GETCO

GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED

Azadi Ka Amrit Mahotsav

Website:www.getcogujarat.com
Email:feedback.getco@gebmail.com
Phone: (0265) 2310582-86

Email: ceproject.getco@gebmail.com
CIN: U40100GJ1999SGC036018
Fax No (0265) 2337918, 2338164

Ref: CE (Project)/SE(P)/EE SS/T3/66KV Cable Laying/MOC/ 2911 | Date: 10.01.2022

13

To,
Superintending Engineer (TR),
Gujarat Energy Transmission Corporation Limited,
Transmission Circle Office,
Amreli/Anjar/Bharuch/Gondal/Himmatnagar/Jambuva/Junagadh
/Jamnagar/Nadiad/Navsari/Mehsana/Palanpur/Surendranagar

HGK
EE (R&C)

Sub: Standard Approval of Method of Construction for 66KV UG Cable laying works.
Ref: T.O.L. No. CE (P)/SE(S/S)/66KV Cable laying/ 3957 Dt. 24.04.2019

With reference to subject, please find attached herewith following standard approval of Method of Construction for 66KV UG Cable laying works. Please ensure that all upcoming works shall be executed according to this Method of Construction(MOC).

SN	Description	Drawing No.	Remark
1	66KV 1CX300/630 sqmm XLPE Cable Laying Trench Details S/C (3+1) (U/g cable)	GETCO/E/66KV-001/Cable S/C/01 Dt: 29.09.2021: Rev R2	Approved
2	66KV 1CX300/630 sqmm XLPE Cable Laying Trench Details D/C (6+1) (U/g cable)	GETCO/E/66KV-001/Cable D/C/01 Dt: 29.09.2021: Rev R2	Approved
3	Typical Arrangement for Maintenance free treated Earth pit for Normal Soil	GETCO/E/STD/P-021 Dt:29.05.2020 (Sheet 1 of 2) Rev R3	Approved
4	Typical Arrangement for Maintenance free treated Earth pit for Rocky Soil	GETCO/E/STD/P-021 Dt:29.05.2020 (Sheet 2 of 2) Rev R3	Approved
5	66KV 1CX300/630 SQ MM XLPE Cable Laying Trench Details (Under Ground Cable) in Farmer's Field.	GETCO/E/66KV-001/Cable D/C/02 Dt. 09.07.2018. Rev R1	Approved
6	Alternate Route Marker to be used for 66KV U/G Cable Laying in Farmer's Field.	GETCO/E/66KV-001/Cable ACRM Dt:09.07.2018 Rev R1	Approved
7	66KV Cable Route marker/Joint Marker Details (Under Ground Cable).	GETCO/E/66KV/UG Cable S/C/RM Dt. 16.03.2019. Rev R0	Approved
8	66KV RCC Slab Details (Under Ground Cable).	GETCO/E/66KV/UG Cable/SLAB Dt. 30.12.2016. Rev R0	Approved
9	Warning Board to be used for 66KV U/G Cable Laying.	GETCO/E/66KV-001/Cable WB Dt. 16.03.2019. Rev : R0	Approved
10	Cable Tag- 66KV Cable.	GETCO/E/66KV/UG Cable/TAG Dt. 30.12.2016. Rev : R0	Approved
11	Pre Warning Tape	GETCO/E/66KV/UG Cable/W Tape Dt. 30.12.2016. Rev R0	Approved
12	Joint Box Chamber.	GETCO/E/66KV-001/Cable JP Dt. 16.03.2019. Rev R1	Approved

Further, this approval supersedes earlier approval of MOC conveyed vide letter at reference.

This is for your further necessary actions please.

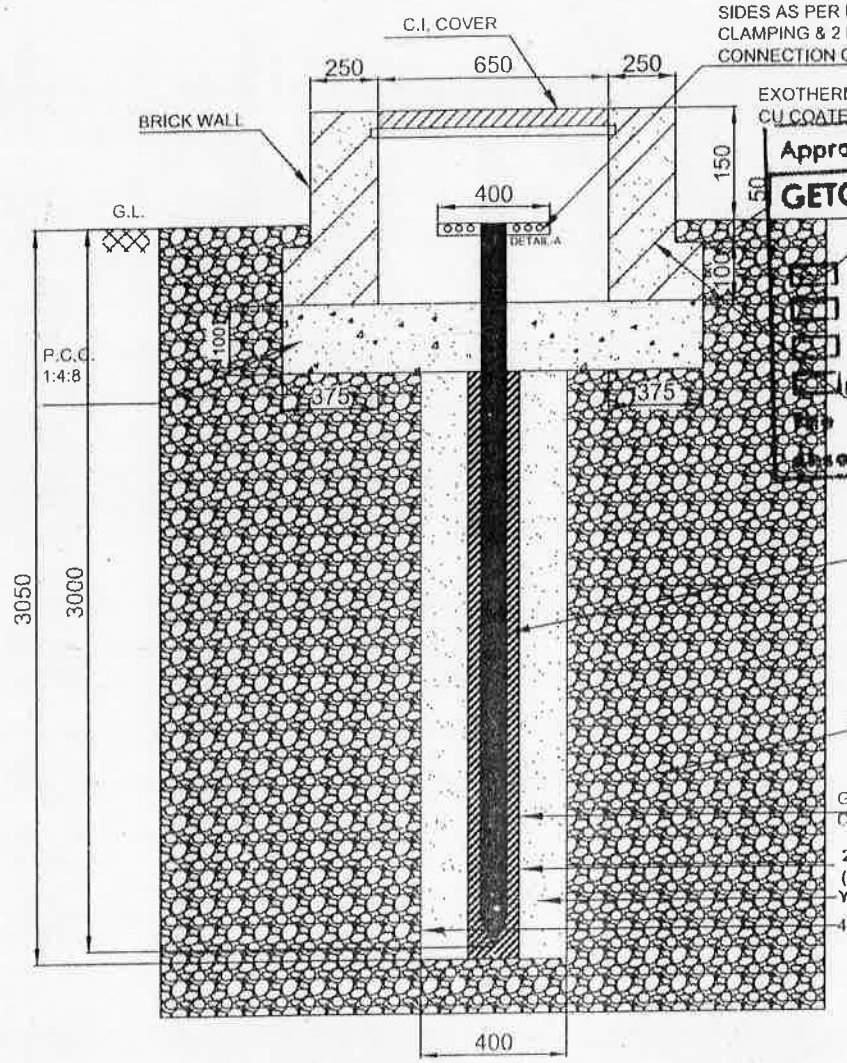
Solanki 13/01/2022

(K R Solanki)
CHIEF ENGINEER (PROJECTS)

Encl.: Standard drawings of 66KV Cable laying MOC as per above table.

Copy to:

1. CE(TR)/ACE(R&C)/ACE(Engg.), Corporate office, GETCO, Vadodara
2. E.E (Const.), Division Office, GETCO, Amreli/Anjar/Bharuch/Rajkot/Himmatnagar/Jambuva/Junagadh/ Jamnagar/Nadiad/Navsari/ Mehsana/Deesa/Limbdi
3. M/s Rajesh Power Services Pvt. Ltd., Ahmedabad
4. M/s Supreme Services, Ahmedabad
5. M/s GPI Projects Pvt. Ltd., Ahmedabad
6. M/s Vasudev Power Pvt. Ltd., Surat
7. M/s Siddharth Infra Power Pvt. Ltd., Vadodara
8. M/s Parth Electrical & Engg. Pvt. Ltd., Vadodara
9. M/s HEC Infra Projects Limited, Ahmedabad
10. M/s Om Power Transmission Pvt. Ltd., Ahmedabad
11. M/s Shri Sai Construction, Navsari
12. M/s Shiralee Electricals, Ahmedabad
13. M/s Bharat G. Patel, Ahmedabad
14. M/s Wens Infrastructure, Rajkot
15. M/s Onix Structures Pvt. Ltd., Dhoraji
16. M/s Bhavani Energy Solutions and Technologies Pvt. Ltd., Rajkot
17. M/s Bhadja Powertrans Pvt. Ltd., Surat
18. M/s Excel Technical Services, Jamnagar
19. M/s HiTech Transpower Pvt. Ltd., Rajkot
20. M/s Miracle Technology, Vadodara
21. M/s Jatson Power Pvt. Ltd., Vapi
22. M/s Jyona Power, Surat
23. M/s The Everest Electric Works, Surat
24. M/s Ultratech Transmission Pvt. Ltd., Vadodara
25. M/s Dhruvet Corporation, Vadodara
26. M/s Akshar Elecinfra Pvt Ltd, Vadodara
27. M/s Devangi Power Pvt Ltd, Surat
28. M/s LS Cable India Pvt Ltd,Rewari
29. M/s Arjun Enterprise, Rajkot
30. M/s Ayushi Corporation, Rajkot
31. M/s HEM Engineers , Ahemedabad
32. M/s H HARVI Engineering , Mehsana
33. M/s H M Electrical, Ankleshwar
34. M/s Patel Electricals, Surat
35. M/s Pravin C Savalia , Rajkot
36. M/s Samir Construction,Jamnagar
37. M/s Shree Vallabh Electrical,V.U.Nagar
38. M/s Sonal Fabricators,Ahmedabad
39. M/s Vasudev Electroproject Pvt. Ltd., Surat



75x10MM CU COATED MS STRIP WITH 3NOS. M12ØX25MM LONG BOLTS & NUTS ON BOTH SIDES AS PER DETAIL-'A' (1 NO. FOR CLAMPING & 2 NOS. FOR EXTERNAL CONNECTION ON BOTH SIDES)

OR

EXOTHERMIC WELDING TO FIX 75 X 10 MM CU COATED MS STRIP WITH ELECTRODE

Approval Letter/Mail No. 8124 Dt. 3-1-22

GETCO G.L. ENGG.CELL

DRAWING APPROVAL

- [ ] Cat-1 Approved
- [ ] Cat-2 Approved With Comments
- [ ] Cat-3 Approved For Information
- [ ] Cat-4 Not Approved

Above approval in general does Not Absolve you from contractual obligations.

~~3 M LONG COPPER BONDED MS EARTH ELECTRODE~~

OR

3 M LONG CU BONDED MEDIUM CLASS MS PIPE ELECTRODE

OR

3 M LONG CU BONDED MEDIUM CLASS MS PIPE - IN-PIPE / MS FLAT-IN-MS PIPE ELECTRODE

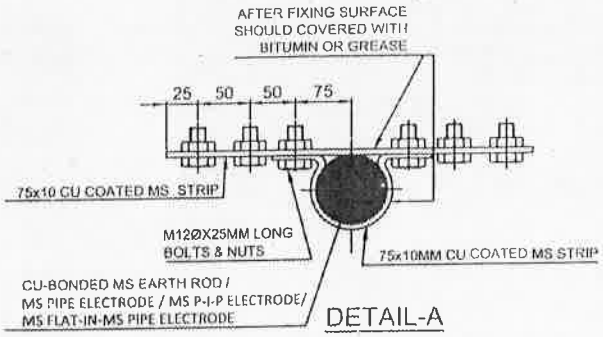
(FOR SIZE OF ELECTRODE PL. REFER BELOW TABLE)

EXISTING ROCKY SOIL

GROUND ENHANCING MATERIAL AS PER IS 80-2000 CL. NO. 14.5 (d)

200/150 mm X 3.05mtr. BORE
(Pl. refer Earthpit installation procedure)
YELLOW SOIL

400mm X 3.05 mtr. BORE



DETAIL-A

Earth pit installation procedure for Rocky Soil for Cu-bonded earth rod / Pipe electrode / P-I-P electrode / Flat in Pipe electrode

1. Drill a bore of 400 mm dia hole to a depth up to 3050 mm from GL.
2. Fill up the bore using yellow soil.
3. Carry out the compaction of filled up soil.
4. At the centre of filled up soil, drill a bore of 150 mm for 24/38mm dia Cu- bonded electrode to a depth up to 3050 mm from GL.
5. At the centre of filled up soil, drill a bore of 200 mm dia in case of Cu-bonded Pipe / P-I-P / Flat in Pipe electrode to a depth up to 3050 mm from GL.
6. Insert the earth rod/Pipe electrode/P-I-P electrode/Flat in Pipe electrode down the hole with lower end centered and driven in 150/200 mm bore.
7. Fill the bore using Ground Enhancement Material around the rod/Pipe electrode/P-I-P/Flat in Pipe electrode.
8. Allow it to dry to enable the compound to set before fixing clamp & connections.
9. Carry out the work for provision of CI cover with chamber as per drawing.

STANDARD APPROVAL

SIZE OF ELECTRODE

SR. NO.	TYPE OF ELECTRODE	FOR 66KV SS	FOR 132KV, 220KV & 400KV SS	RESPECTIVE IS
1	CU- BONDED MS ELECTRODE	24 MM DIA (MIN.)	38 MM DIA (MIN.)	IS FOR STEEL : 2062/1992 IS FOR STEEL TUBE : 1239 (Part-I)/2004
2	CU- BONDED MEDIUM CLASS MS PIPE ELECTRODE	50 MM DIA, 3.6 MM THICKNES (MIN.)	80 MM DIA, 4 MM THICKNES (MIN.)	
3	CU- BONDED MEDIUM CLASS MS P - I - P ELECTRODE	OUTER PIPE - 50 MM DIA, 3.6 MM THICKNES (MIN.) INNER PIPE - 25 MM DIA, 3.2 MM THICKNES (MIN.)	OUTER PIPE - 80 MM DIA, 4 MM THICKNES (MIN.) INNER PIPE - 40 MM DIA, 3.2 MM THICKNES (MIN.)	
4	CU- BONDED MS FLAT - IN - MEDIUM CLASS MS PIPE ELECTRODE	MS FLAT-25X6 MM MS PIPE-50 MM DIA, 3.6 MM THICKNES (MIN.)	MS FLAT-50X6 MM MS PIPE-80 MM DIA, 4 MM THICKNES (MIN.)	

SIGN	REFERENCE	SR.	DESCRIPTION
		R3	AS PER TECHNICAL REQUIREMENT
		R2	AS PER REQUIREMENT
		R1	AS PER REQUIREMENT
		(N)	FIRST PREPARATION

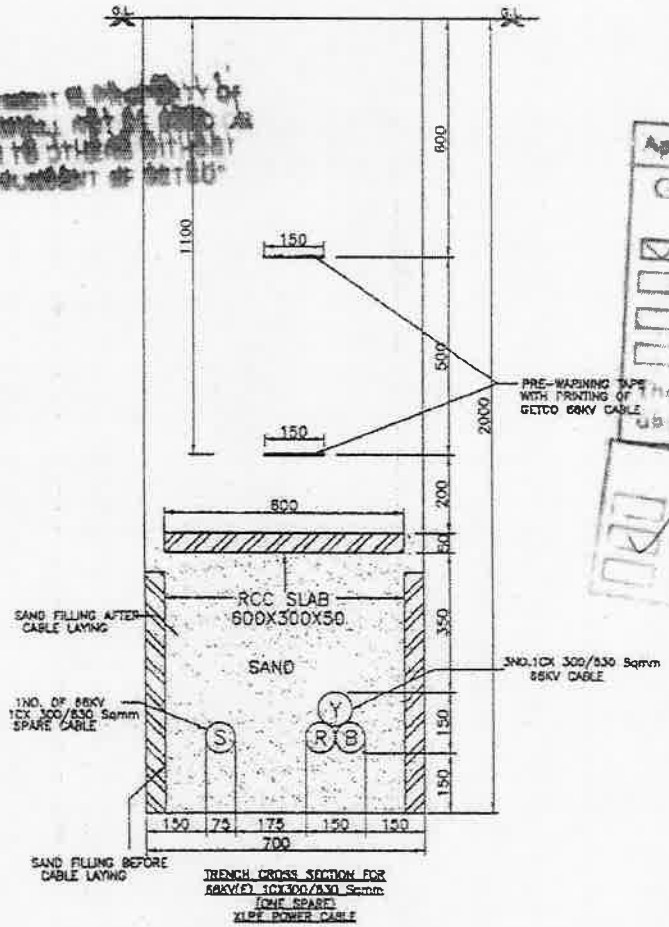
EXECUTION PURPOSE

GUJARAT ENERGY TRANSMISSION CORPN.LTD.
S.P.VIDYUT BHAVAN, RACE COURSE,
VADODARA - 390 007

TYPICAL ARRANGEMENT OF MAINTENANCE FREE TREATED EARTHPIT FOR ROCKY SOIL

DRAWN:	CHECKED:		APPD:	SIZE:
DE (ENGG.)	EE (CIVIL)	EE (ENGG.)	ACE (ENGG.)	A3
SCALE: N.T.S	DATE: 29.05.2020		DRG. NO: GETCO / E / STD / P-021	SHEET: 2 OF 2 — REV: R3

METHOD OF CONSTRUCTION FOR 66KV U/G CABLE LAYING WORK IN FARMER'S FIELD.



TRENCH CROSS SECTION FOR 66KV(E) 1CX300/530 Sqmm (ONE SPARE) XLPE POWER CABLE

(A) CABLE LAYING AT NORMAL EXCAVATION

NOTE:-

- FOR ROUTE MARKER REFER DRG NO. GETCO/ E/ 66KV 001 / CABLE ACRM
- ONLY OPEN EXCAVATION DIGGING IS ALLOWED IN FARMER'S FIELD AREA.

Approval Letter/Mail No. 253 Dt. 18-3-19

GETCO ENGG.CELL

DRAWING APPROVAL

- [x] Cat-1 Approved
- [ ] Cat-2 Approved With Comments
- [ ] Cat-3 Approved For Information
- [ ] Cat-4 Not Approved

The above approval in general does Not absolve you from contractual obligations.

GETCO

- [ ] Released For Manufacture
- [x] Released For Construction
- [ ] Submitted For Information

COMMENTS INCASE OF ALU. CORRUGATED SHEATH CABLE LAYING

1. ALU. CORRUGATED CABLE MUST BE PULLED WITH PULLING EYE/SOCKET PROVIDED WITH CABLE END.
2. ENDS OF EXTRA CABLE LEFT OUT AFTER LAYING SHALL BE SEALED WITH MOISTURE INGRESS PROTECTION SLEEVE + PULLING EYE / SOCKET.
3. MIN. BENDING RADIUS 1800MM SHALL BE MAINTAINED.

GUJARAT ENERGY TRANSMISSION CORPN.LTD.

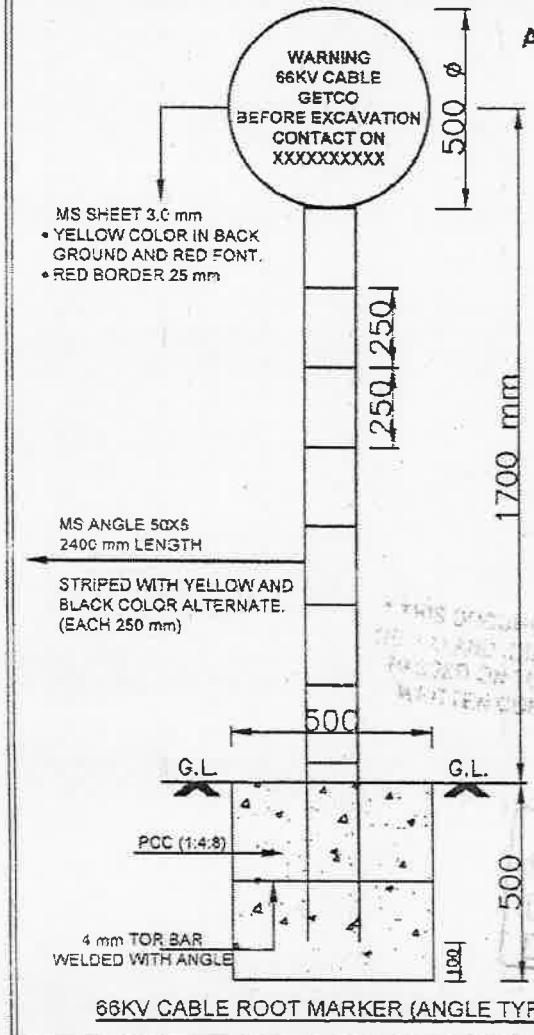
66KV 1C X300/530 SQ. MM. XLPE CABLE LAYING TRENCH DETAILS (UNDERGROUND CABLE) IN FARMER'S FIELD.

DATE	REV	DESCRIPTION
08.07.2019	R1	SAND BEDDING 150 MM INSTEAD OF 100 MM, SAND LAYER ABOVE CABLE 300 MM INSTED OF 250 MM, ALU. CORRUGATED CABLE COMMENTS ADDED.

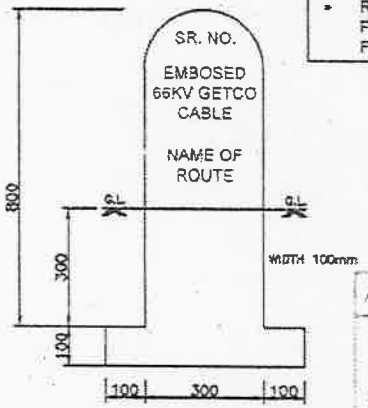
DRAWN: CHECKED: APPD:

SCALE: DATE: 08.07.2019 DRG. NO. GETCO / E / 66KV/001 / CABLE ACRM/002 SHEET NO. 1 OF 1 REV. R1

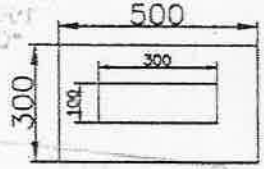
ALTERNATE ROUTE MARKER TO BE USED FOR 66KV U/G CABLE LAYING IN FARMER'S FIELD



66KV CABLE ROOT MARKER (ANGLE TYPE)



66KV CABLE ROOT MARKER(RCC)



NOTE:-

- THESE TYPE OF ROUTE MARKERS ARE TO BE USED FOR 66KV U/G CABLE LAYING IN FARMER'S FIELD.
- RCC AND ANGLE TYPE ROUTE MARKER ARE TO BE PROVIDED / FIXED ALTERNATIVELY ON ROUTE.(RCC FOLLOWED BY ANGLE FOLLOWED BY RCC & SO ON) @ 25 mtr.

XXXXXXXX : Contact no. of both end Substations of GETCO.

Approval Letter/Mail No. 253 18.3.19

GETCO ENGG. CELL

DRAWING APPROVAL

Can't Approved

Can't Approved With Comments

Can't Approved For Information

Can't Not Approved

The Above approval in general does Not absolve you from contractual obligations.

GUJARAT ENERGY TRANSMISSION CORPN.LTD.
SUVIDYUT BHAVAN, RACE COURSE
VADODARA - 390 007

ALTERNATE ROUTE MARKER TO BE USED FOR 66KV U/G CABLE LAYING IN FARMER'S FIELD

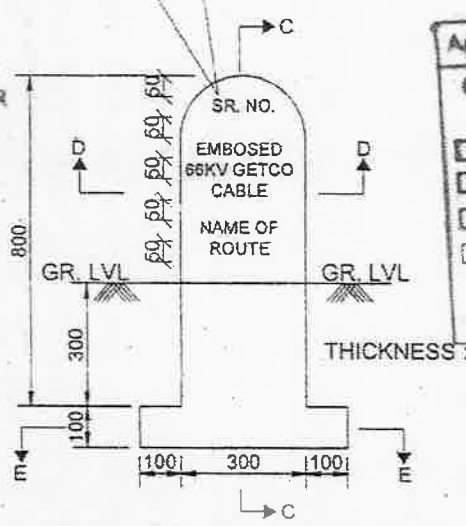
DATE	REV.	DESCRIPTION
		ROUTE MARKER HEIGHT 900 MM INSTED OF 650 MM & SR. NO. & NAME OF ROUTE ADDED.

DRAWN | CHECKED | APPD

SCALE | DATE | DRG. NO. GETCO / E / | SHEET | REV

NOTE: ABOVE GROUND PORTION OF ROUTE MARKER SHOULD BE FLORESCENT YELLOW COLOUR WITH RED FONT

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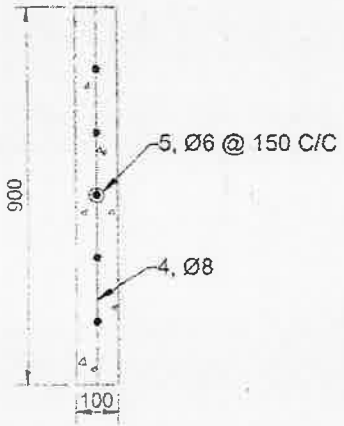


66 KV CABLE ROUTE MARKER (RCC)

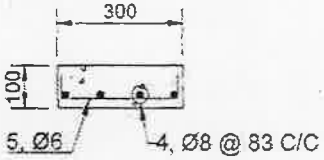
THICKNESS :100 mm

Approval Letter/Mail No. 253 Dt. 18.3.19
GETCO ENGG.CELL
DRAWING APPROVAL
Cat-1 Approved
Cat-2 Approved With Comments
Cat-3 Approved For Information
Cat-4 Not Approved
The Above approval in general does Not absolve you from contractual obligations

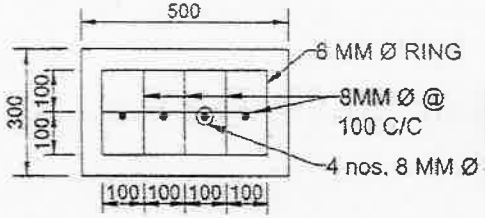
GETCO
Approved For Manufacture
Approved For Construction
Approved For Information



SECTION C - C



SECTION D - D



SECTION E - E

NOTE:
1. ALL DIMENSIONS ARE IN MM.
2. CONCRETE GRADE - M15

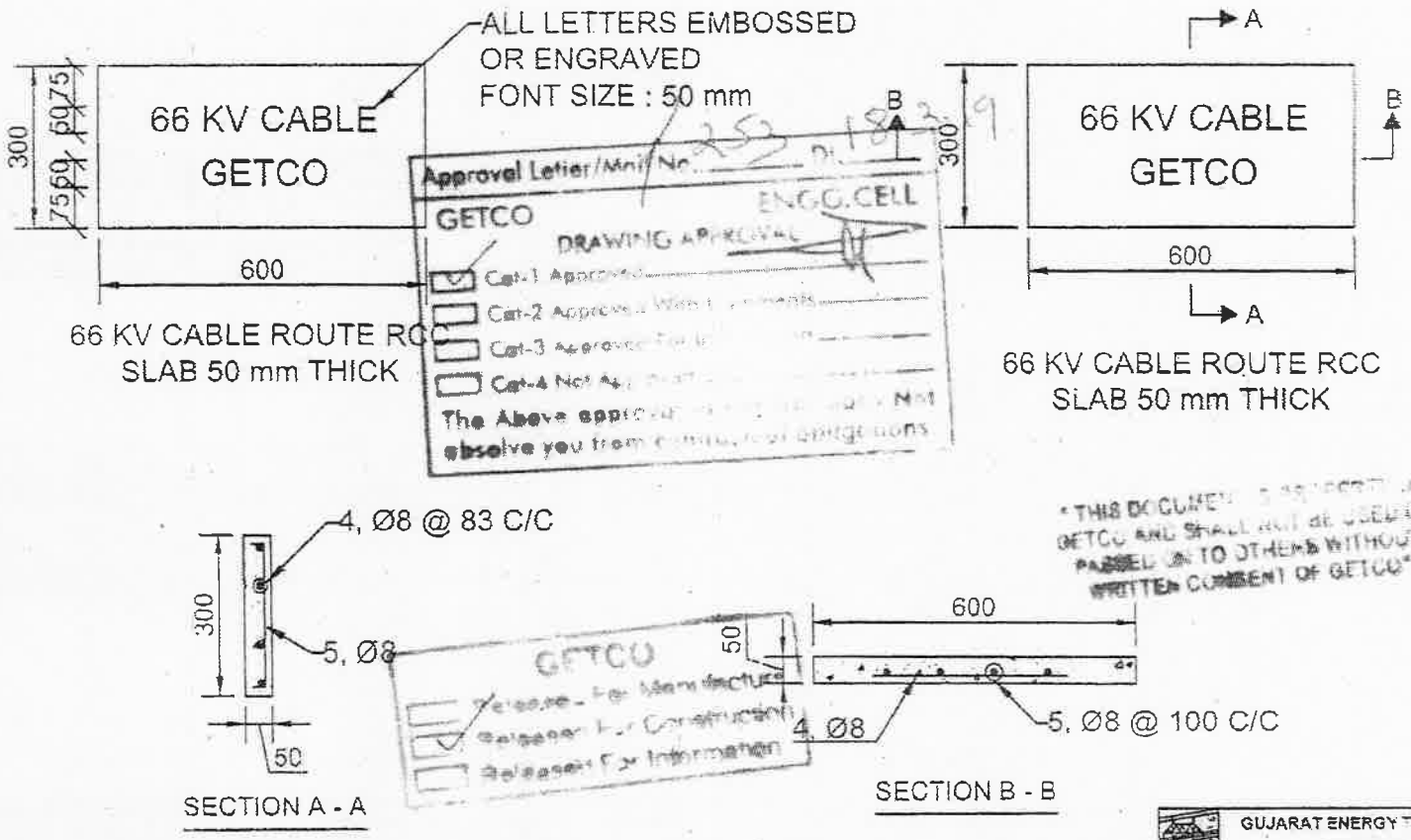
EXECUTION PURPOSE

GUJARAT ENERGY TRANSMISSION CORPN.LTD.
S.P.VIDYUT BHAVAN, RACE COURSE,
VADODARA - 390 007

66 KV CABLE ROUTE MARKER/JOINT MARKER DETAILS (UNDER GROUND CABLE)

DRAWN:	CHECKED:		APPD:			SIZE:
JE(CIVIL)	DE(CIVIL)	DE(ENCG)	SE(ENGG.)	SE(CIVIL)	CE(ENGG.)	A4
SCALE:	DATE:		DRG. NO:		SHEET:	REV:
N.T.S	16.03.19		GETCO / 66 KV / UG CABLE / R.M.		1 OF 1	R0

REV:	DESCRIPTION
R1	ROUTE MARKER HEIGHT 900 MM INSTED OF 650 MM & PAD TYPE ADOPTED. SR. NO. & NAME OF ROUTE ADDED.



NOTE:

1. ALL DIMENSIONS ARE IN MM.
2. CONCRETE GRADE - M15

EXECUTION PURPOSE

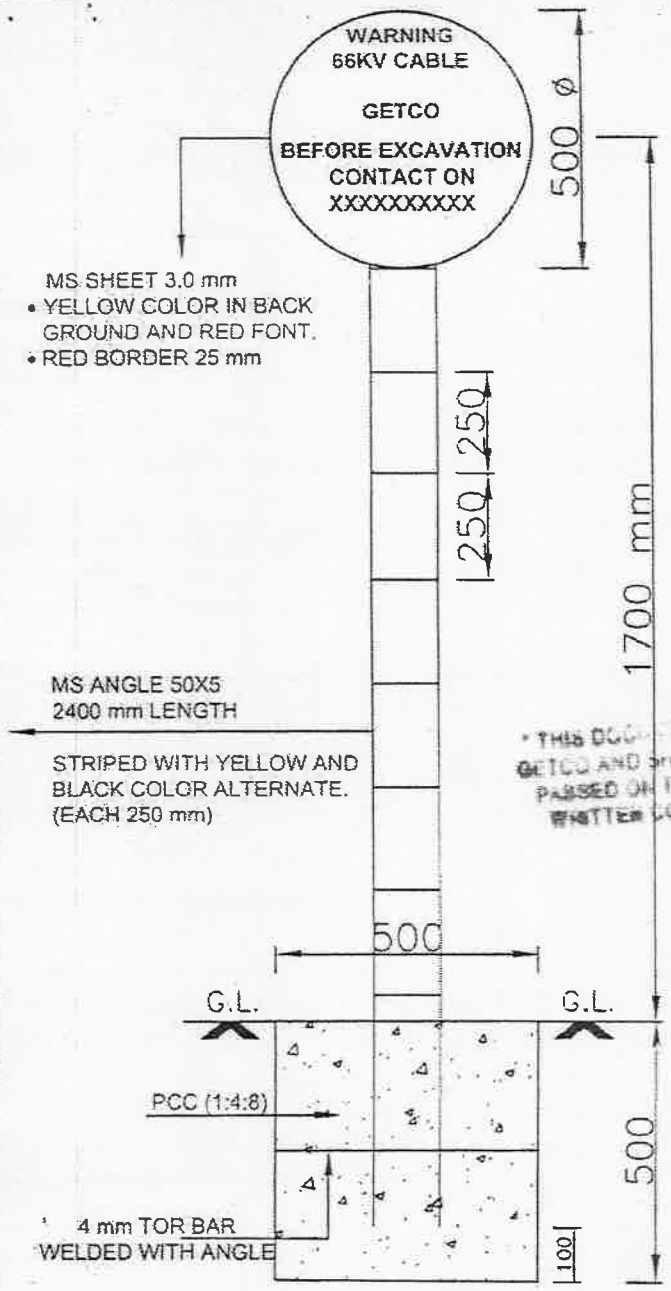
GUJARAT ENERGY TRANSMISSION CORPN.LTD.
S.P.VIDYUT BHAVAN, RACE COURSE,
VADODARA - 390 007

66 KV CABLE RCC SLAB DETAILS
(UNDER GROUND CABLE)

DRAWN:	CHECKED:		APPD.			SIZE:
JE(CIVIL)	DE(CIVIL)	DE(ENGG.)	SE(ELEY.)	SE(CIVIL)	CE(ENGG.)	A4
SCALE:	DATE:		DRG. NO.		SHEET:	REV:
N.T.S	30.12.13		GETCO / 66 KV / UG CABLE / SLAB		1 OF 1	R0

SR.NO.	REFERENCE	REV:	DESCRIPTION
1		0	-

WARNING BOARD TO BE USED FOR 66KV U/G CABLE LAYING



66KV CABLE ROOT MARKER (ANGLE TYPE)

NOTE:-

- **WARNING BOARD ARE TO BE PROVIDED / FIXED ON ROUTE @ EVERY 90 MTR. & BOTH SIDES OF ROAD CROSSING OF CABLES.**

GETCO
For Construction

Approval Letter/Mail No. 253 Dt. 18.3.19
GETCO ENGG. CHL
DRAWING APPROVAL
Cat-1 Approved
Cat-2 Approved with Comments
Cat-3 Approved For Information
Cat-4 Not Approved
The Above approval ... shall not absolve you from ... obligations

REV:	DESCRIPTION:

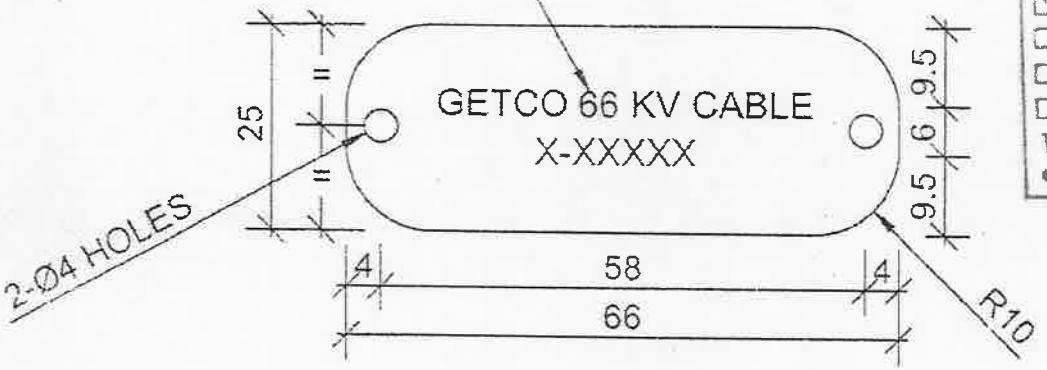
GUJARAT ENERGY TRANSMISSION CORPN.LTD.
S.P.VIDYUT BHAVAN, RACE COURSE,
VADODARA - 390 007

WARNING BOARD TO BE USED FOR 66KV U/G CABLE LAYING

DRAWN:	CHECKED:	APPD.	SIZE: A4
SCALE:	DATE: 16.03.2019	DRG. NO: GETCO / E / 66KV-001 / Cable WB	SHEET: X OF Y / REV: R0

FONT : ARIAL TYPE ENGRAVED.
FONT SIZE : 3.2 mm HEIGHT

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Approval Letter No. 253 Dt. 18.3.19

GETCO ENGG.CELL

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- [x] Cat-1 Approved
- [ ] Cat-2 Approved With Comments
- [ ] Cat-3 Approved For Information
- [ ] Cat-4 Not Approved

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66 KV CABLE TAG

TYPE	X-XXXXX
01	R - PHASE
02	Y - PHASE
03	B - PHASE
04	SPARE

GETCO
- [ ] Released For Manufacture
- [x] Released For Construction
- [ ] Released For Information

NOTE:
1. ALL DIMENSIONS ARE IN MM.
2. MATERIAL : ALUMINIUM 3 MM THK.

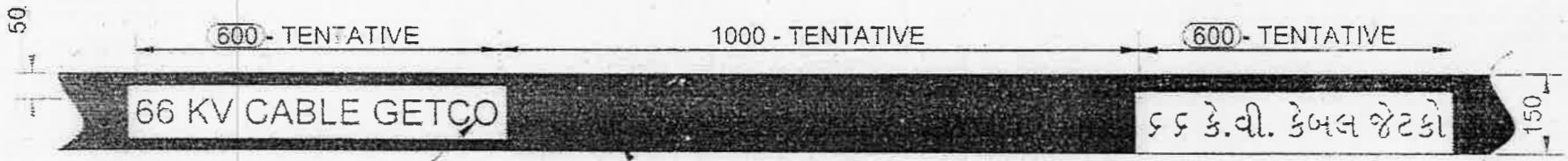
EXECUTION PURPOSE

GUJARAT ENERGY TRANSMISSION CORPN.LTD.
S.P.VIDYUT BHAVAN, RACE COURSE,
VADODARA - 390 007

CABLE TAG - 66 KV CABLE

DRAWN:	CHECKED:	APPD:	
(DESIGNER)	DE(CIVIL) DE(ENGG.)	SE(CIVIL) CE(ENGG.)	SIZE A4
SCALE: N.T.S	DATE: 30.12.16	DRG. NO: GETCO / 66 KV / UG CABLE / TAG	SHEET: 1 OF 1

SR.NO.	REFERENCE	REV:	DESCRIPTION
		0	-



FONT : ARIAL
FONT SIZE : 50 mm
FONT COLOUR : RED

STRIP BACKGROUND
COLOUR : YELLOW

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PRE WARNING PVC TAPE - 66 KV GETCO

600 mm FOR THIS FONT SIZE

NOTE:
1. ALL DIMENSIONS ARE IN MM.

Approval Letter/Mail No. 253 Dt. 18-3-19
GETCO ENGG.CELL
DRAWING APPROVAL
Cat-1 Approved
Cat-2 Approved With Comments
Cat-3 Approved For Information
Cat-4 Not Approved
The Above approval in general does not obselve you from contractual obligations.

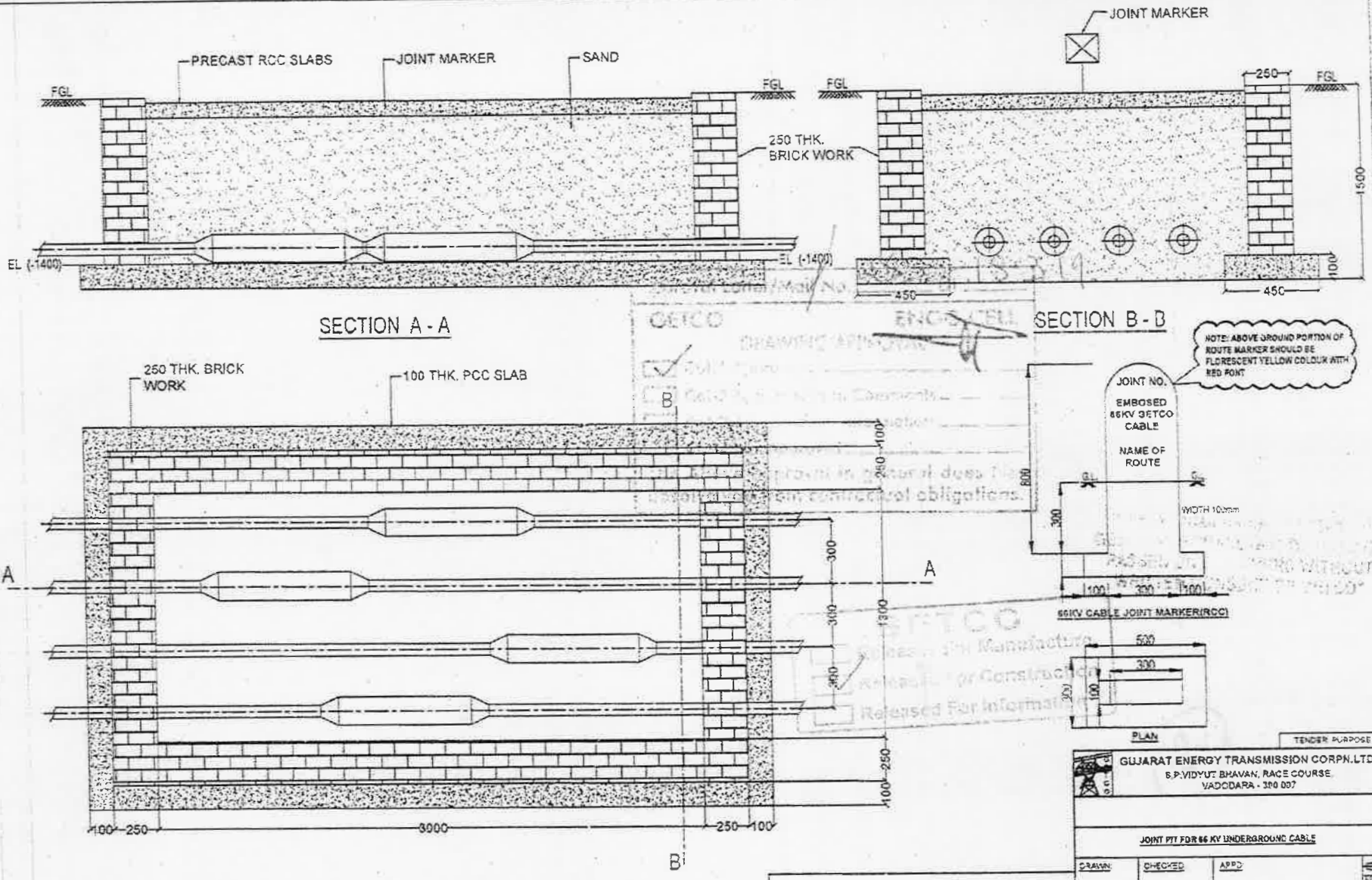
GETCO
Approved For Manufacture
Approved For Construction
Approved For Information
EXECUTION PURPOSE

GUJARAT ENERGY TRANSMISSION CORPN.LTD.
SARDAR PATEL VIDYUT BHAVAN, RACE COURSE
VADODARA - 390 007

PRE - WARNING TAPE - 66 KV CABLE

DRAWN:	CHECKED:		APPD			SIZE
JE(CIVIL)	DE(CIVIL)	DE(ENGG)	SE(ENGG.)	SE(CIVIL)	CE(ENGG.)	A4
SCALE:	DATE:		DRG. NO		SHEET:	REV
N.T.S	30.12.16		GETCO / 66 KV / UG CABLE / W. TAPE		1 OF 1	R0

SR.NO.	REFERENCE	REV:	DESCRIPTION
1		0	-



JOINT PIT FOR 66 KV UNDERGROUND CABLE