

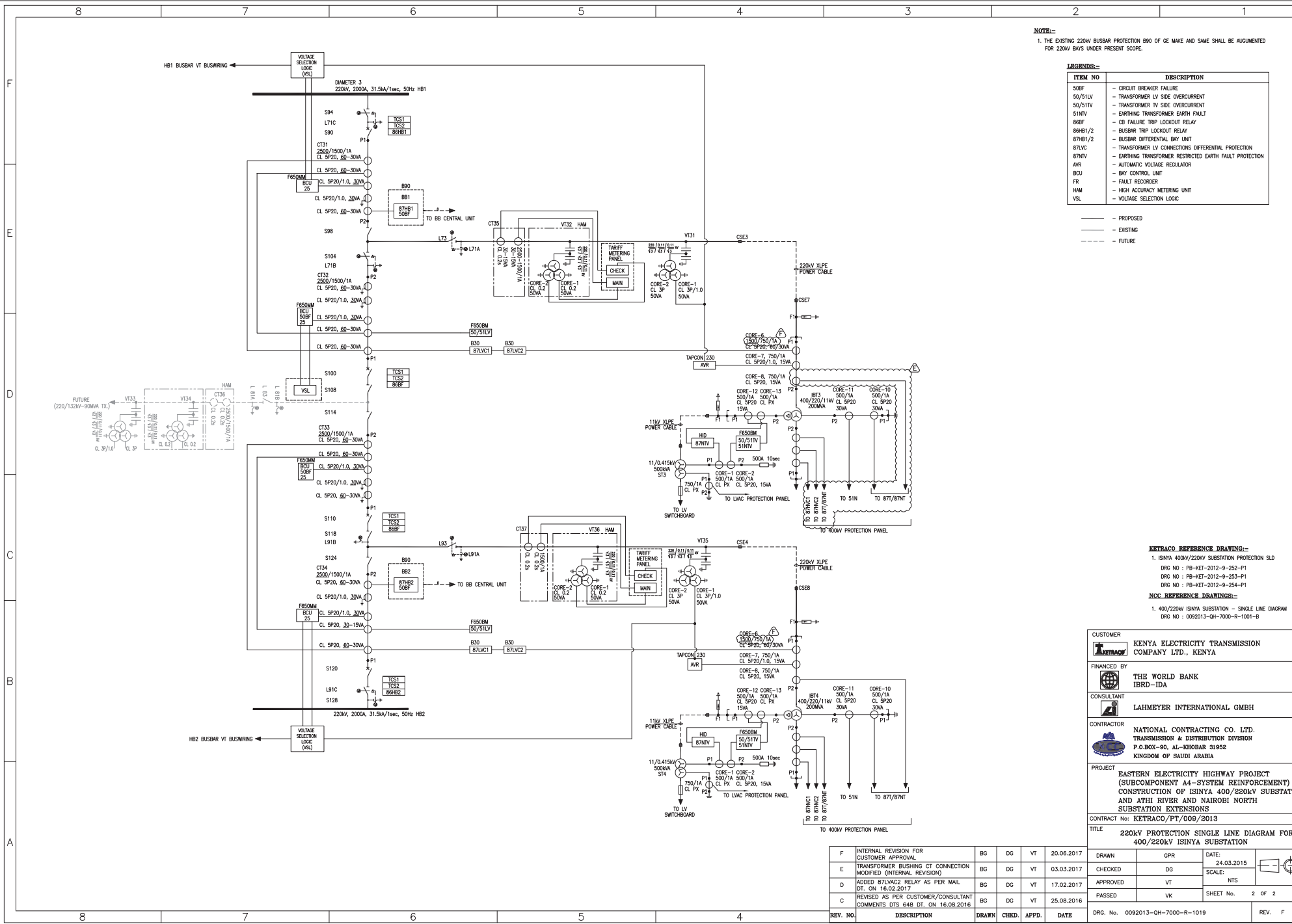
**KETRACO REFERENCE DRAWING:-**

- ISINYA 400kV/220kV SUBSTATION PROTECTION SLD  
DRG NO : PB-KET-2012-9-252-P1  
DRG NO : PB-KET-2012-9-253-P1  
DRG NO : PB-KET-2012-9-254-P1

**NCC REFERENCE DRAWINGS:-**

- 400/220kV ISINYA SUBSTATION - SINGLE LINE DIAGRAM  
DRG NO : 0092013-QH-7000-R-1001-8

CUSTOMER	KENYA ELECTRICITY TRANSMISSION COMPANY LTD., KENYA		
FINANCED BY	THE WORLD BANK IBRD-IDA		
CONSULTANT	LAHMEYER INTERNATIONAL GMBH		
CONTRACTOR	NATIONAL CONTRACTING CO. LTD. TRANSMISSION & DISTRIBUTION DIVISION P.O.BOX-90, AL-KHOBAR 31952 KINGDOM OF SAUDI ARABIA		
PROJECT	EASTERN ELECTRICITY HIGHWAY PROJECT (SUBCOMPONENT A4-SYSTEM REINFORCEMENT) CONSTRUCTION OF ISINYA 400/220kV SUBSTATION AND ATHI RIVER AND NAIROBI NORTH SUBSTATION EXTENSIONS		
CONTRACT No:	KETRACO/PT/009/2013		
TITLE	220kV PROTECTION SINGLE LINE DIAGRAM FOR 400/220kV ISINYA SUBSTATION		
DRAWN	GFR	DATE	24.03.2015
CHECKED	DG	SCALE	NTS
APPROVED	VT	SHEET No.	1 OF 2
PASSED	VK		
DRG. No.	0092013-QH-7000-R-1019	REV.	F




**NOTE:-**  
1. THE EXISTING 220KV BUSBAR PROTECTION 890 OF GE MAKE AND SAME SHALL BE AUGMENTED FOR 220KV BAYS UNDER PRESENT SCOPE.

LEGENDS:-	
ITEM NO	DESCRIPTION
50BF	- CIRCUIT BREAKER FAILURE
50/51V	- TRANSFORMER LV SIDE OVERCURRENT
50/51TV	- TRANSFORMER TV SIDE OVERCURRENT
51NTV	- EXISTING TRANSFORMER EARTH FAULT
86BF	- CB FAILURE TRIP LOCKOUT RELAY
86H1/2	- BUSBAR TRIP LOCKOUT RELAY
87H1/2	- BUSBAR DIFFERENTIAL BAY UNIT
87LVC	- TRANSFORMER LV CONNECTIONS DIFFERENTIAL PROTECTION
87NTV	- EXISTING TRANSFORMER RESTRICTED EARTH FAULT PROTECTION
AVR	- AUTOMATIC VOLTAGE REGULATOR
BCU	- BAY CONTROL UNIT
FR	- FAULT RECORDER
HAM	- HIGH ACCURACY METERING UNIT
VSL	- VOLTAGE SELECTION LOGIC

— PROPOSED  
— EXISTING  
- - - FUTURE

**KETRACO REFERENCE DRAWING:-**  
1. ISINYA 400KV/220KV SUBSTATION PROTECTION SLD  
DRG NO : PB-KET-2012-9-252-P1  
DRG NO : PB-KET-2012-9-253-P1  
DRG NO : PB-KET-2012-9-254-P1

**NCC REFERENCE DRAWINGS:-**  
1. 400/220KV ISINYA SUBSTATION - SINGLE LINE DIAGRAM  
DRG NO : 0092013-QH-7000-R-1001-B

CUSTOMER		KENYA ELECTRICITY TRANSMISSION COMPANY LTD., KENYA		
FINANCED BY		THE WORLD BANK IBRD-IDA		
CONSULTANT		LAHMEYER INTERNATIONAL GMBH		
CONTRACTOR		NATIONAL CONTRACTING CO. LTD. TRANSMISSION & DISTRIBUTION DIVISION P.O.BOX-90, AL-KHOBAR 31952 KINGDOM OF SAUDI ARABIA		
PROJECT		EASTERN ELECTRICITY HIGHWAY PROJECT (SUBCOMPONENT A4-SYSTEM REINFORCEMENT) CONSTRUCTION OF ISINYA 400/220KV SUBSTATION AND ATHI RIVER AND NAIROBI NORTH SUBSTATION EXTENSIONS		
CONTRACT No:		KETRACO/PT/009/2013		
TITLE		220KV PROTECTION SINGLE LINE DIAGRAM FOR 400/220KV ISINYA SUBSTATION		
7	DRAWN	GPR	DATE: 24.03.2015	
7	CHECKED	DG	SCALE: NTS	
7	APPROVED	VT		
6	PASSED	VK	SHEET No. 2 OF 2	
DRG. No.		0092013-QH-7000-R-1019		
		REV. F		