Route details

Item Description	400 kV Udupi-Kasargode Line
Voltage Level	400
Wind Zone	2
No. of Circuits	2
No. of Conductors per phase	4
Type of Conductor	AAAC Moose
Route Length	115.86

BOQ Assumptions

Transmission Line:

- Route alignment has been checked and validated by Project head.
  1% Extra/ wastage considered in Conductor
- No extra/wastage considered in Insulators, Hardware's, Tower Accessories and earth wire Accessories.
- No Spares considered.
- Power Line Crossing towers are considered as DB, DC & DD.
- New family of intermediate towers have been considered as shown in table below.
- 20% of all power line crossings (Higher voltage crossing lower voltage) has been taken as hotline
- 74.43 MT of tower has been considered extra for maintaining 6mtr tower extension for 10 towers in Kerala region along the elephant corridor

New Tower Family		
Tower Type	**Angle of Deviation**	**Span**
DA	0-2	400
DA1	0-1	370
DA5	0-5	370
DB	5-15	400
DB22	15-22	370
DC	22-30	400
DC45	30-45	370
DD	Above 45	400
DB-SPE	Suspension-Wt. span Fails	400

Design and Testing Cost: Only 25% of design and testing cost has been considered, rest to be built in strategic projects of CDO.

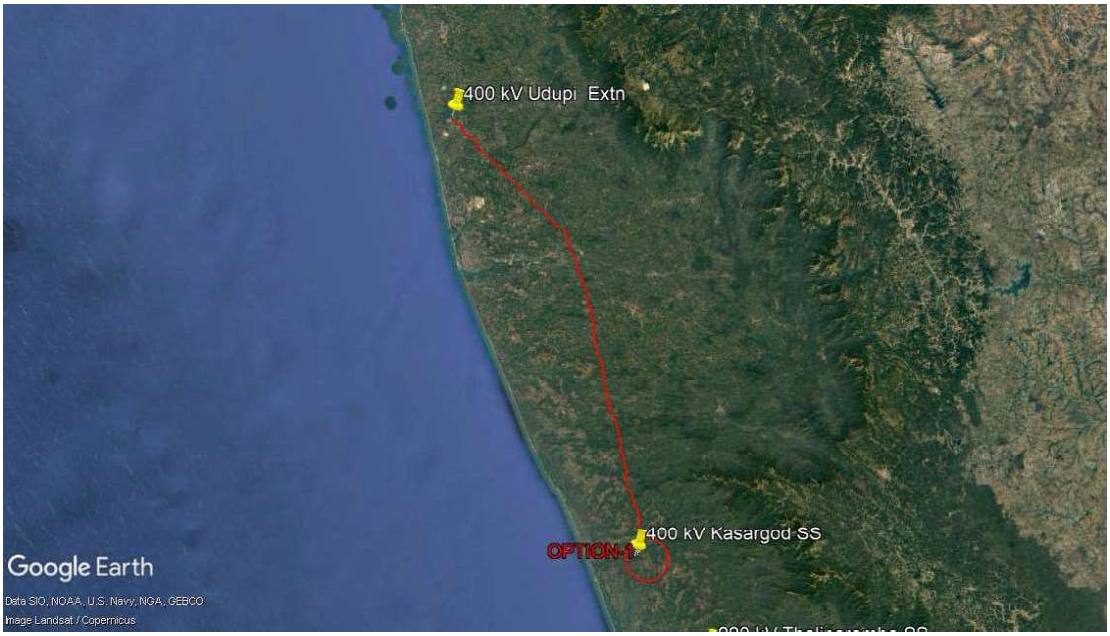
Soil Classification

Type of Tower	Dry	Wet	P.Wet	P.S.	F.S.	Hard Rock	WFR	DFR	WBC
	0	63	16	7	0	43	3	178	0

Transmission Line BOQ Summary;

S.No	Item Description	Unit	
1	No. of Circuits	No.	2
2	No. of Conductors per phase	No.	4
3	Type of Conductor	-	Moose
4	Voltage Level	kV	400
5	Route Length	km	115
6	Circuit Length	km	231
7	Forest Length	km	9.451
8	Towers		
	- A Type	No.	86
	- B Type	No.	131
	- C type	No.	65
	- D/DE Type	No.	21
	Special Tower	No.	0
	Transposition tower	No.	0
	Gantry (PLC)	No.	2
	Total Towers	No.	305
	Suspension Towers	No.	86
	Tension Towers	No.	219
	Substation side Gantry	No.	2
	Total		307
9	Average Span	Mtrs	379
11	Tonnage per Km	MT/km	72
12	Pile / Spl. Locations	Loc	0
13	Crossing Details	No./KM	0
	National Highway	No.	2
	State Highway	No.	4
	Minor River	No.	0
	Major River	No.	0
	132kV Transmission Line	No.	2
	220kV Transmission Line	No.	4
	400kV Transmission Line	No.	1
	765kV Transmission Line	No.	0
	500kV HVDC Transmission Line	No.	0
	800kV HVDC Transmission Line	No.	0
	Railway (Electrified)	No.	0
	Railway (Non-Electrified)	No.	1
14	Aviation Requirement		0
	0-10kM	No.	0
	10-20kM	No.	0

4. Route and BOQ Summary



Routing :-

1. Mangalore (Udupi PCL) – Kasargode 400kV (Quad) D/c line

The transmission line was drawn keeping in mind to avoid high habitation areas/ Maintaining the requisite clearance from AIRPORT/ minimum intervention in Wildlife Sanctuaries, minimum cutting of coconut/ Rubber/Kaju trees as extent possible/ and considering all the power line / Railway/ NH/ SH crossings as per the requirement of RFP. Following are the major points as detailed below.

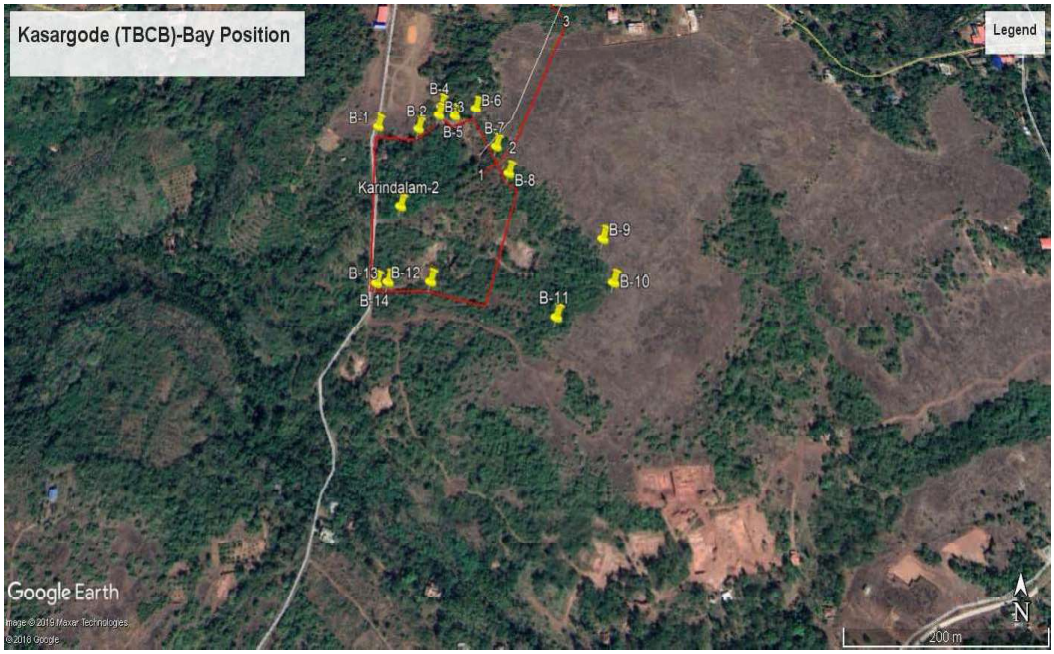
i) The line is passing through Hilly terrain/ Undulated terrain in majority. The minimum and maximum elevation of the line is 7 M & 342 M respectively.

ii) There are scattered houses in the corridor and sufficient clearances have been maintained to avoid the rehabilitation & resettlement to extent possible.

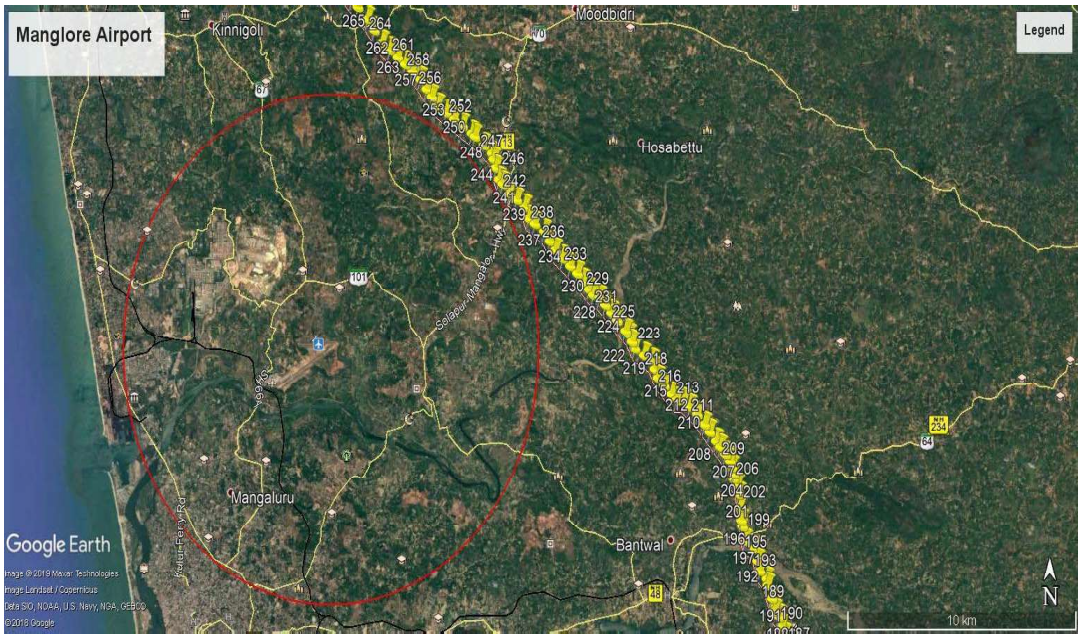
A. Selection of Bays at Udupi PCL (Adani) Substation-

Bays for termination of line at Udupi PCL (Adani) was done as per the bays positions confirmed in Survey Reports/ SLD/ GA Drawings/ Clarifications provided by BPC.

B. **Selection of Bays at Kasargode (TBCB) Substation:-** Bays for termination of line at Kasargode (TBCB) was done considering the feasibility of entering of line and minimizing the route length. The location of Substation was considered as per the given boundary limits by BPC & finalization of land by land team.



C. **Maintaining sufficient tower height clearance as per NOCAS Mangalore Airport**:- The Bee line is passing over the Mangalore Airport, and to avoid the same and maintaining the sufficient height clearance, the line has been taken 9 Km away from Runway to ensure the sufficient height clearance & NOC from NOCAS.



Permissible Height for T.No-244 on NOCAS