



भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

पावर कम्युनिकेशन डवलपमेंट प्रभाग

Power Communication Development Division

No.: CEA/PCD/PTCC/BHR-142 / 34/36

Date: 20.06.2019

DET (PTCC), Eastern Zone,
Inspection & QA Circle, BSNL
Q.A. Bhawan, EP-GP Block, Sector-V,
Salt Lake, Kolkata – 700091

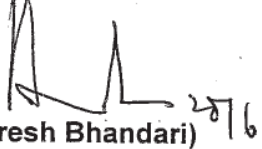
Subject: Induced Voltage Calculation in respect of PTCC proposal for 220 kV D/C Patna – Khagaul Transmission Line

Reference: (i) BSNL letter no. DE/PTCC/ER/EBR160420192414/02 dated 06.06.2019
(ii) East Central Railway letter no. ECR/S&T/PTCC/134/1053 dated 20.06.2016

Sir,

The instant PTCC proposal has been examined. Low frequency induction on telecom cables of BSNL and Block & Telecom Circuits of East Central Railway with respect to details furnished vide above references has been computed. The Soil Resistivity (SR) value has been taken as 20,000 ohm-cm. The voltages likely to be induced on paralleling telecom cables of BSNL and Block & Telecom Circuits of East Central Railway under single line to ground fault condition have been computed and are enclosed as Annex – I and II respectively. The screening factors, as applicable, have been considered. Telecommunication details from Defense are pending and the power authority has shown urgency for charging the line. In view of this, you are requested to issue provisional PTCC route approval.

Encl.: As above


(Naresh Bhandari)
Chief Engineer

Copy to:

- (i) GM (S&T), East Central Railway, Hajipur, Vaishali, Bihar - 844101 – (Annex – II only)
(ii) DGM, Bihar Grid Company Ltd, 2nd floor, Alankar Place, Boring Road, Patna, Bihar – 800001

MIC

CEA Case No. : BHR-142

Annex-I

Particulars details of parallel Telecom alignment proforma

Case No. : E/FTCC/ EBR160420192414

Name of the power line : 220KV D/C PATNA-Khagaul T/L

Map scale : 1" = 1 Mile / 1 cm. = 500Mts.

Total length : 25.493 km

S.R.value : 20,000 - 2-cm

Sl.no.	Telecom circuits	Marked as	Length of parallelism in km	Mutual coupling in Ohms	Effective fault current in Amp.	I.V.in Volts	Safe separation in Yards
1	KHAJPURA EXCHANGE	A					
	KHAJPURA EXCHANGE TO RUKANPURA (8x 800 pr U/G Cable, dist 2 km)	1	} OUT OF PARALLELISM				
	KHAJPURA EXCHANGE TO JAGDEVPATH (2x 400 pr U/G Cable, dist 1.6 km)	2					
	KHAJPURA EXCHANGE (Shiv Mandir) TO JAGDEVPATH (Neeti Bagh) (2x 200 pr U/G cable, dist 2 km)	3					
2	NEORA EXCHANGE	B					
	NEORA EXCHANGE TO SHIVALA (1x 200 pr U/G Cable, dist 1 km)	1	} OUT OF PARALLELISM				
	NEORA EXCHANGE TO SHIVALA (1x 100 pr U/G Cable, dist 1 km)	2					
	SHIVALA TO HINDUSTAN PRESS (1x 50 pr U/G cable, dist 0.5 km)	3					
3	DANAPUR EXCHANGE	C					
	DANAPUR EXCHANGE TO St. KAREN SCHOOL (2x 800 pr U/G cable, dist 2.5 km)	1	} OUT OF PARALLELISM				
	DANAPUR EXCHANGE TO St. KAREN SCHOOL (2x 400 pr U/G cable, dist 2.5 km)	2					
4	KHAGAUL EXCHANGE	D					
	KHAGAUL EXCHANGE (DRM Office) TO KHAGAUL MARKET (2x 800 pr U/G cable, dist 1.5 km)	1	} OUT OF PARALLELISM				
	KHAGAUL EXCHANGE (DRM Office) TO KHAGAUL MARKET (1x 400 pr U/G cable, dist 1.5 km)	2					
5	RANJAN PATH EXCHANGE	E					
	RANJAN PATH EXCHANGE TO GOLA ROAD (4x 800 pr U/G cable, dist 1.5 km)	1	} OUT OF PARALLELISM				
	RANJAN PATH EXCHANGE TO RPS MORE (1x 400 pr U/G cable, dist 0.5 km)	2					
	GOLA ROAD TOST. KAREN SCHOOL (2x 200 pr U/G cable, dist 0.5 km)	3					
6	SAMPAT CHAK EXCHANGE	F					
	SAMPAT CHAK EXCHANGE TO BARIYA (1x 200 pr.U/G Cable, dist. 2 km)	1	} IV LESS THAN 430V				
	SAMPAT CHAK EXCHANGE TO USHA MARTIN SCHOOL(1x 200 pr.U/G Cable, dist. 2 km)	2					
	SAMPAT CHAK EXCHANGE TO BLOCK (1x 50 pr.U/G Cable, dist. 1 km)	3					
	SAMPAT CHAK EXCHANGE TO SAMPAT CHAK BAZAR (1x 50 pr.U/G Cable, dist. 1 km)	4					
7	PUNPUN EXCHANGE	G					
	PUNPUN XGE TO STATION (200 pr.U/G cable, dist. 1.5 km)	1	} IV LESS THAN 430V				
	STATION TO DUMRI (100 pr.U/G cable, dist. 2.0 km)	2					
	PUNPUN XGE TO PUNPUN COLLEGE (100 pr.U/G cable, dist. 1.5 km)	3					

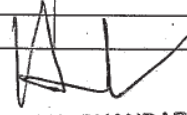
- 800 pair U/G cable
- 400 pair U/G cable
- 200 pair U/G cable
- 100 pair U/G cable

नरेश भंडारी / NARESH BHANDARI
 मुख्य अभियन्ता / Chief Engineer
 केन्द्रीय विद्युत प्राधिकरण / C.E.A.
 विद्युत मंत्रालय / Ministry of Power
 भारत सरकार / Govt. of India
 नई दिल्ली / New Delhi-66

ANNEXURE - II

Case No.: BHR-142		Map Scale : 1cm=500mts			
Name of the Power line: 220 kV D/C Patna - Khagaul Transmission Line		Total Length : 25.493 Km.			
		Soil Resistivity : 20000 ohm-cm			
S.No	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

EAST CENTRAL RAILWAY letter no. - ECR/S&T/PTCC/134/1053 dated 20.06.2016					
Affected Block Section of Neora - Phulwarisarief Patna - Mughalsarai Railway line of Danapur Division					
1	Neora - Danapur	2.3	0.0082	9000	74
2	Danapur - Phulwarisarief	OUTSIDE IV CALCULATION CONSIDERATION ZONE			0
Affected Block Section of Parsabazar - Pothi of Patna - Gaya Railway line of Danapur Division					
1	Parsabazar - Punpun	1.8	0.0033	7200	24
2	Punpun - Pothi	OUT OF PARALLELISM			0


 नरेश भंडारी/NARESH BHANDARI
 मुख्य अभियन्ता/Chief Engineer
 केन्द्रीय विद्युत प्राधिकरण/C.E.A.
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 भारत सरकार/Govt. of India
 नई दिल्ली/New Delhi-66