

END CUSTOMER: APTRANSCO

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-11/2011/RC-4073/2011
DT.28.07.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-21/2011/RC-4075/2011
DT.02.08.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-29/2011/RC-4079/2011
DT.18.08.2011

132/33kV TRANSFORMER
BAY CONTROL AND PROTECTION PANEL

SL.NO.	DESCRIPTION	DWG.NO.
1.	GENERAL ARRANGEMENT	ER1812,13&50 GA BTRCR11
2.	BILL OF MATERIAL	ER1812,13&50 BM BTRCR11
3.	SCHEMATIC DIAGRAM	ER1812,13&50 SC BTRCR11



EASUN REYROLLE LTD
HOSUR , TAMIL NADU
INDIA

END CUSTOMER: APTRANSCO

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-11/2011/RC-4073/2011

DT.28.07.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-21/2011/RC-4075/2011

DT.02.08.2011

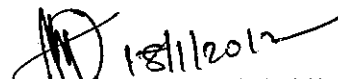
PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-29/2011/RC-4079/2011

DT.18.08.2011

132/33kV TRANSFORMER
BAY CONTROL AND PROTECTION PANEL

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1.	GENERAL ARRANGEMENT	ER1812,13&50 GA BTRCR11
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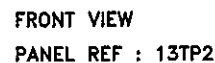
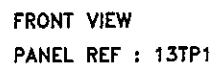
APPROVED FOR TURNKEY PROJECTS


CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD



EASUN REYROLLE LTD
HOSUR , TAMIL NADU
INDIA

C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



STD/DWG/Approval No. **262.5** Revision No. **0**
Prepared & Approved during **January - 2012**

ZCP1812

S.NO	SUBSTATION NAME	QTY
1	DISINCHERLA S/S	02
2	TANGUTUR S/S	02

ZCP1813

3	NARASANNAPETA S/S	01
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ZCP1850

4	KALWA SRIRAMPUR	02
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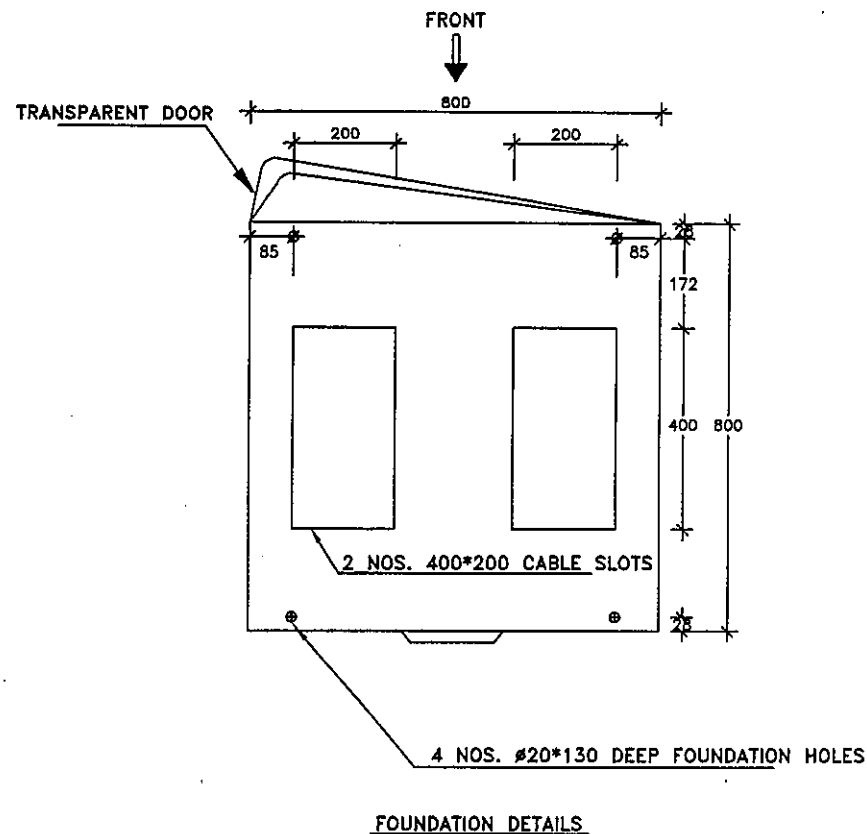
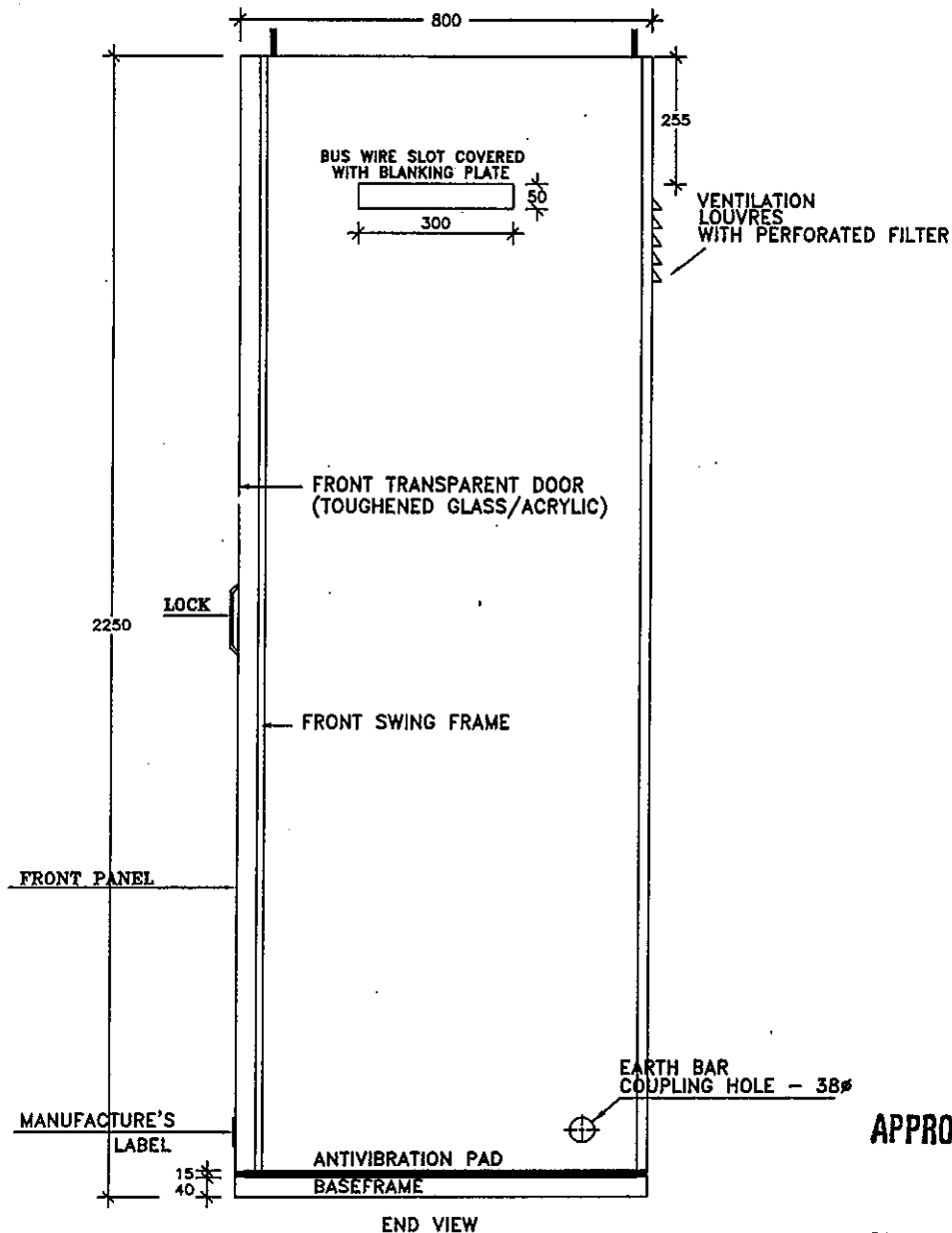
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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

NOTE:

- 1) 1U = 44.25mm
2) THIS DRAWING IS APPLICABLE FOR BOTH SPEC. No APT E-11 & E-21

DWG.NO :ER1812,13&50 GA BTRCR11	CUSTOMER :APTRANSCO		
SUBSTATION:132/33KV SS	CONTRACTOR:		
SHT. TITLE :GENERAL ARRANGEMENT	CONSULTANT:		
DWG. TITLE :GENERAL ARRANGEMENT FOR 132/33KV TRAF0 BAY CTRL&PROTN. PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 01	
	-e-11/2011/D.No.84/2011 D:23.06.2011	NEXT SHT:02	
	ERL REF. :ZCP1812&13	SCALE : NTS	TOT SHT: 03



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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812&1813 GA BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :END VIEW & FOUNDATION DETAIL	CONSULTANT:
DWG. TITLE :GENERAL ARRANGEMENT FOR 132/33KV TRAFO BAY CTRL&PROTN. PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT -e-11/2011/D.No.84/2011 D:23.06.2011 ERL REF.:ZCP1812&13 SCALE : NTS
	THIS SHT: 02 NEXT SHT: 03 TOT SHT: 03

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

WIRING :

2.5 SQ.mm MULTI STRANDS ANNEALED BARE COPPER CONDUCTOR
FOR CT, PT & EARTHING CIRCUITS

1.5 SQ.mm MULTI STRANDS ANNEALED BARE COPPER CONDUCTOR
FOR ALL OTHER CIRCUITS

2X2.5 SQ.MM MULTI STRANDS ANNEALED BARE COPPER CONDUCTOR
FOR ENERGY METER PT CIRCUITS

GASKET :

NEOPRENE GASKET

EARTH BAR :

25*6 mm TINNED COPPER BAR

COLOUR OF WIRING :

RED, YELLOW, BLUE FOR R, Y, B PHASE RESPECTIVELY - CT & PT CIRCUITS

BLACK - NEUTRAL

GREY - DC CONTROL CIRCUITS

WHITE - 1Ø AC CIRCUITS

GREEN - EARTHING

PANEL SHEET THICKNESS :

3mm - FOR BASE FRAME, FRONT SHEET

2mm - FOR SIDES, TOP & BOTTOM PORTIONS

DEGREE OF PROTECTION:

IP54

PAINTING : (POWDER COATING)

THICKNESS: MINIMUM 60 MICRONS

EXTERIOR : LIGHT GREY TO SHADE 631 OF IS:5 - SEMI GLOSSY FINISH

INTERIOR : WHITE - GLOSSY FINISH

BASE FRAME: BLACK - GLOSSY FINISH

AUX. DC SUPPLY : 220V

AUX. AC SUPPLY : 1Ø , 50Hz , 230V AC

APPROVED FOR TURNKEY PROJECTS

M. D. S. S. S.
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812&1813 GA BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :CUBICLE DETAILS	CONSULTANT:
DWG. TITLE :GENERAL ARRANGEMENT FOR 132/33KV TRAF0 BAY CTRL&PROTN. PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT -e-11/2011/D.No.84/2011 D:23.06.2011 ERL REF.:ZCP1812&13 SCALE : NTS
	THIS SHT: 03 NEXT SHT: --- TOT SHT: 03

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

 Easun Reyrolle Limited BILL OF MATERIAL 132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL					
PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
13TP1	13TP1	132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL-1	TYPE : SIMPLEX - SWING FRAME DIMENSIONS : 800(W)X800(D)X2250(H) (INCLUDING AVP-15mm) COLOUR: : EXTERIOR: LIGHT GREY TO SHADE 631 OF ISS. INTERIOR : GLOSSY WHITE BASE FRAME: BLACK	ERL	1
	CL	CIRCUIT LABEL	PVC BLACK 300(W) X 50(H)	ERL	1
	87T	NUMERICAL TRANSFORMER DIFFERENTIAL PROTECTION RELAY	TYPE :CSC326 WITH IEC61850-8-1 STATION COMMUNICATION PROTOCOL CT SEC: 1A RATED VOLTAGE : 220V DC MODEL NO:1, VERSION -2. INSTANTANEOUS AND BIASED DIFF. PROTECTION REF PROTECTION OVER FLUX (DEFINITE AND INVERSE) DEFINITE & IDMTL O/C PROTECTION DEFINITE & IDMTL NEUTRAL CURRENT PROTECTION NEUTRAL DISPLACEMENT PROTECTION THERMAL OVERLOAD PROTECTION OVERLOAD PROTECTION NEGATIVE PHASE SEQUENCE IMBALANCE PROTECTION CB STATUS SUPERVISION OVER CURRENT BLOCKING VOLTAGE REGULATION PROTECTION DISTURBANCE RECORDING FACILITY EVENT RECORDER WHICH STORES UP TO 1000 EVENTS RS485 COMMUNICATION PORT-2 NOS ETHERNET PORT-2 NOS RS232 PORT- 1 NO	ERL	1

	Standardised Drawings for 132/33 kV Transformer Bay Control and Protection panels with BCU (M/s. Easun Reyrolle Ltd., Hosur make) ER 1812, 50 & 51 BM BTRCR11 (1-9)
	STD/DWG/Approval No. <u>262.5</u> Revision No. <u>0</u>
	Prepared & Approved during January - 2012

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO, VIDYUTHI SOJHA/HYD.



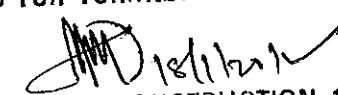
Easun Reyrolle Limited

BILL OF MATERIAL

132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL

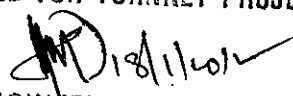
PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	BCU-HV	BAY CONTROL UNIT	TYPE : CSI 200EA WITH IEC 61850-8-1 STATION COMMUNICATION PROTOCOL 1 AI MODULE (8U/4I), 2 DI MODULE (96DI'S) 2 DO MODULE (28 DO'S) 1 DT MODULE (5 DT'S) CT SEC: 1 AMP PT SEC: 110V (PH-PH) AUX. SUPPLY: 220V DC GRAPHICAL HMI, PROVIDES WITH SYNCHROCHECK(RSYN,25) METERING, A, V, MW, MVAR, PF, HZ. MONITORING TRIPPING LOGIC(PTRC,94) DISTURBANCES EVENT RECORDER(RDRE)	ERL	1
	50/51RYB/67N/ 50LBB-HV	NUMERICAL NON DIRECTIONAL OVER CURRENT AND DIRECTIONAL EARTH FAULT RELAY WITH BUILT IN LBB	TYPE: CSC211 WITH IEC 61850 COMMUNICATION PROTOCOL NUMERICAL NON DIRECTIONAL OVER CURRENT & DIRECTIONAL EARTH FAULT RELAY INTERFACES SUITABLE FOR RJ 45 CONNECTION CT SEC : 1A, PT SEC : 110V AUX.SUPPLY: 220V DC HIGHSET O/C PROTECTION (FWD OR REV OR NON DIR) HIGHSET E/F PROTECTION(FWD OR REV OR NON DIR) INVERSE O/C PROTECTION (FWD OR REV OR NON DIR) INVERSE E/F PROTECTION(FWD OR REV OR NON DIR) SENSITIVE E/F PROTECTION CIRCUIT BREAKER FAILURE PROTECTION DISTURBANCE RECORDER WITH RECORDING FACILITY EVENT RECORDER WHICH STORES UP TO 1000 EVENTS	ERL	1
	86-HV	MASTER TRIP RELAY	TYPE: TR241H2 CASE : E4 AUX. SUPPLY :220V DC CONTACTS : 16M, 4B HR/ER WD. : 8112W00084	ERL	1

APPROVED FOR TURNKEY PROJECTS


CHIEF ENGINEER / CONSTRUCTION-1
A/TRANSCQ/VIDYUTH SOUDHA/HYD

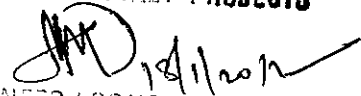
**Easun Reyrolle Limited****BILL OF MATERIAL****132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL**

PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	86LBB	TRIP RELAY FOR LBB	TYPE: TR241H2 CASE : E4 AUX. SUPPLY :220V DC CONTACTS : 16A, 4B HR/ER WD. : 8112W00084	ERL	1
	30A,30B 30C,30D 30E,30F	AUXILIARY RELAY FOR TRANSFORMER FUNCTIONS	TYPE: AR112 CASE :E2 AUX. SUPPLY : 220V DC CONTACTS : 7A, HR WD: 8112W00148	ERL	6
	195-HV 295-HV	TRIP CKT. SUPERVISION RELAY FOR TC-1&2	TYPE: XR351 CASE : E4 AUX. SUPPLY :220V DC CONTACTS : 2M 2B 5R WD : 8112W00132	ERL	2
	95/86 - HV	MASTER TRIP RELAY SUPERVISION RELAY	TYPE: XR151 CASE : E2 AUX. SUPPLY :220V DC CONTACTS : 2M 2B 5R WD : 8112W00146	ERL	1
	80A	DC SUPPLY SUPERVISION RELAY	TYPE: AR121T3 CASE : E2 AUX. SUPPLY :220VDC CONTACTS : 2M 2B 5R WD:8112W00143	ERL	1
	95/86 - LBB	LBB TRIP RELAY SUPERVISION RELAY	TYPE: XR151 CASE : E2 AUX. SUPPLY :220V DC CONTACTS : 2M 2B 5R WD : 8112W00146	ERL	1
	52CS-HV	CONTROL SWITCH FOR CIRCUIT BREAKER	TYPE : SPRING RETURN TO NEUTRAL WITH LMD & LOCKING FACILITY IN NEUTRAL HANDLE TYPE : PISTOL GRIP POSITION : 3 , WAYS : 8 POS. : TRIP - NEUTRAL - CLOSE (3 IN TRIP, 2 IN CLOSE, 1 IN AFTER CLOSE, 1 IN NEUTRAL, 1IN AFTER TRIP)	SWITRON	1
	YPI	TAP POSITION INDICATOR	OUTPUT 4-20 mA NO.OF TAP POSITIONS : 21 AUX SUPPLY: 220V DC STEP RESISTANCE/TAP : 1 Kilo ohm/step	EMCO	1

APPROVED FOR TURNKEY PROJECTS
**CHIEF ENGINEER / CONSTRUCTION-1,
APTRANSCO/VIDYUTH SOUDHA/HYD.**

 Easun Reyrolle Limited BILL OF MATERIAL 132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL					
PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	PB1	PUSH BUTTON FOR RESETING MASTER TRIP RELAY	COLOUR : BLUE CONTACT : 2 NO DIA : 22.5 mm	SHAYADHRI	1 2
	RTS1	RELAY TEST SWITCH FOR DIFFERENTIAL RELAY	DOUBLE POLE TYPE : STAYPUT	SWITRON	1
	RTS2	RELAY TEST SWITCH FOR BACK UP RELAY-HV	DOUBLE POLE TYPE : STAYPUT	SWITRON	1
	ES	ETHERNET SWITCH	100MBPS	RUGGEDCOMM	1
	BLK-A BLK-B & BLK C BLK-D	TEST BLOCK FOR BCU-HV CKT TEST BLOCK FOR DIFF. PROTN. CKT TEST BLOCK FOR NON DIR. O/C & DIR. E/F PROTN. CKT	TYPE:MLG	ERL	4
	MOUNTED INSIDE				
13TP1	ACMCB 1	AC MINIATURE CIRCUIT BREAKER	240V AC,25 A	INDOASIAN	1
	ACMCB 2		240V AC,20 A		1
	DCMCB 1	DC MINIATURE CIRCUIT BREAKER	220V DC,32 A	INDOASIAN	1
	DCMCB2,3,6,9,10,11		220V DC,4 A		6
	DCMCB5		220V DC,6 A		1
	DCMCB4,7,8		220V DC,10 A		3
	RL1 TO RL6	COMMAND RELAYS FOR BCU	CONTACTS : 4M,10A,1th AUX SUPPLY: 220V DC	C&S	6
	DS,CFL	DOOR SWITCH WITH CFL	DOOR SWITCH OPERATED FLUORESCENT TUBE WITH 2" FITTING RATED VOLTAGE : 230V AC	REPUTED	1
	H	SPACE HEATER WITH THERMOSTAT	60WATTS, 230V AC THERMOSTAT RANGE: 5 - 75 °C	SURYA	1
	HS	HEATER SWITCH	1 POLE, 10A RATED VOLTAGE : 230V AC	SWITRON	1
	PS	POWER SOCKET WITH SWITCH	5/15A, 3 PIN SOCKET, 230V AC	ANCHOR	1

APPROVED FOR TUNING PROJECTS


 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD

DATE: 06.11.11
 PREP. BY: JV
 CHECKED: JV
 APPROVED:

132/33KV TRAFO BAY CONTROL AND PROTECTION PANEL-13TP1&13TP2

ER1412,50A51 BM BTRCR11
 SHT 4 OF 5



Easun Reyrolle Limited

BILL OF MATERIAL

132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL

PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
13TP1	FS, LK	FUSE, LINK	FUSE AND LINKS	INDOASIAN	AS PER SCHEME REQUIREMENT
	TB	TERMINAL BLOCK	NON DISCONNECTING TYPE (WITH 20% SPARE TERMINALS)	CONNECTWELL	AS PER SCHEME REQ.
	TB	TERMINAL BLOCK	DISCONNECTING TYPE (WITH 20% SPARE TERMINALS)	CONNECTWELL	AS PER SCHEME REQ.
13TP2	13TP2	132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL-2	TYPE : SIMPLEX - SWING FRAME DIMENSIONS : 800(W)X800(D)X2250(H) (INCLUDING AVP-15mm) COLOUR: : EXTERIOR: LIGHT GREY TO SHADE 631 OF ISS. INTERIOR : GLOSSY WHITE BASE FRAME: BLACK	ERL	1
	CL2	CIRCUIT LABEL	PVC BLACK 300(W) X 50(H)	ERL	1
	BCU-LV	BAY CONTROL UNIT	MAKE: ERL TYPE : CSI 200EA WITH IEC 61850-8-1 STATION COMMUNICATION PROTOCOL 1 AI MODULE (8U/4I), 2 DI MODULE (96DI'S) 2 DO MODULE (28 DO'S) 1 DT MODULE (5 DT'S) CT SEC: 1 AMP PT SEC: 110V (PH-PH) AUX. SUPPLY: 220V DC GRAPICAL HMI, PROVIDES WITH SYNCHROCHECK(RSYN,25) METERING, A, V, MW, MYAR, PF, HZ. MONITORING TRIPPING LOGIC(PTRC,94) DISTURBANCES EVENT RECORDER(RDRE)	ERL	1

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYDDATE: 06.11.11
PREP. BY: JV
CHECKED: JV
ASBULT

132/33KV TRAF0 BAY CONTROL AND PROTECTION PANEL-13TP1&13TP2

ER1012,60851 BM DTHCR11
BHT 3 OF 9



Easun Rayrolle Limited
BILL OF MATERIAL

132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL

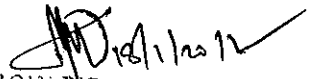
PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	50/51RYBN-LV	NUMERICAL NON DIRECTIONAL OVER CURRENT AND EARTH FAULT RELAY	TYPE: CSC211-M1B,V2 WITH IEC 61850 COMMUNICATION PROTOCOL NUMERICAL NON DIRECTIONAL OVER CURRENT & EARTH FAULT RELAY CT SEC : 1A, PT SEC : 110V AUX.SUPPLY: 220V DC HIGHSET O/C PROTECTION (FWD OR REV OR NON DIR) HIGHSET E/F PROTECTION(FWD OR REV OR NON DIR) INVERSE O/C PROTECTION (FWD OR REV OR NON DIR) INVERSE E/F PROTECTION(FWD OR REV OR NON DIR) SENSITIVE E/F PROTECTION CIRCUIT BREAKER FAILURE PROTECTION DISTURBANCE RECORDER WITH RECORDING FACILITY EVENT RECORDER WHICH STORES UP TO 1000 EVENTS	ERL	1
	81	NUMERICAL UNDER FREQUENCY RELAY	TYPE: CSC211-M2,V2 WITH IEC61850-8-1 COMMUNICATION PROTOCOL CT SEC : 1A, PT SEC : 110V RATED VOLTAGE : 220V DC UNDER FREQUENCY PROTN. (7 STAGES) EACH STAGE HAS UNDER FREQUENCY SETTING: 40HZ - 49.99HZ OVER FREQUENCY SETTING: 50.01HZ - 60HZ ROCOF SETTING: 0.1 HZ/S - 10 HZ/S ACCURACY: +/-0.03 TO 50HZ NOTE: (f OR df/dt) AND (f + df/dt) COMBINATIONS ARE AVAILABLE	ERL	1
	TVM-LV-M	TRIVECTOR METER-LV -MAIN	3 PHASE,4 WIRE ,3 ELEMENT CT RATIO : 1200-800-400/1A PT RATIO : 33KV//3/110V// /3 CLASS OF ACCURACY : 0.2 IMPORT & EXPORT OF MWH,MVARH,&MVAH WITH RS 485 PORT OPTICAL PORT/RS 232 PORT-1 NO WITH ABT FEATURE	SEMS	1

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
A*TRANSCO/VIDYUTH SOUDHA/HYD.

 Easun Royrolle Limited BILL OF MATERIAL 132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL					
PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	TVM-LV-C	TRIVECTOR METER-LV-CHECK	3 PHASE, 4 WIRE ,3 ELEMENT CT RATIO : 1200-800-400/1A PT RATIO : 33KV//3/110V// /3 CLASS OF ACCURACY : 0.2 IMPORT & EXPORT OF MWH,MVARH,&MVAH WITH RS 485 PORT OPTICAL PORT/RS 232 PORT-1 NO WITH ABT FEATURE	SEMS	1
	80AB	DC/AC SUPPLY SUPERVISION RELAY	TYPE: AR121T3X2 CASE : E4 AUX. SUPPLY :220V/230V AC CONTACTS : 2M2B/2M2B SR WD : 8112W00122	ERL	1
	80A	DC SUPPLY SUPERVISION RELAY	TYPE: AR121T3 CASE : E2 AUX. SUPPLY :220VDC CONTACTS : 2M2B/2M2B SR WD:8112W00143	ERL	1
	86-LV	MASTER TRIP RELAY	TYPE: TR241 CASE : E2 AUX. SUPPLY :220V DC CONTACTS : 8M, 2B HR & ER WD. : 8112W00138	ERL	1
	52CS-LV	CONTROL SWITCH FOR CIRCUIT BREAKER	TYPE : SPRING RETURN TO NEUTRAL WITH LMD & LOCKING FACILITY IN NEUTRAL HANDLE TYPE : PISTOL GRIP POSITION : 3 , WAYS : 8 POS. : TRIP - NEUTRAL - CLOSE (3 IN TRIP, 2 IN CLOSE, 1 IN AFTER CLOSE, 1 IN NEUTRAL,1 IN AFTER TRIP)	SWITRON	1
	95/86 - LV	TRIP RELAY SUPERVISION RELAY	TYPE: XR151 CASE : E2 AUX. SUPPLY :220V DC CONTACTS : 2M 2B SR WD : 8112W00146	ERL	1

APPROVED FOR TURNKEY PROJECTS


CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYO

DATE :05.11.19
PREP. BY: J.V
CHECKED: J.V
ASBUILT

132/33KV TRAF0 BAY CONTROL AND PROTECTION PANEL-137P1&137P2

ER1012,80A51 BM BTRCK11
SH7 7 OF 9



Easun Royrolle Limited

BILL OF MATERIAL

132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL

PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	86-81	UNDER FREQUENCY TRIP RELAY	TYPE: TR241H2 CASE : E4 AUX. SUPPLY :220V DC CONTACTS : 14M, 6B HR & ER WD. : 8112W00084	ERL	1
	195 - LV 295 - LV	TRIP CKT. SUPERVISION RELAY	MAKE: ERL TYPE: XR351 CASE : E4 AUX. SUPPLY :220V DC CONTACTS : 2M 2B SR WD : 8112W00132	ERL	2
	RTS1	RELAY TEST SWITCH FOR BACKUP RELAY-LV	DOUBLE POLE TYPE : STAYPUT	SWITRON	1
	RTS2	RELAY TEST SWITCH FOR U/F RELAY	DOUBLE POLE TYPE : STAYPUT	SWITRON	1
	PB1'	PUSH BUTTON FOR RESETTNG LV MASTER TRIP RELAY	COLOUR : BLUE CONTACT : 2 NO DIA : 22.5 mm	SHAYADHRI	1 2
	PB2	PUSH BUTTON FOR RESETTNG U/F TRIP RELAY	COLOUR : BLUE CONTACT : 2 NO DIA : 22.5 mm	SHAYADHRI	1 2
	TTB-LV-M	TEST TERMINAL BLOCK-LV MAIN	3PH, 4W, REAR CONNECTED LINK TYPE	DEEPL	1
	TTB-LV-C	TEST TERMINAL BLOCK-LV CHECK	3PH, 4W, REAR CONNECTED LINK TYPE	DEEPL	1
	BLK-E BLK-F BLK-G	TEST BLOCK FOR LV BCU CKT TEST BLOCK FOR LV NON DIR. O/C & E/F PRDTN. CKT TEST BLOCK FOR UNDER FREQUENCY RELAY CKT.	TYPE:MLG	ERL	3

APPROVED FOR TURNKEY PROJECTS

[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
A2TRANSCO/VIDYUTH SOUDHA/HYD

DATE: 05.11.11
PREP. BY: JV
CHECKED: JV
ASBULT

132/33KV TRAFO BAY CONTROL AND PROTECTION PANEL-13TP1&13TP2

ER1852,50A51 BW BTRCR11
SHT 8 OF 9



Easun Royrolle Limited
BILL OF MATERIAL

132/33KV TRANSFORMER BAY CONTROL AND PROTECTION PANEL

PANEL REF	LEGEND	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
13TP2			MOUNTED INSIDE		
	ACMCB 3	AC MINIATURE CIRCUIT BREAKER	230V AC, 20A	INDOASIAN	1
	DCMCB 13, 16, 17, 18	DC MINIATURE CIRCUIT BREAKER	220V DC, 4A		4
	DCMCB 12		220V DC, 6A	INDOASIAN	1
	DCMCB 14, 15, 18		220V DC, 10A		3
	TD-OTI	TRANSDUCER FOR OIL TEMPERARURE INDICATOR	OUTPUT: 4-20mA TEMPERATURE RANGE: 0-150 deg	REPUTED	1
	TD-WTI-HV TD-WTI-LV	TRANSDUCER FOR WINDING TEMPERARURE INDICATOR	OUTPUT: 4-20mA TEMPERATURE RISE: 0-150 deg	REPUTED	2
	RL1 TO RL4	COMMAND RELAYS FOR BCU	CONTACT : 4M CURRENT RATING: 10A 1th AUX SUPPLY: 220V DC	C&S/SPRECHER	4
	DS, CFL	DOOR SWITCH WITH CFL	DOOR SWITCH OPERATED FLUORESCENT TUBE WITH 2" FITTING RATED VOLTAGE : 230V AC	REPUTED	1
	H	SPACE HEATER WITH THERMOSTAT	60WATTS, 230V AC THERMOSTAT RANGE: 5-75 °C	SURYA	1
	HS	HEATER SWITCH	1 POLE, 10A RATED VOLTAGE : 230V AC	SWITRON	1
	PS	POWER SOCKET WITH SWITCH	5/15A, 3 PIN SOCKET, 230V AC	ANCHOR	1
	FS, LK	FUSE, LINK	FUSE AND LINKS	INDOASIAN	AS PER SCHEME REQUIREMENT
	TB	TERMINAL BLOCK	NON DISCONNECTING TYPE (WITH 20% SPARE TERMINALS)	CONNECTWELL	AS PER SCHEME REQ.
	TB	TERMINAL BLOCK	DISCONNECTING TYPE (WITH 20% SPARE TERMINALS)	CONNECTWELL	AS PER SCHEME REQ.

APPROVED FOR TURNKEY PROJECTS

[Signature]
CHIEF ENGINEER / CONSTRUCTION
APPROVED BY: [Signature] SOUTH AFRICA

132/33KV TRAF0 BAY CONTROL AND PROTECTION PANEL-13TP1&13TP2

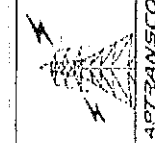
ER1812, 00&51 BM BTR011
SHT 9 OF 9

SHT NO	TITLE
01	LIST OF CONTENTS
02	LIST OF SYMBOLS
03	SINGLE LINE DIAGRAM
04	SINGLE LINE DIAGRAM
05	TRIP LOGIC
06	AC DISTRIBUTION CIRCUIT
07	AUXILIARY AC CIRCUIT
08	DC DISTRIBUTION CIRCUIT
09	DC DISTRIBUTION CIRCUIT
10	DC DISTRIBUTION CIRCUIT
11	CT CIRCUIT
12	CT CIRCUIT
13	CT CIRCUIT
14	HV BUS PT CIRCUIT
15	LV BUS PT CIRCUIT
16	LV METERING CIRCUIT
17	LV METERING CIRCUIT
18	DIFF. PROTN. RELAY CIRCUIT
19	DIFF. PROTN. RELAY CIRCUIT
20	DIFF. PROTN. RELAY CIRCUIT
21	DIFF. PROTN. RELAY CIRCUIT
22	HV DIR. O/C & E/F PROTN.
23	HV DIR. O/C & E/F PROTN.
24	HV INTERLOCKING LOGIC
25	HV BCU CIRCUIT
26	HV BCU CIRCUIT
27	HV BCU CIRCUIT
28	HV BCU CIRCUIT
29	HV BCU CIRCUIT
30	HV BCU CIRCUIT

SHT NO	TITLE
31	HV BCU CIRCUIT
32	HV BCU CIRCUIT
33	HV BCU CIRCUIT
34	HV BCU CIRCUIT
35	HV BCU CIRCUIT
36	HV BCU CIRCUIT
37	TAP POSITION INDICATOR
38	HV BCU COMMAND
39	LV NON DIR. O/C & E/F PROTN.
40	LV NON DIR. O/C & E/F PROTN.
41	UNDER FREQUENCY RELAY
42	UNDER FREQUENCY RELAY
43	LV INTERLOCKING LOGIC
44	LV BCU CIRCUIT
45	LV BCU CIRCUIT
46	LV BCU CIRCUIT
47	LV BCU CIRCUIT
48	LV BCU CIRCUIT
49	LV BCU CIRCUIT
50	LV BCU CIRCUIT
51	LV BCU CIRCUIT
52	LV BCU CIRCUIT
53	LV BCU CIRCUIT
54	LV BCU CIRCUIT
55	LV BCU CIRCUIT
56	LV BCU CIRCUIT
57	TRANSDUCER CIRCUIT
58	LV BCU COMMAND
59	TRAFO AUX. RELAY CIRCUIT
60	HV MASTER TRIP RELAY CIRCUIT

SHT NO	TITLE
62	TRIP RELAY CKT. FOR U/F
63	HV LBB TRIP RELAY CIRCUIT
64	HV BREAKER CONTROL CIRCUIT
65	HV BREAKER CONTROL CIRCUIT
66	LV BREAKER CONTROL CIRCUIT
67	LV BREAKER CONTROL CIRCUIT
68	HV&LV ISOLATOR CONTROL
69	SPARE CONTACTS
70	SPARE CONTACTS
71	EQUIPMENT REFERENCES
72	EQUIPMENT REFERENCES
73	EQUIPMENT REFERENCES
74	EQUIPMENT REFERENCES
75	EQUIPMENT REFERENCES
76	EQUIPMENT REFERENCES
77	EQUIPMENT REFERENCES
78	EQUIPMENT REFERENCES
79	EQUIPMENT REFERENCES
80	EQUIPMENT REFERENCES
81	TB SCHEDULE
82	TB SCHEDULE
83	TB SCHEDULE
84	TB SCHEDULE
85	TB SCHEDULE
86	LED DETAILS

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

Standardised Drawings for 132/33 kV Transformer Bay Control and Protection panels with BCU (M/s. Easun Reyrolle Ltd., Hosur make) ER 1812, 50 & 51 SC BTRCR11 (1-86)

STD/DWG/Approval No. 262.5 Revision No. 0

Prepared & Approved during January - 2012

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : LIST OF CONTENTS	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
	THIS SHT: 01 NEXT SHT: 02 ERL REF.: ZCP1812,50 [SCALE : NTS] TOT SHT: 86

SYMBOL	DESCRIPTION
	TERMINAL BLOCK
	DISCONNECTING TYPE TERMINAL BLOCK
	CIRCUIT BREAKER
	ISOLATOR
	EARTH SWITCH
	N/O CONTACT
	N/C CONTACT
	FUSE
	LINK
	DOOR SWITCH
	ON/OFF SWITCH
	THERMOSTAT
	VARIABLE RESISTOR
	ILLUMINATION LAMP
	INDICATING LAMP
	CONTROL/SELECTOR SWITCH
	HEATER
	SEMAPHORE
	CT
	TRANSFORMER WINDING
	POWER SOCKET
	N/C PUSH BUTTON

SYMBOL	DESCRIPTION
	N/O PUSH BUTTON
	RELAY COIL WITH FORWARD FLAG
	RELAY COIL WITH REVERSE FLAG
	RELAY COIL WITHOUT FLAG
	SLOW RELEASE COIL WITH FORWARD FLAG
	SLOW RELEASE COIL WITH REVERSE FLAG
	RELAY TEST SOCKET- NORMALLY CLOSED
	RELAY TEST SOCKET- NORMALLY OPEN
	OPTO INPUT
	MCB
	SOLENOID
	RESISTOR
	NON LINEAR VARIABLE RESISTOR
	REACTOR
	ANALOG METERS

SYMBOL	DESCRIPTION
	SURGE ARRESTER
	DIODE
	LED
	BUZZER
	BELL
	AUTO TRANSFORMER
	CVT
	3 PHASE AC GENERATOR

- 1) BB - TERMINAL BLOCK DESIGNATION FOR INTER PANEL BUS WIRING
- 2) TB - TERMINAL BLOCK DESIGNATION FOR ALL CONNECTIONS EXCEPT INTER PANEL BUS WIRING
- 3) CROSS REFERENCE DETAILS START WITH * MARK (eg.*10/D6 MEANS THE DETAILS ARE AVAILABLE IN SHEET 10 ZONE D6)
- 4) TB/FERRULE ARE SUBJECT TO CHANGE DURING MANUFACTURING

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH Souda PA/HYD

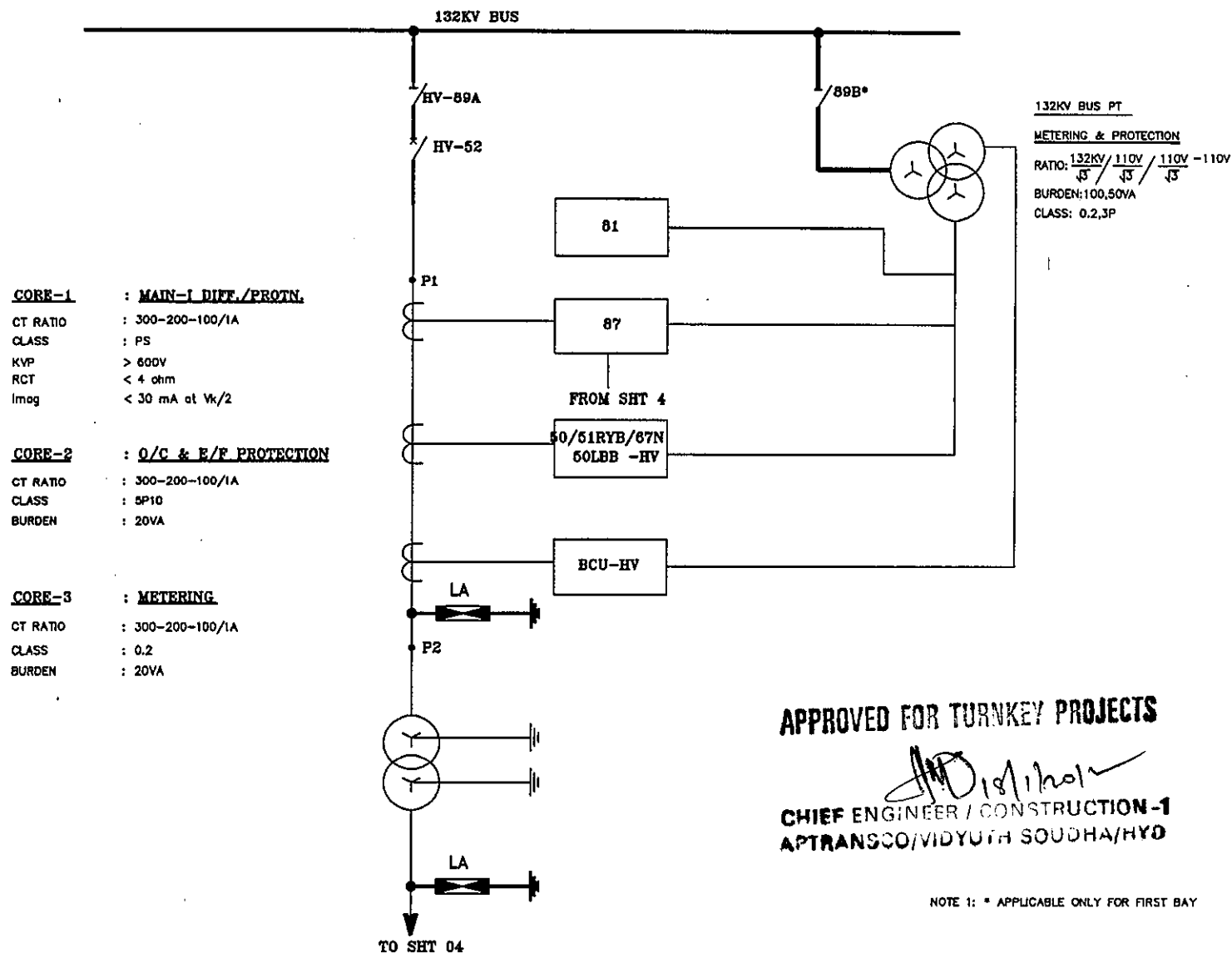
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :LIST OF SYMBOLS	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.:ZCP1812,50
	THIS SHT: 02 NEXT SHT: 03 SCALE : NTS TOT SHT: 86

A	B	C	D	E
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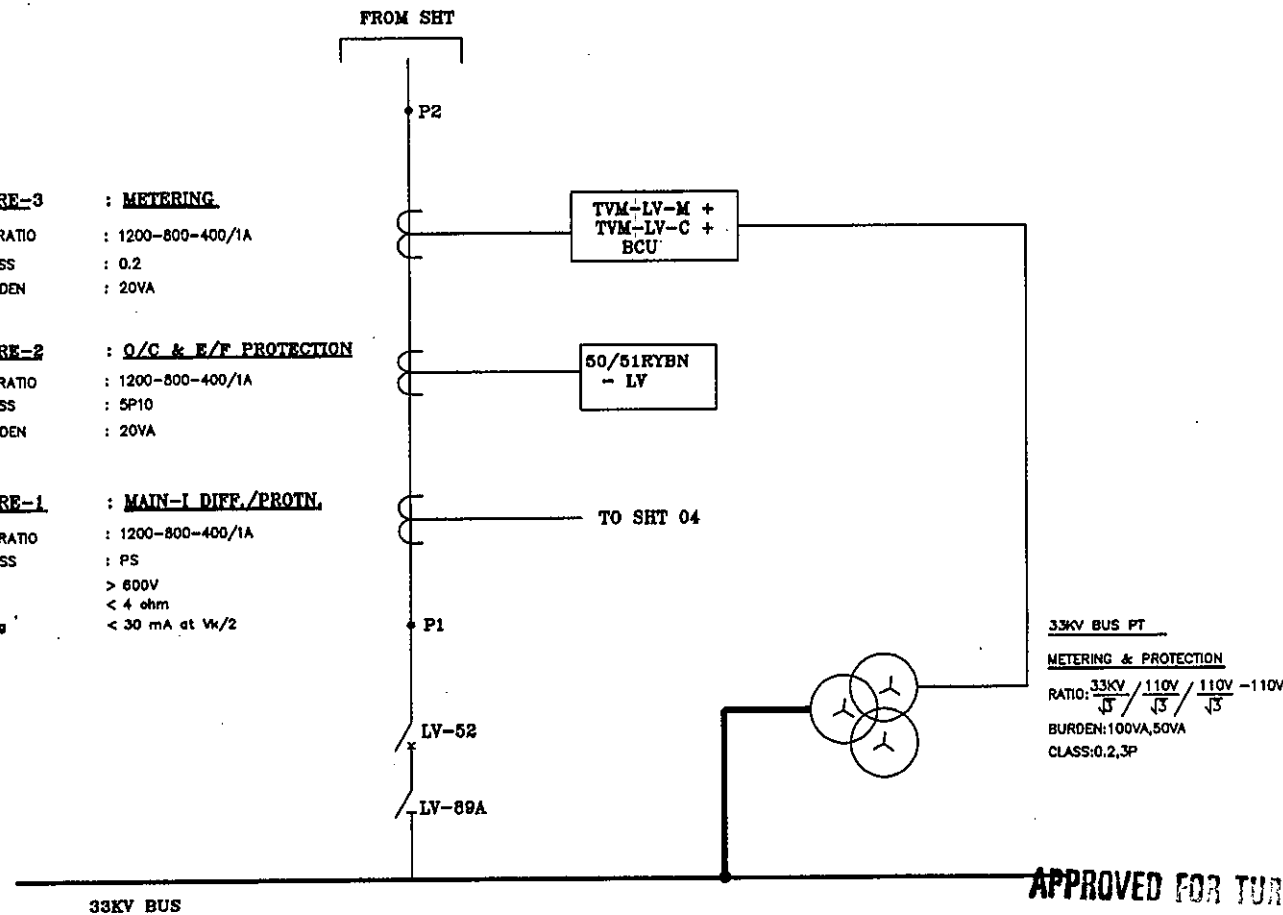


C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :SINGLE LINE DIAGRAM	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011	THIS SHT: 03 NEXT SHT: 04
							ERL REF. :ZCP1812.50	SCALE : NTS	TOT SHT: 80

CORE-3 : METERING
 CT RATIO : 1200-800-400/1A
 CLASS : 0.2
 BURDEN : 20VA

CORE-2 : O/C & E/F PROTECTION
 CT RATIO : 1200-800-400/1A
 CLASS : 5P10
 BURDEN : 20VA

CORE-1 : MAIN-I DIFF./PROTN.
 CT RATIO : 1200-800-400/1A
 CLASS : PS
 KVP : > 600V
 RCT : < 4 ohm
 Imag : < 30 mA at V_k/2



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CHIEF ENGINEER / CONSTRUCTION-1

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO : ER1812,50&51SC BTRCR1	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : SINGLE LINE DIAGRAM	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFQ PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF. : ZCP1812,50
	THIS SHT: 04 NEXT SHT: 05 TOT SHT: 86

PROTECTION FUNCTION	OUTPUT	3PH MASTER TRIP RELAY-HV	3PH MASTER TRIP RELAY-LV	LBB INITIATION-HV	LBB INITIATION-LV	TO HV CB TRIP COIL-1	TO HV CB TRIP COIL-2	CLOSE MAIN CB	TO LV CB TRIP COIL-1	TO LV CB TRIP COIL-2	CLOSE LV CB	TO MASTER TRIP RLY. 86-BF	Remark
DIFFERENTIAL PROTECTION	3 Ph	(IP)	(IP)										
BACKUP O/C & E/F PROTECTION-HV	3 Ph	(IP)											
BACKUP O/C & E/F PROTECTION-LV	3 Ph		(IP)										
UNDER FREQUENCY PROTECTION	3 Ph											(TP)	
OVER FLUX-HV	3 Ph	(IP)											BUILT IN DIFF RELAY
BREAKER FAIL PROTECTION(50BF)MAIN CB-HV	3 Ph			(IP)		(TP)	(TP)	(RS)	(TP)	(TP)	(RS)		BUILT IN BACK UP
3PH MASTER TRIP RELAY-HV	3 Ph			(IP)		(TP)	(TP)	(RS)	(TP)	(TP)	(RS)		
3PH MASTER TRIP RELAY-LV	3 Ph				(IP)				(TP)	(TP)	(RS)		
TRANSFORMER TROUBLES	3 Ph	(IP)											
MANUAL TRIP HV CB(BCU,CS)	3 Ph					(TP)	(TP)						
MANUAL TRIP LV CB(BCU,CS)	3 Ph								(TP)	(TP)			

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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOJAN VAYD.

LEGEND:

TP-TRIP SIGNAL
 IP-INPUT SIGNAL
 RS-RESET SIGNAL

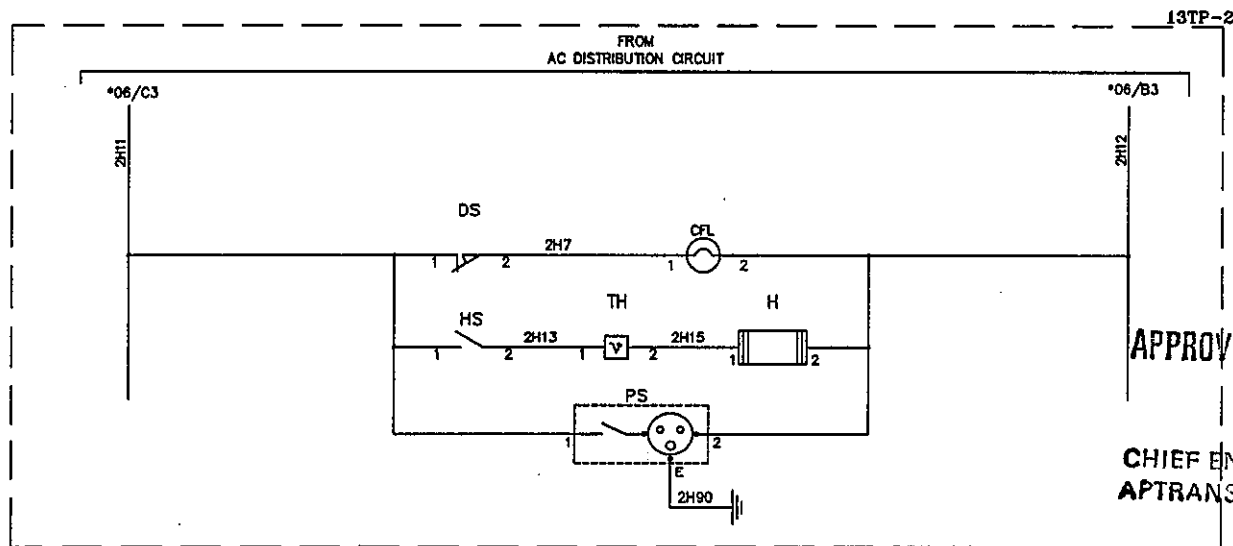
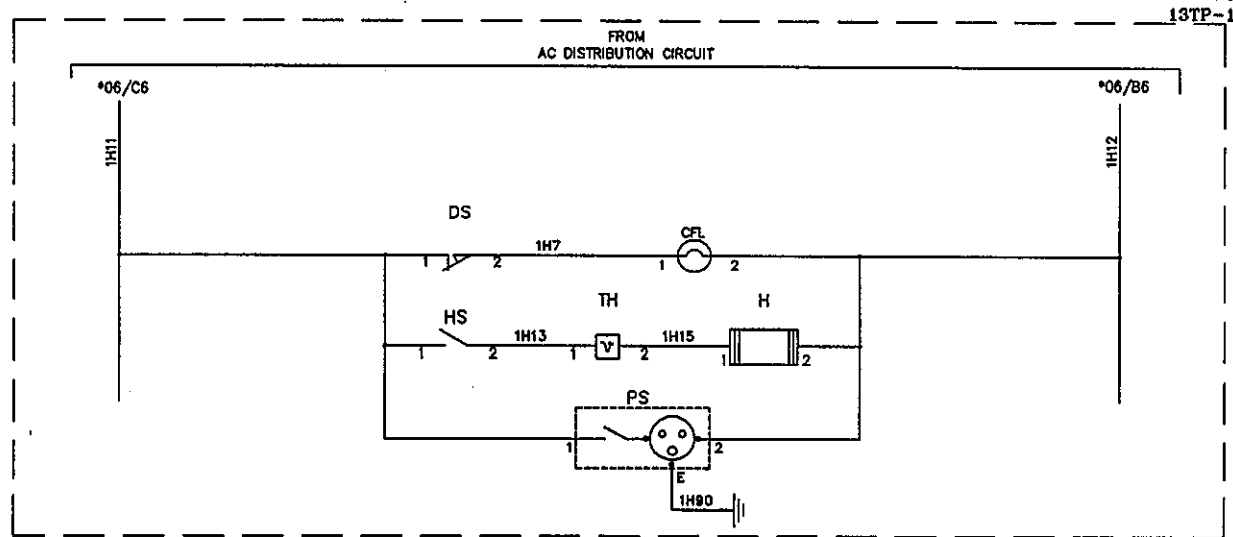
C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TRIP LOGIC	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 05
 NEXT SHT: 06
 TOT SHT: 86

[illegible]

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSOCO/VIDYUTHA SODHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :AC DISTRIBUTION CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
							INDIA - 635126	THIS SHT: 06 NEXT SHT: 07 SCALE : NTS TOT SHT: 86

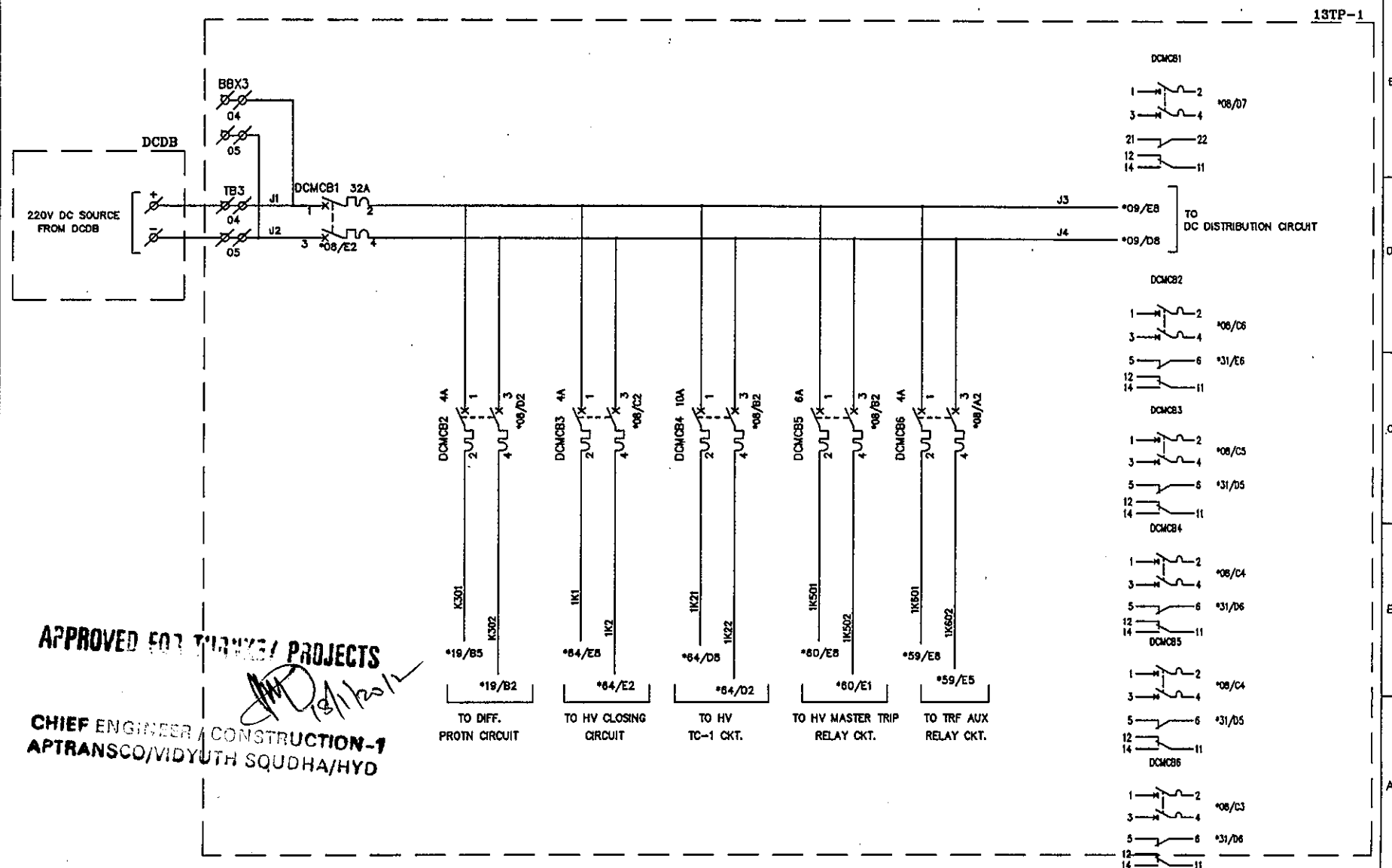


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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :AUXILLARY AC CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0. PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 07
NEXT SHT: 08
TOT SHT: 86



APPROVED FOR TIER/ PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1

APTRANSCO/VIDYUTH SQUAD/HYD

18/11/2011

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126.

DWG.NO : ER1812,50&51SC BTRCR11

SUBSTATION: 132/33KV SS

SHT. TITLE : DC DISTRIBUTION CIRCUIT

DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF PROTECTION PANEL

CUSTOMER : APTRANSCO

CONTRACTOR:

CONSULTANT:

P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT

e-11/2011/RC-4073/2011 0:28.07.2011

ERL REF.: ZCP1812,50

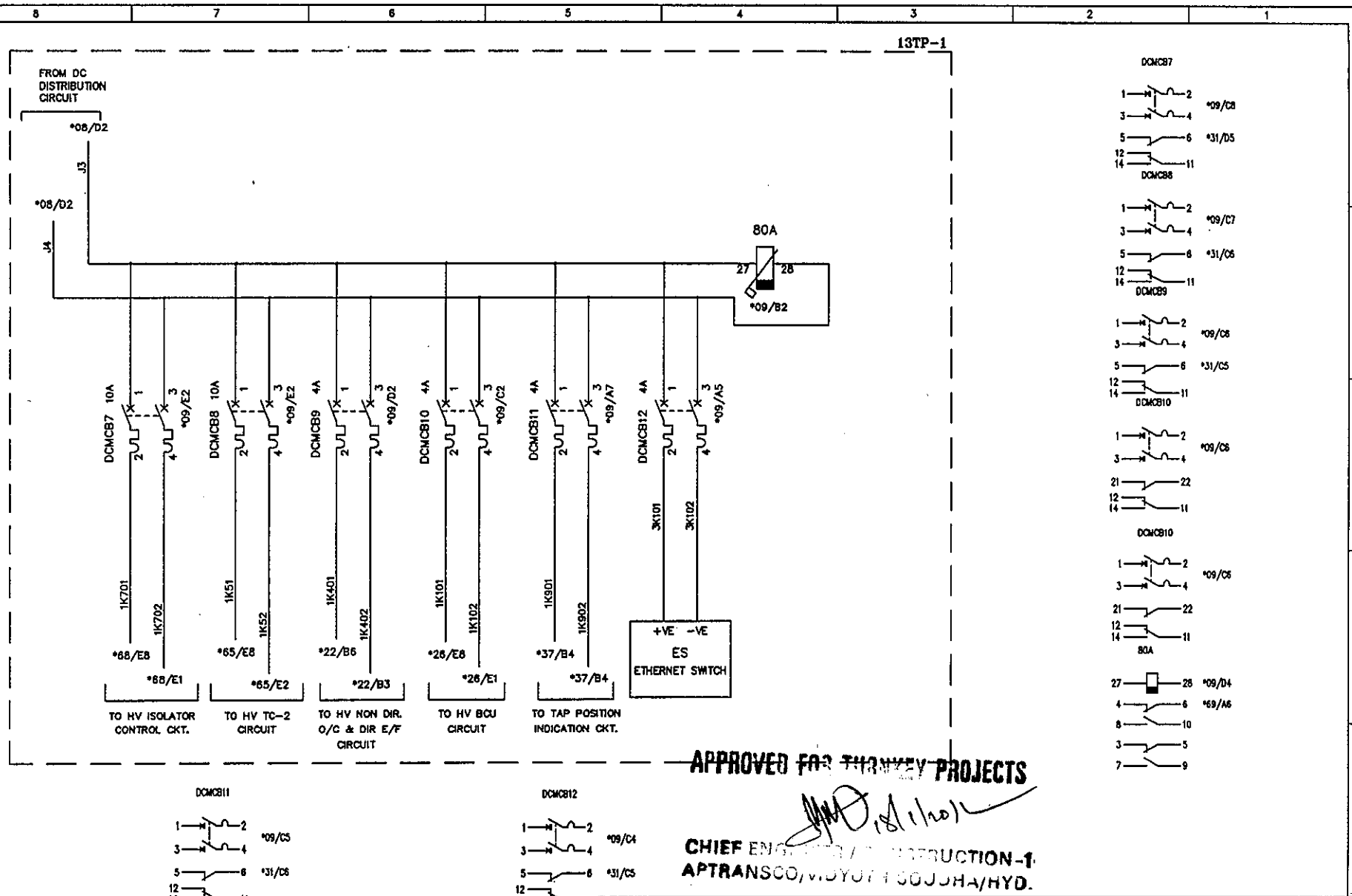
THIS SHT: 08

NEXT SHT: 09

SCALE : NTS

TOT SHT: 86

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APPROVED FOR THE KEY PROJECTS

CHIEF ENGINEER / IN CHARGE CONSTRUCTION-1
APTRANSCO/MIDYOTI SOOJHA/HYD.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51SC BTRCR11 SUBSTATION: 132/33KV SS SHT. TITLE : DC DISTRIBUTION CIRCUIT	CUSTOMER : APTRANSCO CONTRACTOR: CONSULTANT:	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812,50	THIS SHT: 09 NEXT SHT: 10 TOT SHT: 86
C	ASBUILT	05.11.11	V.A	J.V	G.M					
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M					
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M					

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

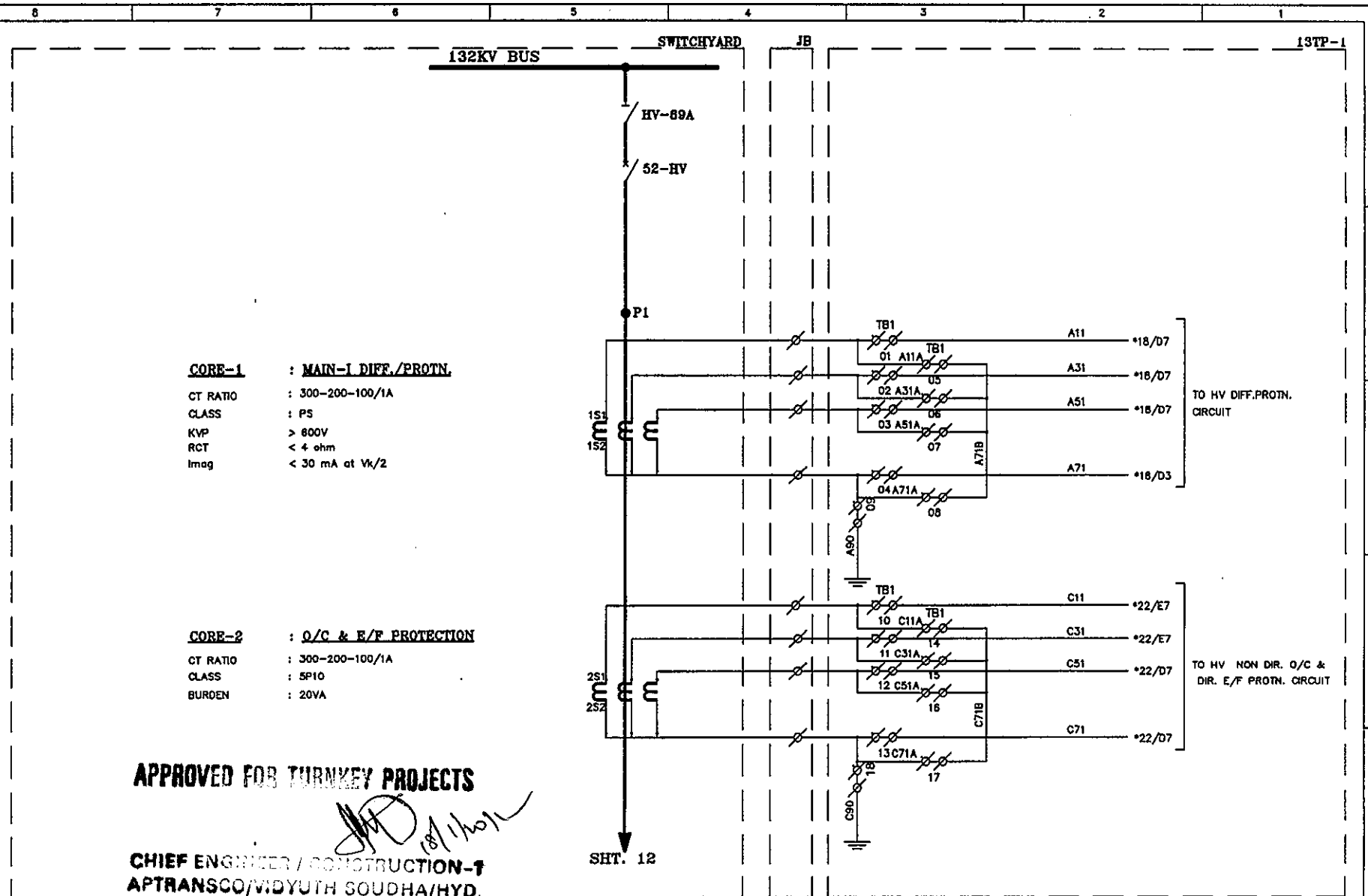


C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO	INSTRUCTION-1
SUBSTATION:132/33KV SS	CONTRACTOR:APTRANSCO/MIDYUTH SODHA	HYD.
SHT. TITLE :DC DISTRIBUTION CIRCUIT	CONSULTANT:	
	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 10
	e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT: 11
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	ERL REF :ZCP1812.50	SCALE : NTS
	TOT SHT: 86	



C	ASBUILT	05.11.11	V.A	J.V	G.M	DWG.NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M	SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M	SHT. TITLE : CT CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812,50



EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

THIS SHT: 11
 NEXT SHT: 12
 SCALE : NTS
 TOT SHT: 86

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :CT CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011	THIS SHT: 12
							132/33KV TRAF0 PROTECTION PANEL	DATE:28.07.2011	NEXT SHT: 13
							ERL REF. :ZCP1812,50	SCALE : NTS	TOT SHT: 86

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CORE-3 : METERING

CT RATIO : 1200-800-400/1A
CLASS : 0.2
BURDEN : 20VA

CORE-2 : O/C & E/F PROTECTION

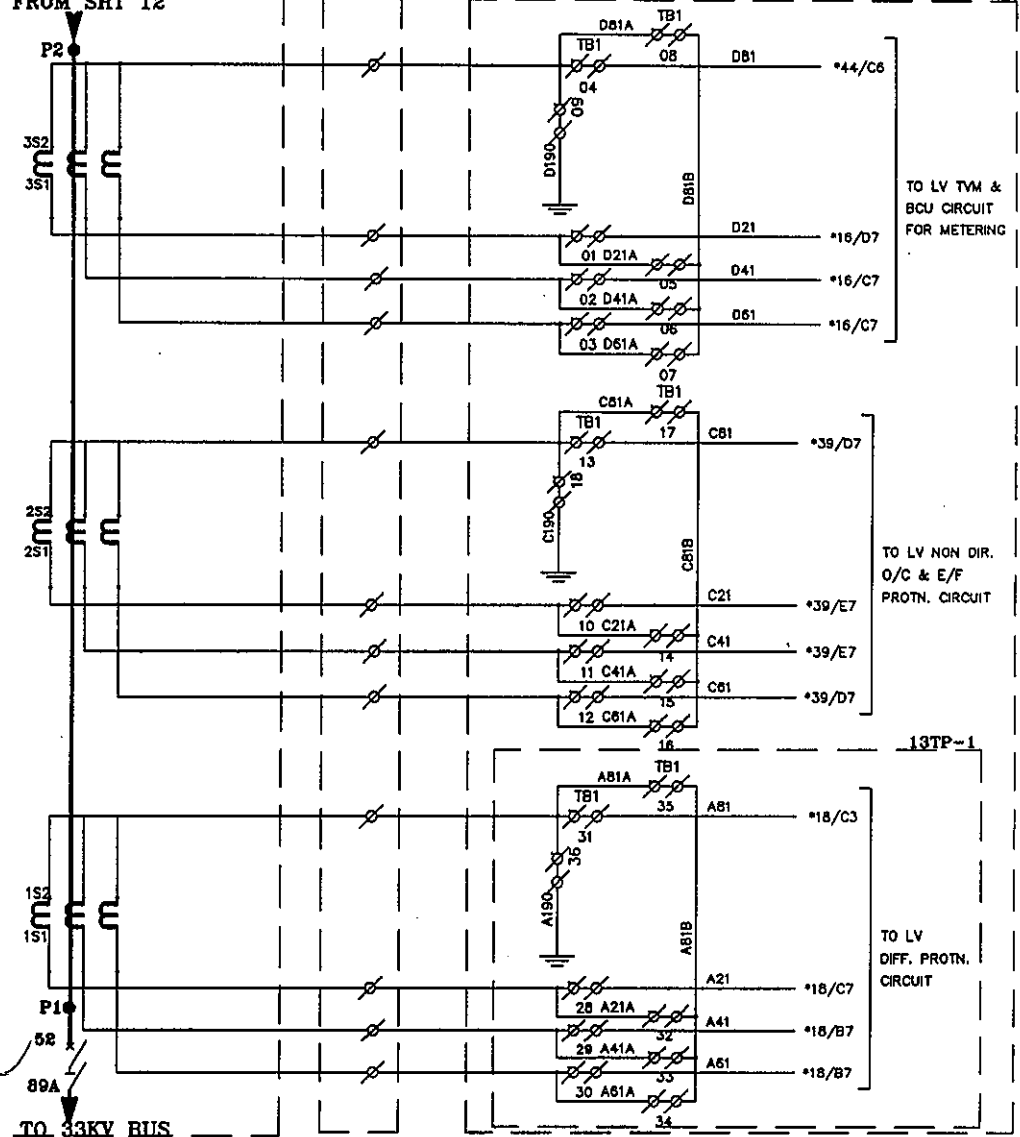
CT RATIO : 1200-800-400/1A
CLASS : 5P10
BURDEN : 20VA

CORE-1 : MAIN-I DIFF./PROTN.

CT RATIO : 1200-800-400/1A
CLASS : PS
KVP : > 600V
RCT : < 4 ohm
Imag : < 30 mA at $V_k/2$

APPROVED FOR TURNKEY PROJECTS

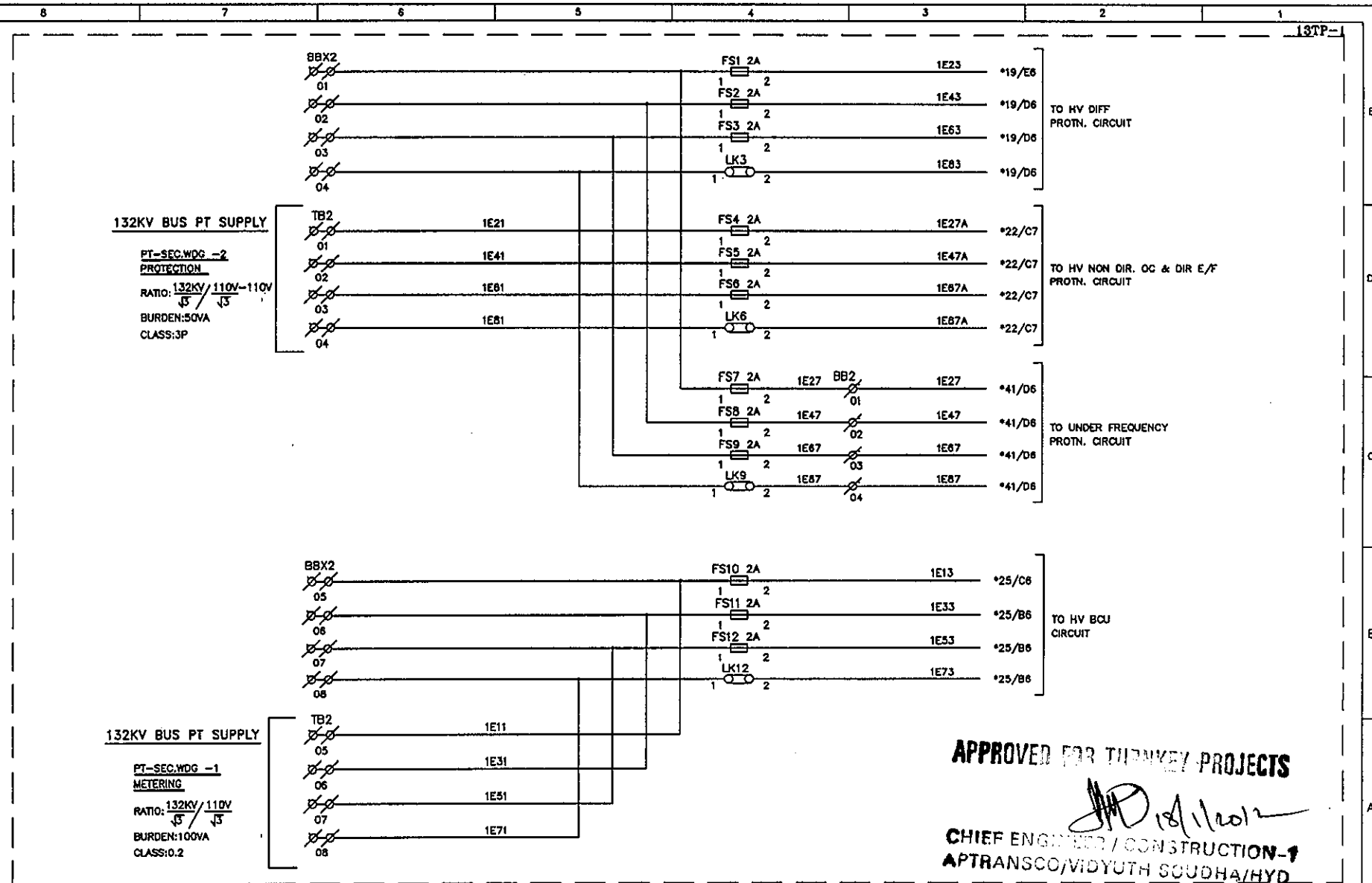
FROM SHT 12 SWITCHYARD



TO 33KV BUS

		CHIEF EN				CONSTRUCTION-1	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
C	ASBUILT	05.10.11	TRANS	J.V	G.M	ERL HOSUR, TAMILNADU INDIA - 635126	SUBSTATION:132/33KV SS	CONTRACTOR:
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE :CT CIRCUIT	CONSULTANT:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 13
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812.50 SCALE : NTS

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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

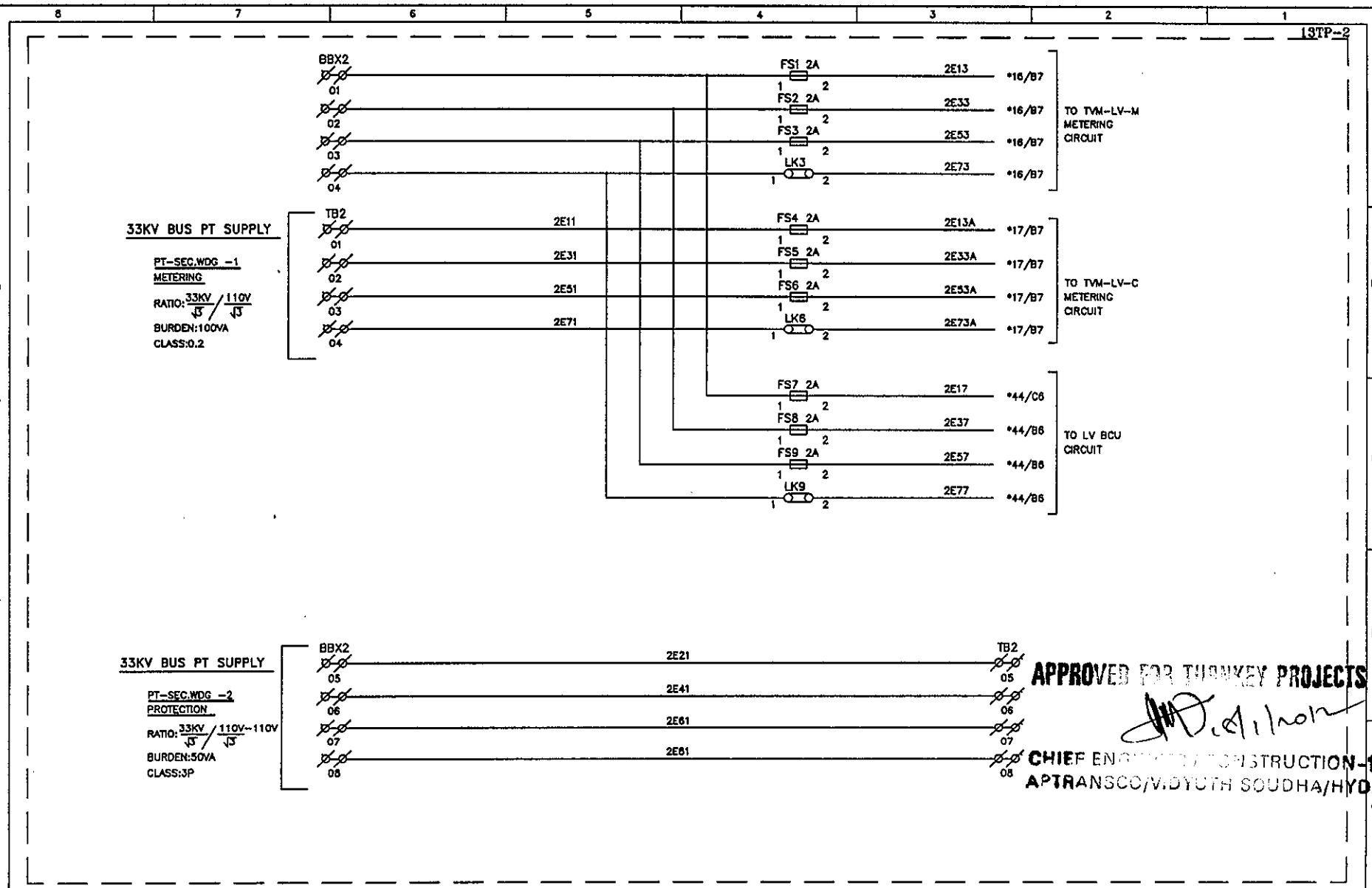
EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,50&51SC BTRCR11
SUBSTATION: 132/33KV SS
SHT. TITLE : HV BUS PT CIRCUIT

DWG. TITLE : SCHEMATIC DRAWING FOR
132/33KV TRAFO PROTECTION PANEL

CUSTOMER : APTRANSCO
CONTRACTOR:
CONSULTANT:
P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 14
e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT: 15
ERL REF.: ZCP1812,50 SCALE : NTS TOT SHT: 86

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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/MIDYUTH SOUDHA/HYO.

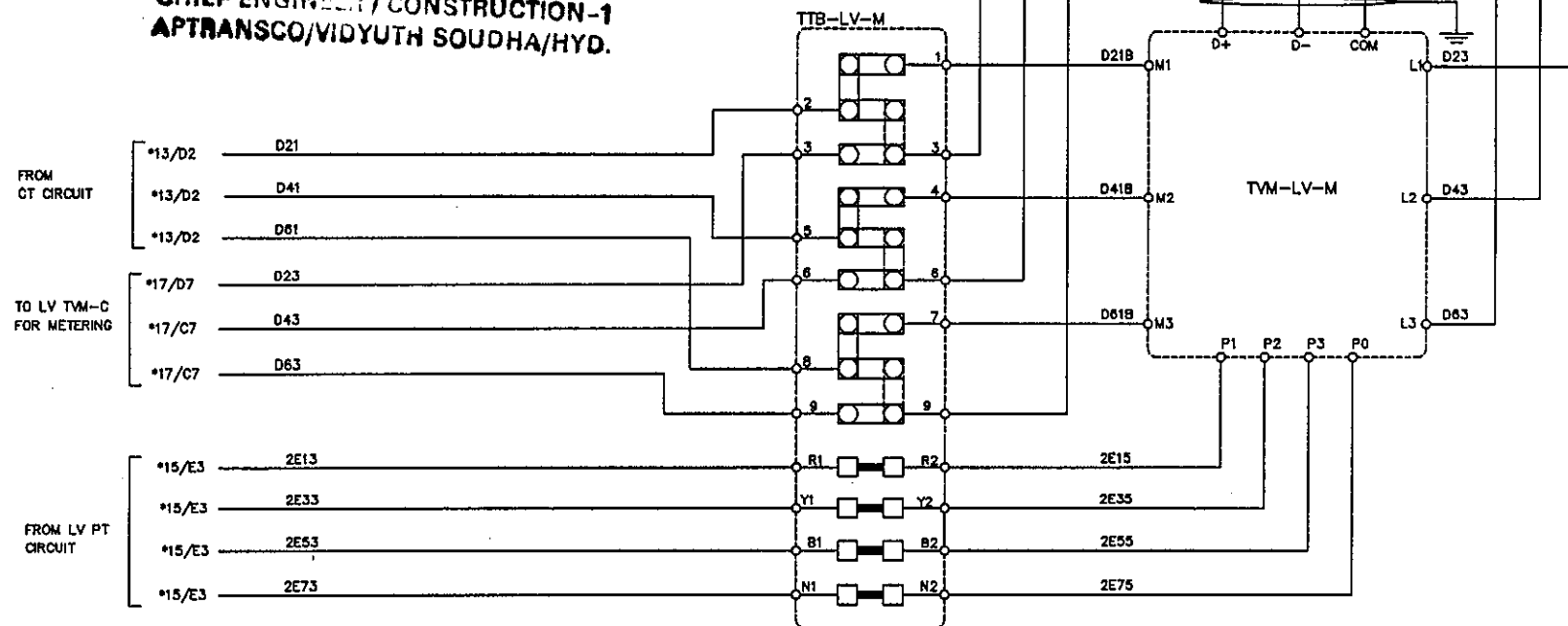
C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV BUS PT CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 15
NEXT SHT: 16
TOT SHT: 86

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APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO : ER1812,50&51SC BTRCR11
 SUBSTATION: 132/33KV SS
 SHT. TITLE : LV METERING CIRCUIT
 DWG. TITLE : SCHEMATIC DRAWING FOR
 132/33KV TRAFO PROTECTION PANEL

CUSTOMER : APTRANSCO

CONTRACTOR:

CONSULTANT:

P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT
 e-11/2011/RC-4073/2011 D:28.07.2011
 ERL REF.: ZCP1812,50 SCALE : NTS

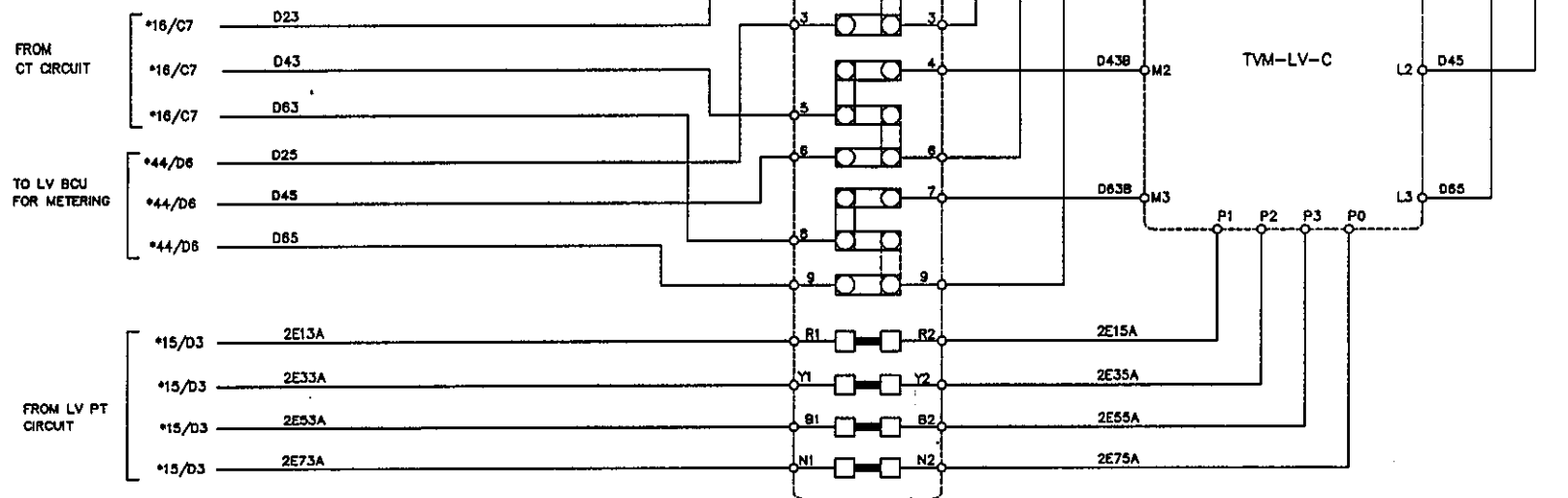
THIS SHT: 16
 NEXT SHT: 17
 TOT SHT: 86

13TP-2

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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD



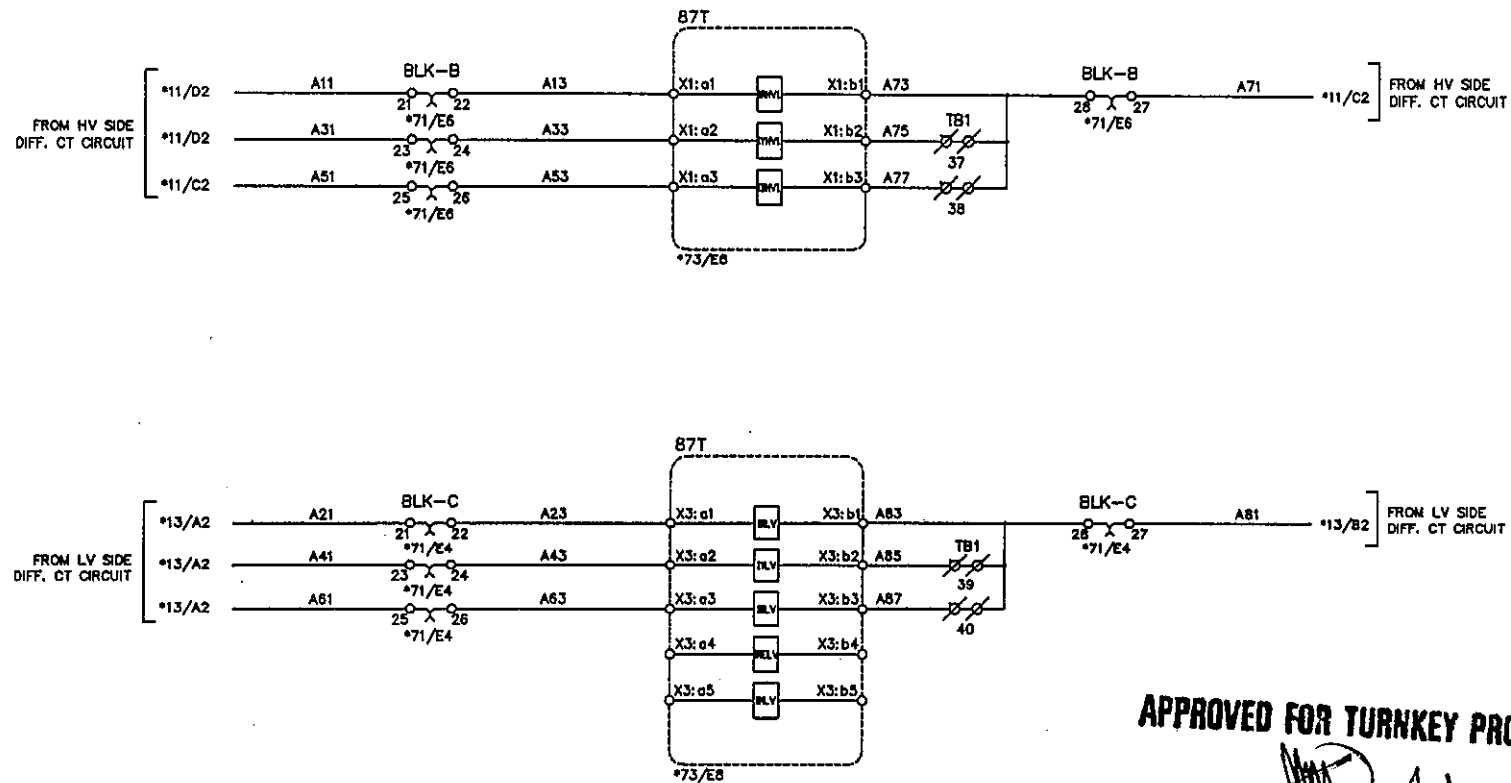
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



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 INDIA - 635126

DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :LV METERING CIRCUIT	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50
	THIS SHT: 17 NEXT SHT: 18 SCALE : NTS TOT SHT: 86

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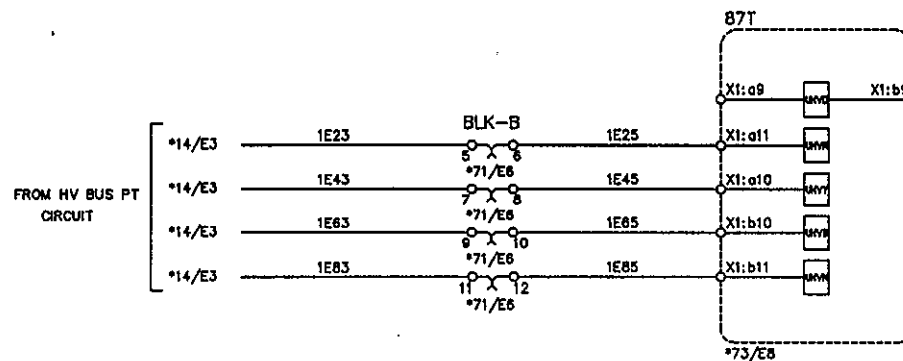


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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M	SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M	SHT. TITLE :DIFF. PROTN. RELAY CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF. :ZCP1812,50
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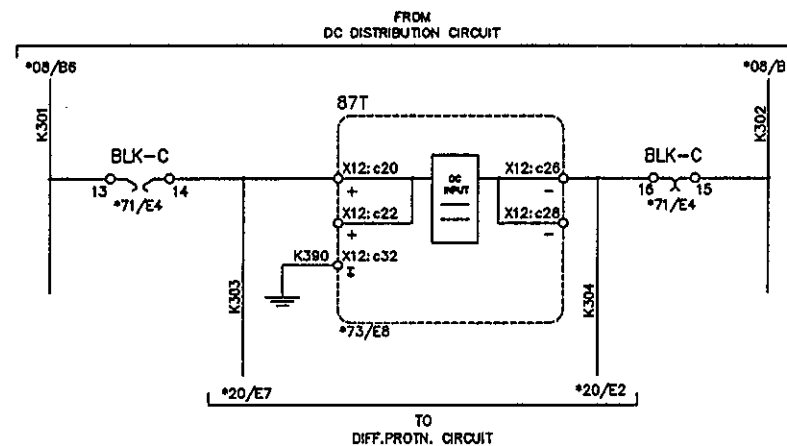
ERL

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

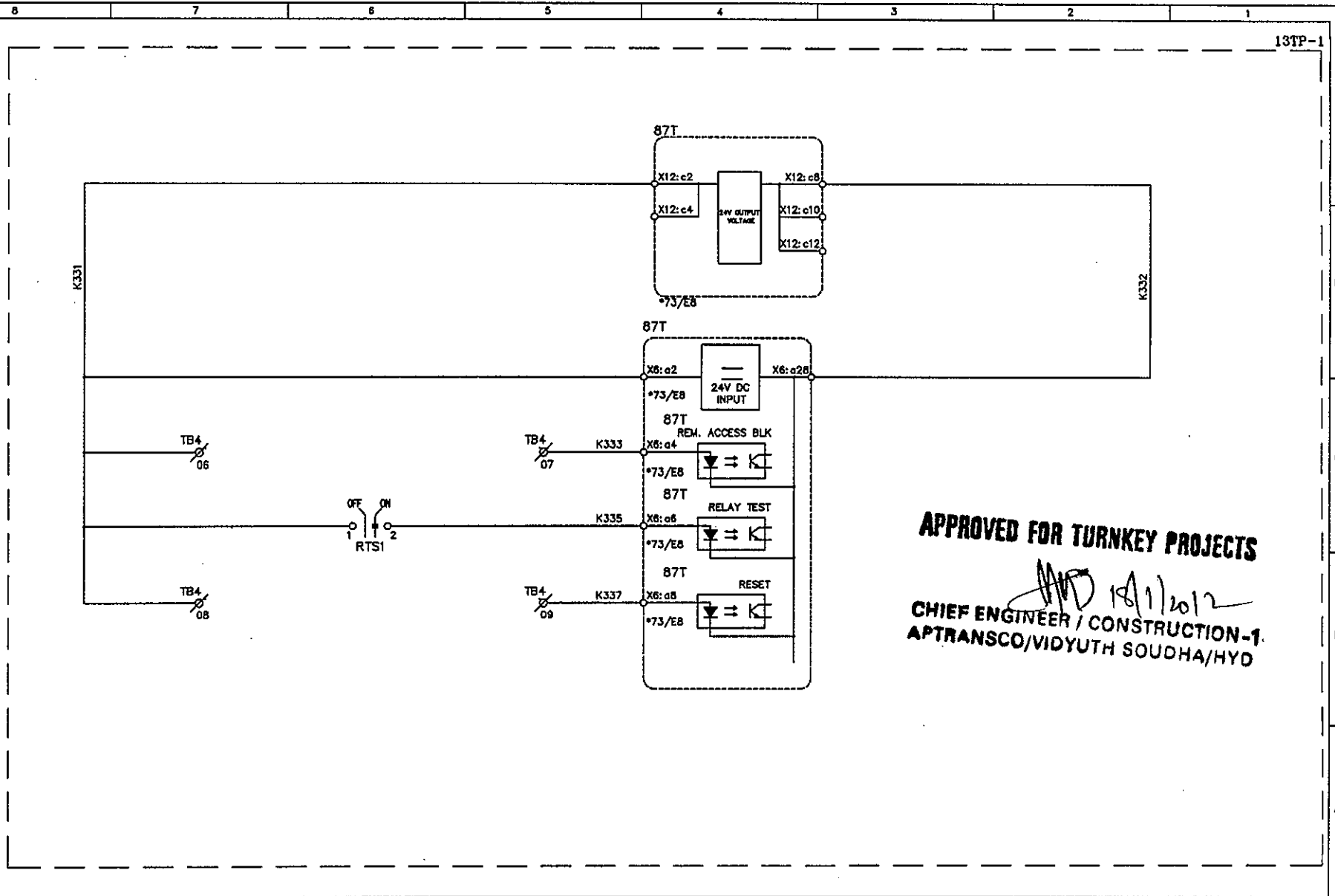


EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11
 SUBSTATION: 132/33KV SS
 SHT. TITLE : DIFF. PROTN. RELAY CIRCUIT
 DWG. TITLE : SCHEMATIC DRAWING FOR
 132/33KV TRAF0 PROTECTION PANEL

CUSTOMER : APTRANSCO
 CONTRACTOR:
 CONSULTANT:
 P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT
 e-11/2011/RC-4073/2011 D:28.07.2011
 ERL REF.: ZCP1812.50 SCALE : NTS
 THIS SHT: 19
 NEXT SHT: 20
 TOT SHT: 86

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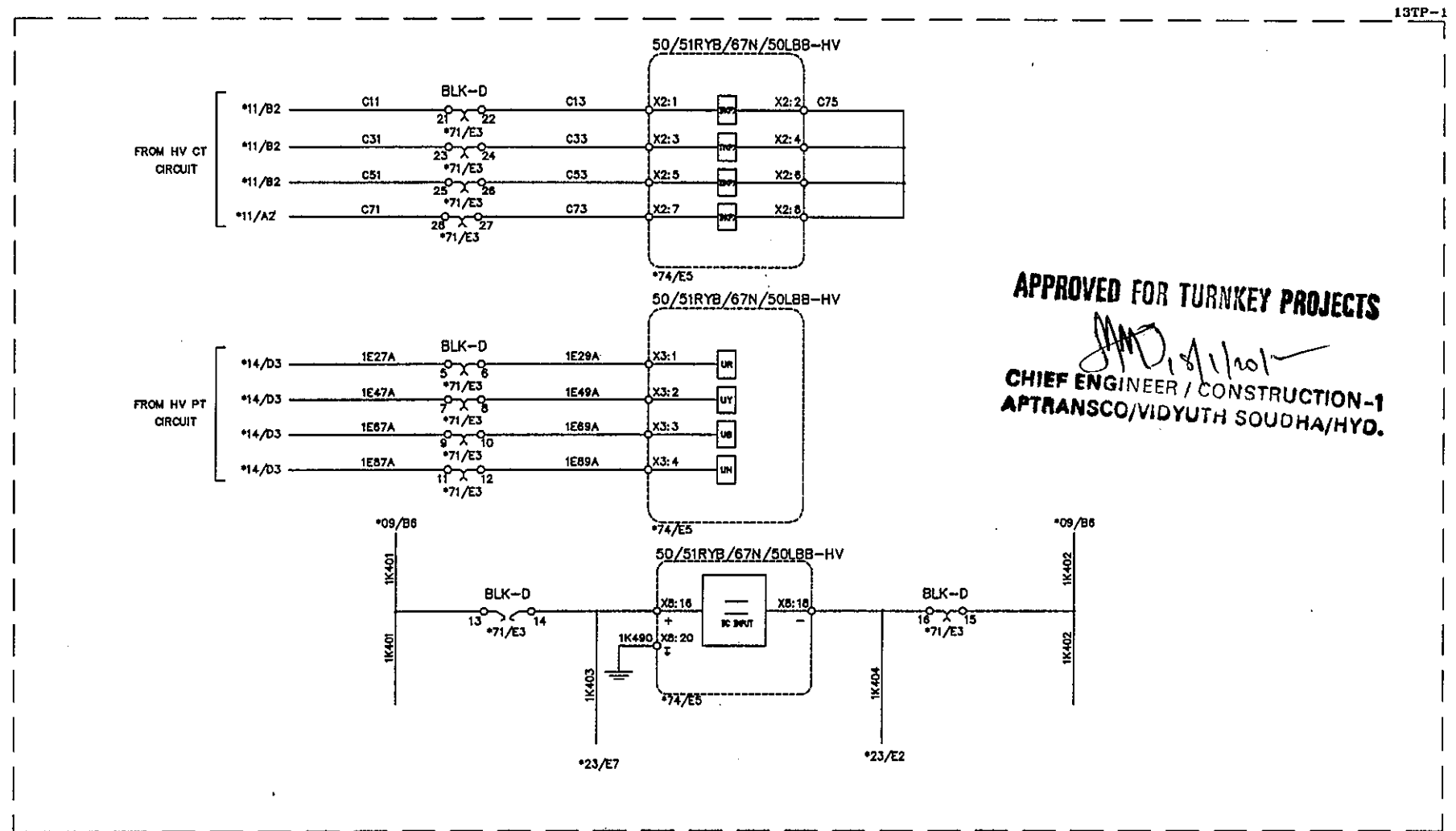
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18/11/2012

CHIEF ENGINEER / CONSTRUCTION-1.
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :DIFF. PROTN. RELAY CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 21 NEXT SHT: 22
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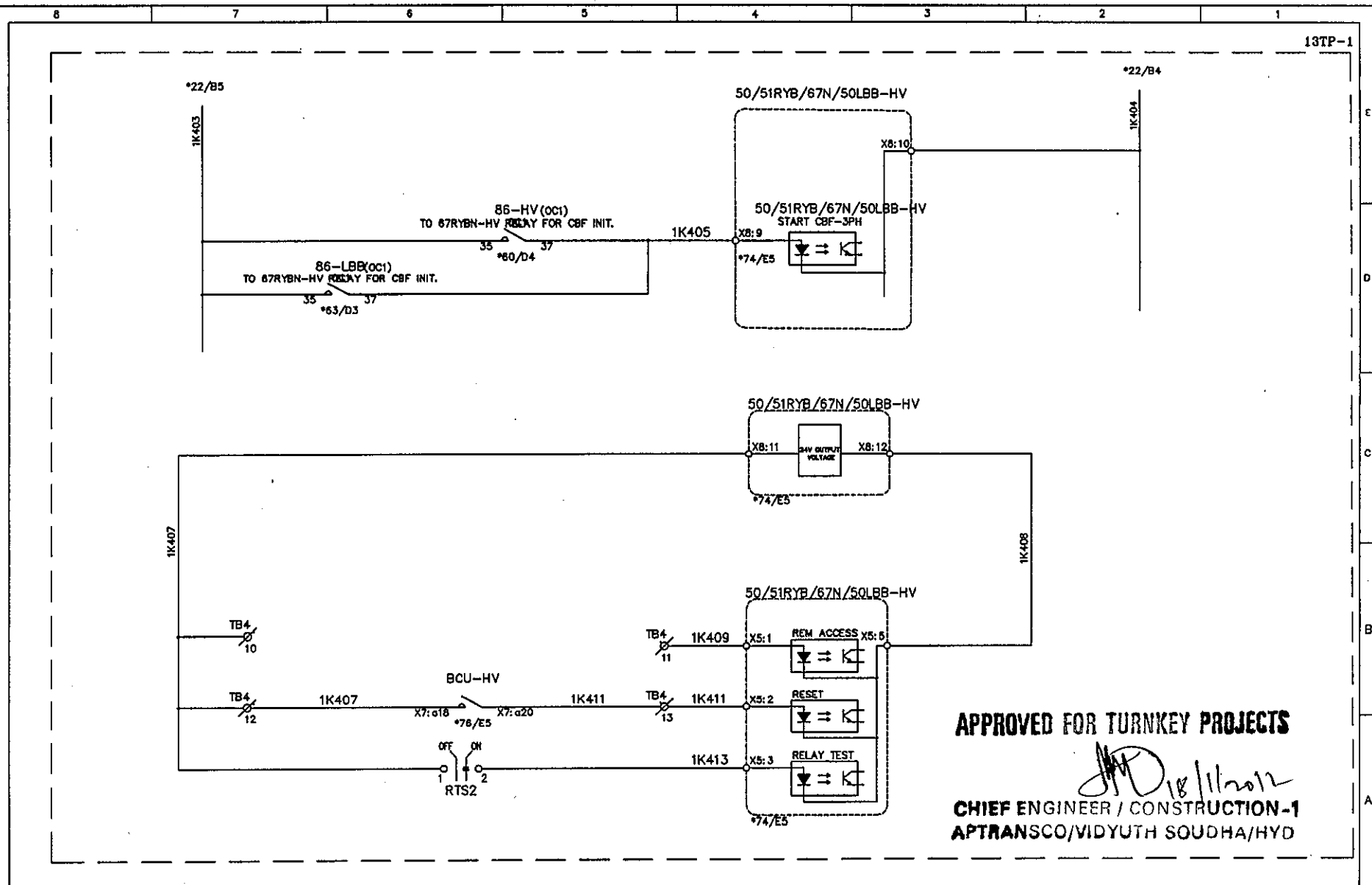


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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYO.

C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV DIR. O/C & E/F PROTN. CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFQ PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 22
NEXT SHT: 23
TOT SHT: 86

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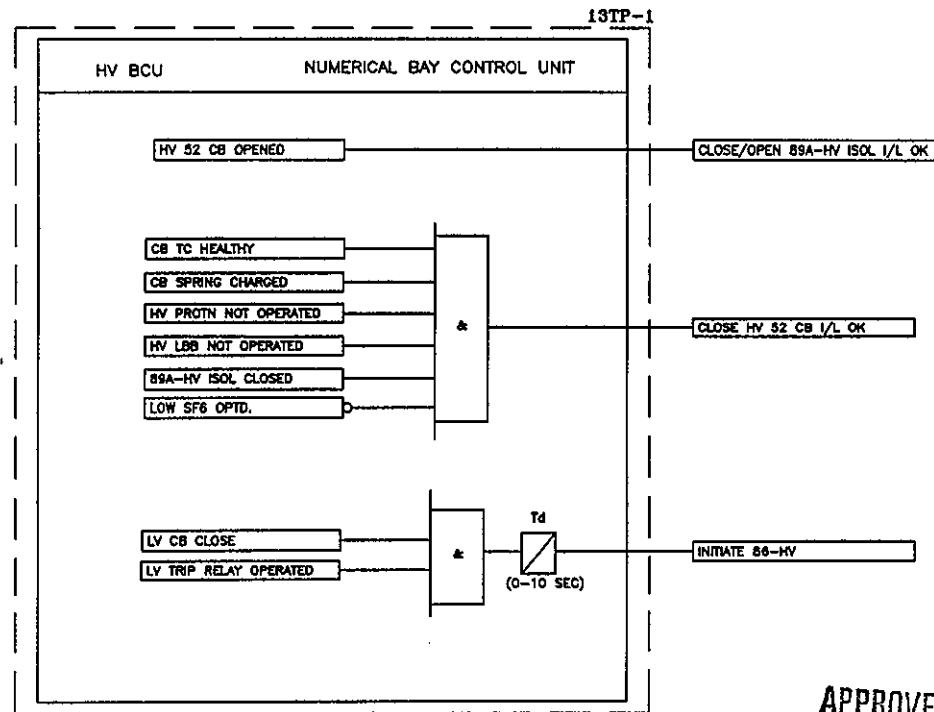


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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV DIR. O/C & E/F PROTN. CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 23
NEXT SHT: 24
TOT SHT: 86

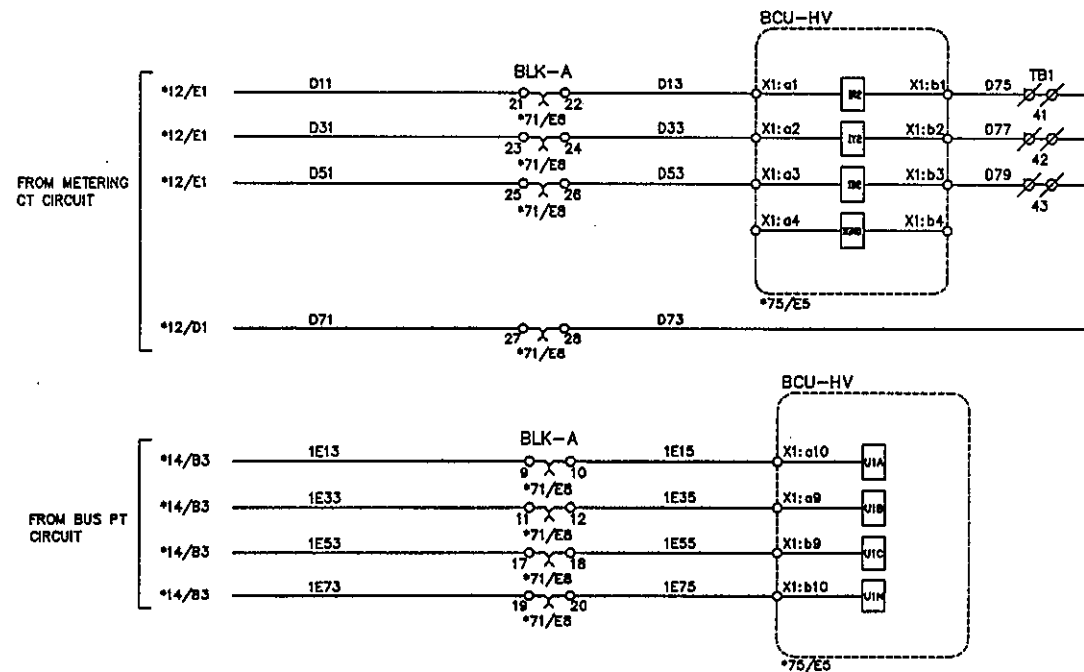


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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV INTERLOCKING LOGIC	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812.50 SCALE : NTS

THIS SHT: 24
NEXT SHT: 25
TOT SHT: 86



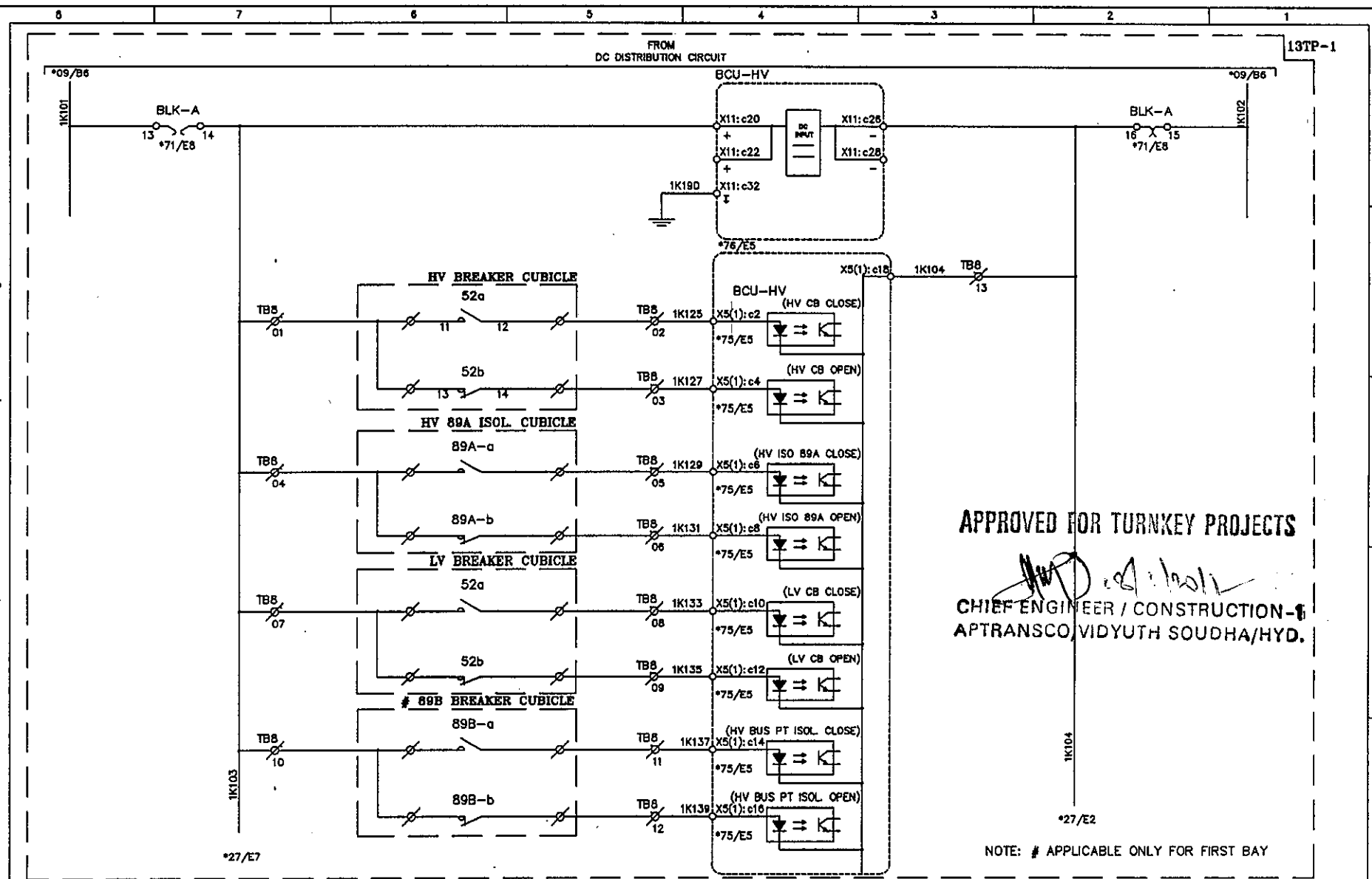
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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFQ. PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. :ZCP1812,50 SCALE : NTS

THIS SHT: 25
 NEXT SHT: 26
 TOT SHT: 86

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CHIEF ENGINEER / CONSTRUCTION-6
APTRANSCO, VIDYUTH SOUDHA/HYD.

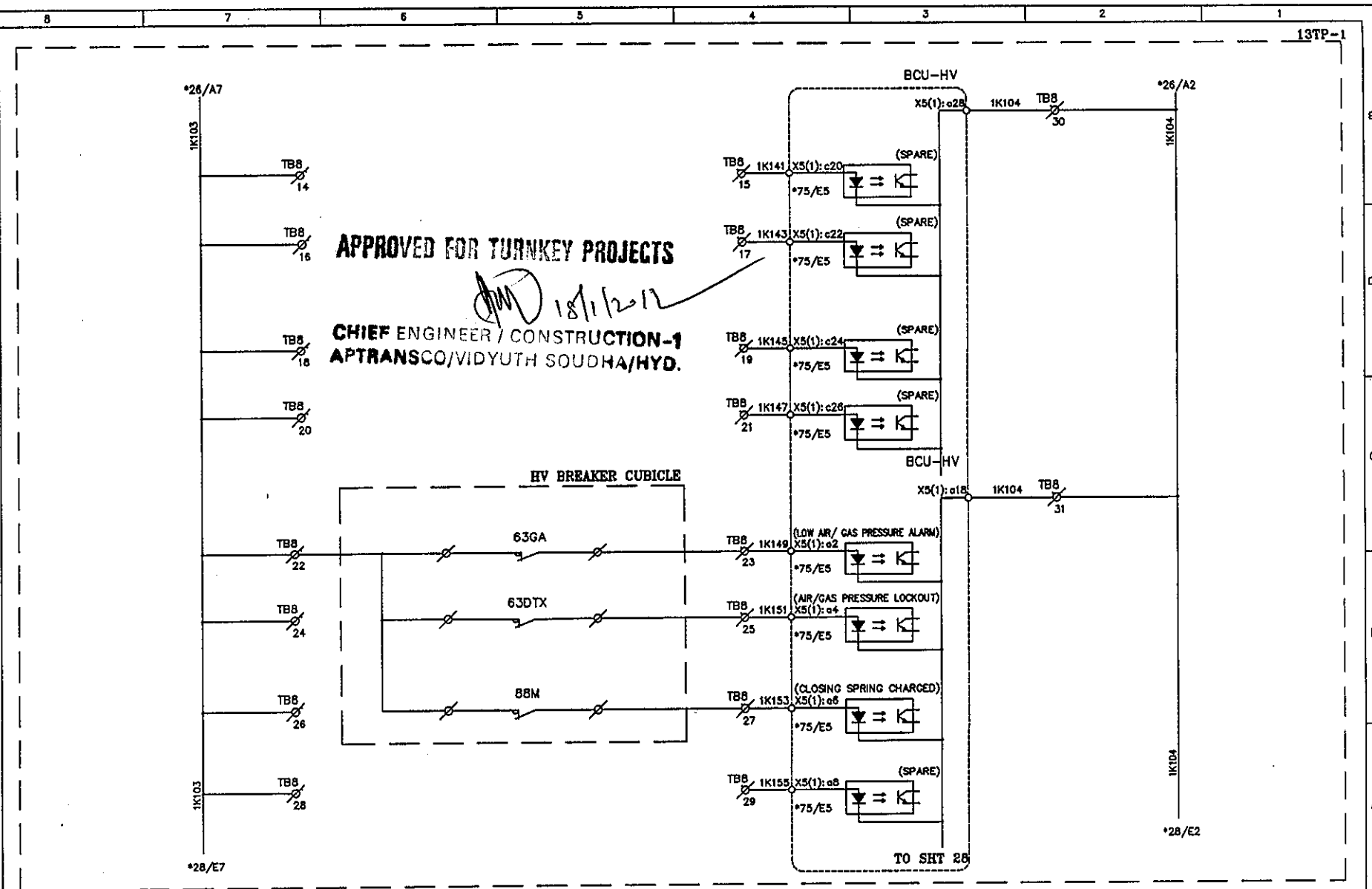
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

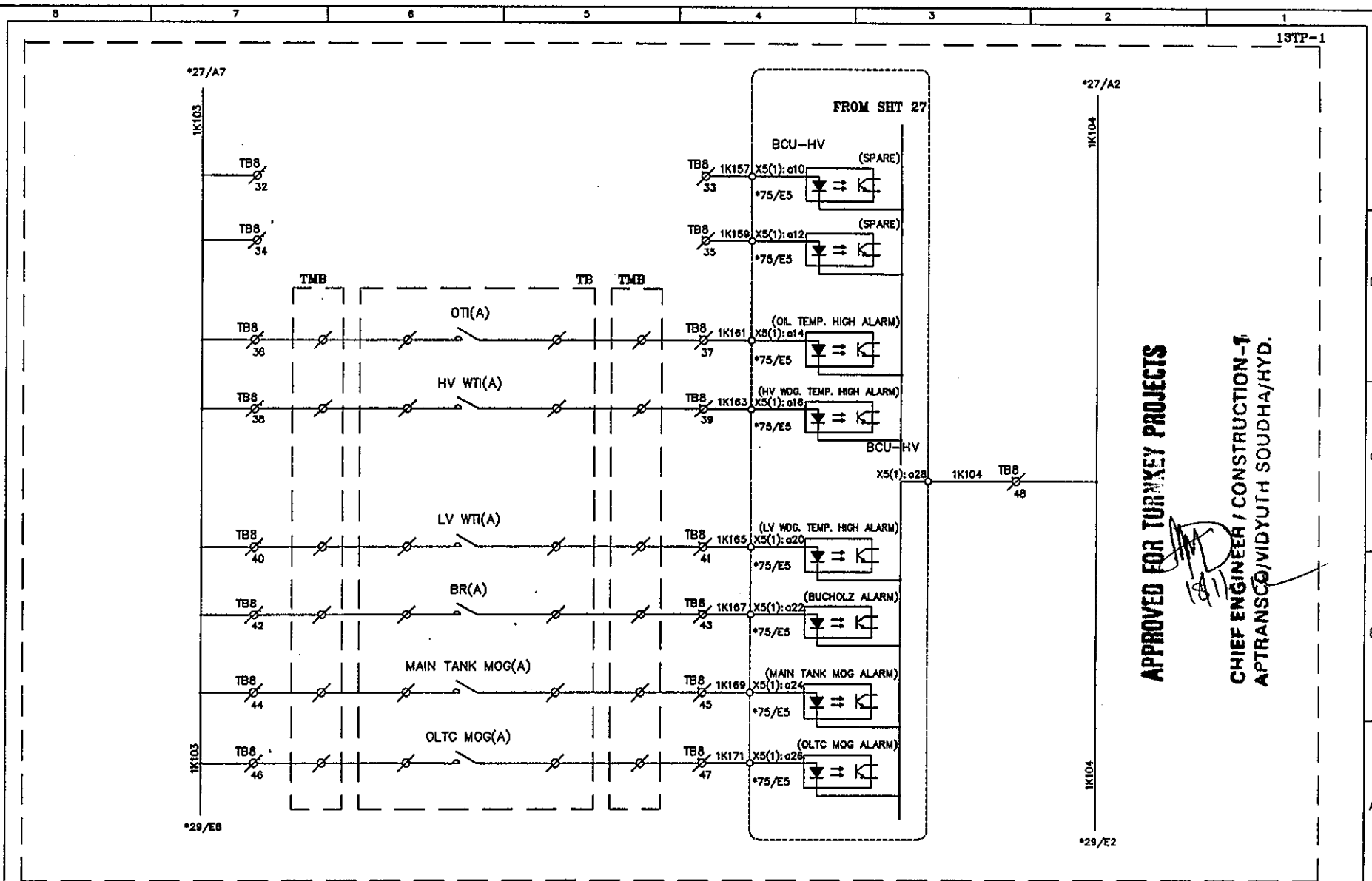
DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 26 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:27
	ERL REF.:ZCP1812,50 SCALE : NTS/TOT SHT: 86

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REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51SC BTRCR11 SUBSTATION:132/33KV SS SHT. TITLE :HV BCU CIRCUIT DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0. PROTECTION PANEL	CUSTOMER :APTRANSCO CONTRACTOR: CONSULTANT: P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50	THIS SHT: 27 NEXT SHT:28 SCALE : NTS TOT SHT: 86
C	ASBUILT	05.11.11	V.A	J.V	G.M				
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M				
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M				

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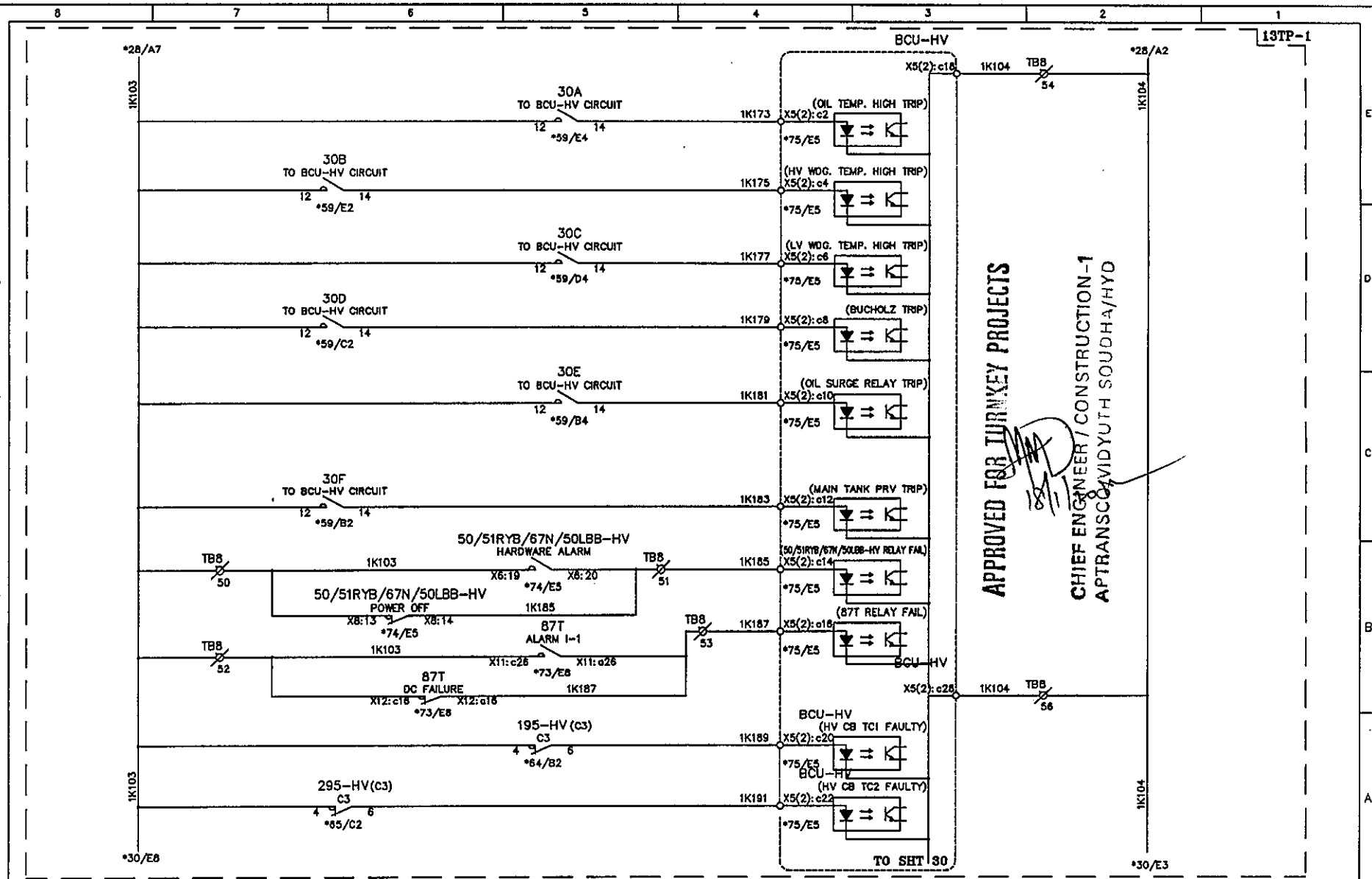


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**CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.**

C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : HV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFQ PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.: ZCP1812.50 SCALE : NTS TOT SHT: 86

THIS SHT: 28
NEXT SHT: 29

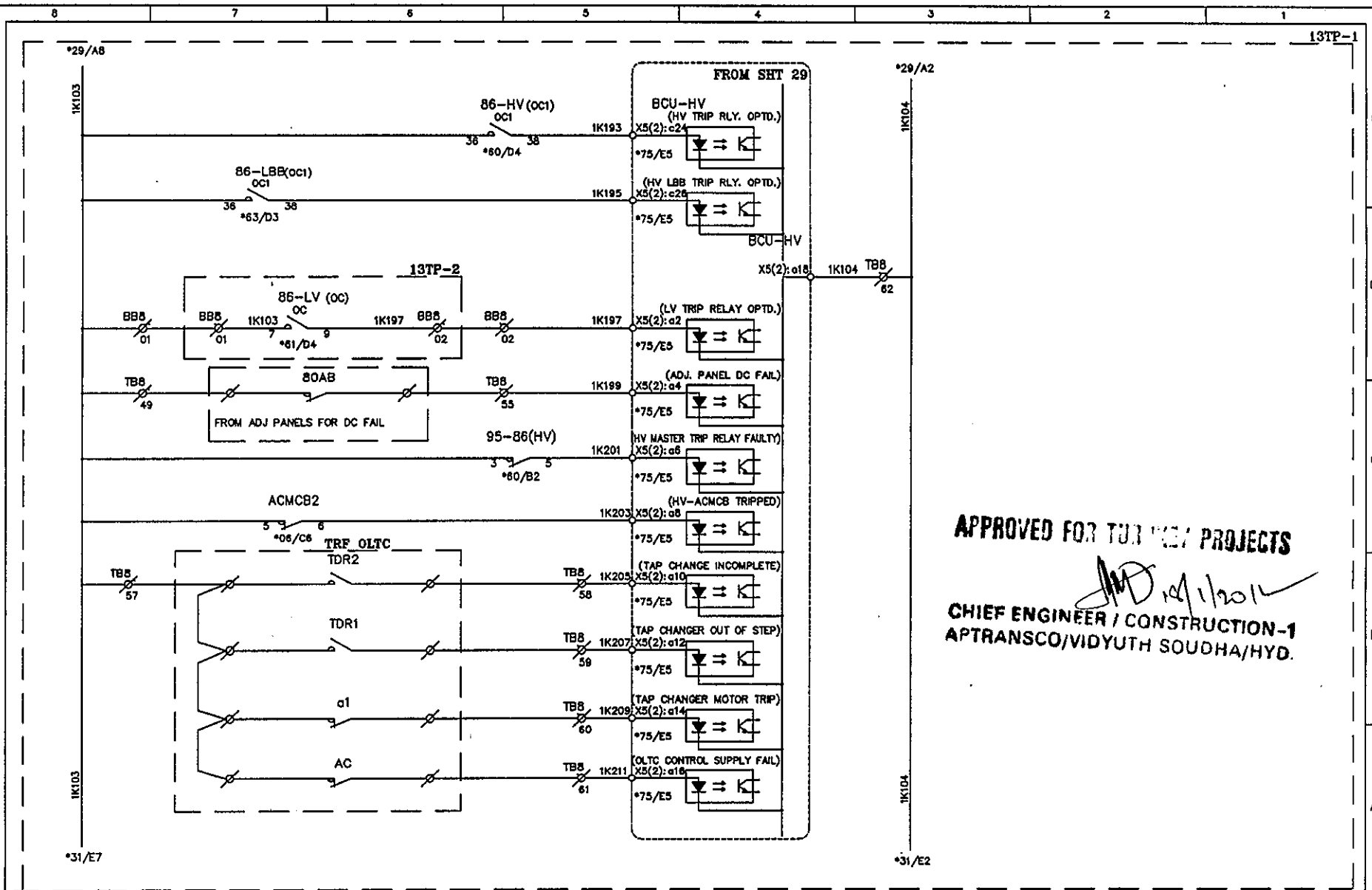


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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO, VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF. :ZCP1812,50 SCALE : NTS

THIS SHT: 29
NEXT SHT: 30
TOT SHT: 86



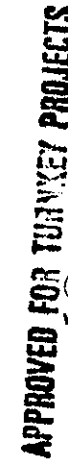
APPROVED FOR TUNING PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCPT1812,50 SCALE : NTS

THIS SHT: 30
NEXT SHT: 31
TOT SHT: 86

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



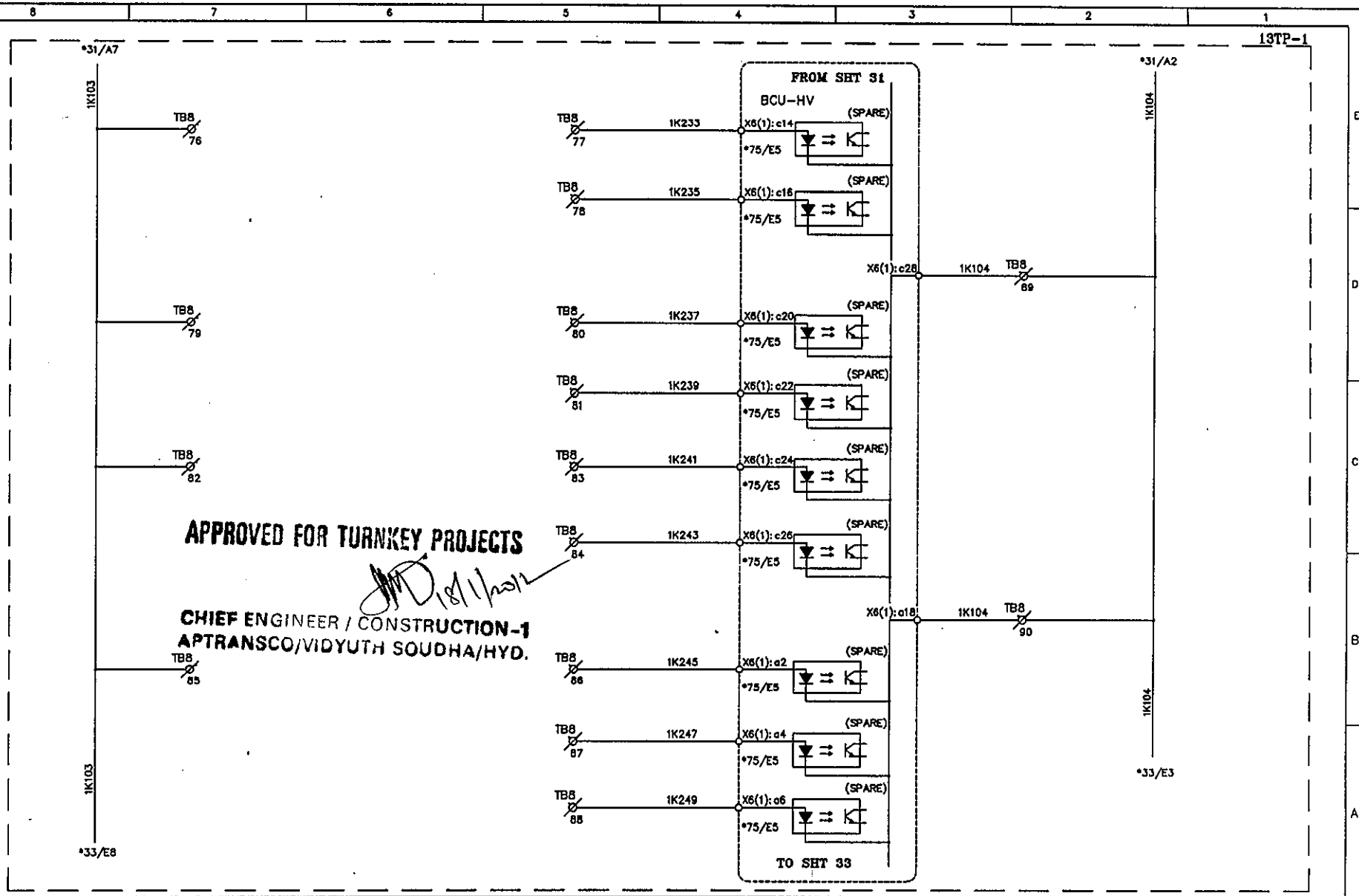
CHIEF ENGINEER / CONSTRUCTION - 1
APTRANSCO / VIDYUTH SOUDHA / HYD.

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HOSUR, TAMILNADU
INDIA - 635126

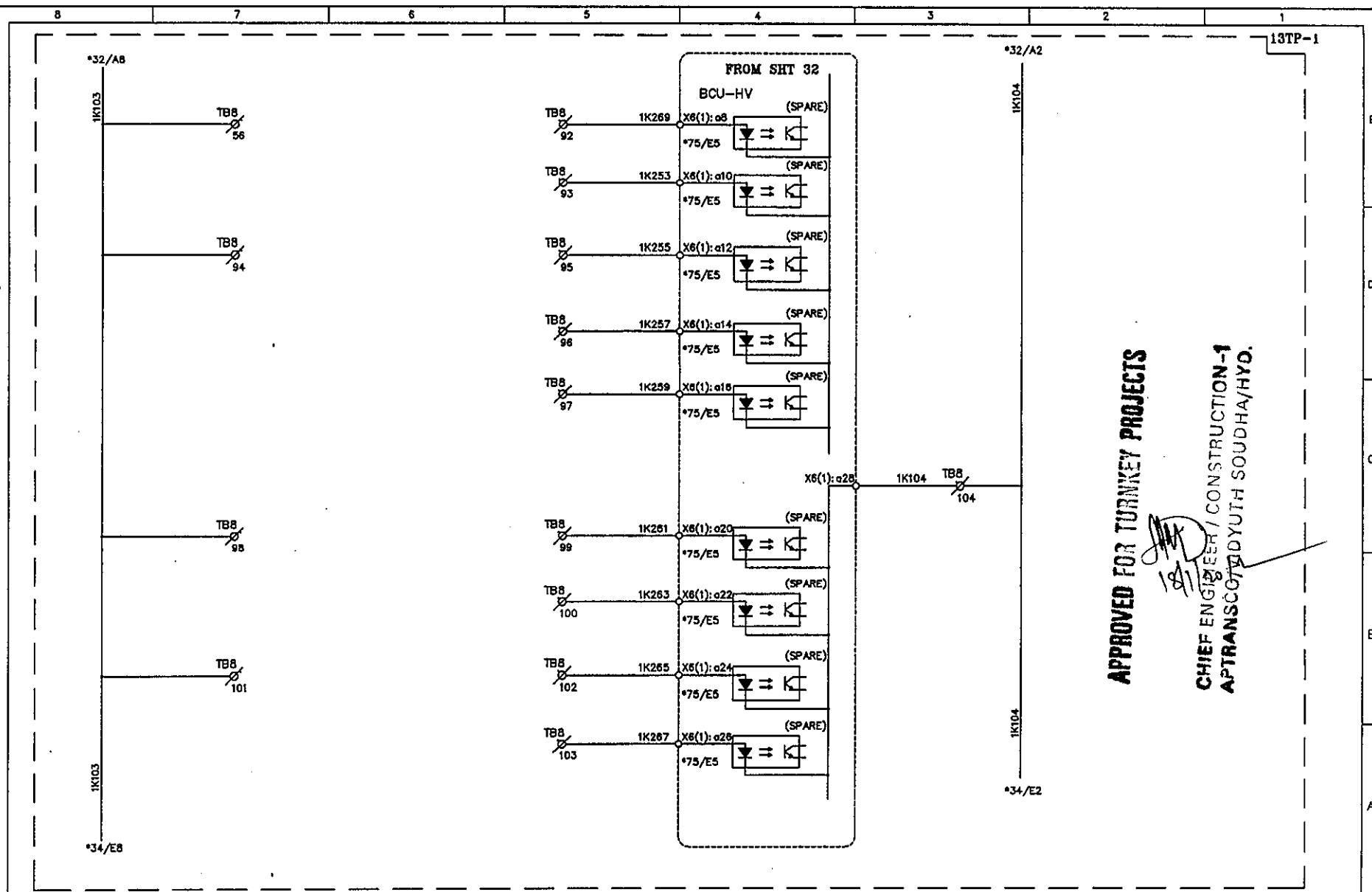
DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
SUBSTATION:132/33KV SS	CONTRACTOR:	
SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:	
	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 31 NEXT SHT: 32
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	ERL REF.:ZCP1812,50 SCALE : NTS	TOT SHT: 86

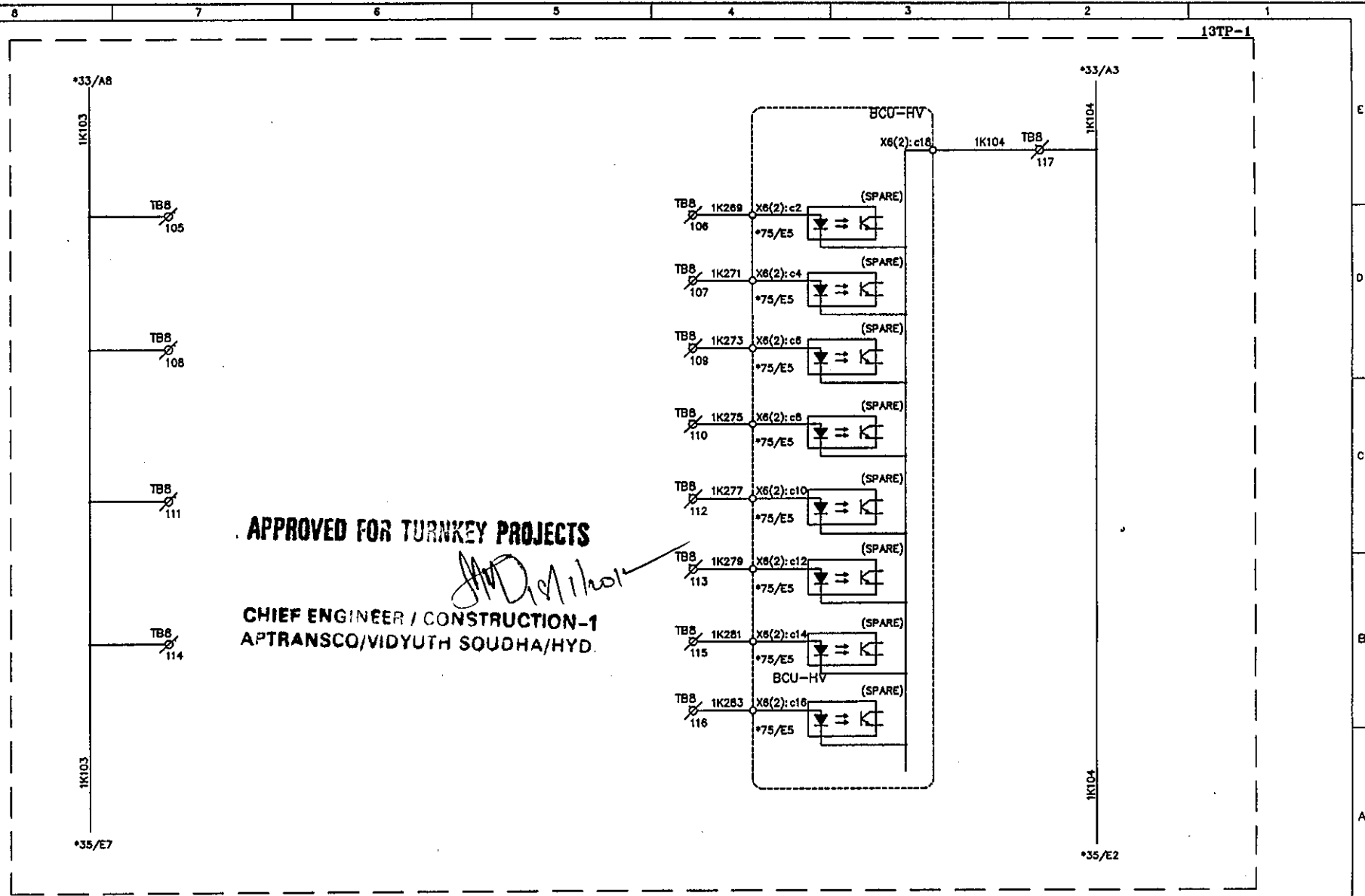
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C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&S1SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M		SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 32 NEXT SHT:33
							ERL REF.:ZCP1812.50	SCALE : NTS	TOT SHT: 86

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M		SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL ERL REF. :ZCP1812,50	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. :ZCP1812,50	THIS SHT: 33 NEXT SHT: 34 TOT SHT: 86





APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SODHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

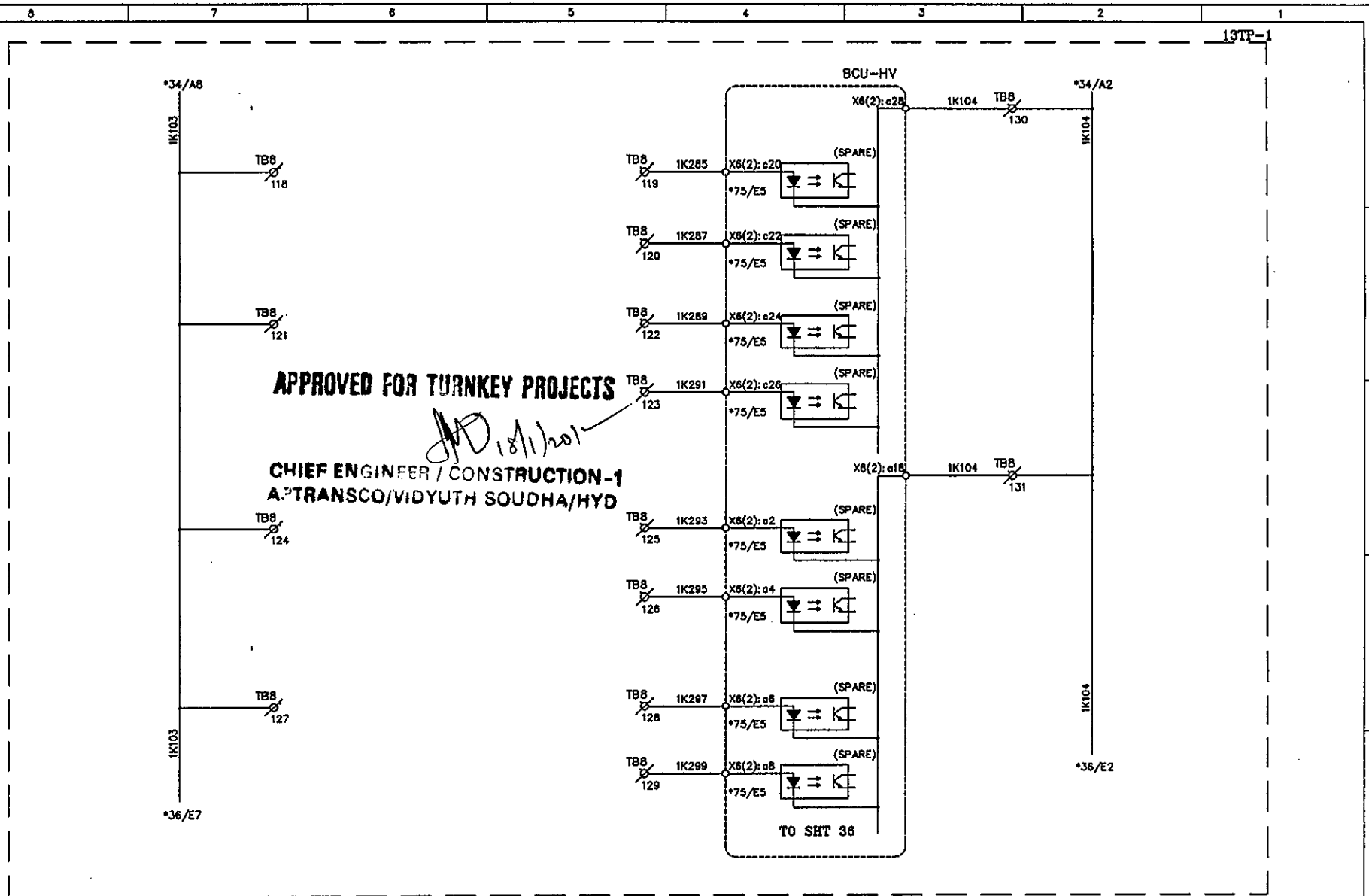
DWG.NO : ER1812,50&S1SC BTRCR11
 SUBSTATION: 132/33kV SS
 SHT. TITLE : HV BCU CIRCUIT

DWG. TITLE : SCHEMATIC DRAWING FOR
 132/33kV TRAFQ PROTECTION PANEL

CUSTOMER : APTRANSCO
 CONTRACTOR:
 CONSULTANT:
 P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT
 e-11/2011/RC-4073/2011 D:28.07.2011
 ERL REF.: ZCP1812,50

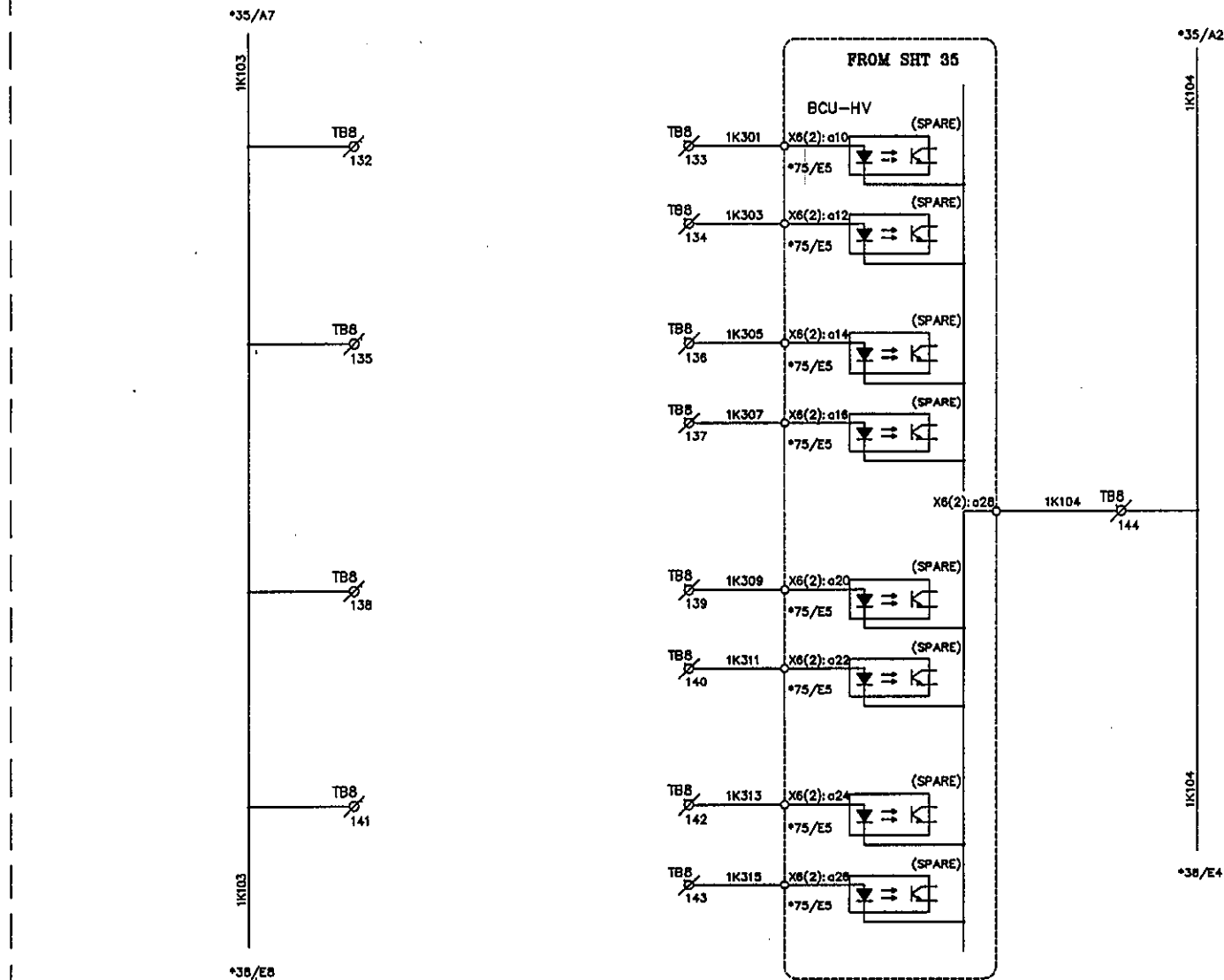
THIS SHT: 34
 NEXT SHT: 35
 SCALE : NTS TOT SHT: 86

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C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M		SHT. TITLE :HV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 35 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:36 ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 86

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M

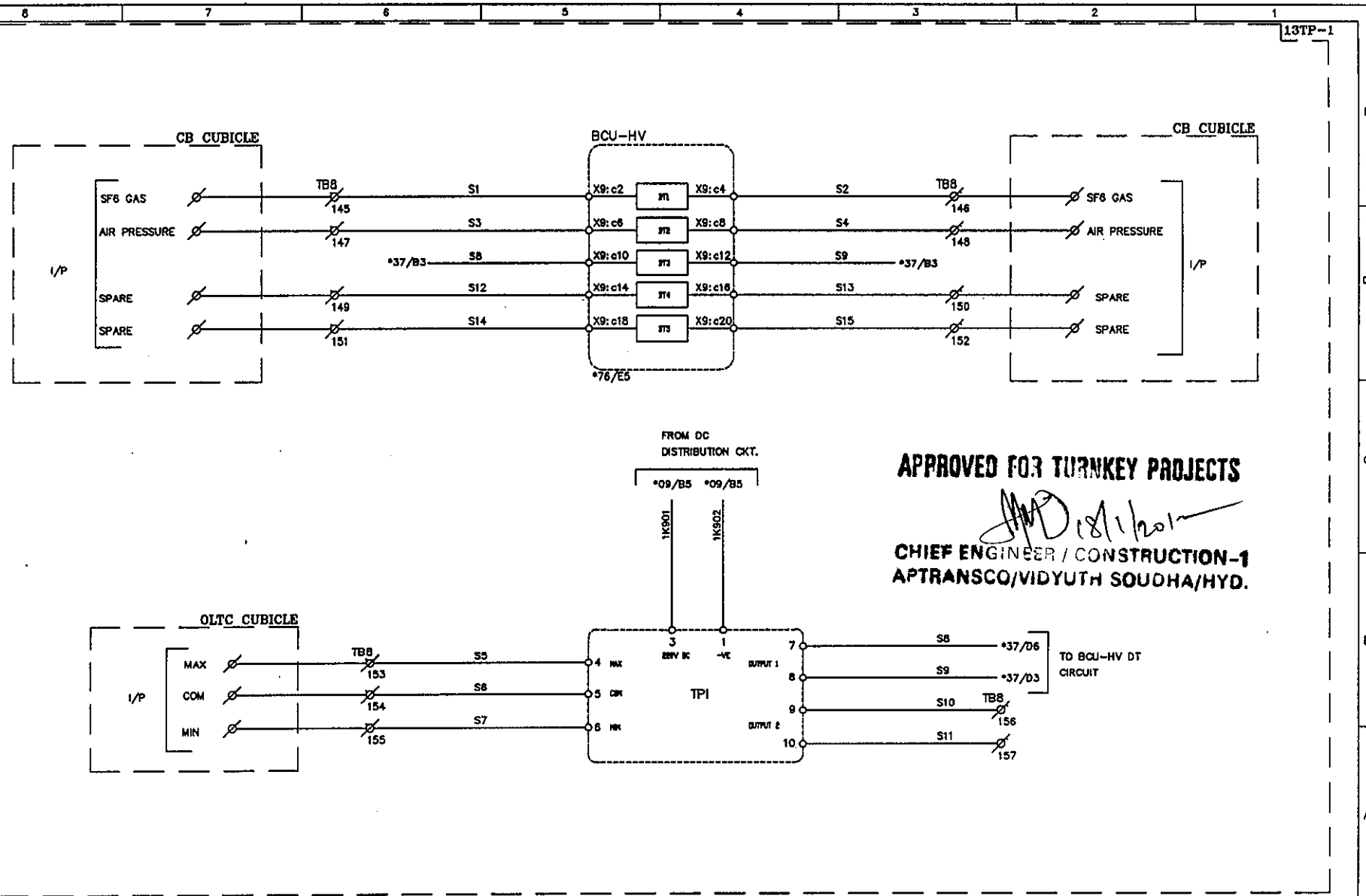


EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11
SUBSTATION: 132/33KV SS
SHT. TITLE : HV BCU CIRCUIT
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL

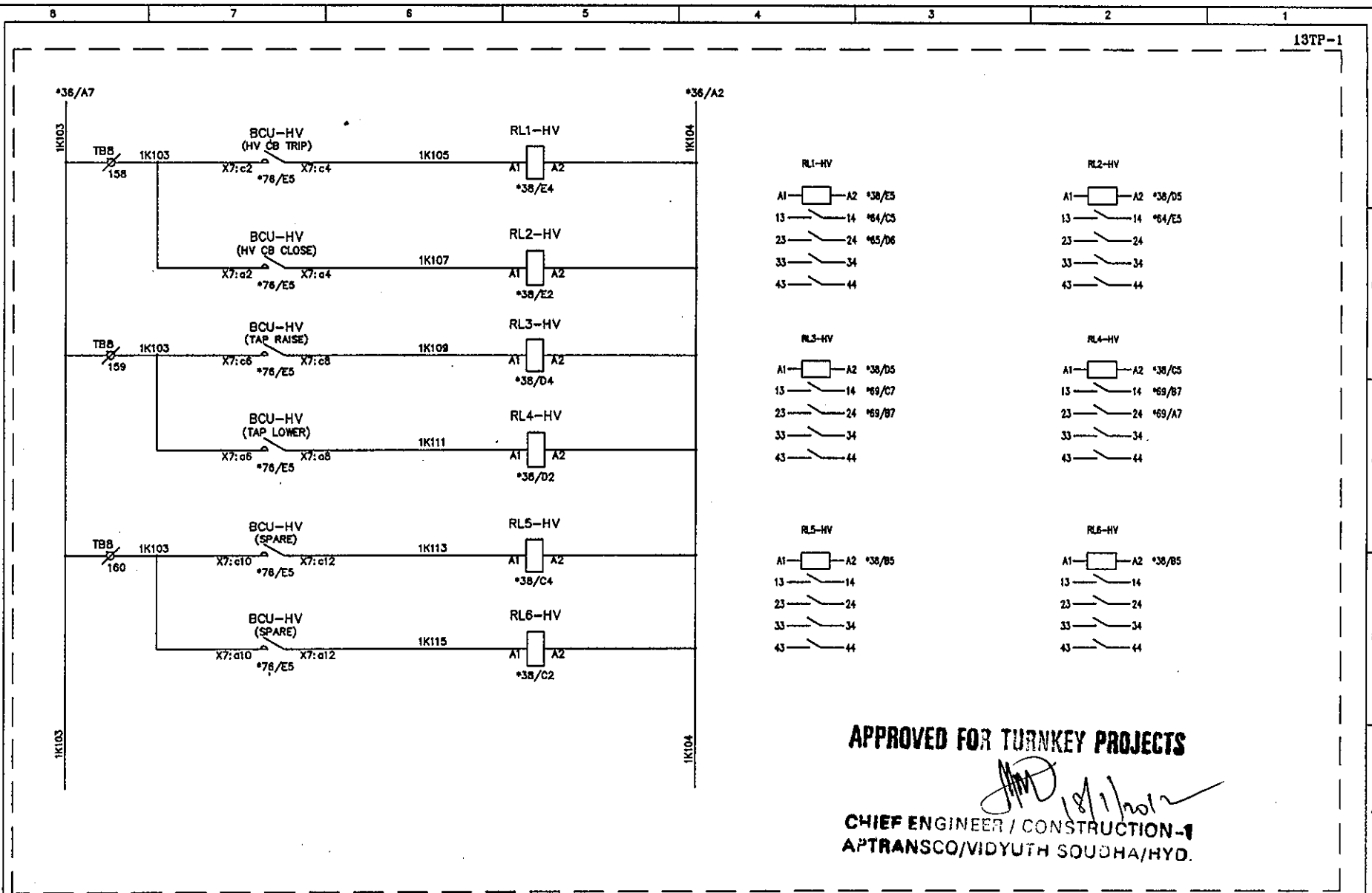
CUSTOMER : APTRANSCO	
CONTRACTOR:	
CONSULTANT:	
P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 36
e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT: 37
ERL REF.: ZCP1812.50	SCALE : NTS
TOT SHT: 86	

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C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TAP POSITION INDICATOR CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50	THIS SHT: 37 NEXT SHT: 38 SCALE : NTS TOT SHT: 86

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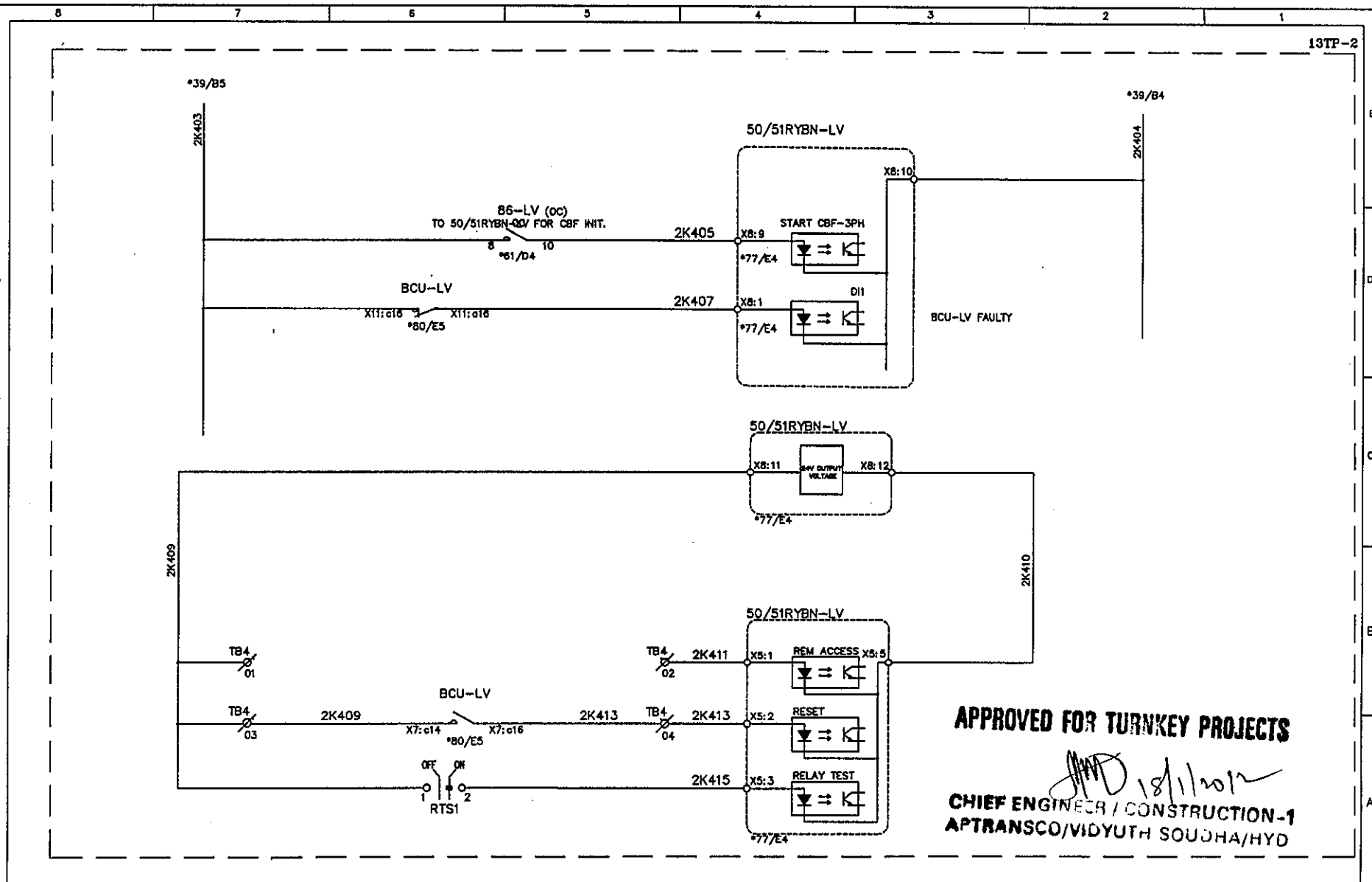
APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYO.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV BCU COMMAND RELAY CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812.50 SCALE : NTS TOT SHT: 38 NEXT SHT: 39

						 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APRANSO	
C	ASBUILT	05.11.11	V.A	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE :LV NON DIR. O/C & E/F PROTECT	CONSULTANT:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		CIRCUIT	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT	THIS SHT: 39
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33kv TRAF	e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT:40
						132/33kv TRAF PROTECTION PANEL	ERL REF. :ZCPC1812.50	SCALE : NTS	
							TOT SHT: 86		

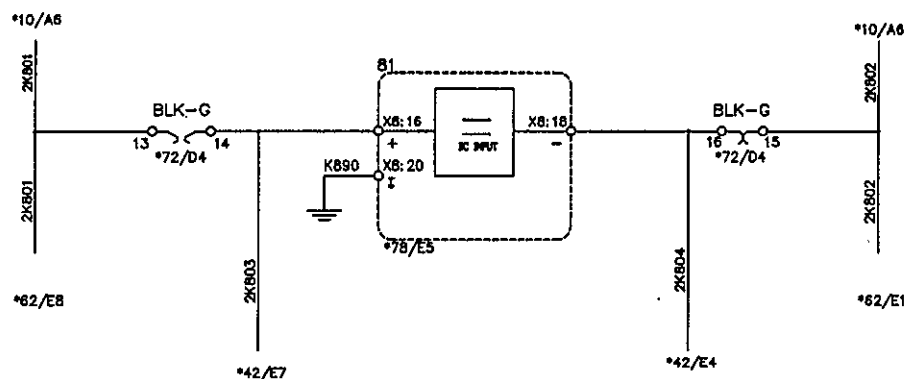
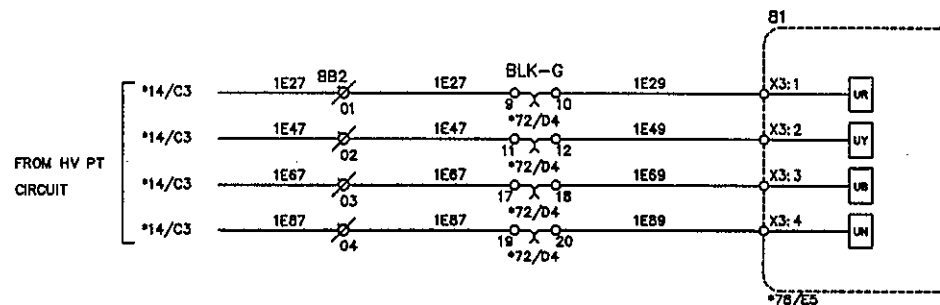
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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

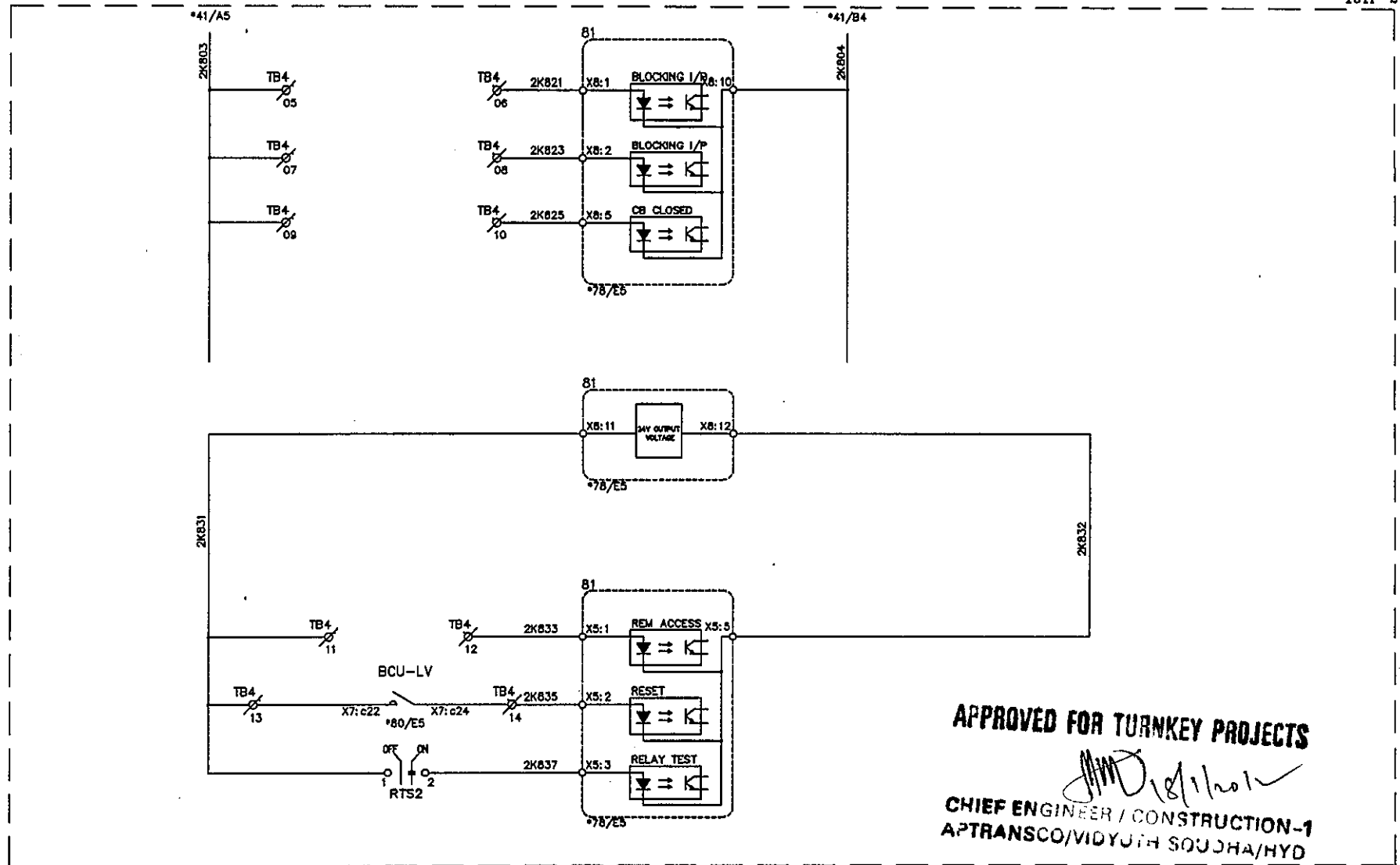
C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV NON DIR. O/C & E/F PROTECT. CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFQ PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 40 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT: 41 ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 86



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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/MIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :UNDER FREQUENCY RELAY PROTN. CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50
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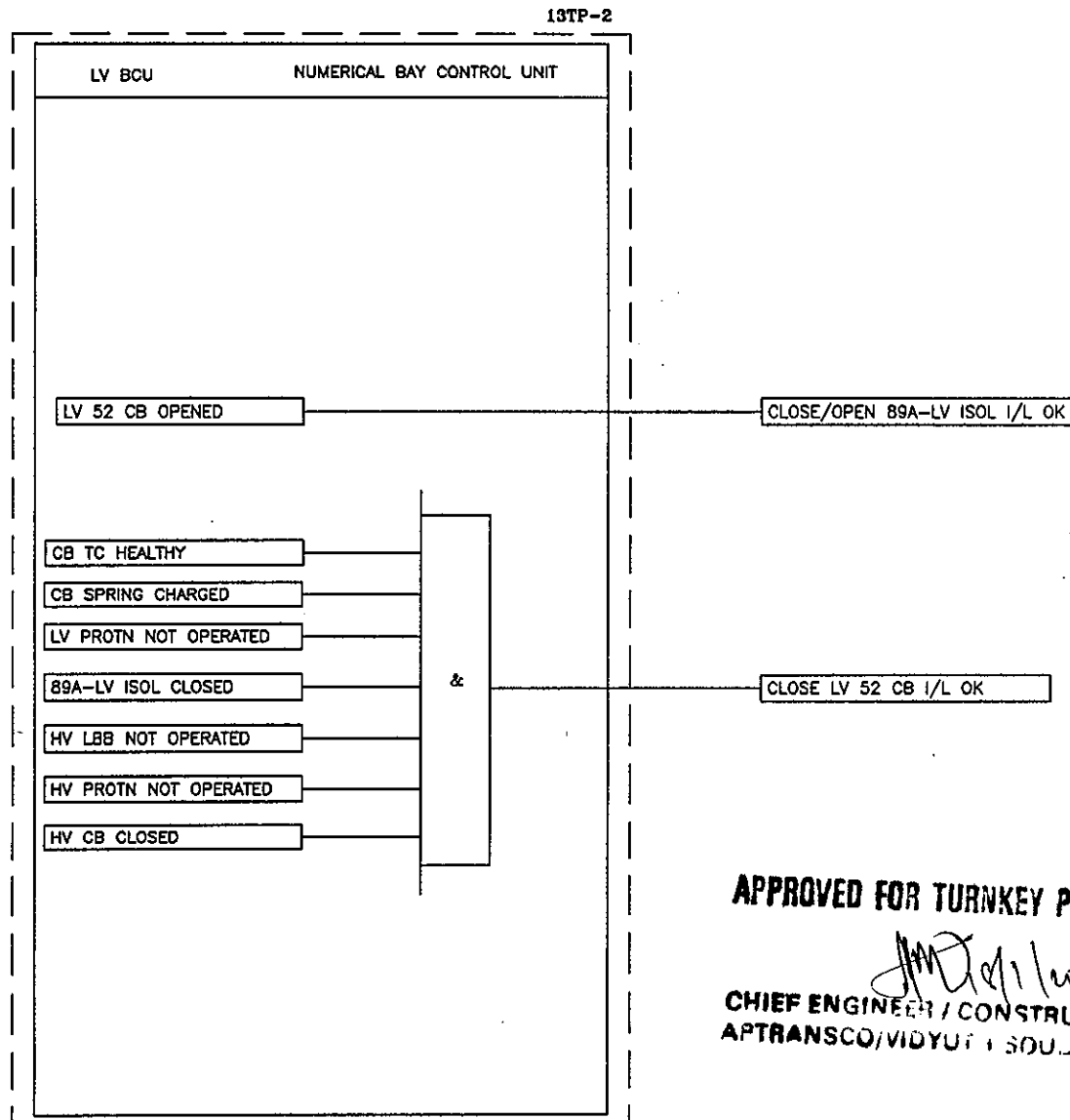


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[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :UNDER FREQUENCY RELAY PROTN. CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT THIS SHT: 42 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:43 ERL REF.:ZCP1812,50 SCALE :NTS TOT SHT: 86

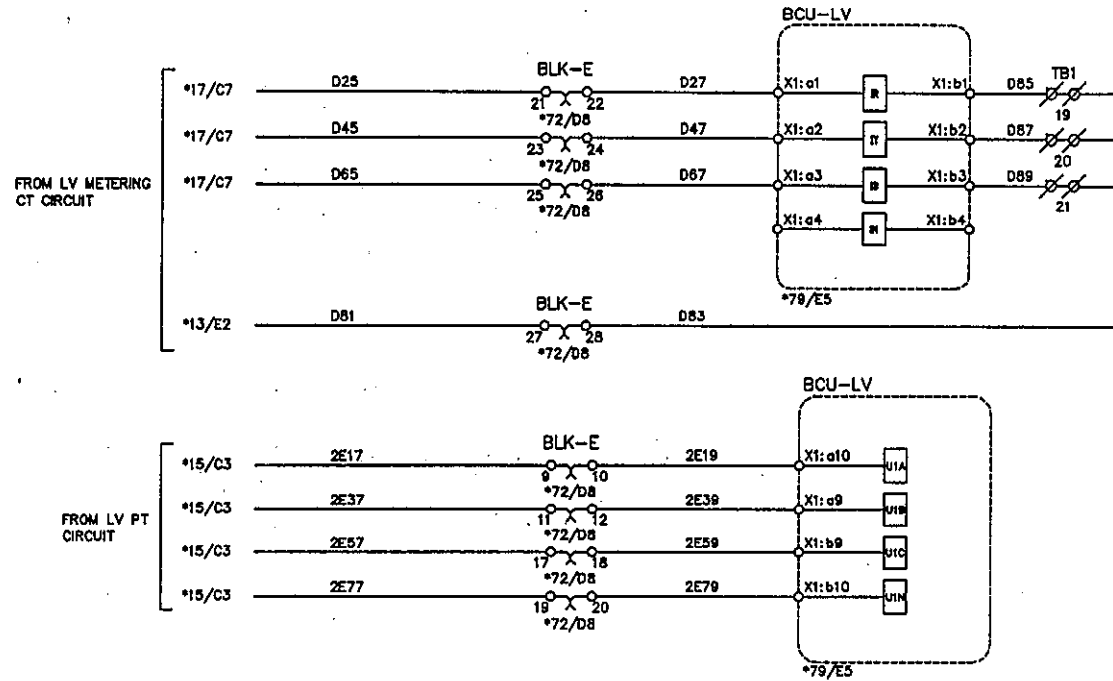


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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUT, SOULJA/HYD

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
C	ASBUILT	05.11.11	V.A	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE :LV INTERLOCKING LOGIC	CONSULTANT:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M			P.O. NO.:CE/Const-I/SE/PW-1/SAS/APT THIS SHT: 43
							DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:44
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ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126



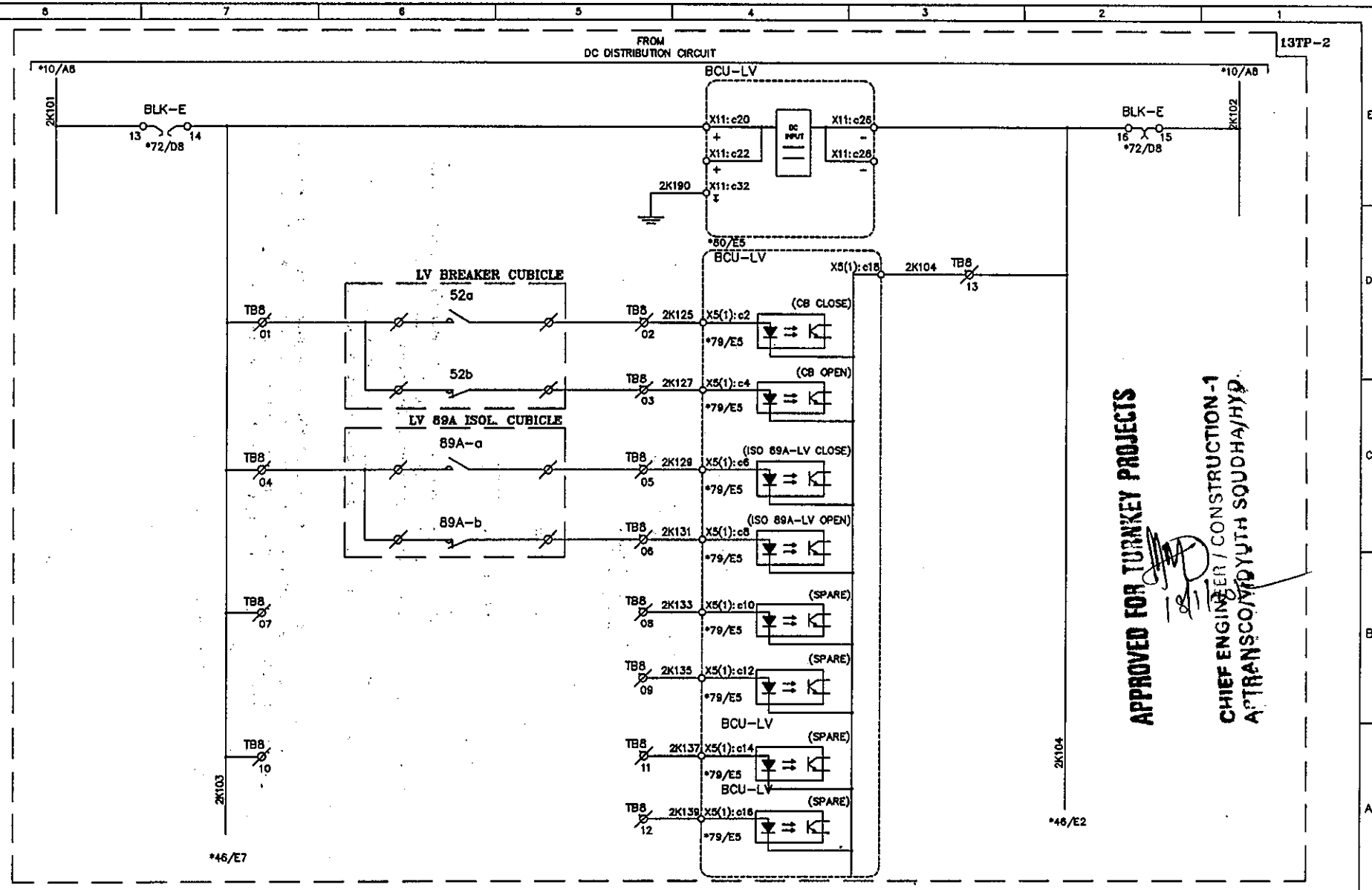
APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
C	ASBUILT	05.11.11	V.A	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE : LV BCU CIRCUIT	CONSULTANT:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFU PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
								THIS SHT: 44 NEXT SHT: 45
								ERL REF.: ZCP1812,50 SCALE: NTS TOT SHT: 86



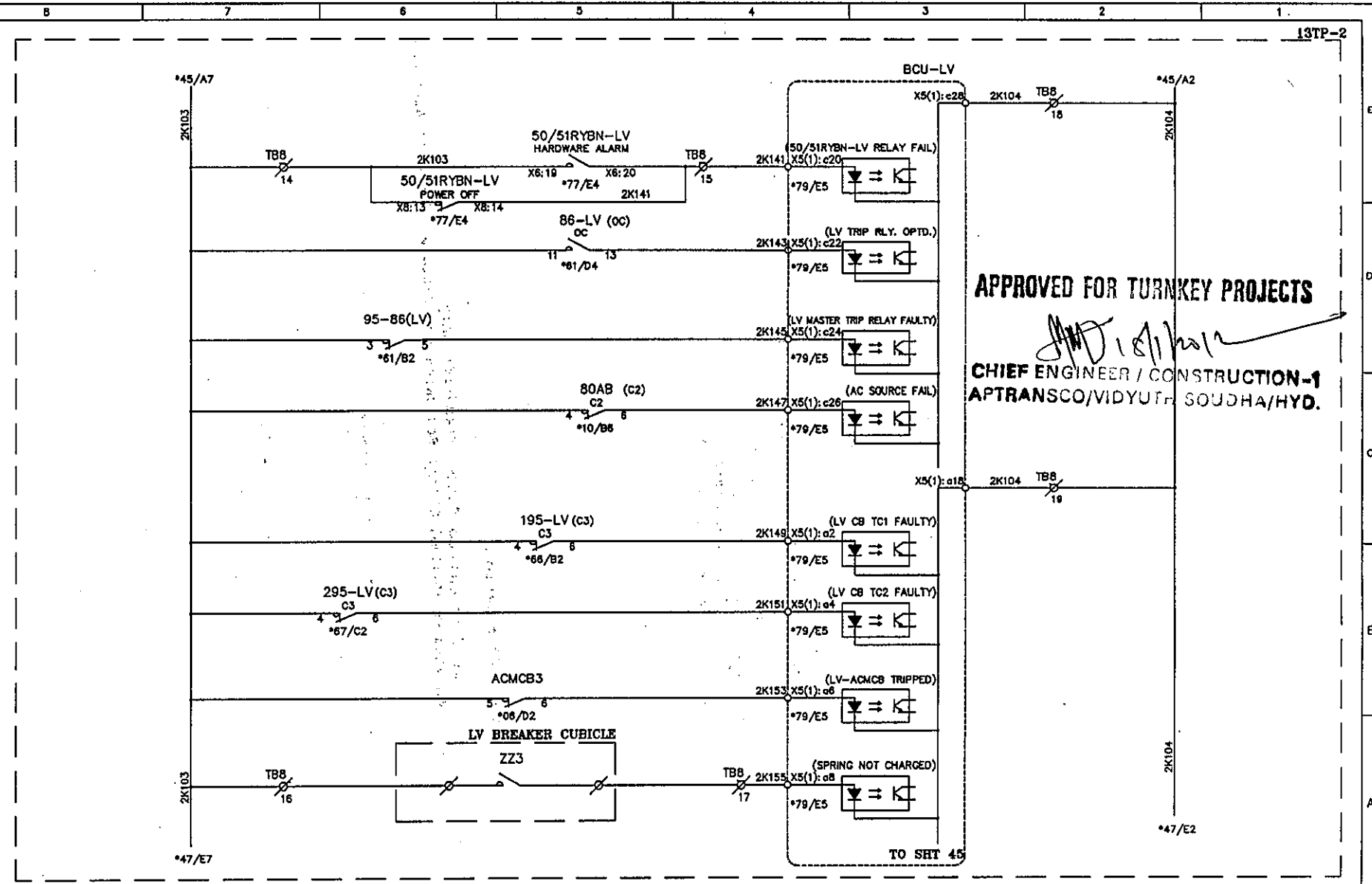
EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126



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 CHIEF ENGINEER / CONSTRUCTION-1
 ATRANSCO/MDYUTH SQUAD/HYP

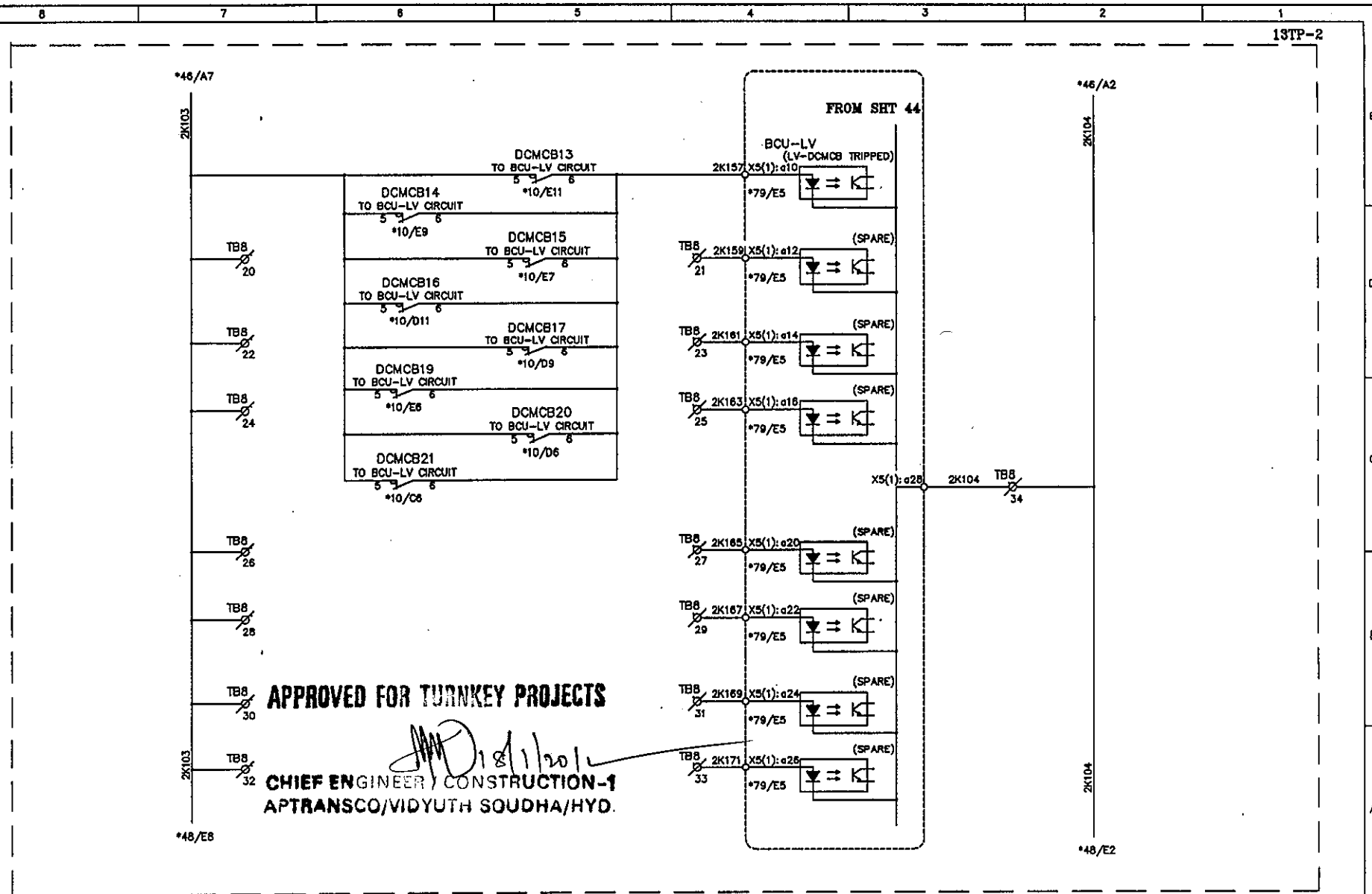
C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 45
 NEXT SHT: 46
 TOT SHT: 86



C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : LV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFD PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812.50 SCALE : NTS

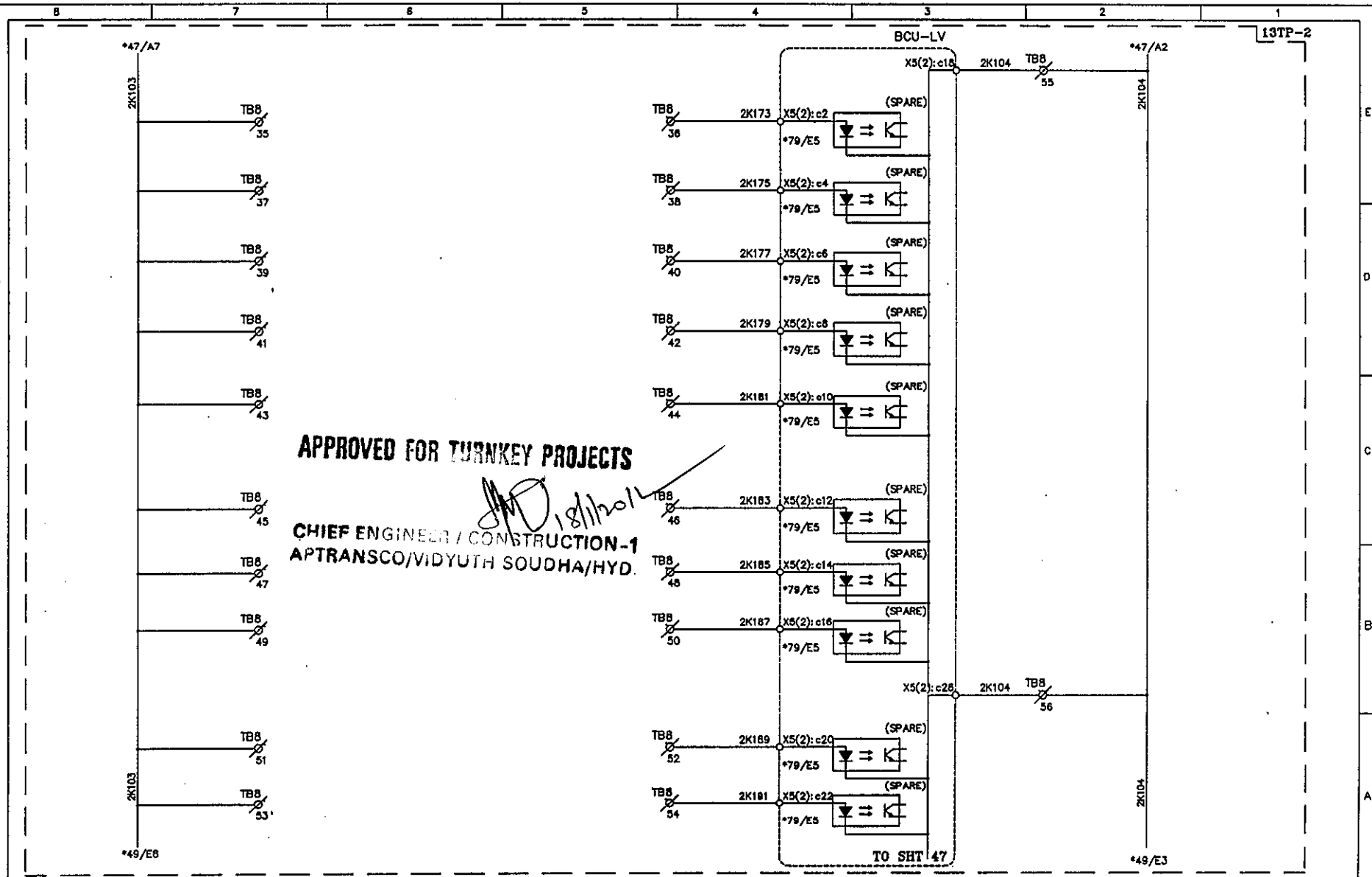
THIS SHT: 46
NEXT SHT: 47
TOT SHT: 86



C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 47
NEXT SHT: 48
TOT SHT: 86

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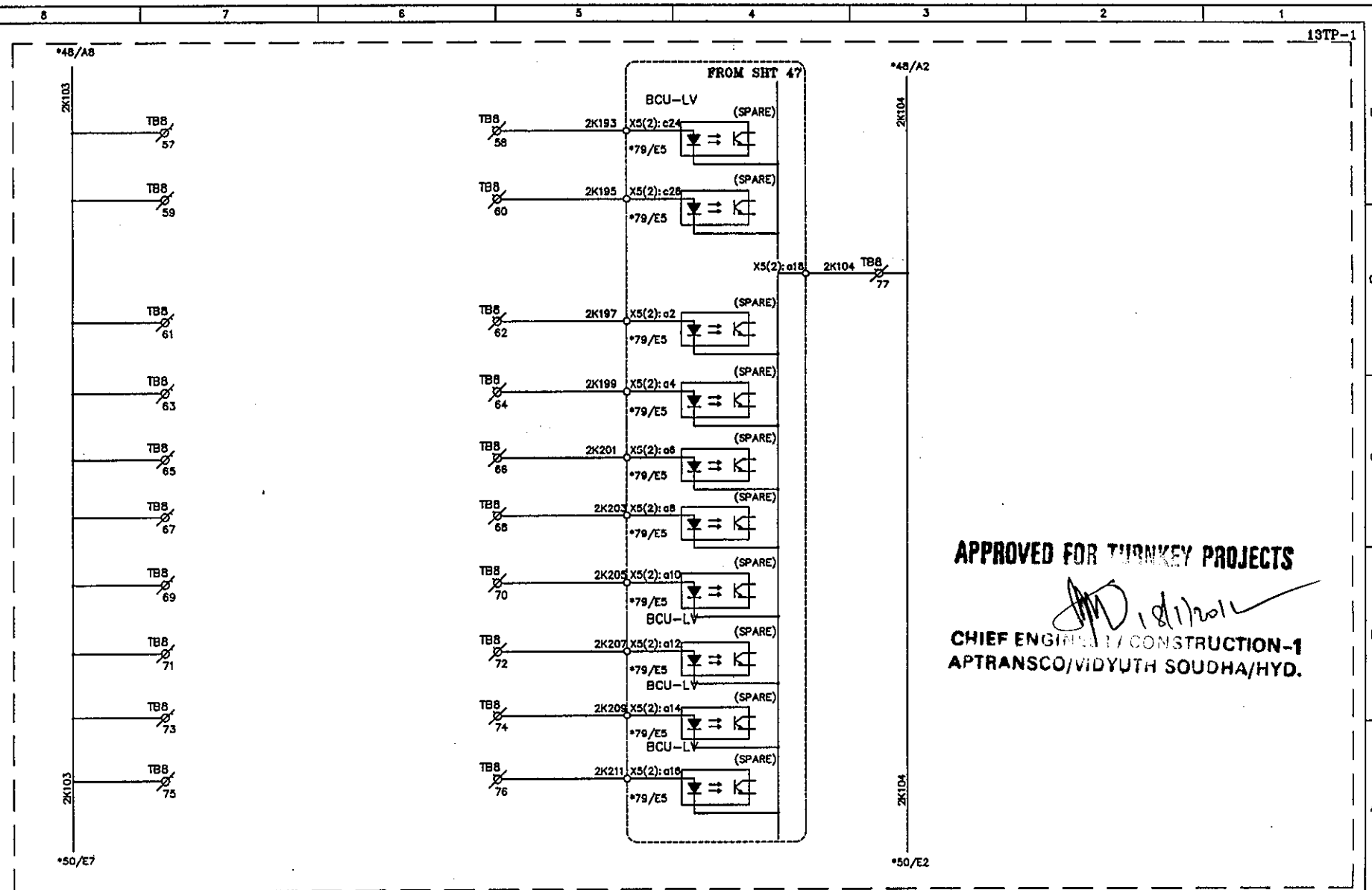


C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,50&51SC BTRCR11		CUSTOMER : APTRANSCO	
SUBSTATION: 132/33KV SS		CONTRACTOR:	
SHT. TITLE : LV BCU CIRCUIT		CONSULTANT:	
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL		P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 48
		e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT: 49
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		TOT SHT: 86	

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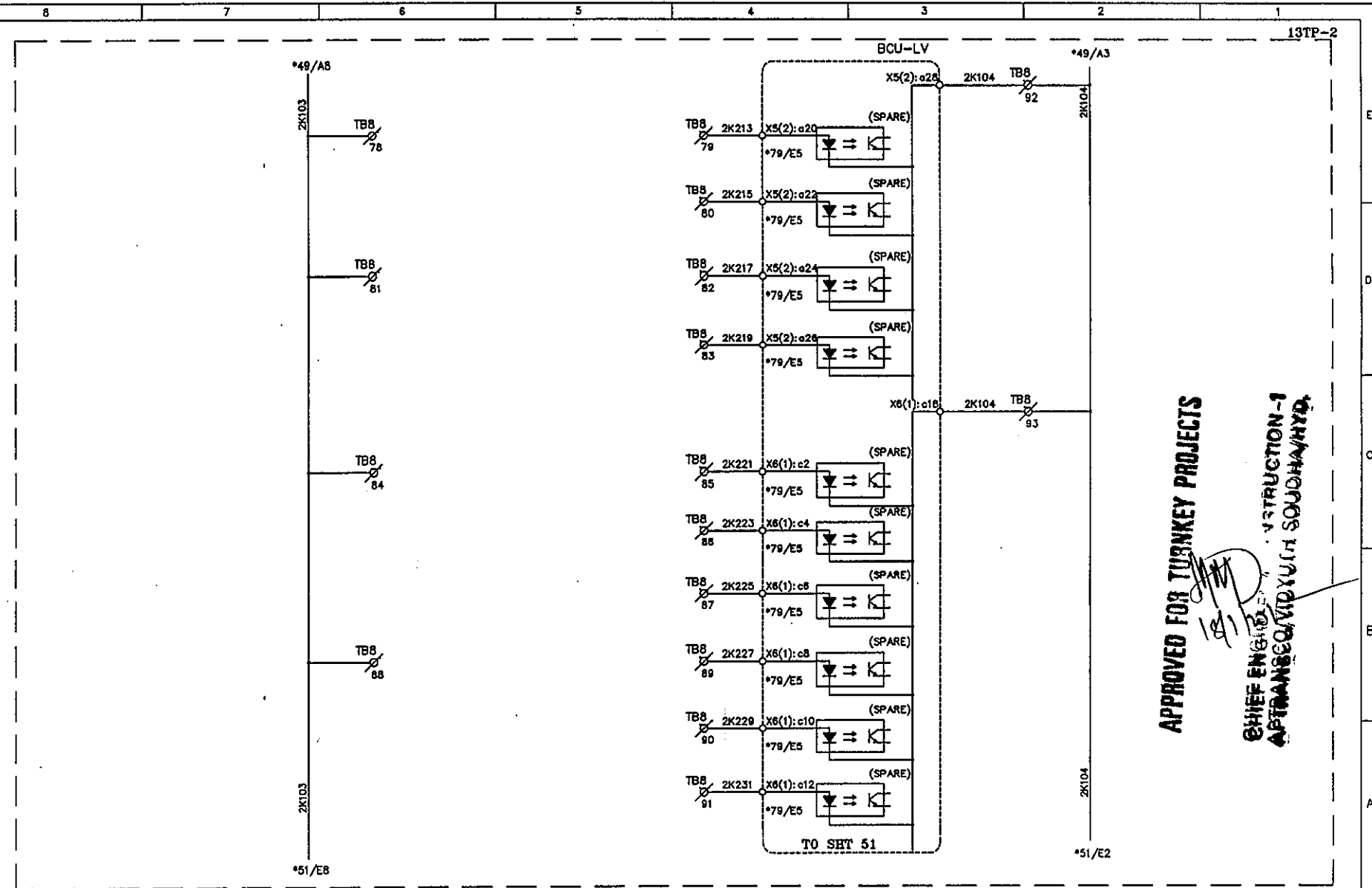


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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

					 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO		
C	ASBUILT	05.11.11	V.A	J.V		G.M	SUBSTATION:132/33KV SS	CONTRACTOR:	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V		G.M	SHT. TITLE :LV BCU CIRCUIT	CONSULTANT:	
A	FOR APPROVAL	29.06.11	G.D	J.V		G.M		P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 49 NEXT SHT:50
REV	DESCRIPTION	DATE	DESIGNED	CHECKED		APPROVED	DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	ERL REF.:ZCP1812,50	SCALE : NTS TOT SHT: 86

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CHIEF ENGINEER
APTRANSCO, YUTCH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.08.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : LV BCU CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 50
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	ERL REF.: ZCP1812.50 SCALE : NTS TOT SHT: 86

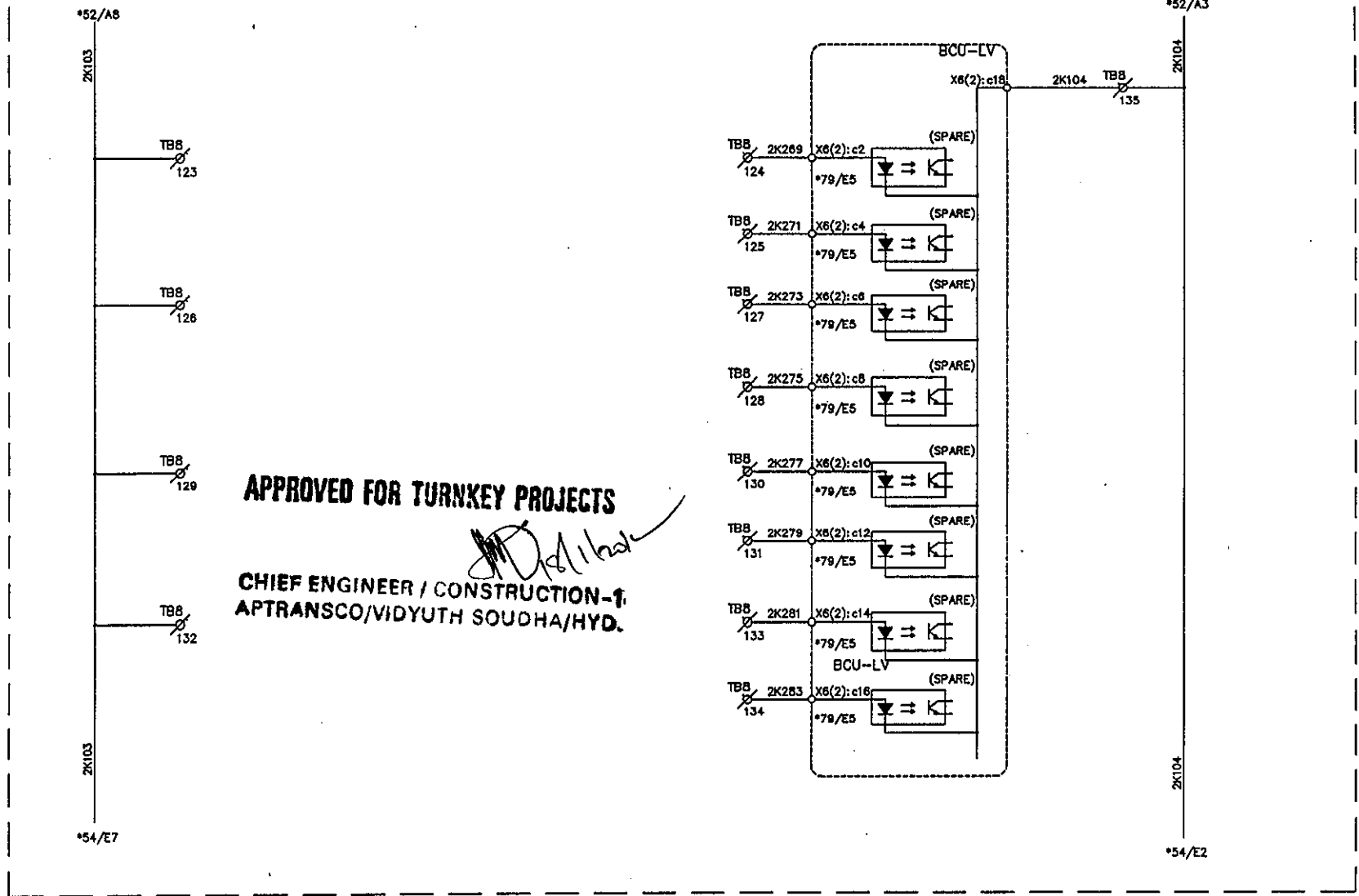
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO	
SUBSTATION:132/33KV SS	CONTRACTOR:	
SHT. TITLE :LV BCU CIRCUIT	CONSULTANT:	
	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 02.28.2011	THIS SHT: 51 NEXT SHT: 52
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	ERL REF. :ZCP1812.50 SCALE : NTS	TOT SHT: 86

[illegible]

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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

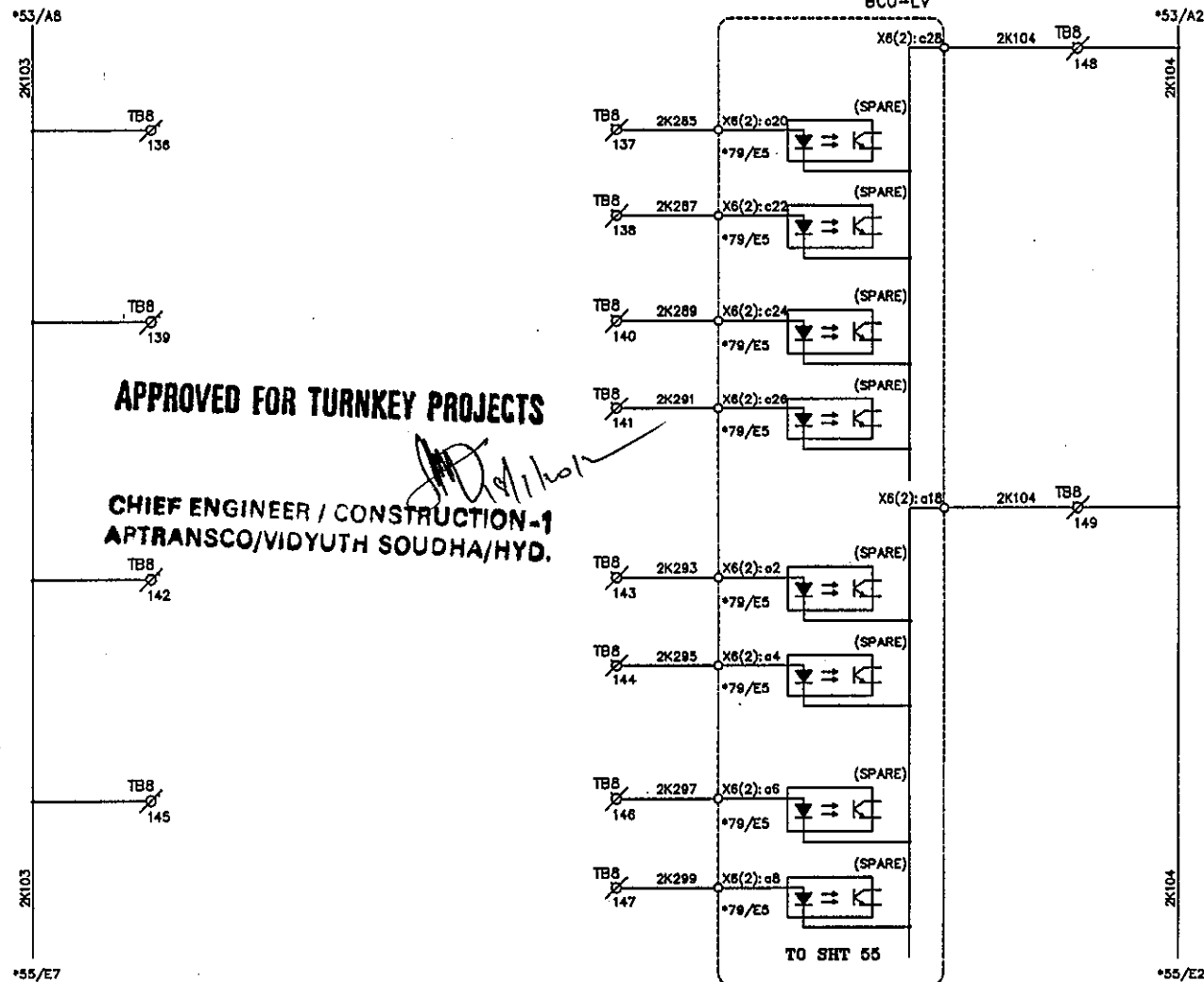


EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11
SUBSTATION: 132/33KV SS
SHT. TITLE : LV BCU CIRCUIT
DWG. TITLE : SCHEMATIC DRAWING FOR
132/33KV TRAFD PROTECTION PANEL

CUSTOMER : APTRANSCO
CONTRACTOR:
CONSULTANT:
P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 53
e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT: 54
ERL REF.: ZCP1812.50 SCALE : NTS TOT SHT: 86

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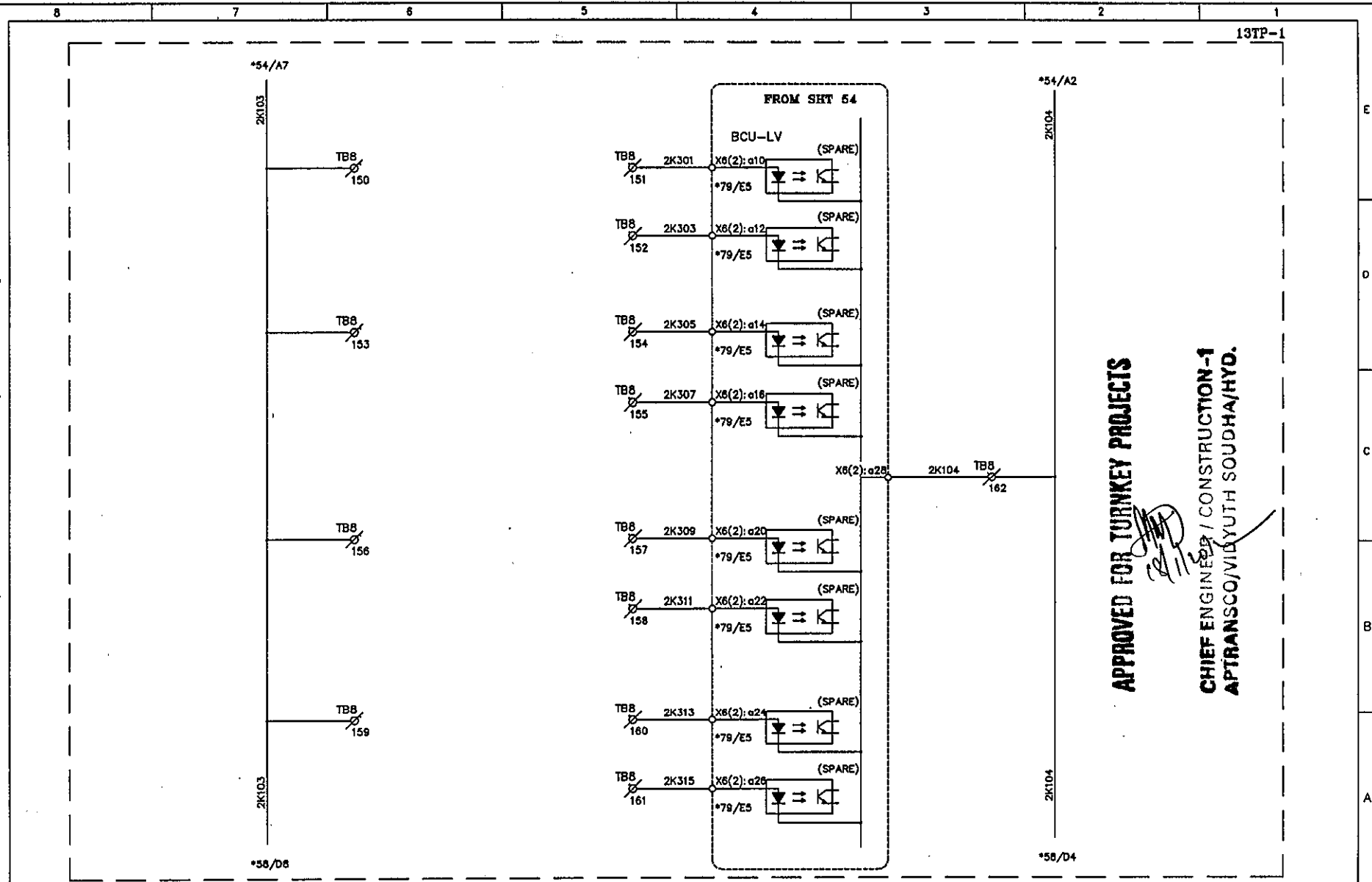
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : LV BCU CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011
ERL REF.: ZCP1812.50	SCALE : NTS
	THIS SHT: 54 NEXT SHT: 55 TOT SHT: 86



APPROVED FOR TURNKEY PROJECTS

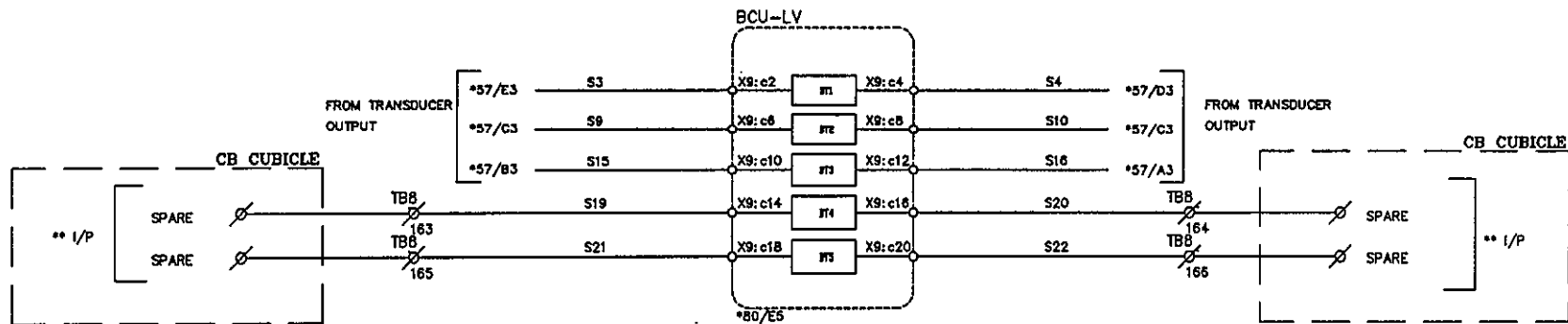
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	12.07.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION : 132/33KV SS	CONTRACTOR:
SHT. TITLE : LV BCU CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. : ZCP1812.50
	THIS SHT: 55 NEXT SHT: 56 TOT SHT: 86



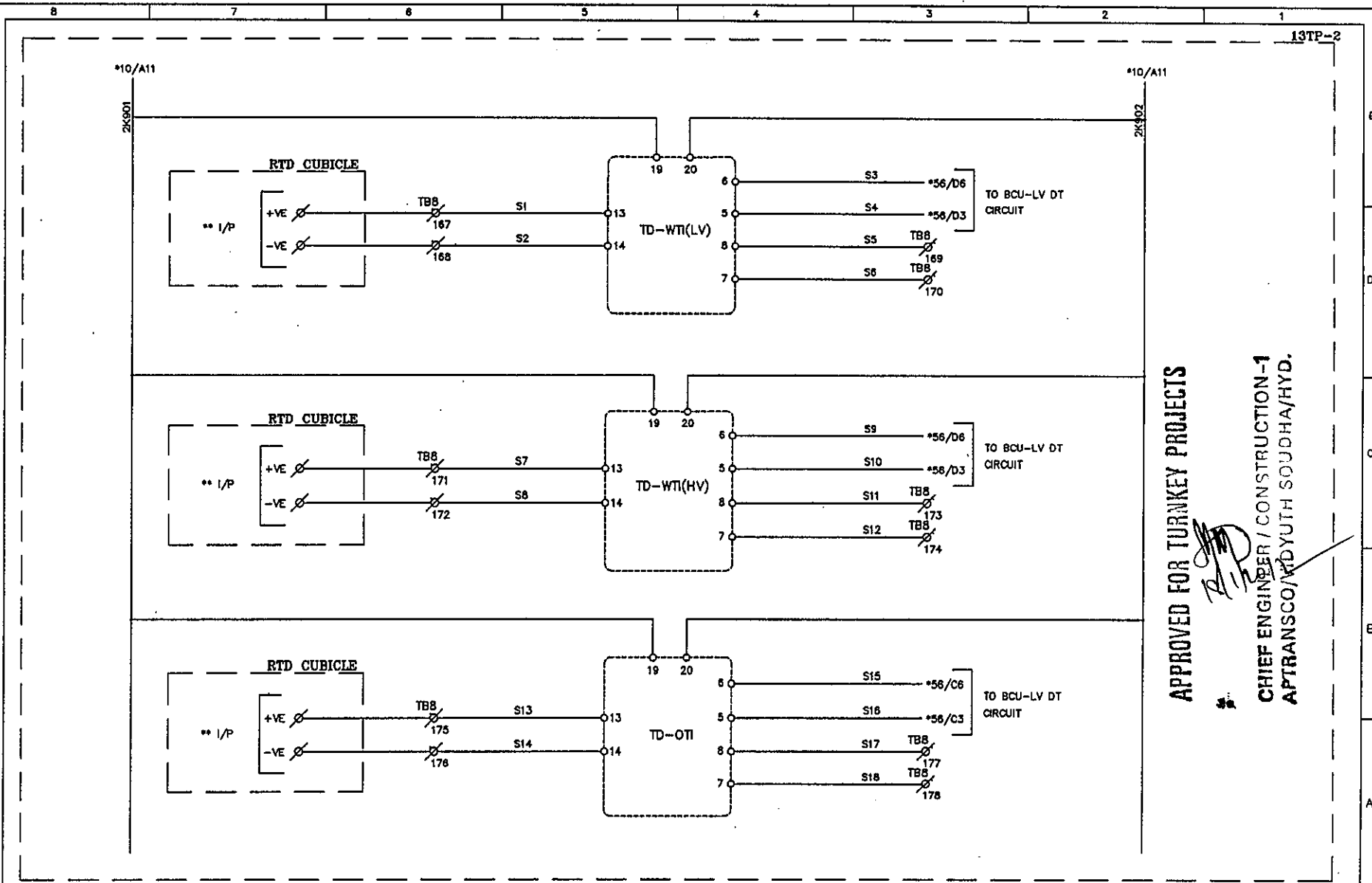
APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-I
APTRANSCO/VIDYUTH SOUDHA/HYD.

**** - INPUTS OF THE TRANSDUCERS ARE NEED TO BE CONFIRMED BY THE CUSTOMER**

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT THIS SHT:56 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:57 ERL REF. :ZCP1812,50 SCALE : NTS TOT SHT: 86

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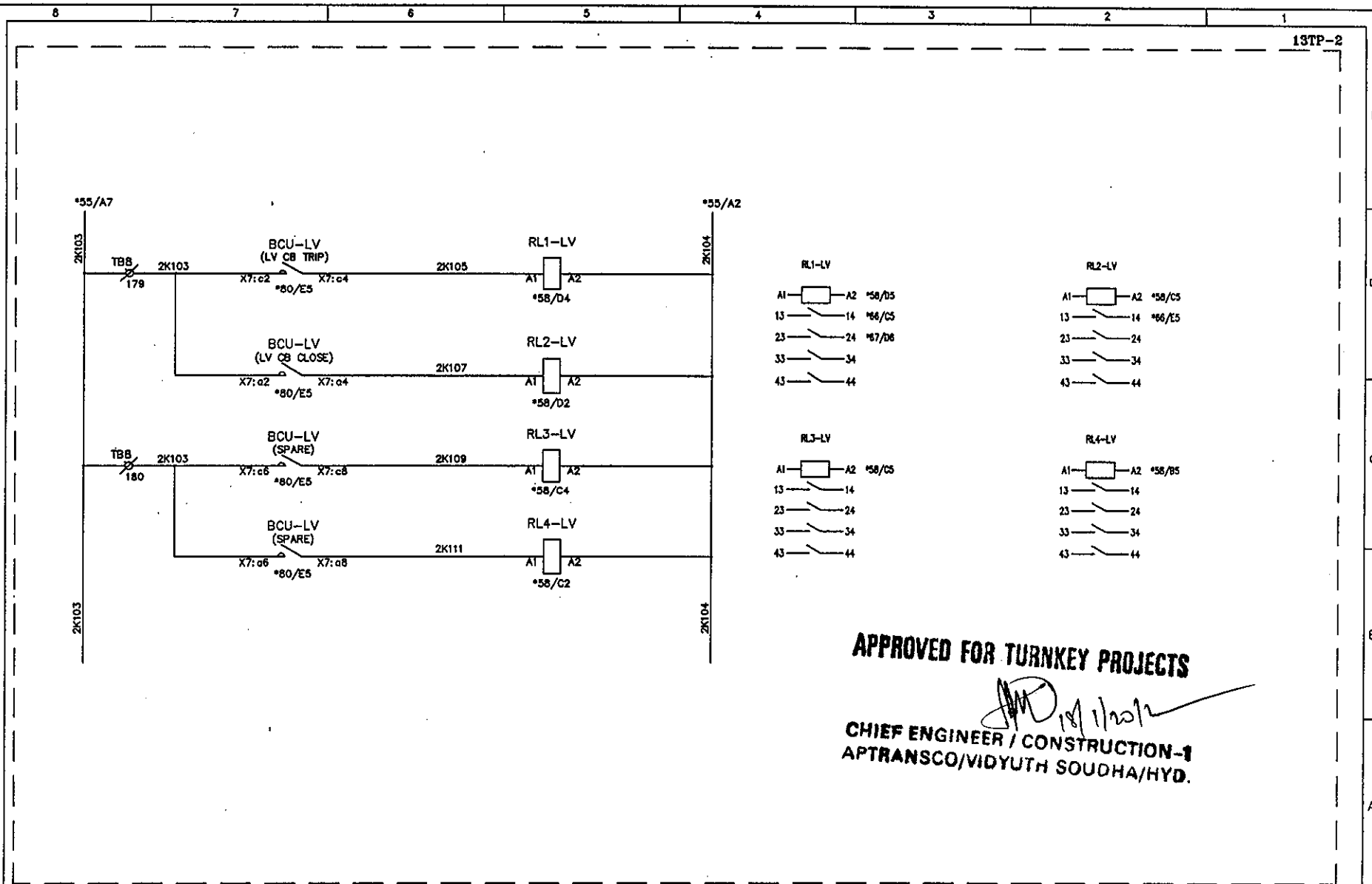


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CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/UDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TRANSUCER CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33kv TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 57 NEXT SHT: 58
							ERL REF.:ZCP1812,50	SCALE : NTS	TOT SHT: 86

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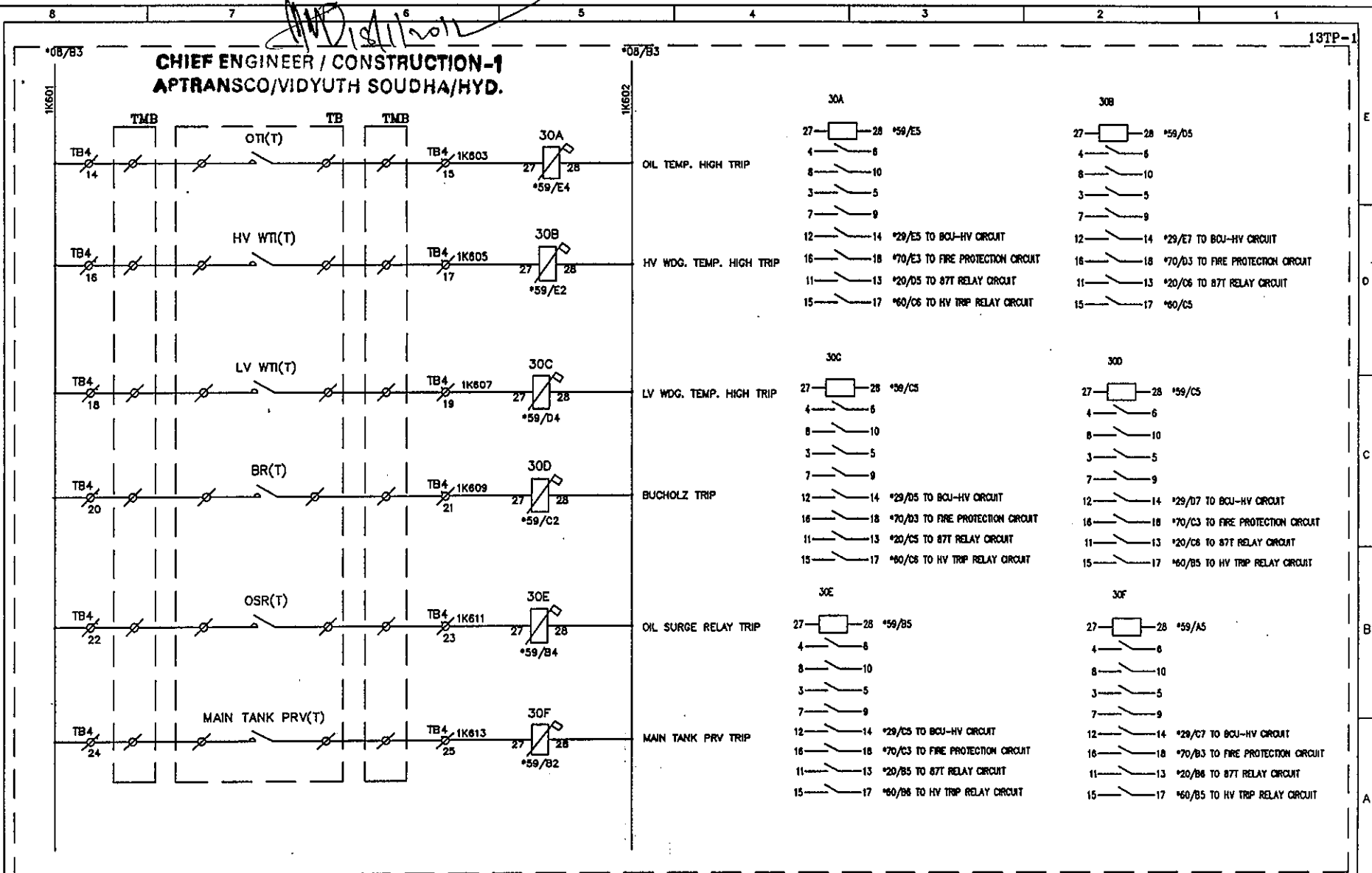
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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV BCU COMMAND	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		RELAY CIRCUIT	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT THIS SHT: 58
							DWG. TITLE :SCHEMATIC DRAWING FOR	e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:59
							132/33KV TRAF0 PROTECTION PANEL	ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 86

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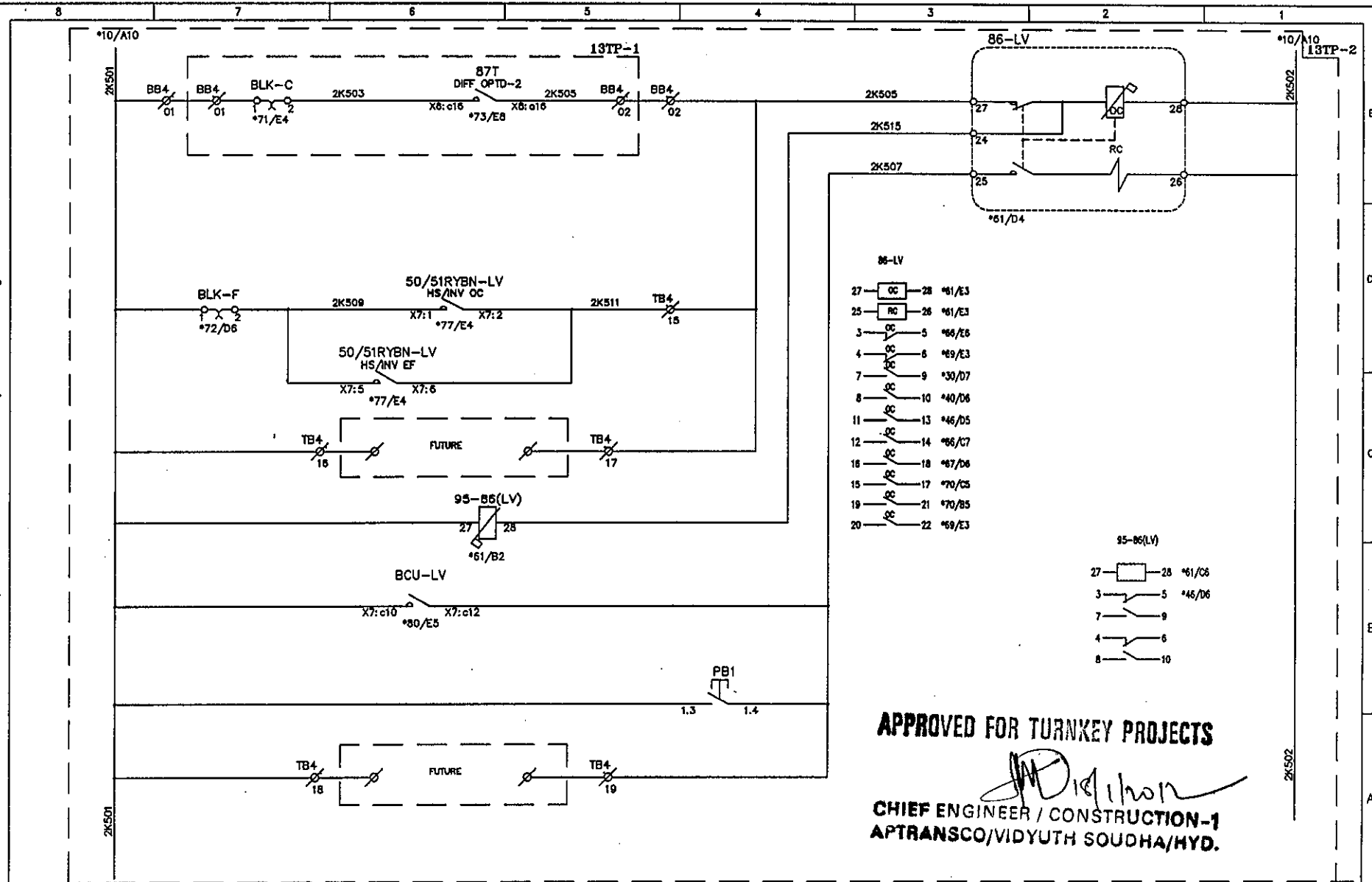
C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE :TRAFO AUX. RELAY CIRCUIT	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33kV TRAFO PROTECTION PANEL	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 59 NEXT SHT: 60 ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 86

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO	
SUBSTATION:132/33KV SS	CONTRACTOR:	
SHT. TITLE :HV MASTER TRIP RELAY CIRCUIT	CONSULTANT:	
	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT	THIS SHT: 60
	e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT:61
DWG. TITLE :SCHEMATIC DRAWING FOR	ERL REF.:ZCP1812.50	SCALE : NTS
132/33KV TRAFEO PROTECTION PANEL		TOT SHT: 86

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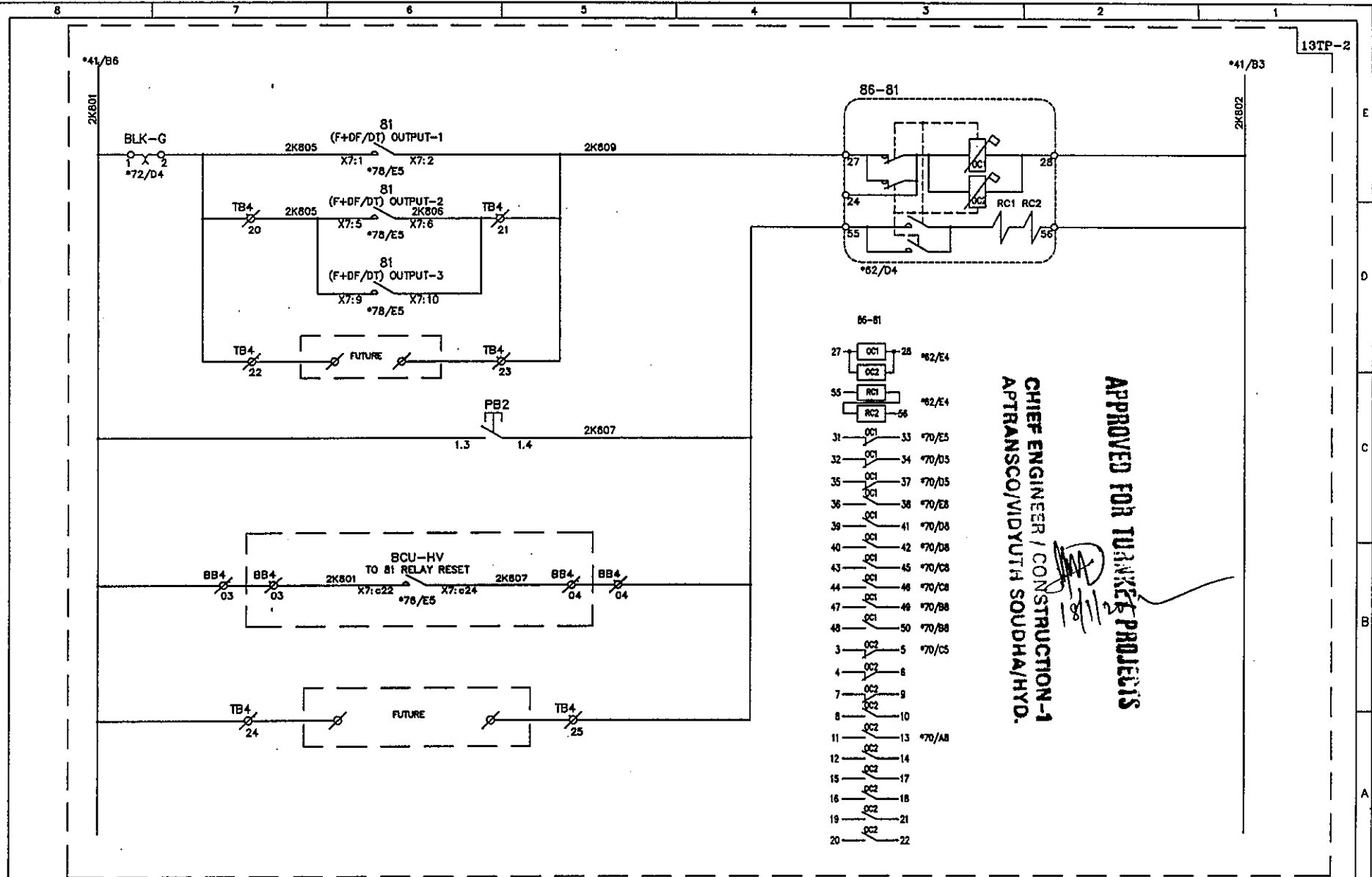
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



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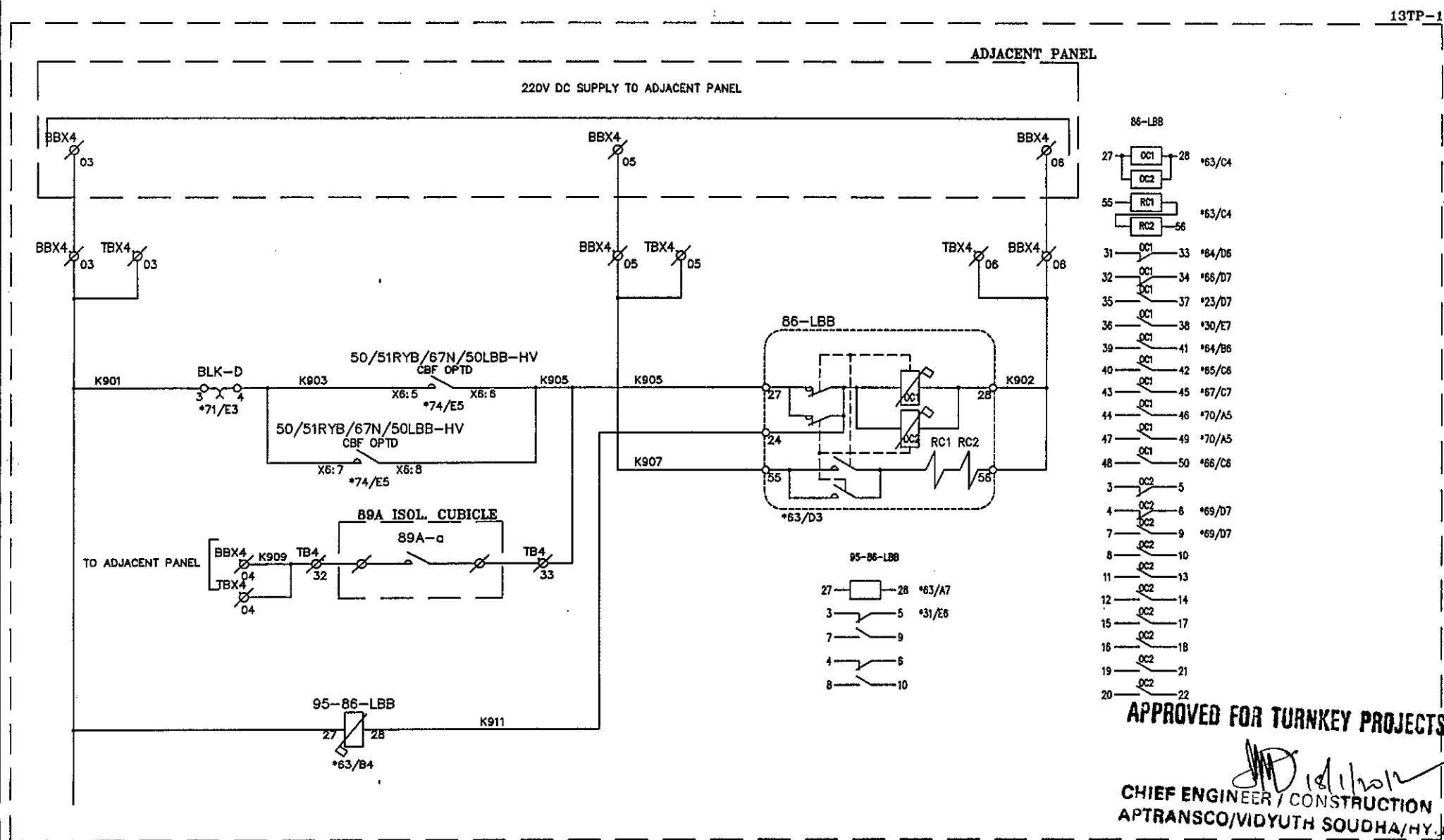
DWG.NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33kV SS	CONTRACTOR:
SHT. TITLE : LV MASTER TRIP RELAY CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33kV TRAFO PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PN-1/SAS/APT
	e-11/2011/RC-4073/2011 D:28.07.2011
	ERL REF.: ZCP1812,50
	SCALE : NTS
	TOT SHT: 86

2K502



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 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/MIDUTHI SUDHA/HYO.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE : TRIP RELAY CKT. FOR U/F PROTN. CIRCUIT.	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT 11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812,50 SCALE : NTS	THIS SHT: 62 NEXT SHT: 63 TOT SHT: 86



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CHIEF ENGINEER / CONSTRUCTION 1
APTRANSCO/VIDYUTH SOUDHA/HY.

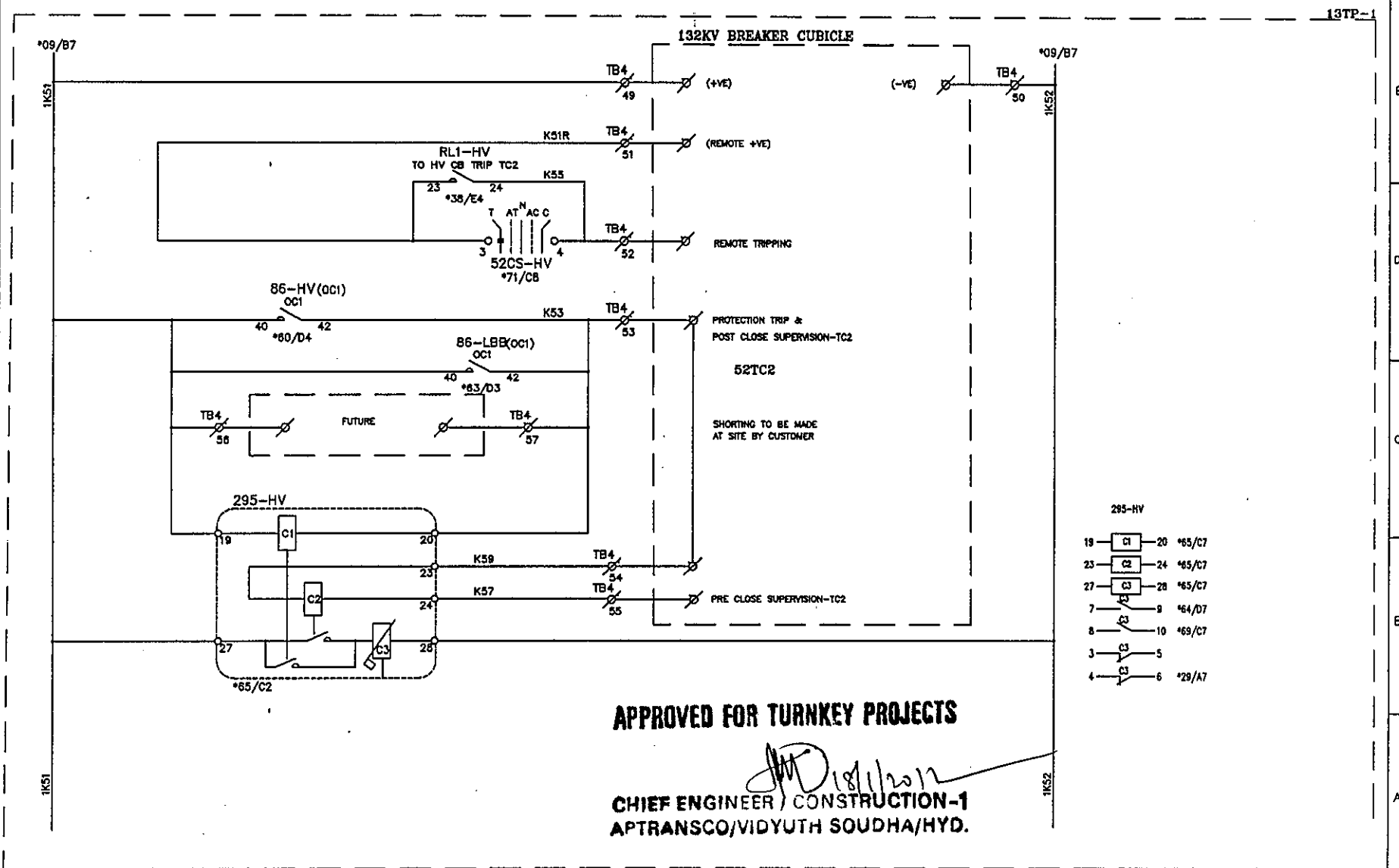
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812&1813 SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :HV LBB TRIP RELAY CIRCUIT	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/D.No.84/2011 D:23.06.2011 ERL REF.:ZCP1812&13 SCALE : NTS
	THIS SHT: 63 NEXT SHT: 64 TOT SHT: 86

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV BREAKER CONTROL CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33kv TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 64 NEXT SHT:65
							ERL REF. :ZCP1812,50	SCALE : NTS	TOT SHT: 86

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



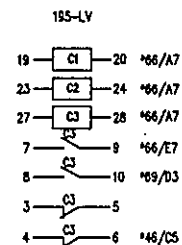
EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : HV BREAKER CONTROL CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 65
	6-11/2011/RC-4073/2011 0:28.07.2011 NEXT SHT: 66
	ERL REF.: ZCP1812.50 SCALE : NTS TOT SHT: 86

[illegible]

KEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LV BREAKER CONTROL CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33kv TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011	THIS SHT: 66 NEXT SHT: 67
							ERL REF. :ZCPI1812.50	SCALE : NTS1	TOT SHT: 86

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



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11/3
CHIEF ENGINEER/CONSTRUCTION-1
A. TRANSCO/VIDYUTH Soudha/HYD

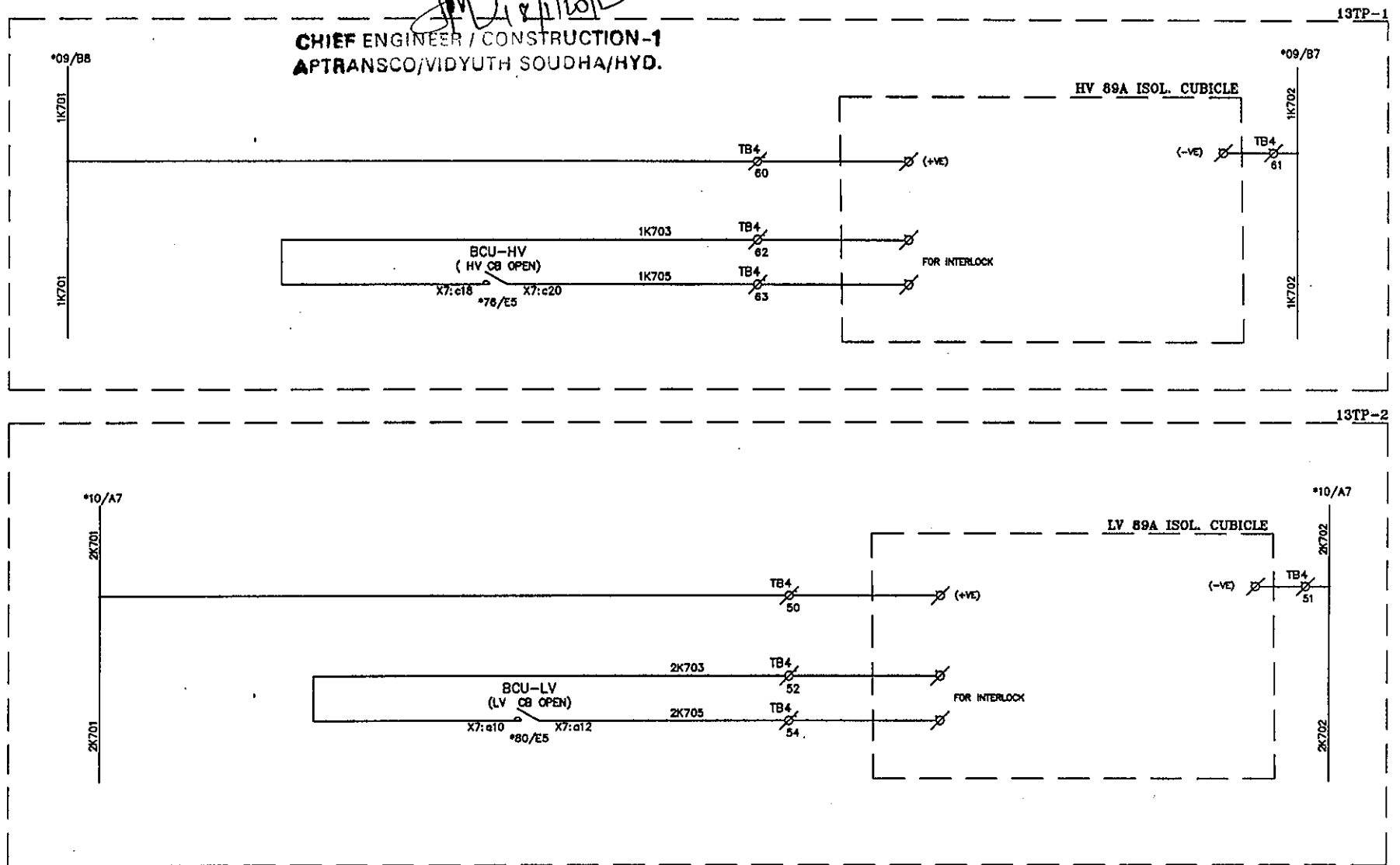
295-LV

19 — C1 — 20 *67/B7
23 — C2 — 24 *67/B7
27 — C3 — 28 *67/B7
7 — C3 — 9 *68/E8
8 — C3 — 10 *69/C3
3 — C3 — 5
4 — C3 — 6 *46/B6

DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO	
SUBSTATION:132/33KV SS	CONTRACTOR:	
SHT. TITLE :LV BREAKER CONTROL CIRCUIT	CONSULTANT:	
	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 67 NEXT SHT: 68
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFEO PROTECTION PANEL	ERL REF. :RC1812.50	SCALE : NTS TOT SHT: 86

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

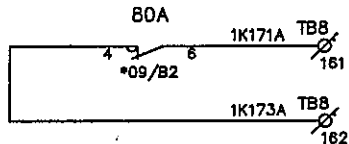
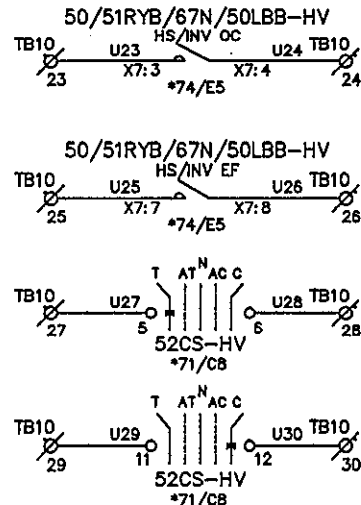
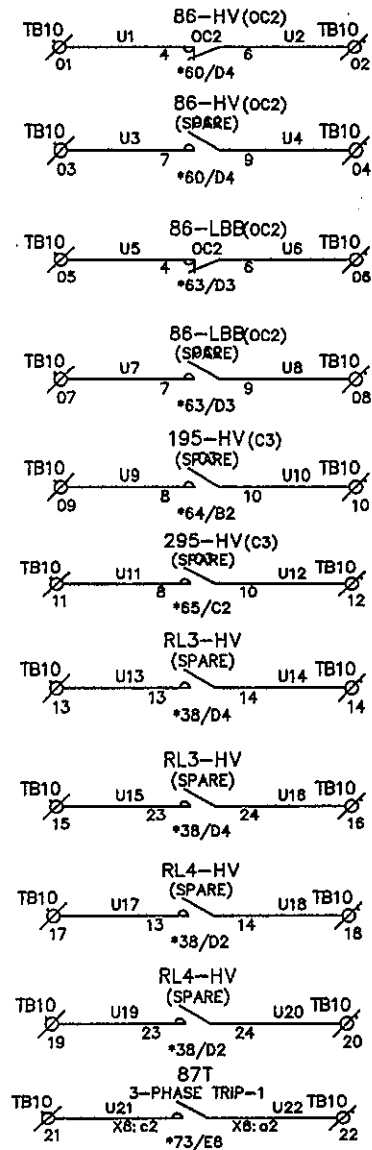


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C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :HV&LV ISOLATOR CONTROL CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0. PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

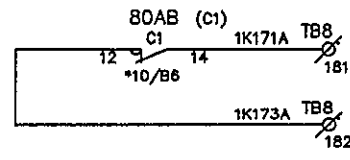
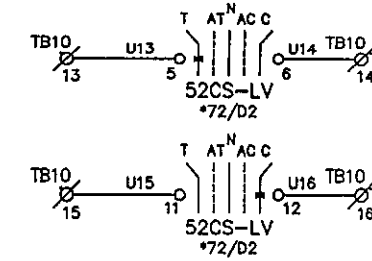
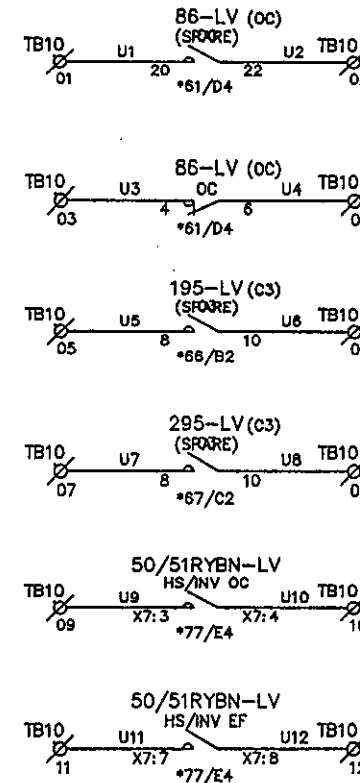
THIS SHT: 68
NEXT SHT: 69
TOT SHT: 86

13TP-1



TO ADJ. PANEL BCU
FOR DC FAIL

13TP-2



TO ADJ. PANEL BCU
FOR DC FAIL

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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

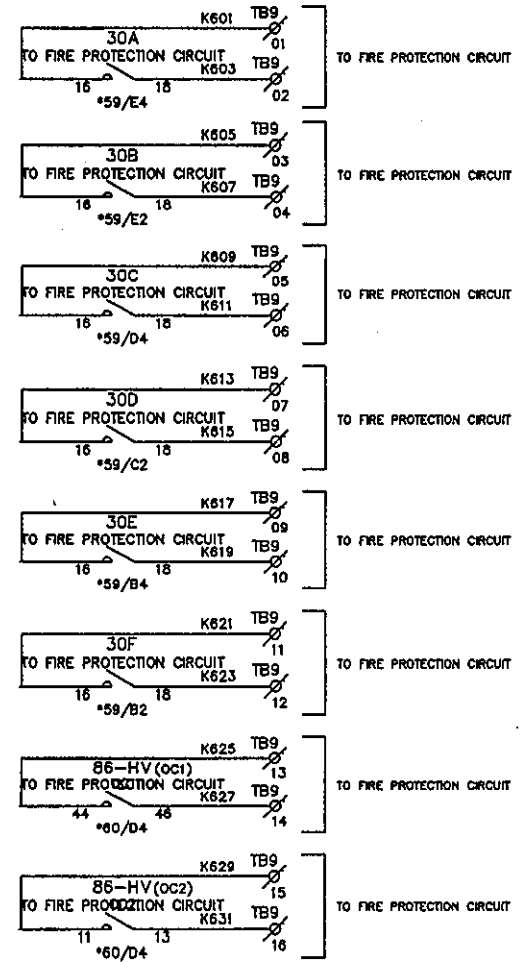
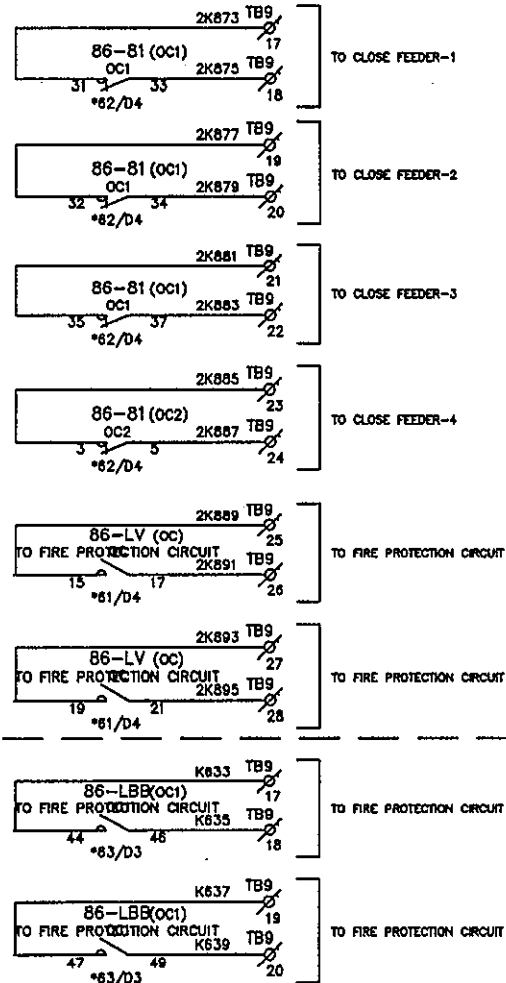
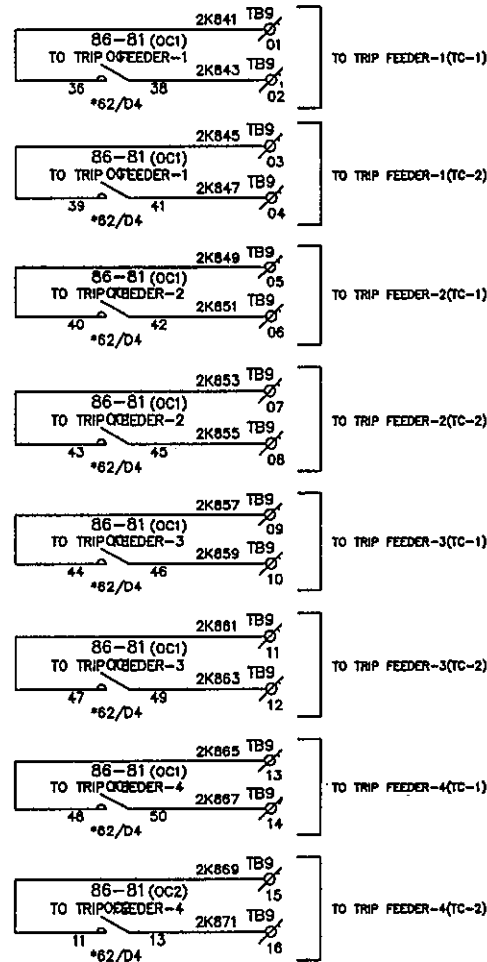
EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812&1813 SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :SPARE CONTACTS	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/D.No.84/2011 D:23.06.2011 ERL REF. :ZCP1812&13 SCALE : NTS
	THIS SHT: 69 NEXT SHT:70 TOT SHT: 86

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CHIEF ENGINEER CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE : SPARE CONTACTS	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT
132/33KV TRAF0 PROTECTION PANEL	e-11/2011/RC-4073/2011 D:28.07.2011
	ERL REF. : ZCP1812,50
	SCALE : NTS
	TOT SHT: 86

13TP-2

13TP-1

E

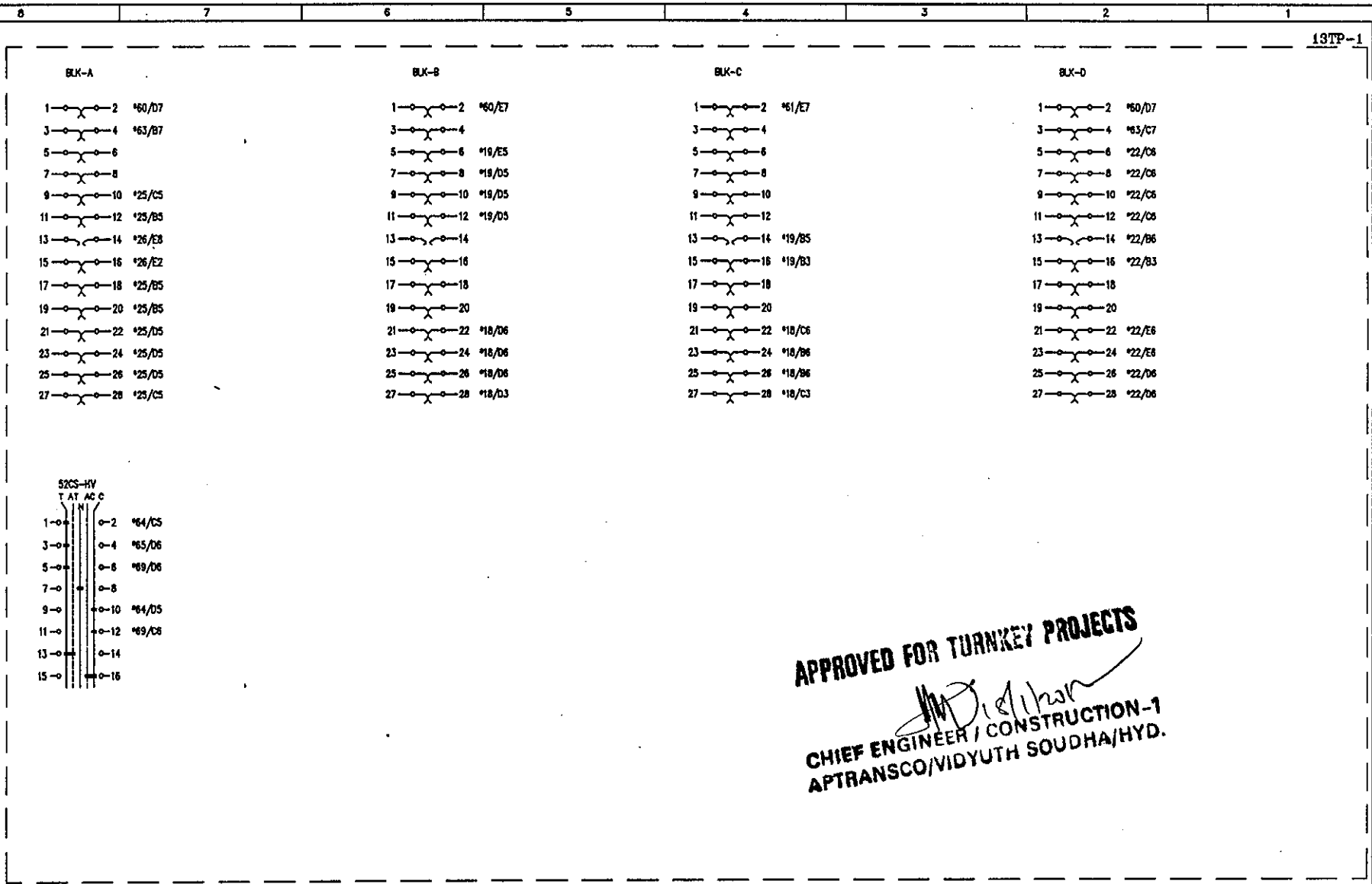
D

C

B

A

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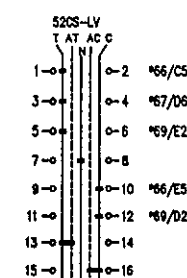
APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M	SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M	SHT. TITLE :EQUIPMENT REFERENCES	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT THIS SHT: 71 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:72 ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 86

ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



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[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :EQUIPMENT REFERENCES	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33kv TRAF0 PROTECTION PANEL	P.D. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011	THIS SHT: 72 NEXT SHT: 73
							ERL REF. :ZCP1812,50	SCALE : NTS	TOT SHT: 86

APPROVED FOR TURNKEY PROJECTS

M. D. 18/1/2011

CHIEF ENGINEER / CONSTRUCTION
APTRANSCO/VIDYUTH SODHA/HYD.

13TP-1

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X101 MODULE				
X1:b1	INVT	INVT	X1:a1	
X1:b2	INVT	INVT	X1:a2	
X1:b3	INVT	INVT	X1:a3	
X1:b4	INVT	INVT	X1:a4	
X1:b5	INVT	INVT	X1:a5	
X1:b3	INVT	INVT	X1:a6	
X1:b7	INVT	INVT	X1:a7	
X1:b8	INVT	INVT	X1:a8	
X1:b9	INVT	INVT	X1:a9	
X1:a10	INVT	INVT	X1:a11	
X1:b11	INVT	INVT	X1:a12	
X1:b12	INVT	INVT	X1:a12	

*18/D5

X301 MODULE				
X3:b1	INVT	INVT	X3:a1	
X3:b2	INVT	INVT	X3:a2	
X3:b3	INVT	INVT	X3:a3	
X3:b4	INVT	INVT	X3:a4	
X3:b5	INVT	INVT	X3:a5	
X3:b6	INVT	INVT	X3:a6	
X3:b7	INVT	INVT	X3:a7	
X3:b8	INVT	INVT	X3:a8	
X3:b9	INVT	INVT	X3:a9	
X3:b10	INVT	INVT	X3:a10	
X3:b11	INVT	INVT	X3:a11	
X3:b5	INVT	INVT	X3:a5	

*18/C3

X401 MASTER	
X4:1	230-230V
X4:2	230-230V
X4:3	230-230V
X4:4	230-230V
X4:5	400-23
X4:6	400-23
X4:7	400-23
X3:b4	400-23
X4:9	0PS
X4:10	0PS
X4:11	LOW-23
X4:12	LOW-23
X4:13	LOW-23
X4:14	LOW-23
X4:15	LOW-23
X4:16	

*20/E4

X601 MODULE				
X6:c4	HY CR STATUS	HY CR STATUS	X6:a4	
X6:c6	HY CR STATUS	HY CR STATUS	X6:a6	
X6:c8	EXT CR1 START	EXT CR1 START	X6:a8	
X6:c10	EXT CR2 START	EXT CR2 START	X6:a10	
X6:c12	TR ALM PROT. TRIP	TR ALM PROT. TRIP	X6:a12	
X6:c14	NO	NO	X6:a14	
X6:c16	NO	NO	X6:a16	
X6:c18	NO	NO	X6:a18	
X6:c20	IN TRIP BR-1	IN TRIP BR-1	X6:a20	
X6:c22	IN TRIP BR-2	IN TRIP BR-2	X6:a22	
X6:c24	IN TRIP BR-3	IN TRIP BR-3	X6:a24	
X6:c26	IN TRIP BR-4	IN TRIP BR-4	X6:a26	
X6:c30	IN TRIP BR-5	IN TRIP BR-5	X6:a30	
X6:c32	IN TRIP BR-6	IN TRIP BR-6	X6:a32	
X6:c2	IC INPUT	IC INPUT	X6:a2	
X6:c28	IC INPUT	IC INPUT	X6:a28	

*21/C5

X800				
X8:c2	3-PH TRIP-1	3-PH TRIP-1	X8:a2	
X8:c4	3-PH TRIP-2	3-PH TRIP-2	X8:a4	
X8:c6	3-PH TRIP-3	3-PH TRIP-3	X8:a6	
X8:c8	3-PH TRIP-4	3-PH TRIP-4	X8:a8	
X8:c10	3-PH TRIP-5	3-PH TRIP-5	X8:a10	
X8:c12	3-PH TRIP-6	3-PH TRIP-6	X8:a12	
X8:c14	DIFF OPTD-1	DIFF OPTD-1	X8:a14	
X8:c16	DIFF OPTD-2	DIFF OPTD-2	X8:a16	
X8:c18	DIFF OPTD-3	DIFF OPTD-3	X8:a18	
X8:c20	DIFF OPTD-4	DIFF OPTD-4	X8:a20	
X8:c22	DIFF OPTD-5	DIFF OPTD-5	X8:a22	
X8:c24	DIFF OPTD-6	DIFF OPTD-6	X8:a24	
X8:c26	DIFF OPTD-7	DIFF OPTD-7	X8:a26	
X8:c28	DIFF OPTD-8	DIFF OPTD-8	X8:a28	
X8:c30	DIFF LV OPTD-1	DIFF LV OPTD-1	X8:a30	
X8:c32	DIFF LV OPTD-2	DIFF LV OPTD-2	X8:a32	

*68/A2

X900		
X9:c2	HY BU OPTD-1	X9:a2
X9:c4	HY BU OPTD-2	X9:a4
X9:c6		X9:a6
X9:c8		X9:a8
X9:c10	LV BU OPTD-1	X9:a10
X9:c12	LV BU OPTD-2	X9:a12
X9:c14	NO LVOC OPTD-1	X9:a14
X9:c16	NO LVOC OPTD-2	X9:a16
X9:c18	NO LVOC OPTD-3	X9:a18
X9:c20	NO LVOC OPTD-4	X9:a20
X9:c22	CR1 OPTD-1	X9:a22
X9:c24	CR2 OPTD-1	X9:a24
X9:c26	CR2 OPTD-2	X9:a26
X9:c28	CR2 OPTD-2	X9:a28
X9:c30	NORMAL OL OPTD-1	X9:a30
X9:c32	NORMAL OL OPTD-2	X9:a32

*19/E4

X1000 MODULE				
X10:c2	SE-3 CDRN	SE-4 CDRN	X10:a2	
X10:c4	SE-3 CDRN	SE-4 CDRN	X10:a4	
X10:c6	SE-3 CDRN	SE-4 CDRN	X10:a6	
X10:c8	SE-3 CDRN	SE-4 CDRN	X10:a8	
X10:c10	SE-3 CDRN	SE-4 CDRN	X10:a10	
X10:c12	SE-3 CDRN	SE-4 CDRN	X10:a12	
X10:c14	SE-3 CDRN	SE-4 CDRN	X10:a14	
X10:c16	SE-3 CDRN	SE-4 CDRN	X10:a16	
X10:c18	SE-3 CDRN	SE-4 CDRN	X10:a18	
X10:c20	SE-3 CDRN	SE-4 CDRN	X10:a20	
X10:c22	SE-3 CDRN	SE-4 CDRN	X10:a22	
X10:c24	SE-3 CDRN	SE-4 CDRN	X10:a24	
X10:c26	SE-3 CDRN	SE-4 CDRN	X10:a26	
X10:c28	SE-3 CDRN	SE-4 CDRN	X10:a28	
X10:c30	SE-3 CDRN	SE-4 CDRN	X10:a30	
X10:c32	SE-3 CDRN	SE-4 CDRN	X10:a32	

*20/C4

X1100 MODULE				
X11:c2	SE-3 CDRN	SE-4 CDRN	X11:a2	
X11:c4	SE-3 CDRN	SE-4 CDRN	X11:a4	
X11:c6	SE-3 CDRN	SE-4 CDRN	X11:a6	
X11:c8	SE-3 CDRN	SE-4 CDRN	X11:a8	
X11:c10	SE-3 CDRN	SE-4 CDRN	X11:a10	
X11:c12	SE-3 CDRN	SE-4 CDRN	X11:a12	
X11:c14	SE-3 CDRN	SE-4 CDRN	X11:a14	
X11:c16	SE-3 CDRN	SE-4 CDRN	X11:a16	
X11:c18	SE-3 CDRN	SE-4 CDRN	X11:a18	
X11:c20	SE-3 CDRN	SE-4 CDRN	X11:a20	
X11:c22	SE-3 CDRN	SE-4 CDRN	X11:a22	
X11:c24	SE-3 CDRN	SE-4 CDRN	X11:a24	
X11:c26	SE-3 CDRN	SE-4 CDRN	X11:a26	
X11:c28	SE-3 CDRN	SE-4 CDRN	X11:a28	
X11:c30	SE-3 CDRN	SE-4 CDRN	X11:a30	
X11:c32	SE-3 CDRN	SE-4 CDRN	X11:a32	

*21/E4

X12000				
X12:c2	SE-3 CDRN	SE-4 CDRN	X12:a2	
X12:c4	SE-3 CDRN	SE-4 CDRN	X12:a4	
X12:c6	SE-3 CDRN	SE-4 CDRN	X12:a6	
X12:c8	SE-3 CDRN	SE-4 CDRN	X12:a8	
X12:c10	SE-3 CDRN	SE-4 CDRN	X12:a10	
X12:c12	SE-3 CDRN	SE-4 CDRN	X12:a12	
X12:c14	SE-3 CDRN	SE-4 CDRN	X12:a14	
X12:c16	SE-3 CDRN	SE-4 CDRN	X12:a16	
X12:c18	SE-3 CDRN	SE-4 CDRN	X12:a18	
X12:c20	SE-3 CDRN	SE-4 CDRN	X12:a20	
X12:c22	SE-3 CDRN	SE-4 CDRN	X12:a22	
X12:c24	SE-3 CDRN	SE-4 CDRN	X12:a24	
X12:c26	SE-3 CDRN	SE-4 CDRN	X12:a26	
X12:c28	SE-3 CDRN	SE-4 CDRN	X12:a28	
X12:c30	SE-3 CDRN	SE-4 CDRN	X12:a30	
X12:c32	SE-3 CDRN	SE-4 CDRN	X12:a32	

*29/B6

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11
SUBSTATION: 132/33KV SS
SHT. TITLE : EQUIPMENT REFERENCES
DWG. TITLE : SCHEMATIC DRAWING FOR
132/33KV TRAF0 PROTECTION PANEL

CUSTOMER : APTRANSCO
CONTRACTOR:
CONSULTANT:
P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT
e-11/2011/RC-4073/2011 0:28.07.2011
ERL REF. : ZCP1812.50
SCALE : NTS
THIS SHT: 73
NEXT SHT: 74
TOT SHT: 86

50/51RYB/67N/50LBB-HV

13TP-1

X1AC2	
X1:1	10V CT IN
X1:2	
X1:3	
X1:4	10V CT OUT
X1:5	
X1:6	
X1:7	
X1:8	
X1:9	
X1:10	
X1:11	1T CT IN
X1:12	1T CT OUT

*22/E5

X2AC2	
X2:1	10V CT IN
X2:2	10V CT OUT
X2:3	1T CT IN
X2:4	1T CT OUT
X2:5	10V CT IN
X2:6	10V CT OUT
X2:7	10V CT IN
X2:8	10V CT OUT
X2:9	10V CT IN
X2:10	10V CT OUT
X2:11	10V CT IN
X2:12	10V CT OUT

*22/C5

X3AC2	
X3:1	10V
X3:2	10V
X3:3	10V
X3:4	10V
X3:5	10V
X3:6	10V

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

*23/B4

*23/B4

*23/B4

*23/B4

X5AC2	
X5:1	10V ACCESS BUL
X5:2	RESET
X5:3	RELAY TEST
X5:4	
X5:5	24V CON
X5:6	
X5:7	
X5:8	
X5:9	OPS
X5:10	OPS BUL
X5:11	10V
X5:12	10V

*63/C6

*63/C7

*29/B5

X6LOGIC	
X6:1	30V OPT
X6:2	
X6:3	30V OPT
X6:4	
X6:5	10V OPT
X6:6	10V OPT
X6:7	10V OPT
X6:8	10V OPT
X6:9	10V OPT
X6:10	10V OPT
X6:11	10V OPT
X6:12	10V OPT
X6:13	10V OPT
X6:14	10V OPT
X6:15	10V OPT
X6:16	10V OPT
X6:17	10V OPT
X6:18	10V OPT
X6:19	10V OPT
X6:20	10V OPT

*60/D6

*69/E6

*60/C6

*69/D6

X7LOGIC	
X7:1	10V OPT
X7:2	10V OPT
X7:3	10V OPT
X7:4	10V OPT
X7:5	10V OPT
X7:6	10V OPT
X7:7	10V OPT
X7:8	10V OPT
X7:9	10V OPT
X7:10	10V OPT
X7:11	10V OPT
X7:12	10V OPT
X7:13	10V OPT
X7:14	10V OPT
X7:15	10V OPT
X7:16	10V OPT
X7:17	10V OPT
X7:18	10V OPT
X7:19	10V OPT
X7:20	10V OPT

*23/D4

*23/E4

*23/C4

*23/C4

*29/B6

*22/B5

*22/B5

*22/B5

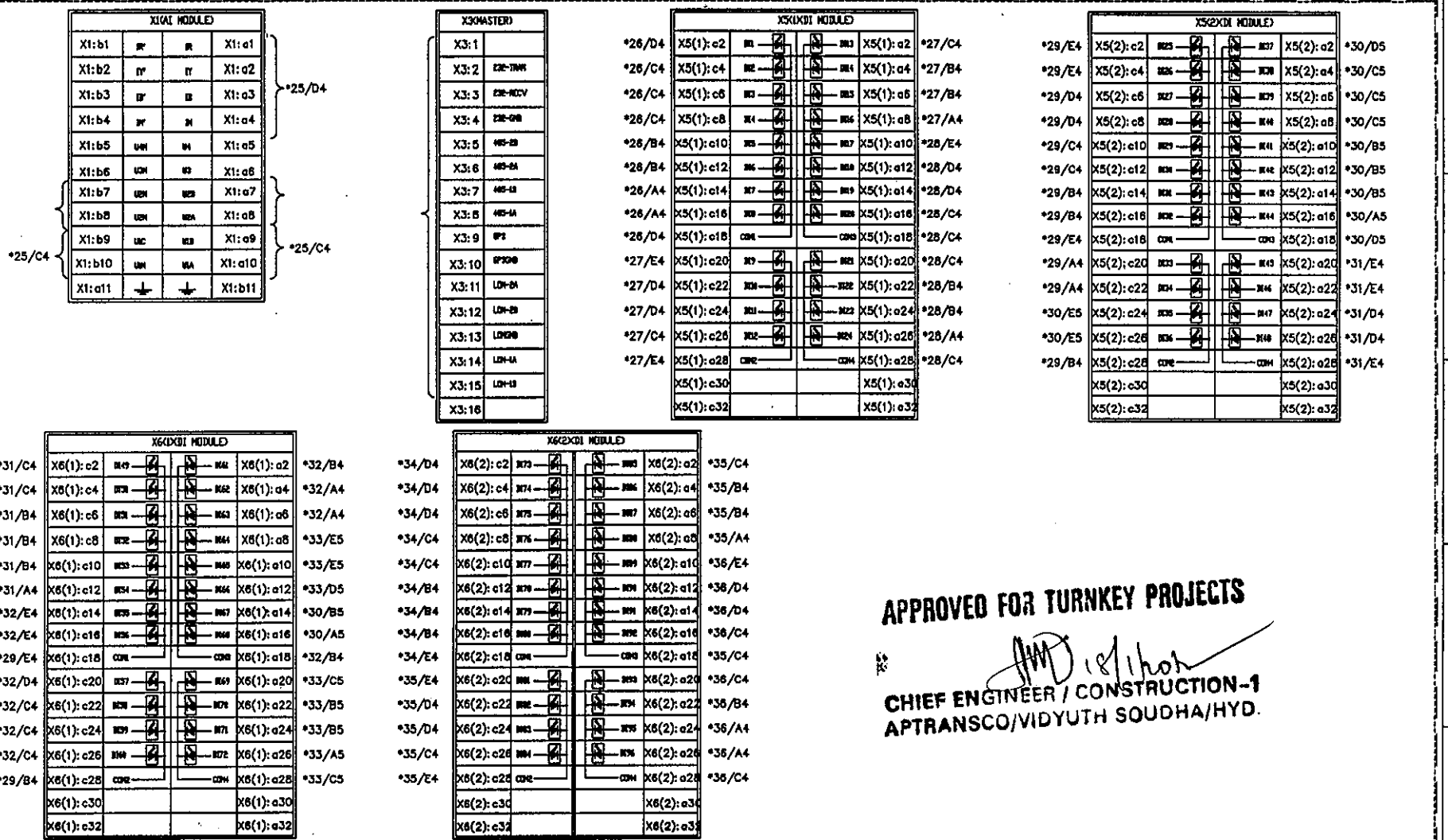
X8POWER	
X8:1	10V
X8:2	10V
X8:3	10V
X8:4	10V
X8:5	10V
X8:6	10V
X8:7	10V
X8:8	10V
X8:9	10V
X8:10	10V
X8:11	10V
X8:12	10V
X8:13	10V
X8:14	10V
X8:15	10V
X8:16	10V
X8:17	10V
X8:18	10V
X8:19	10V
X8:20	10V

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : EQUIPMENT REFERENCES	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAFQ PROTECTION PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT
	THIS SHT: 74
	NEXT SHT: 75
	ERL REF.: ZCP1812.50 SCALE : NTS TOT SHT: 86

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APPROVED FOR TURNKEY PROJECTS

(Signature)

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS SHT. TITLE :EQUIPMENT REFERENCES	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT a-11/2011/RC-4073/2011 0:28.07.2011 ERL REF. :ZCP1812,50 SCALE : NTS	THIS SHT: 75 NEXT SHT: 76 TOT SHT: 86

BCU-HV

X7000 MODULE			
*38/E7	X7: c2		X7: a2 X7: a4
*38/D7	X7: c6		X7: a6
	X7: c8		X7: a8
*38/B7	X7: c10		X7: a10
	X7: c12		X7: a12
*60/A7	X7: c14		X7: a14
	X7: c16		X7: a16
*68/D6	X7: c18		X7: a18
	X7: c20		X7: a20
*82/B6	X7: c22		X7: a22
	X7: c24		X7: a24
	X7: c26		X7: a26
	X7: c28		X7: a28
	X7: c30		X7: a30
	X7: c32		X7: a32

*38/D7

*38/c7

*38/B7

*60/D5

*23/B8

X8000 MODULE			
	X8: c2		X8: a2
	X8: c4		X8: a4
	X8: c6		X8: a6
	X8: c8		X8: a8
	X8: c10		X8: a10
	X8: c12		X8: a12
	X8: c14		X8: a14
	X8: c16		X8: a16
	X8: c18		X8: a18
	X8: c20		X8: a20
	X8: c22		X8: a22
	X8: c24		X8: a24
	X8: c26		X8: a26
	X8: c28		X8: a28
	X8: c30		X8: a30
	X8: c32		X8: a32

*37/E5

*37/E5

*37/E5

*37/E5

*37/E5

*37/E5

*37/E5

*37/E5

*37/E5

*37/E5

X10000 MODULE			
	X9: c2		X9: a2
	X9: c4		X9: a4
	X9: c6		X9: a6
	X9: c8		X9: a8
	X9: c10		X9: a10
	X9: c12		X9: a12
	X9: c14		X9: a14
	X9: c16		X9: a16
	X9: c18		X9: a18
	X9: c20		X9: a20
	X9: c22		X9: a22
	X9: c24		X9: a24
	X9: c26		X9: a26
	X9: c28		X9: a28
	X9: c30		X9: a30
	X9: c32		X9: a32

X11(POWER)			
*26/E4	X11: c2		
	X11: c4	24V+ OUTPUT	
	X11: c6		
	X11: c8		
	X11: c10	24V- OUTPUT	
	X11: c12		
	X11: c14		X11: a14
	X11: c16	DC FAILURE	X11: a16
	X11: c18		
	X11: c20	DC+ INPUT	
	X11: c22		
	X11: c24		
	X11: c26	DC- INPUT	
	X11: c28		
	X11: c30		
	X11: c32		

*20/A6

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

EERL EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO :ER1812&1813 SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :EQUIPMENT REFERENCES	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/D.No.84/2011 D:23.08.2011 ERL REF.:ZCP1812&13 SCALE : NTS TOT SHT: 86

THIS SHT: 76

NEXT SHT: 77

50/51RYBN-LV

13TP-2

X1(ACU)	
X1:1	1st CT NO
X1:2	
X1:3	
X1:4	2nd CT NO
X1:5	
X1:6	
X1:7	
X1:8	
X1:9	
X1:10	
X1:11	1st CT NO
X1:12	2nd CT NO

*39/E5

X2(ACU)	
X2:1	1st CT NO
X2:2	2nd CT NO
X2:3	3rd CT NO
X2:4	4th CT NO
X2:5	5th CT NO
X2:6	6th CT NO
X2:7	7th CT NO
X2:8	8th CT NO
X2:9	9th CT NO
X2:10	10th CT NO
X2:11	11th CT NO
X2:12	12th CT NO

X3(ACU)	
X3:1	1st CT NO
X3:2	2nd CT NO
X3:3	3rd CT NO
X3:4	4th CT NO
X3:5	5th CT NO
X3:6	6th CT NO

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

*40/B4
*40/B4
*40/B4
*40/B4

X5(ACU)	
X5:1	1st CT NO
X5:2	2nd CT NO
X5:3	3rd CT NO
X5:4	4th CT NO
X5:5	5th CT NO
X5:6	6th CT NO
X5:7	7th CT NO
X5:8	8th CT NO
X5:9	9th CT NO
X5:10	10th CT NO
X5:11	11th CT NO
X5:12	12th CT NO

*46/E5

X6(ACU)	
X6:1	1st CT NO
X6:2	2nd CT NO
X6:3	3rd CT NO
X6:4	4th CT NO
X6:5	5th CT NO
X6:6	6th CT NO
X6:7	7th CT NO
X6:8	8th CT NO
X6:9	9th CT NO
X6:10	10th CT NO
X6:11	11th CT NO
X6:12	12th CT NO
X6:13	13th CT NO
X6:14	14th CT NO
X6:15	15th CT NO
X6:16	16th CT NO
X6:17	17th CT NO
X6:18	18th CT NO
X6:19	19th CT NO
X6:20	20th CT NO

*61/D6
*69/C3
*61/C6
*69/B3

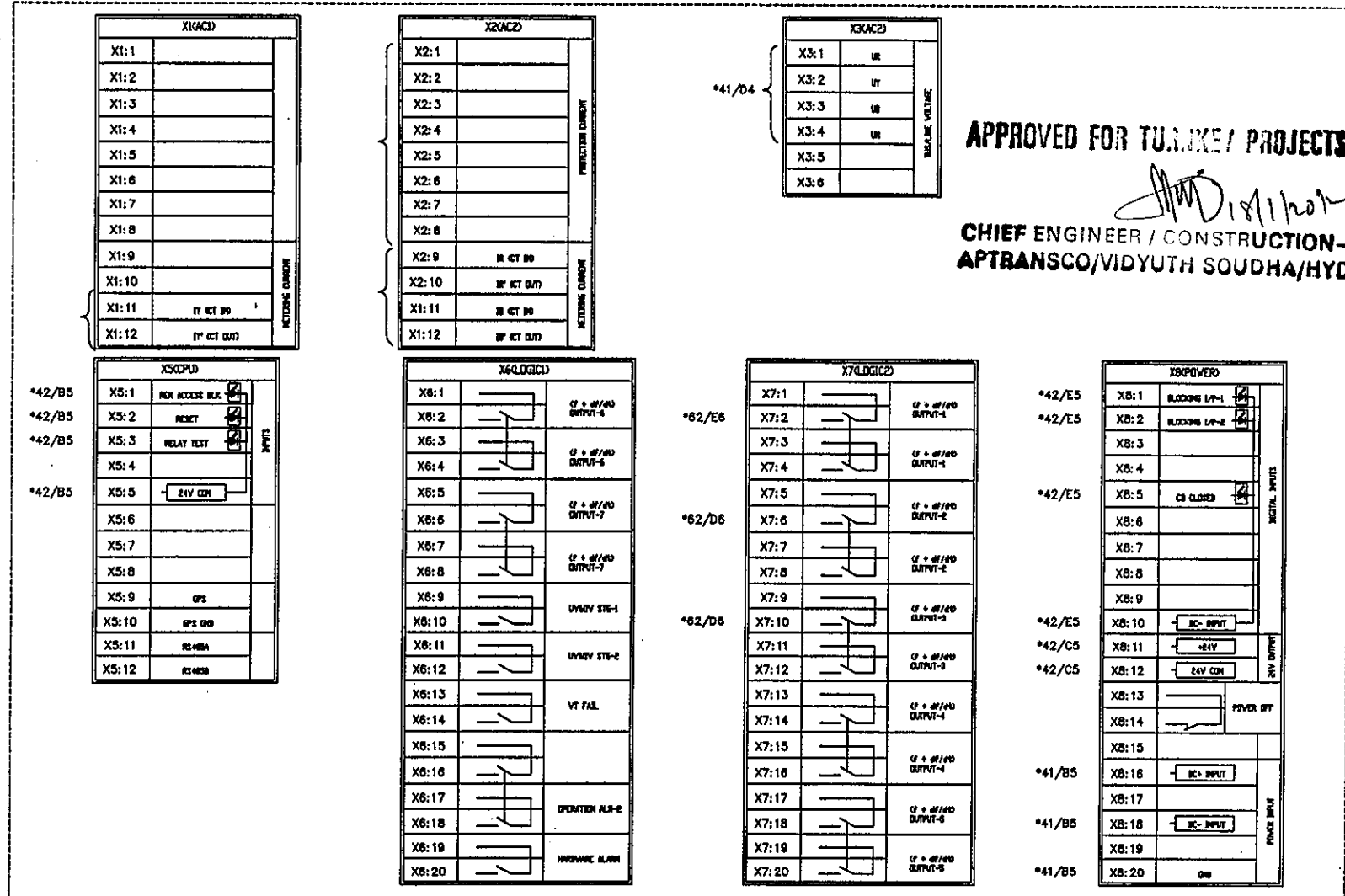
X7(ACU)	
X7:1	1st CT NO
X7:2	2nd CT NO
X7:3	3rd CT NO
X7:4	4th CT NO
X7:5	5th CT NO
X7:6	6th CT NO
X7:7	7th CT NO
X7:8	8th CT NO
X7:9	9th CT NO
X7:10	10th CT NO
X7:11	11th CT NO
X7:12	12th CT NO
X7:13	13th CT NO
X7:14	14th CT NO
X7:15	15th CT NO
X7:16	16th CT NO
X7:17	17th CT NO
X7:18	18th CT NO
X7:19	19th CT NO
X7:20	20th CT NO

*40/D4
*40/E4
*40/C4
*40/C4
*46/E6
*39/C5
*39/C5
*39/C5

X8(ACU)	
X8:1	1st CT NO
X8:2	2nd CT NO
X8:3	3rd CT NO
X8:4	4th CT NO
X8:5	5th CT NO
X8:6	6th CT NO
X8:7	7th CT NO
X8:8	8th CT NO
X8:9	9th CT NO
X8:10	10th CT NO
X8:11	11th CT NO
X8:12	12th CT NO
X8:13	13th CT NO
X8:14	14th CT NO
X8:15	15th CT NO
X8:16	16th CT NO
X8:17	17th CT NO
X8:18	18th CT NO
X8:19	19th CT NO
X8:20	20th CT NO

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11 SUBSTATION:132/33KV SS SHT. TITLE :EQUIPMENT REFERENCES DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	CUSTOMER :APTRANSCO CONTRACTOR: CONSULTANT: P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. :ZCP1812,50 SCALE : NTS	THIS SHT: 77 NEXT SHT: 78 TOT SHT: 86
C	ASBUILT	05.11.11	V.A	J.V	G.M				
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M				
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M				

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C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :EQUIPMENT REFERENCES	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAFO PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. :ZCP1812,50 SCALE : NTS TOT SHT: 86

THIS SHT: 78
NEXT SHT: 79

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8 7 6 5 4 3 2 1

BCU-IV

13TP-1

X101 MODULE									
X1:b1	IT	IT						X1:a1	
X1:b2	IT	IT						X1:a2	
X1:b3	IT	IT						X1:a3	
X1:b4	IT	IT						X1:a4	
X1:b5	UN	UN						X1:a5	
X1:b6	UN	UN						X1:a6	
X1:b7	UN	UN						X1:a7	
X1:b8	UN	UN						X1:a8	
X1:b9	UN	UN						X1:a9	
X1:b10	UN	UN						X1:a10	
X1:b11	UN	UN						X1:a11	

X30MASTER	
X3:1	
X3:2	220-220V
X3:3	220-220V
X3:4	220-220V
X3:5	440-440V
X3:6	440-440V
X3:7	440-440V
X3:8	440-440V
X3:9	440-440V
X3:10	440-440V
X3:11	440-440V
X3:12	440-440V
X3:13	440-440V
X3:14	440-440V
X3:15	440-440V
X3:16	440-440V

*45/D4	X5(1):c2	IT	IT	IT	X5(1):a2	*46/C4
*45/C4	X5(1):c4	IT	IT	IT	X5(1):a4	*46/B4
*45/C4	X5(1):c6	IT	IT	IT	X5(1):a6	*46/B4
*45/C4	X5(1):c8	IT	IT	IT	X5(1):a8	*46/A4
*45/B4	X5(1):c10	IT	IT	IT	X5(1):a10	*47/E4
*45/B4	X5(1):c12	IT	IT	IT	X5(1):a12	*47/D4
*45/A4	X5(1):c14	IT	IT	IT	X5(1):a14	*47/D4
*45/A4	X5(1):c16	IT	IT	IT	X5(1):a16	*47/C4
*45/D4	X5(1):c18	IT	IT	IT	X5(1):a18	*47/C4
*46/E4	X5(1):c20	IT	IT	IT	X5(1):a20	*47/C4
*46/D4	X5(1):c22	IT	IT	IT	X5(1):a22	*47/B4
*46/D4	X5(1):c24	IT	IT	IT	X5(1):a24	*47/B4
*46/C4	X5(1):c26	IT	IT	IT	X5(1):a26	*47/A4
*46/E4	X5(1):c28	IT	IT	IT	X5(1):a28	*47/C4
	X5(1):c30				X5(1):a30	
	X5(1):c32				X5(1):a32	

*46/E4	X5(2):c2	IT	IT	IT	X5(2):a2	*49/D5
*46/E4	X5(2):c4	IT	IT	IT	X5(2):a4	*49/C5
*46/D4	X5(2):c6	IT	IT	IT	X5(2):a6	*49/C5
*46/D4	X5(2):c8	IT	IT	IT	X5(2):a8	*49/C5
*46/C4	X5(2):c10	IT	IT	IT	X5(2):a10	*49/B5
*46/C4	X5(2):c12	IT	IT	IT	X5(2):a12	*49/B5
*46/B4	X5(2):c14	IT	IT	IT	X5(2):a14	*49/B5
*46/B4	X5(2):c16	IT	IT	IT	X5(2):a16	*49/A5
*46/E4	X5(2):c18	IT	IT	IT	X5(2):a18	*49/D5
*46/A4	X5(2):c20	IT	IT	IT	X5(2):a20	*50/E4
*46/A4	X5(2):c22	IT	IT	IT	X5(2):a22	*50/E4
*49/E5	X5(2):c24	IT	IT	IT	X5(2):a24	*50/D4
*49/E5	X5(2):c26	IT	IT	IT	X5(2):a26	*50/D4
*46/B4	X5(2):c28	IT	IT	IT	X5(2):a28	*50/E4
	X5(2):c30				X5(2):a30	
	X5(2):c32				X5(2):a32	

*50/C4	X6(1):c2	IT	IT	IT	X6(1):a2	*51/B4
*50/C4	X6(1):c4	IT	IT	IT	X6(1):a4	*51/A4
*50/B4	X6(1):c6	IT	IT	IT	X6(1):a6	*51/A4
*50/B4	X6(1):c8	IT	IT	IT	X6(1):a8	*52/E5
*50/A4	X6(1):c10	IT	IT	IT	X6(1):a10	*52/E5
*50/A4	X6(1):c12	IT	IT	IT	X6(1):a12	*52/D5
*51/E4	X6(1):c14	IT	IT	IT	X6(1):a14	*49/B5
*51/E4	X6(1):c16	IT	IT	IT	X6(1):a16	*49/A5
*46/E4	X6(1):c18	IT	IT	IT	X6(1):a18	*51/B4
*51/D4	X6(1):c20	IT	IT	IT	X6(1):a20	*52/C5
*51/C4	X6(1):c22	IT	IT	IT	X6(1):a22	*52/B5
*51/C4	X6(1):c24	IT	IT	IT	X6(1):a24	*52/B5
*51/C4	X6(1):c26	IT	IT	IT	X6(1):a26	*52/A5
*46/B4	X6(1):c28	IT	IT	IT	X6(1):a28	*52/C5
	X6(1):c30				X6(1):a30	
	X6(1):c32				X6(1):a32	

*53/D4	X6(2):c2	IT	IT	IT	X6(2):a2	*54/C4
*53/D4	X6(2):c4	IT	IT	IT	X6(2):a4	*54/B4
*53/D4	X6(2):c6	IT	IT	IT	X6(2):a6	*54/B4
*53/C4	X6(2):c8	IT	IT	IT	X6(2):a8	*54/A4
*53/C4	X6(2):c10	IT	IT	IT	X6(2):a10	*55/E4
*53/B4	X6(2):c12	IT	IT	IT	X6(2):a12	*55/D4
*53/B4	X6(2):c14	IT	IT	IT	X6(2):a14	*55/D4
*53/B4	X6(2):c16	IT	IT	IT	X6(2):a16	*55/C4
*53/E4	X6(2):c18	IT	IT	IT	X6(2):a18	*54/C4
*54/E4	X6(2):c20	IT	IT	IT	X6(2):a20	*55/C4
*54/D4	X6(2):c22	IT	IT	IT	X6(2):a22	*55/B4
*54/D4	X6(2):c24	IT	IT	IT	X6(2):a24	*55/A4
*54/C4	X6(2):c26	IT	IT	IT	X6(2):a26	*55/A4
*54/E4	X6(2):c28	IT	IT	IT	X6(2):a28	*55/C4
	X6(2):c30				X6(2):a30	
	X6(2):c32				X6(2):a32	

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	DWG.NO : ER1812.50&51SC BTRCR11	CUSTOMER : APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M	SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M	SHT. TITLE : EQUIPMENT REFERENCES	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 79
							e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT:80
							ERL REF. : ZCP1812.50	SCALE : NTS TOT SHT: 86

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

BCU-LV

X7(DG) MODULE			
*58/D7	X7: c2	X7: a2	*58/C7
	X7: a4	X7: a4	
*58/C7	X7: c6	X7: a6	*58/B7
	X7: c8	X7: a8	
*61/B6	X7: c10	X7: a10	*68/A5
	X7: c12	X7: a12	
*40/A6	X7: c14	X7: a14	
	X7: c16	X7: a16	
	X7: c18	X7: a18	
	X7: c20	X7: a20	
*42/B6	X7: c22	X7: a22	
	X7: c24	X7: a24	
	X7: c26	X7: a26	
	X7: c28	X7: a28	
	X7: c30	X7: a30	
	X7: c32	X7: a32	

X11(POWER)			
*45/E4	X11: c2		
	X11: c4	24V+ OUTPUT	
	X11: c6		
	X11: c8		
	X11: c10	24V- OUTPUT	
	X11: c12		
	X11: c14		X11: a14
	X11: c16	DC FAILURE	X11: a16
	X11: c18		
	X11: c20	DC+ INPUT	
	X11: c22		
	X11: c24		
	X11: c26	DC- INPUT	
	X11: c28		
	X11: c30		
	X11: c32		

X8(DO) MODULE			
X8: c2	X8: a2	X8: a2	
X8: c4	X8: a4	X8: a4	
X8: c6	X8: a6	X8: a6	
X8: c8	X8: a8	X8: a8	
X8: c10	X8: a10	X8: a10	
X8: c12	X8: a12	X8: a12	
X8: c14	X8: a14	X8: a14	
X8: c16	X8: a16	X8: a16	
X8: c18	X8: a18	X8: a18	
X8: c20	X8: a20	X8: a20	
X8: c22	X8: a22	X8: a22	
X8: c24	X8: a24	X8: a24	
X8: c26	X8: a26	X8: a26	
X8: c28	X8: a28	X8: a28	
X8: c30	X8: a30	X8: a30	
X8: c32	X8: a32	X8: a32	

X9(DO) MODULE			
*56/D5	X9: c2	X9: a2	
*56/D5	X9: c4	X9: a4	
*56/D5	X9: c6	X9: a6	
*56/D5	X9: c8	X9: a8	
*56/D5	X9: c10	X9: a10	
*56/D5	X9: c12	X9: a12	
*56/D5	X9: c14	X9: a14	
*56/D5	X9: c16	X9: a16	
*56/D5	X9: c18	X9: a18	
*56/D5	X9: c20	X9: a20	
	X9: c22	X9: a22	
	X9: c24	X9: a24	
	X9: c26	X9: a26	
	X9: c28	X9: a28	
	X9: c30	X9: a30	
	X9: c32	X9: a32	

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812&1813 SC BTRCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :EQUIPMENT REFERENCES	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/D.No.84/2011 D:23.06.2011
	THIS SHT: 80 NEXT SHT:81 ERL REF. :ZCP1812&13 SCALE : NTS TOT SHT: 86

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

13TP-1

BB2	REF	BB8	REF	BBX3	REF	TB1	REF	TB1	REF	TB2	REF	TB4	REF
BB2:01	*14/C3	BB8:01	*30/D8	BBX3:01	*06/E7	TB1:01	*11/D3	TB1:29	*13/A3	TB2:01	*14/D7	TB4:01	*20/E6
BB2:02	*14/C3	BB8:02	*30/D6	BBX3:02	*06/E7	TB1:02	*11/D3	TB1:30	*13/A3	TB2:02	*14/D7	TB4:02	*20/E5
BB2:03	*14/C4	BB8:3	SPARE	BBX3:04	*08/E7	TB1:03	*11/C3	TB1:31	*13/B3	TB2:03	*14/D7	TB4:03	*20/D6
BB2:04	*14/C4			BBX3:05	*08/E7	TB1:04	*11/C3	TB1:32	*13/A2	TB2:04	*14/D7	TB4:04	*20/D5
BB2:5	SPARE			BBX3:3	SPARE	TB1:05	*11/D3	TB1:33	*13/A2	TB2:05	*14/A7	TB4:05	*20/A7
						TB1:06	*11/C3	TB1:34	*13/A2	TB2:06	*14/A7	TB4:06	*21/C7
BB3	REF	BBX2	REF	BBX4	REF	TB1:07	*11/C3	TB1:35	*13/B2	TB2:07	*14/A7	TB4:07	*21/C5
						TB1:08	*11/C3	TB1:36	*13/B3	TB2:08	*14/A7	TB4:08	*21/B7
BB3:01	*06/E4	BBX2:01	*14/E7	BBX4:01	SPARE	TB1:09	*11/C3	TB1:37	*18/D4	TB2:9	SPARE	TB4:09	*21/B5
BB3:02	*06/D4	BBX2:02	*14/E7	BBX4:02	SPARE	TB1:10	*11/B3	TB1:38	*18/D4	TB2:10	SPARE	TB4:10	*23/B7
BB3:04	*10/C8	BBX2:03	*14/E7	BBX4:03	*50/D8	TB1:11	*11/B3	TB1:39	*18/B4			TB4:11	*23/B5
BB3:05	*10/C8	BBX2:04	*14/E7	BBX4:04	*50/B7	TB1:12	*11/B3	TB1:40	*18/B4	TB3	REF	TB4:12	*23/B7
BB3:3	SPARE	BBX2:05	*14/B7	BBX4:05	*50/D5	TB1:13	*11/A3	TB1:41	*25/D3			TB4:13	*23/B5
		BBX2:06	*14/B7	BBX4:06	*50/D3	TB1:14	*11/B3	TB1:42	*25/D3	TB3:01	*06/E7	TB4:14	*46/E8
BB4	REF	BBX2:07	*14/B7	BBX4:07	SPARE	TB1:15	*11/B3	TB1:43	*25/D3	TB3:02	*06/D7	TB4:15	*46/E6
		BBX2:08	*14/B7			TB1:16	*11/B3	TB1:44	SPARE	TB3:04	*10/C8	TB4:16	*46/D8
BB4:01	*48/E7	BBX2:9	SPARE			TB1:17	*11/A3	TB1:45	SPARE	TB3:05	*10/C8	TB4:17	*46/D6
BB4:02	*48/E5	BBX2:10	SPARE			TB1:18	*11/A3	TB1:46	SPARE	TB3:3	SPARE	TB4:18	*46/C8
BB4:03	*49/B7					TB1:19	*12/E3	TB1:47	SPARE			TB4:19	*49/A5
BB4:04	*49/B5					TB1:20	*12/E3	TB1:48	SPARE			TB4:20	*46/C6
BB4:05	*53/D8					TB1:21	*12/E3	TB1:49	SPARE			TB4:21	*46/C8
BB4:06	*53/D6					TB1:22	*12/D3	TB1:50	SPARE			TB4:22	*46/C6
BB4:07	*53/C7					TB1:23	*12/E2	TB1:51	SPARE			TB4:23	*46/B8
BB4:08	*53/C5					TB1:24	*12/E2	TB1:52	SPARE			TB4:24	*46/B6
BB4:09	*54/C7					TB1:25	*12/E2					TB4:25	*46/A8
BB4:10	*54/C6					TB1:26	*12/D2					TB4:26	*46/A6
BB4:11	SPARE					TB1:27	*12/D3					TB4:27	*47/E5
BB4:12	SPARE					TB1:28	*13/A3					TB4:28	*47/D5

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C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TB SCHEDULE	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. :ZCP1812,50 (SCALE : NTS)

THIS SHT: 81
NEXT SHT: 82
TOT SHT: 86

APPROVED FOR TUNNEL PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

13TP-1

TB4	REF	TB4	REF	TB8	REF	TB8	REF	TB8	REF	TB9	REF	TB10	REF
TB4: 29	*47/B7	TB4: 57	*52/C7	TB8: 01	*26/D7	TB8: 29	*27/A4	TB8: 57	*30/B5	TB8: 85	SPARE	TB9: 01	*57/E2
TB4: 30	*47/B4	TB4: 58	*52/C5	TB8: 02	*26/D5	TB8: 30	*27/E2	TB8: 58	*30/B5	TB8: 86	SPARE	TB9: 02	*57/E2
TB4: 31	*47/A7	TB4: 59	*55/E4	TB8: 03	*26/C5	TB8: 31	*27/C2	TB8: 59	*30/A5	TB8: 87	SPARE	TB9: 03	*57/D2
TB4: 32	*47/A4	TB4: 60	*55/E1	TB8: 04	*26/C7	TB8: 32	*28/E7	TB8: 60	*30/D3	TB8: 88	SPARE	TB9: 04	*57/D2
TB4: 33	*50/B7	TB4: 61	*55/D4	TB8: 05	*26/C5	TB8: 33	*28/E4	TB8: 61	*31/D6	TB8: 89	SPARE	TB9: 05	*57/D2
TB4: 34	*50/B5	TB4: 62	*55/D4	TB8: 06	*26/C5	TB8: 34	*28/D7	TB8: 62	*31/D5	TB8: 90	SPARE	TB9: 06	*57/D2
TB4: 35	*51/E4	TB4: 63	SPARE	TB8: 07	*26/B7	TB8: 35	*28/D4	TB8: 63	*31/D6	TB8: 91	SPARE	TB9: 07	*57/C2
TB4: 36	*51/E2	TB4: 64	SPARE	TB8: 08	*26/B5	TB8: 36	*28/D7	TB8: 64	*31/D5	TB8: 92	SPARE	TB9: 08	*57/C2
TB4: 37	*51/E4	TB4: 65	SPARE	TB8: 09	*26/B5	TB8: 37	*28/D4	TB8: 65	*31/E3	TB8: 93	SPARE	TB9: 09	*57/C2
TB4: 38	*51/D4	TB4: 66	SPARE	TB8: 10	*26/A7	TB8: 38	*28/C7	TB8: 66	*31/B6	TB8: 94	SPARE	TB9: 10	*57/C2
TB4: 39	*51/D4	TB4: 67	SPARE	TB8: 11	*26/A5	TB8: 39	*28/C4	TB8: 67	*31/B3			TB9: 11	*57/B2
TB4: 40	*51/D2	TB4: 68	SPARE	TB8: 12	*26/A5	TB8: 40	*28/C7	TB8: 68	*31/B6			TB9: 12	*57/B2
TB4: 41	*51/D4	TB4: 69	SPARE	TB8: 13	*26/D3	TB8: 41	*28/C4	TB8: 69	*31/B3			TB9: 13	*57/B2
TB4: 42	*51/C4	TB4: 70	SPARE	TB8: 14	*27/E7	TB8: 42	*28/B7	TB8: 70	*31/A6			TB9: 14	*57/B2
TB4: 43	*51/C4	TB4: 71	SPARE	TB8: 15	*27/E4	TB8: 43	*28/B4	TB8: 71	*31/A3			TB9: 15	*57/A2
TB4: 44	*51/B4	TB4: 72	SPARE	TB8: 16	*27/D7	TB8: 44	*28/B7	TB8: 72	*31/A6			TB9: 16	*57/A2
TB4: 45	*51/A4	TB4: 73	SPARE	TB8: 17	*27/D4	TB8: 45	*28/B4	TB8: 73	*31/A3			TB9: 17	SPARE
TB4: 46	*51/B7	TB4: 74	SPARE	TB8: 18	*27/D7	TB8: 46	*28/A7	TB8: 74	*31/A6			TB9: 18	SPARE
TB4: 47	*51/B5	TB4: 75	SPARE	TB8: 19	*27/D4	TB8: 47	*28/A4	TB8: 75	*31/A3			TB9: 19	SPARE
TB4: 48	*51/D8			TB8: 20	*27/C7	TB8: 48	*28/C3	TB8: 76	*32/E8			TB9: 20	SPARE
TB4: 49	*51/D7			TB8: 21	*27/C4	TB8: 49	*30/C8	TB8: 77	*32/D8				
TB4: 50	*52/E5			TB8: 22	*27/C7	TB8: 50	*29/B7	TB8: 78	*32/B8				
TB4: 51	*52/E3			TB8: 23	*27/C4	TB8: 51	*29/B7	TB8: 79	SPARE				
TB4: 52	*52/E5			TB8: 24	*27/B7	TB8: 52	*29/E2	TB8: 80	SPARE				
TB4: 53	*52/D5			TB8: 25	*27/B4	TB8: 53	*30/C6	TB8: 81	SPARE				
TB4: 54	*52/D5			TB8: 26	*27/B7	TB8: 54	*29/B2	TB8: 82	SPARE				
TB4: 55	*52/B5			TB8: 27	*27/B4	TB8: 55	*30/B8	TB8: 83	SPARE				
TB4: 56	*52/B5			TB8: 28	*27/A7	TB8: 56	*30/B5	TB8: 84	SPARE				

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C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TB SCHEDULE	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. :ZCP1812,50 SCALE : NTS

THIS SHT: 82
NEXT SHT: 83
TOT SHT: 86

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

13TP-2

TB10	REF	TB10	REF	BB2	REF	BB3	REF	TB1	REF	TB2	REF	TB4	REF
TB10:01	*56/E8	TB10:29	*56/B6	BB2:01	*35/D6	BB3:01	*30/D7	TB1:01	*13/D3	TB2:01	*15/D7	TB4:01	*34/B7
TB10:02	*56/E7	TB10:30	*56/B5	BB2:02	*35/D6	BB3:02	*30/D6	TB1:02	*13/D3	TB2:02	*15/D7	TB4:02	*34/B5
TB10:03	*56/E8	TB10:31	SPARE	BB2:03	*35/D6	BB3:03	SPARE	TB1:03	*13/D3	TB2:03	*15/D7	TB4:03	*34/A7
TB10:04	*56/E7	TB10:32	SPARE	BB2:04	*35/D6			TB1:04	*13/E3	TB2:04	*15/D7	TB4:04	*34/A5
TB10:05	*56/D8	TB10:33	SPARE	BB2:05	SPARE	BBX2	REF	TB1:05	*13/D2	TB2:05	*15/B3	TB4:05	*36/E7
TB10:06	*56/D7	TB10:34	SPARE					TB1:06	*13/D2	TB2:06	*15/B3	TB4:06	*36/E5
TB10:07	*56/C8	TB10:35	SPARE	BB3	REF	BBX2:01	*15/E7	TB1:07	*13/D2	TB2:07	*15/A3	TB4:07	*36/E7
TB10:08	*56/C7	TB10:36	SPARE			BBX2:02	*15/E7	TB1:08	*13/E2	TB2:08	*15/A3	TB4:08	*36/E5
TB10:09	*56/C8			BB3:01	*06/E3	BBX2:03	*15/E7	TB1:09	*13/E3	TB2:09	SPARE	TB4:09	*36/D7
TB10:10	*56/C7			BB3:02	*06/D3	BBX2:04	*15/E7	TB1:10	*13/C3	TB2:10	SPARE	TB4:10	*36/D5
TB10:11	*56/B8			BB3:04	*10/D11	BBX2:05	*15/B7	TB1:11	*13/C3			TB4:11	*36/B6
TB10:12	*56/B7			BB3:05	*10/C11	BBX2:06	*15/B7	TB1:12	*13/B3			TB4:12	*36/B6
TB10:13	*56/B8			BB3:03	SPARE	BBX2:07	*15/A7	TB1:13	*13/D3			TB4:13	*36/B6
TB10:14	*56/B7					BBX2:08	*15/A7	TB1:14	*13/C2			TB4:14	*36/B6
TB10:15	*56/A8			BB4	REF	BBX2:09	SPARE	TB1:15	*13/C2			TB4:15	*48/D5
TB10:16	*56/A7					BBX2:10	SPARE	TB1:16	*13/B2			TB4:16	*48/C7
TB10:17	*56/E6			BB4:01	*48/E7			TB1:17	*13/D2			TB4:17	*48/C5
TB10:18	*56/E5			BB4:02	*48/E5	BBX4	REF	TB1:18	*13/C3			TB4:18	*48/A7
TB10:19	*56/E6			BB4:03	*49/B7			TB1:19	*38/D3			TB4:19	*48/A5
TB10:20	*56/E5			BB4:04	*49/B5	BBX4:07	*56/B3	TB1:20	*38/D3			TB4:20	*49/D7
TB10:21	*56/D6			BB4:05	*53/D8	BBX4:08	*56/A3	TB1:21	*38/D3			TB4:21	*49/D6
TB10:22	*56/D5			BB4:06	*53/D5	BBX4:1	SPARE	TB1:22	SPARE			TB4:22	*49/D7
TB10:23	*56/C6			BB4:07	*53/C7	BBX4:2	SPARE	TB1:23	SPARE			TB4:23	*49/D6
TB10:24	*56/C5			BB4:08	*53/C5	BBX4:3	SPARE	TB1:24	SPARE			TB4:24	*49/A7
TB10:25	*56/C6			BB4:09	*54/C8	BBX4:4	SPARE	TB1:25	SPARE			TB4:25	*53/E4
TB10:26	*56/C5			BB4:10	*54/C5	BBX4:5	SPARE	TB1:26	SPARE			TB4:26	*53/E2
TB10:27	*56/C6			BB4:11	SPARE	BBX4:6	SPARE					TB4:27	*53/D7
TB10:28	*56/C5			BB4:12	SPARE							TB4:28	*53/D6

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C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TB SCHEDULE	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV. TRAFQ PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 83
NEXT SHT: 84
TOT SHT: 86

APPROVED FOR TURNKEY PROJECTS

Handwritten signature/initials

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

13TP-2

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TB4	REF	TB4	REF	TB8	REF	TB8	REF	TB8	REF	TB8	REF	TB8	REF
TB4: 29	*53/E4	TB4: 57	SPARE	TB8: 01	*39/D7	TB8: 29	*41/B4	TB8: 57	*43/E7	TB8: 85	*44/B6	TB8: 113	SPARE
TB4: 30	*53/C4	TB4: 58	SPARE	TB8: 02	*39/D5	TB8: 30	*41/A7	TB8: 58	*43/E6	TB8: 86	*44/B3	TB8: 114	SPARE
TB4: 31	*53/C4	TB4: 59	SPARE	TB8: 03	*39/C5	TB8: 31	*41/A4	TB8: 59	*43/D7	TB8: 87	*44/B6	TB8: 115	SPARE
TB4: 32	*53/A4			TB8: 04	*39/C7	TB8: 32	*41/C3	TB8: 60	*43/D6	TB8: 88	*44/B3	TB8: 116	SPARE
TB4: 33	*53/A4			TB8: 05	*39/C5	TB8: 33	*42/E7	TB8: 61	*43/C7	TB8: 89	*44/B6		
TB4: 34	*53/B7			TB8: 06	*39/C5	TB8: 34	*42/E5	TB8: 62	*43/C6	TB8: 90	*44/B3		
TB4: 35	*53/B5	TB7	REF	TB8: 07	*39/B7	TB8: 35	*42/E7	TB8: 63	*43/C7	TB8: 91	*44/A6	TB9	REF
TB4: 36	*53/E8			TB8: 08	*39/B5	TB8: 36	*42/E5	TB8: 64	*43/C6	TB8: 92	*44/A3		
TB4: 37	*53/E7	TB7: 01	*16/E3	TB8: 09	*39/B5	TB8: 37	*42/D7	TB8: 65	*43/C7	TB8: 93	*44/A6	TB9: 01	*56/B6
TB4: 38	*54/E5	TB7: 02	*16/E3	TB8: 10	*39/A7	TB8: 38	*42/D5	TB8: 66	*43/C6	TB8: 94	*44/A3	TB9: 02	*56/A6
TB4: 39	*54/E3	TB7: 03	*16/E2	TB8: 11	*39/A5	TB8: 39	*42/D7	TB8: 67	*43/B7	TB8: 95	*45/D8	TB9: 03	*56/A6
TB4: 40	*54/D5	TB7: 04	*17/E3	TB8: 12	*39/A5	TB8: 40	*42/D5	TB8: 68	*43/B6	TB8: 96	*45/C8	TB9: 04	*56/A6
TB4: 41	*54/D5	TB7: 05	*17/E3	TB8: 13	*39/D3	TB8: 41	*42/C7	TB8: 69	*43/B7	TB8: 97	SPARE	TB9: 5	SPARE
TB4: 42	*54/A5	TB7: 06	*17/E2	TB8: 14	*40/A7	TB8: 42	*42/C5	TB8: 70	*43/B6	TB8: 98	SPARE		
TB4: 43	*54/A5	TB7: 7	SPARE	TB8: 15	*40/A4	TB8: 43	*42/C7	TB8: 71	*43/B7	TB8: 99	SPARE		
TB4: 44	*54/B7	TB7: 8	SPARE	TB8: 16	*40/E2	TB8: 44	*42/C5	TB8: 72	*43/B6	TB8: 100	SPARE		
TB4: 45	*54/B6			TB8: 17	*40/C2	TB8: 45	*42/B7	TB8: 73	*43/A7	TB8: 101	SPARE		
TB4: 46	*55/B4			TB8: 18	*41/D7	TB8: 46	*42/B5	TB8: 74	*43/A6	TB8: 102	SPARE		
TB4: 47	*55/B1			TB8: 19	*41/D4	TB8: 47	*42/B7	TB8: 75	*43/D3	TB8: 103	SPARE		
TB4: 48	*55/B4			TB8: 20	*41/D7	TB8: 48	*42/B5	TB8: 76	*44/E6	TB8: 104	SPARE		
TB4: 49	*55/A4			TB8: 21	*41/D4	TB8: 49	*42/A7	TB8: 77	*44/E4	TB8: 105	SPARE		
TB4: 50	SPARE			TB8: 22	*41/C7	TB8: 50	*42/A5	TB8: 78	*44/E6	TB8: 106	SPARE		
TB4: 51	SPARE			TB8: 23	*41/C4	TB8: 51	*42/A7	TB8: 79	*44/E4	TB8: 107	SPARE		
TB4: 52	SPARE			TB8: 24	*41/C7	TB8: 52	*42/A5	TB8: 80	*44/D6	TB8: 108	SPARE		
TB4: 53	SPARE			TB8: 25	*41/C4	TB8: 53	*42/E2	TB8: 81	*44/D4	TB8: 109	SPARE		
TB4: 54	SPARE			TB8: 26	*41/B7	TB8: 54	*42/B2	TB8: 82	*44/D6	TB8: 110	SPARE		
TB4: 55	SPARE			TB8: 27	*41/B4	TB8: 55	*43/E7	TB8: 83	*44/D4	TB8: 111	SPARE		
TB4: 56	SPARE			TB8: 28	*41/B7	TB8: 56	*43/E6	TB8: 84	*44/E3	TB8: 112	SPARE		

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

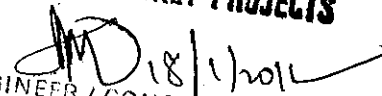
DWG.NO : ER1812,50&51SC BTRCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : TB SCHEDULE	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.D. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF. : ZCP1812,50 SCALE : NTS/TOT SHT: 86

THIS SHT: 84
NEXT SHT: 85

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13TP-2

TB10	REF	TB10	REF
TB10:01	*56/E4	TB10:29	*57/B7
TB10:02	*56/E3	TB10:30	*57/B7
TB10:03	*56/E4	TB10:31	*57/A7
TB10:04	*56/E3	TB10:32	*57/A7
TB10:05	*56/D4	TB10:33	*57/E4
TB10:06	*56/D3	TB10:34	*57/E4
TB10:07	*56/C4	TB10:35	*57/D4
TB10:08	*56/C3	TB10:36	*57/D4
TB10:09	*56/C4	TB10:37	*57/D4
TB10:10	*56/C3	TB10:38	*57/D4
TB10:11	*56/B4	TB10:39	*57/C4
TB10:12	*56/B3	TB10:40	*57/C4
TB10:13	*56/E2	TB10:41	SPARE
TB10:14	*56/E1	TB10:42	SPARE
TB10:15	*56/D2	TB10:43	SPARE
TB10:16	*56/D1	TB10:44	SPARE
TB10:17	*57/E7	TB10:45	SPARE
TB10:18	*57/E7	TB10:46	SPARE
TB10:19	*57/D7	TB10:47	SPARE
TB10:20	*57/D7	TB10:48	SPARE
TB10:21	*57/D7		
TB10:22	*57/D7		
TB10:23	*57/C7		
TB10:24	*57/C7		
TB10:25	*57/C7		
TB10:26	*57/C7		
TB10:27	*57/B7		
TB10:28	*57/B7		

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :TB SCHEDULE	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV TRAF0 PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

THIS SHT: 85
NEXT SHT: 86
TOT SHT: 86

87T(CSC326)

LED REF	FUNCTION
⊗ 1	RUN
⊗ 2	DIFF OPTD.
⊗ 3	REF OPTD.
⊗ 4	OVERFLUX OPTD.
⊗ 5	BACK UP OPTD.
⊗ 6	CT/VT FAIL
⊗ 7	SPARE
⊗ 8	ALARM

67RYBN-HV/LV(CSC211M1b)

LED REF	FUNCTION
⊗ 1	RUN/ALARM
⊗ 2	INV/HS OC
⊗ 3	INV/HS EF
⊗ 4	SEF/REF/NUB
⊗ 5	CBF OPTD.
⊗ 6	U/V & O/V STG1.
⊗ 7	U/V & O/V STG2.
⊗ 8	3Vo OPTD.
⊗ 9	OL(CURRENT)
⊗ 10	DI
⊗ 11	VT FAIL

61(CSC211M2)

LED REF	FUNCTION
⊗ 1	RUN/ALARM
⊗ 2	f+df/dt-1
⊗ 3	f+df/dt-2
⊗ 4	f+df/dt-3
⊗ 5	f&df/dt-4
⊗ 6	f&df/dt-5
⊗ 7	f&df/dt-6
⊗ 8	f&df/dt-7
⊗ 9	U/V & O/V STG1.
⊗ 10	U/V & O/V STG2.
⊗ 11	VT FAIL/UV BLOCK

BCU-HV/LV(CSI200EA)

LED REF	FUNCTION
⊗ 1	RUN
⊗ 2	ALARM
⊗ 3	UNLOCK
⊗ 4	REMOTE
⊗ 5	LOCAL
⊗ 6	BACKUP
⊗ 7	BACKUP
⊗ 8	BACKUP

APPROVED FOR TURNKEY PROJECTS

[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51SC BTRCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LED DETAILS	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 132/33KV. TRAFQ. PROTECTION PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS	
							THIS SHT: 86	NEXT SHT: -	TOT SHT: 86