PICTURE 117: BH-2 (Depth-18.00 to 19.00m)



PICTURE 118: BH-2 (Depth-19.00 to 20.00m)



PICTURE 119: BH-2 (Depth-20.00 to 21.00m)



PICTURE 120: BH-2 (Depth-21.00 to 22.00m)



PICTURE 121: BH- 2 (Depth-22.00 to 23.00m)



PICTURE 122: BH-2 (Depth-23.00 to 24.00m)



PICTURE 123: BH-2 (Depth-24.00 to 25.00m)
