

संदर्भ/Ref : CC-ENGG-TB202002-1001071-SS3230-400/220kV-SS-SLD

Date : 15/01/2021

From : S J Lahiri
Senior GM

To : M/S LARSEN And TOUBRO LIMITED
D, MANAPAKKAM, CHENNAI 600089
ECC DIVISION, MOUNT POONAMALLEE
Chennai-600089, Tamil Nadu

Cc : RHQ NR3

Subject : Substation Package SS01 for 400/220kV Meerut GIS S/S and 400/220/132KV GIS S/S
LOA Ref : MSTL/400KV/Meerut-Simbahvali/SS01/G4/NOA-I/01(I) & NOA-II/01(II) Dated 26/12/2019

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : H1-10145877-S4-A01
Orgn. Drg. No. : TB202002-1001071-SS3230-400/220kV-SS-SLD
Revision No. : 03
Drg. Title : MEERUT S/S- 400/220KV SINGLE LINE DIAGRAM
App. Category : CAT-I
Release Date : 15/01/2021



Scan to verify

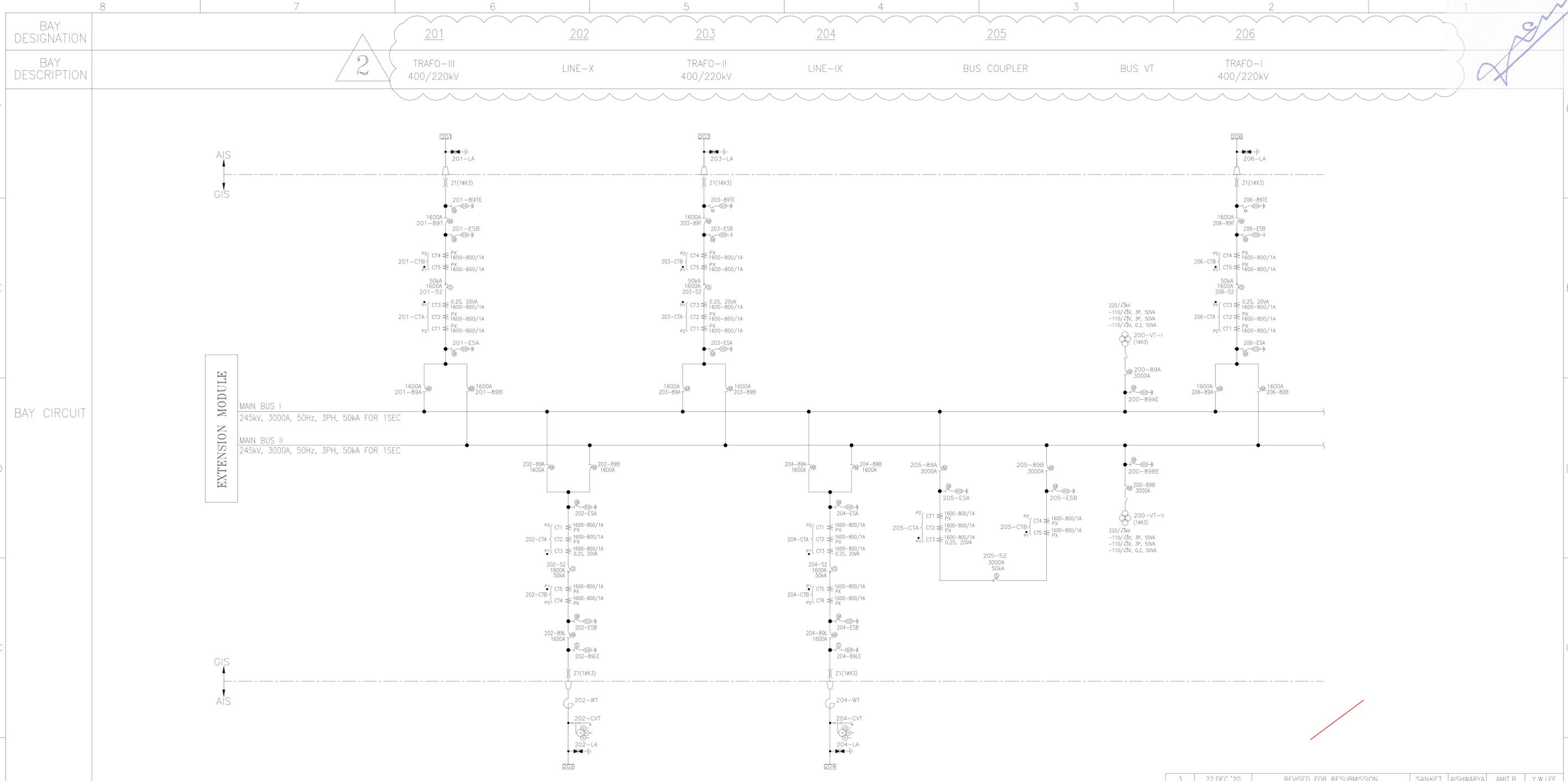
Comments : Document is generally in order.

अनुमोदित श्रेणी/App. Category:

- I. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।
Approved/released for fabrication/construction.
 - II. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइज्ड दस्तावेज अनुमोदनार्थ प्रस्तुत करें।
Approved/released for fabrication/ construction subject to incorporation of comments and modification as noted. Revised drawing required for approval.
 - III. टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।
To be resubmitted for approval after incorporating the comments.
 - IV. सूचनार्थ एवं रिकार्ड हेतु।
For information and record.
- REL-CON निर्माण हेतु जारी।
Released for construction.

नोट/Note:

1. Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.
2. The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.



BAY DESIGNATION
BAY DESCRIPTION
BAY CIRCUIT
TECHNICAL DATA

LEGEND

SYMBOL	DEVICE NO.	DESCRIPTION	OPERATION TYPE	BPS QTY.	ENGG. QTY.
	2**-52	CIRCUIT BREAKER	SPRING, MANUAL	17 NOS. (FOR 3 PHASE)	14 NOS. (FOR 3 PHASE)
	2**-89A, 89B, 89T, 89L	DISCONNECTING SWITCH	MOTOR DRIVEN, MANUAL	51 NOS. (FOR 3 PHASE)	43 NOS. (FOR 3 PHASE)
	2**-ESA, ESB, 89TE	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL	41 NOS. (FOR 3 PHASE)	33 NOS. (FOR 3 PHASE)
	2**-89LE	HIGH-SPEED EARTHING SWITCH	MOTOR DRIVE SPRING CHARGED, MANUAL	10 NOS. (FOR 3 PHASE)	10 NOS. (FOR 3 PHASE)
	CTA	CURRENT TRANSFORMER (BUS SIDE)	RING TYPE	51 NOS. (FOR 1 PHASE)	42 NOS. (FOR 1 PHASE)
	CTB	CURRENT TRANSFORMER (LINE SIDE)	RING TYPE	51 NOS. (FOR 1 PHASE)	42 NOS. (FOR 1 PHASE)
	200-VT-I, VT-II	VOLTAGE TRANSFORMER (1ØX3)	GAS INSULATED INDUCTIVE (WITH MANUAL ID)	12 NOS. (FOR 1 PHASE)	6 NOS. (FOR 1 PHASE)
	Z1	GAS TO AIR BUSHING WITH BUS DUCT		39 NOS. (FOR 1 PHASE)	39 NOS. (FOR 1 PHASE)

HYOSUNG REFERENCE DRAWINGS

SINGLE LINE	SINGLE LINE DIAGRAM WITH CT & VT DATA : HI-10145877-M2-A01-01
LAYOUT	LAYOUT FOR GIS (OVERALL) : HI-10145877-M2-A02-01 LAYOUT FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M2-A02-02
FOUNDATION	FOUNDATION FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M2-A03-01 FOUNDATION FOR BUS DUCT (GIB) : HI-10145877-M2-A03-02
GAS SYSTEM	GAS SYSTEM DIAGRAM : HI-10145877-M2-A06-01

VT DATA

SPECIFICATION	VT-I&II		
	2'DRY 1	2'DRY 2	2'DRY 1
PRIMARY VOLTAGE[kV]	220/√3		
SECONDARY VOLTAGE[V]	110/√3	110/√3	110/√3
ACCURACY	3P	3P	0.2
MIN. BURDEN[VA]	50	50	50
APPLICATION	PROTECTION	PROTECTION	METERING

220kV OUTDOOR EQUIPMENTS:-

SL.NO	SYMBOLS	DESCRIPTION	BPS REFER NO.	BPS QUANTITY	TOTAL QTY.
1		1600A, 0.5mH, 50kA for 220kV WAVE TRAPS	SCH.1.H-2(1)α	20	20
2		216kV SURGE ARRESTER (1-PHASE)	SCH.1.C2-1.3	36	36
3		245kV, 4400pF CAPACITIVE VOLTAGE TRANSFORMER (1-PHASE)	SCH.1.C2-1.6	30	30

CT DATA

DEVICE NO.	CT NO. SPEC.	CTA				CTB			
		CT1	CT2	CT3	CT4	CT1	CT2	CT3	CT4
FOR LINE/TR BAY BC BAY	Ratio[A/V]	1600/1	800/1	1600/1	800/1	1600/1	800/1	1600/1	800/1
	Burden	-	-	-	-	40	20	-	-
	Vk[V]	1600	800	1600	800	1600	800	1600	800
	Im[mA]at Vk	25	50	25	50	25	50	25	50
	Rct[Ohm]	8	4	8	4	8	4	8	4
	ISF	-	-	-	-	<5	-	-	-
Accuracy class	PX	PX	0.2S	PX	PX	PX			
APPLICATION	PROTECTION	PROTECTION	METERING	PROTECTION	PROTECTION				

NOTES

- THE DESCRIBED EQUIPMENTS ARE 220(245)KV RATINGS.
- THE DOTTED LINE (-----) MEANS FUTURE SCOPE.

REV. No	REVISED DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED	APPROVED
3	22.DEC.'20	REVISED FOR RESUBMISSION	SANKET	AISHWARYA	AMIT.B	Y.W.LEE
2	06.NOV.'20	REVISED AS PER LATEST LAYOUT	SANKET	AISHWARYA	AMIT.B	Y.W.LEE
1	15.SEP.'20	REVISED AS PER LATEST PLOT PLAN	SANKET	AISHWARYA	AMIT.B	Y.W.LEE
0	23.JAN.'20	FIRST ISSUED FOR APPROVAL	AMOL	AISHWARYA	AMIT.B	Y.W.LEE

CLIENT : MEERUT-SIMBHALI TRANSMISSION LIMITED (A 100% SUBSIDIARY OF POWER GRID CORPORATION OF INDIA)

SUPPLIER / CONTRACTOR : HYOSUNG T&D INDIA Pvt. Ltd.

PROJECT : 400/220kV GIS SUBSTATION AT MEERUT.

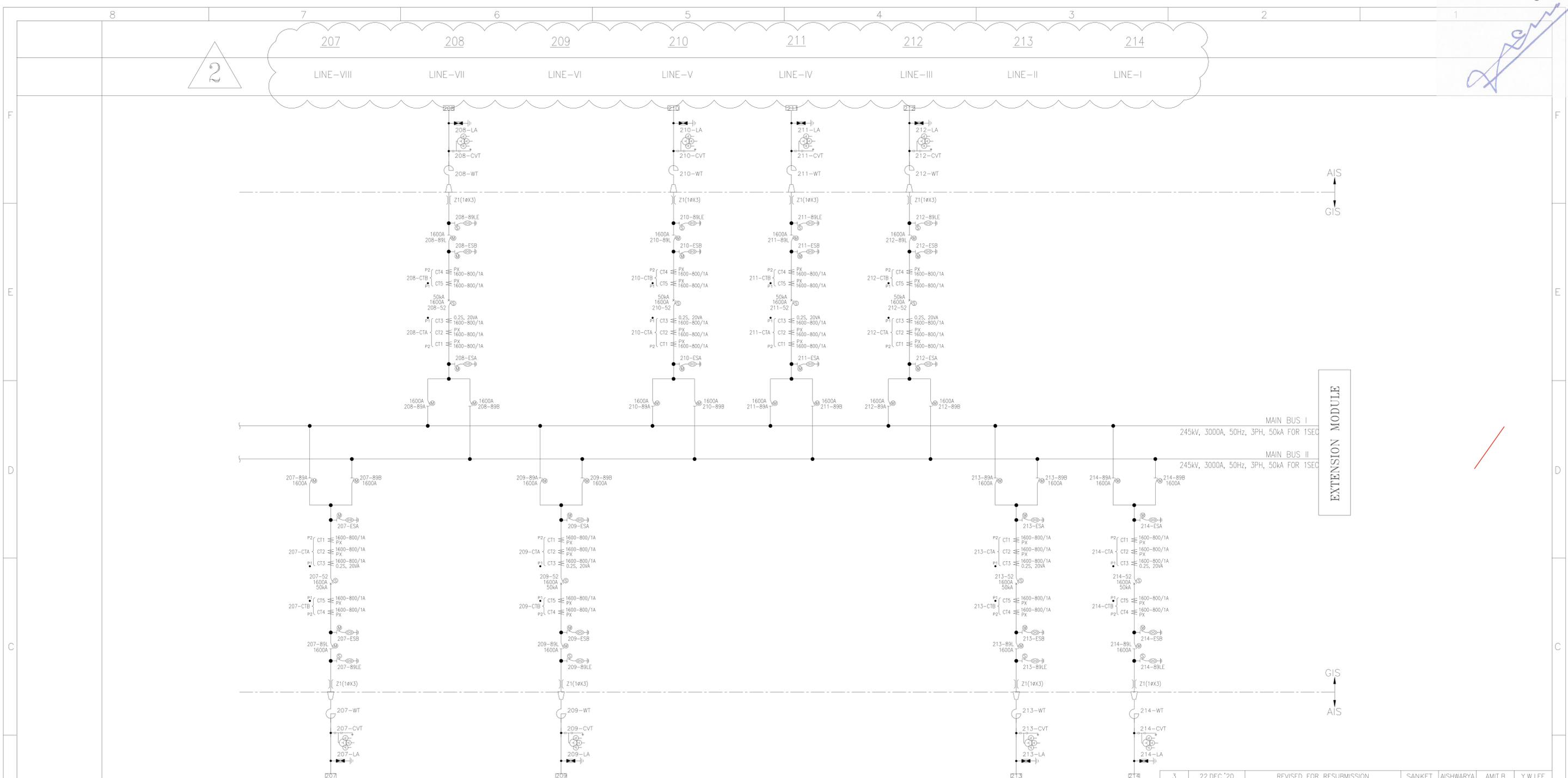
JOB No. : _____ TITLE : 220kV DOUBLE BUS SCHEME SINGLE LINE DIAGRAM WITH CT DATA

DRWN	AMOL	AMOL	23.JAN.'20
DSGN	AISHWARYA	AISHWARYA	23.JAN.'20
CHKD	AMIT.B	AMIT.B	23.JAN.'20
APPD	Y.W.LEE	Y.W.LEE	23.JAN.'20

SCALE : N.T.S
PROJECTION : N.A.

DRG. No. H I - 1 0 1 4 5 8 7 7 - M 2 - A 0 1 - 0 1

RELEASED FOR PRELIMINARY TENDER INFORMATION APPROVAL CONSTRUCTION



LEGEND

SYMBOL	DEVICE NO.	DESCRIPTION	OPERATION TYPE	BPS QTY.	ENGG. QTY.
	2**-52	CIRCUIT BREAKER	SPRING, MANUAL	17 NOS. (FOR 3 PHASE)	14 NOS. (FOR 3 PHASE)
	2**-89A, 89B, 89T, 89L	DISCONNECTING SWITCH	MOTOR DRIVEN, MANUAL	51 NOS. (FOR 3 PHASE)	43 NOS. (FOR 3 PHASE)
	2**-ESA, ESB, 89TE	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL	41 NOS. (FOR 3 PHASE)	33 NOS. (FOR 3 PHASE)
	2**-89LE	HIGH-SPEED EARTHING SWITCH	MOTOR DRIVE SPRING CHARGED, MANUAL	10 NOS. (FOR 3 PHASE)	10 NOS. (FOR 3 PHASE)
	CTA	CURRENT TRANSFORMER (BUS SIDE)	RING TYPE	51 NOS. (FOR 1 PHASE)	42 NOS. (FOR 1 PHASE)
	CTB	CURRENT TRANSFORMER (LINE SIDE)	RING TYPE	51 NOS. (FOR 1 PHASE)	42 NOS. (FOR 1 PHASE)
	200-VT-I, VT-II	VOLTAGE TRANSFORMER (1ØX3)	GAS INSULATED INDUCTIVE (WITH MANUAL ID)	12 NOS. (FOR 1 PHASE)	6 NOS. (FOR 1 PHASE)
	Z1	GAS TO AIR BUSHING WITH BUS DUCT		39 NOS. (FOR 1 PHASE)	39 NOS. (FOR 1 PHASE)

HYOSUNG REFERENCE DRAWINGS

SINGLE LINE	DESCRIPTION
SINGLE LINE	SINGLE LINE DIAGRAM WITH CT & VT DATA : HI-10145877-M2-A01-01
LAYOUT	LAYOUT FOR GIS (OVERALL) : HI-10145877-M2-A02-01 LAYOUT FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M2-A02-02
FOUNDATION	FOUNDATION FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M2-A03-01 FOUNDATION FOR BUS DUCT (GIB) : HI-10145877-M2-A03-02
GAS SYSTEM	GAS SYSTEM DIAGRAM : HI-10145877-M2-A06-01

CT DATA

DEVICE NO.	CT NO.	CTA			CTB	
		CT1	CT2	CT3	CT1	CT2
FOR LINE/TR BAY BC BAY	Ratio[A/A]	1600/1	800/1	1600/1	800/1	1600/1
	Burden	-	-	40	20	-
	Vk[V]	1600	800	1600	800	1600
	Im[mA]at Vk	25	50	25	50	25
	Rct[Ohm]	8	4	8	4	8
	ISF	-	-	<5	-	-
	Accuracy class	PX	PX	0.2S	PX	PX
APPLICATION	PROTECTION	PROTECTION	METERING	PROTECTION	PROTECTION	

VT DATA

SPECIFICATION	VT-I&II		
	2'DRY 1	2'DRY 2	2'DRY 1
PRIMARY VOLTAGE[kV]	220/√3		
SECONDARY VOLTAGE[V]	110/√3	110/√3	110/√3
ACCURACY	3P	3P	0.2
MIN. BURDEN[VA]	50	50	50
APPLICATION	PROTECTION	PROTECTION	METERING

NOTES

- THE DESCRIBED EQUIPMENTS ARE 220(245)KV RATINGS.
- THE DOTTED LINE (-----) MEANS FUTURE SCOPE.

REV. No	REVISED DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED	APPROVED
3	22.DEC.'20	REVISED FOR RESUBMISSION	SANKET	AISHWARYA	AMIT.B	Y.W.LEE
2	06.NOV.'20	REVISED AS PER LATEST LAYOUT	SANKET	AISHWARYA	AMIT.B	Y.W.LEE
1	15.SEP.'20	REVISED AS PER LATEST PLOT PLAN	SANKET	AISHWARYA	AMIT.B	Y.W.LEE
0	23.JAN.'20	FIRST ISSUED FOR APPROVAL	AMOL	AISHWARYA	AMIT.B	Y.W.LEE

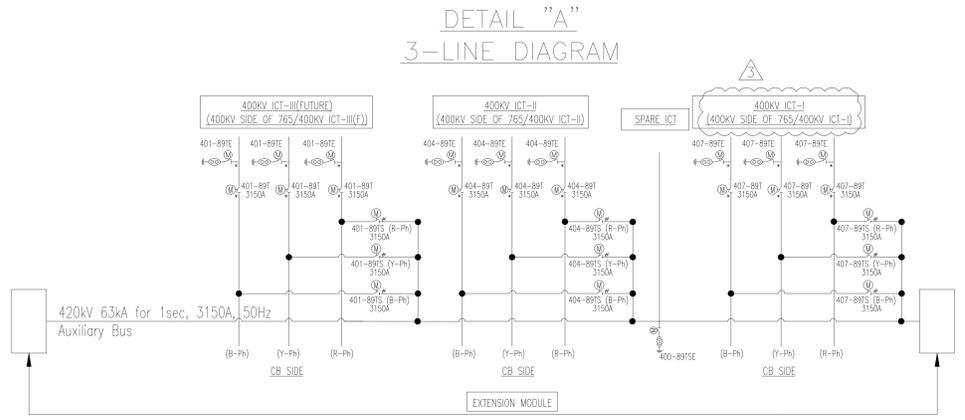
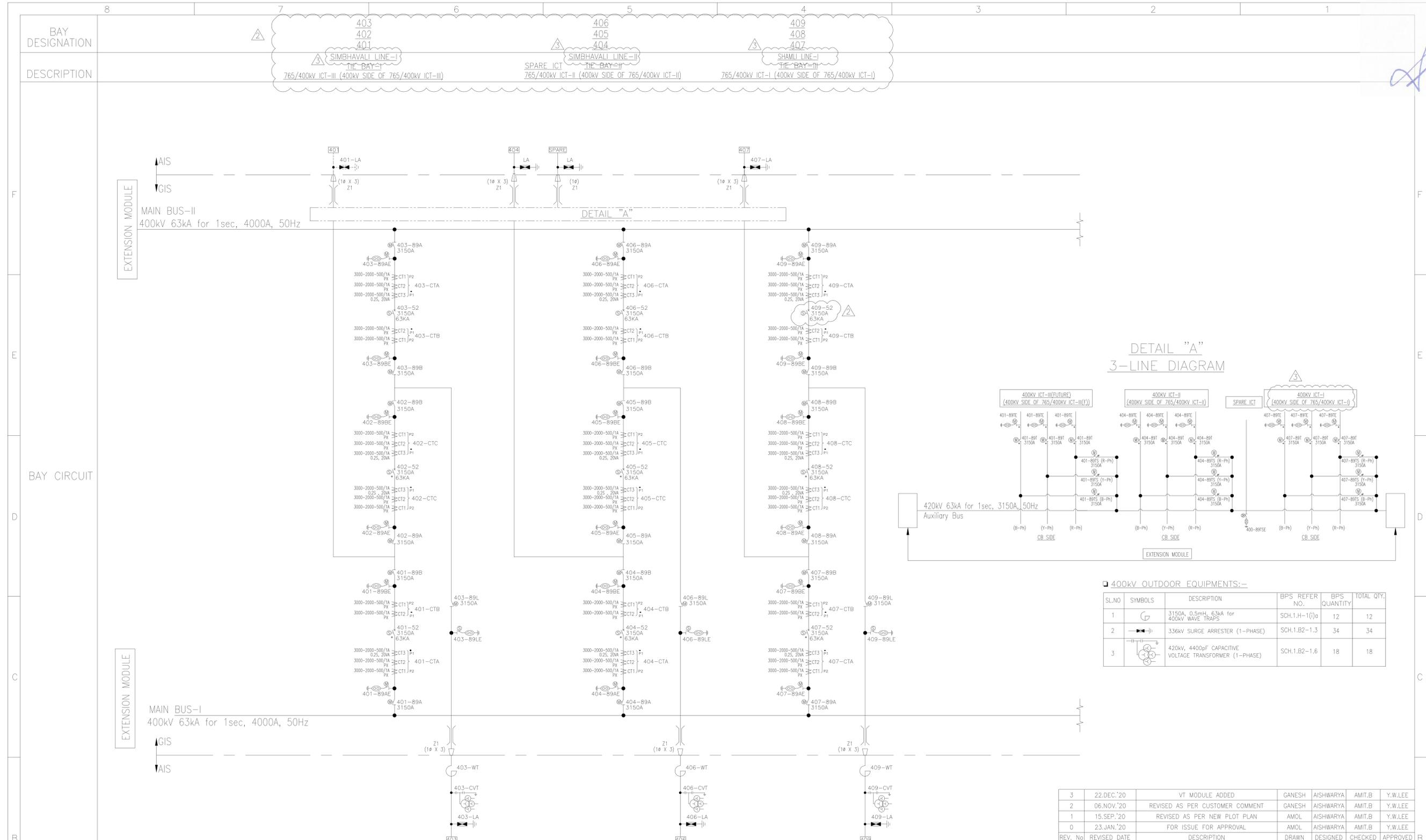
CLIENT :
MEERUT-SIMBHALI TRANSMISSION LIMITED
(A 100% SUBSIDIARY OF POWER GRID CORPORATION OF INDIA)

SUPPLIER / CONTRACTOR :
HYOSUNG T&D INDIA Pvt. Ltd.

PROJECT :
400/220kV GIS SUBSTATION AT MEERUT.

JOB No. :	TITLE :	SCALE :
DRWN AMOL AMOL 23.JAN.'20	220KV DOUBLE BUS SCHEME SINGLE LINE DIAGRAM WITH CT DATA	N.T.S
DSGN AISHWARYA AISHWARYA 23.JAN.'20		PROJECTION
CHKD AMIT.B AMIT.B 23.JAN.'20		N.A.
APPD Y.W.LEE Y.W.LEE 23.JAN.'20		
DRG.No. H I - 1 0 1 4 5 8 7 7 - M 2 - A 0 1 - 0 1		SIZE A1

RELEASED FOR PRELIMINARY TENDER INFORMATION APPROVAL CONSTRUCTION



400kV OUTDOOR EQUIPMENTS:-

SL.NO	SYMBOLS	DESCRIPTION	BPS REFER NO.	BPS QUANTITY	TOTAL QTY.
1		3150A, 0.5mH, 63kA for 400kV WAVE TRAPS	SCH.1.H-1(i)g	12	12
2		336kV SURGE ARRESTER (1-PHASE)	SCH.1.B2-1.3	34	34
3		420kV, 4400pF CAPACITIVE VOLTAGE TRANSFORMER (1-PHASE)	SCH.1.B2-1.6	18	18

TECHNICAL DATA

LEGEND

SYMBOL	DEVICE NO.	DESCRIPTION	OPERATION TYPE	BPS QTY.	ENGG QTY.
	4**-52	CIRCUIT BREAKER WITHOUT PIR & WITHOUT CONTROLLED SWITCHING DEVICE	SPRING, MANUAL	2 (3-PHASE)	4 (3-PHASE)
	4**-52	CIRCUIT BREAKER WITHOUT PIR & WITH CONTROLLED SWITCHING DEVICE	SPRING, MANUAL	10 (3-PHASE)	12 (3-PHASE)
	4**-52	CIRCUIT BREAKER WITH PIR & WITHOUT CONTROLLED SWITCHING DEVICE	HYDRAULIC, MANUAL	5 (3-PHASE)	2 (3-PHASE)
	4**-52	CIRCUIT BREAKER WITH PIR & WITH CONTROLLED SWITCHING DEVICE	HYDRAULIC, MANUAL	3 (3-PHASE)	2 (3-PHASE)
	4**-89A, 89B, 89L	DISCONNECTING SWITCH (3PHASE OPERATION)	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	52 (3-PHASE)	52 (3-PHASE)
	4**-89T	DISCONNECTING SWITCH (SINGLE PHASE OPERATION)	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	9 (1-PHASE)	9 (1-PHASE)
	4**-89TS	DISCONNECTING SWITCH (SINGLE PHASE OPERATION) WITHSTAND PHASE TO PHASE INSULATION	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	9 (1-PHASE)	9 (1-PHASE)
	4**-89AE, 89BE, 89TE	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL (3PHASE OPERATION)	46 (3-PHASE)	46 (3-PHASE)
	4**-89TE	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	10 (1-PHASE)	10 (1-PHASE)
	4**-89LE	HIGH-SPEED EARTHING SWITCH	MOTOR DRIVE SPRING CHARGED, MANUAL	6 (3-PHASE)	6 (3-PHASE)
	CTA, CTC	CURRENT TRANSFORMER (FOR MAINBAY & TIE)	RING TYPE	75 (1-PHASE)	75 (1-PHASE)
	CTB	CURRENT TRANSFORMER (FOR MAINBAY)	RING TYPE	37 (1-PHASE)	37 (1-PHASE)
	4**-WT-1, 2	VOLTAGE TRANSFORMER	GAS INSULATED INDUCTIVE (WITH MANUAL ISOLATING DEVICE)	6 (1-PHASE)	6 (1-PHASE)
	Z1	GAS TO AIR BUSHING		40 (1-PHASE)	40 (1-PHASE)

CT DATA

DEVICE NO.	CT NO.	CTA			CTB		
		CT1	CT2	CT3	CT1	CT2	CT3
FOR TRAF BAY & LINE BAY	Ratio[A/A]	3000/1 2000/1	500/1 3000/1 2000/1	500/1 3000/1 2000/1	3000/1 500/1 3000/1	2000/1 500/1 3000/1	500/1 3000/1 2000/1
	Burden[VA]	-	-	-	-	-	-
	Vk[V]	>3000	>2000	>500	>3000	>2000	>500
	Im[ma]at Vk	<20	<30	<120	<20	<30	<120
	Rct[Ohm]	<15	<10	<2.5	<15	<10	<2.5
FOR TIE BAY	Ratio[A/A]	3000/1 2000/1	500/1 3000/1 2000/1	500/1 3000/1 2000/1	3000/1 500/1 3000/1	2000/1 500/1 3000/1	500/1 3000/1 2000/1
	Burden[VA]	-	-	-	-	-	-
	Vk[V]	>3000	>2000	>500	>3000	>2000	>500
	Im[ma]at Vk	<20	<30	<120	<20	<30	<120
	Rct[Ohm]	<15	<10	<2.5	<15	<10	<2.5

VT DATA

SPECIFICATION	MVT-1&2		
	2'DRY 1	2'DRY 2	2'DRY 3
PRIMARY VOLTAGE[kV]	400/3		
SECONDARY VOLTAGE[V]	110/√3	110/√3	110/√3
ACCURACY	0.5 & 3P	0.5 & 3P	0.2
MIN. BURDEN[VA]	30	30	30
APPLICATION	PROTECTION	PROTECTION	METERING

HYOSUNG REFERENCE DRAWINGS

SINGLE LINE	SINGLE LINE DIAGRAM WITH CT & VT DATA : HI-10145877-M4-A01-01
LAYOUT	LAYOUT FOR GIS (OVERALL) : HI-10145877-M4-A02-01 LAYOUT FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M4-A02-02
FOUNDATION	FOUNDATION FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M4-A03-01 FOUNDATION FOR BUS DUCT (GIS) : HI-10145877-M4-A03-02
GAS SYSTEM	GAS SYSTEM DIAGRAM : HI-10145877-M4-A06-01

NOTES

- THE DESCRIBED EQUIPMENTS ARE 400(420)kV RATINGS.
- INSULATION LEVEL & CONTINUOUS VOLTAGE RATING OF INSULATING LINK OF ES : 10kV, 1000A, FOR 10 MIN

REVISIONS

REV. No	REVISED DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED	APPROVED
3	22.DEC.'20	VT MODULE ADDED	GANESH	AISHWARYA	AMIT.B	Y.W.LEE
2	06.NOV.'20	REVISED AS PER CUSTOMER COMMENT	GANESH	AISHWARYA	AMIT.B	Y.W.LEE
1	15.SEP.'20	REVISED AS PER NEW PLOT PLAN	AMOL	AISHWARYA	AMIT.B	Y.W.LEE
0	23.JAN.'20	FOR ISSUE FOR APPROVAL	AMOL	AISHWARYA	AMIT.B	Y.W.LEE

CLIENT: MEERUT-SIMBHAVALI TRANSMISSION LIMITED (A 100% SUBSIDIARY OF POWER GRID CORPORATION OF INDIA)

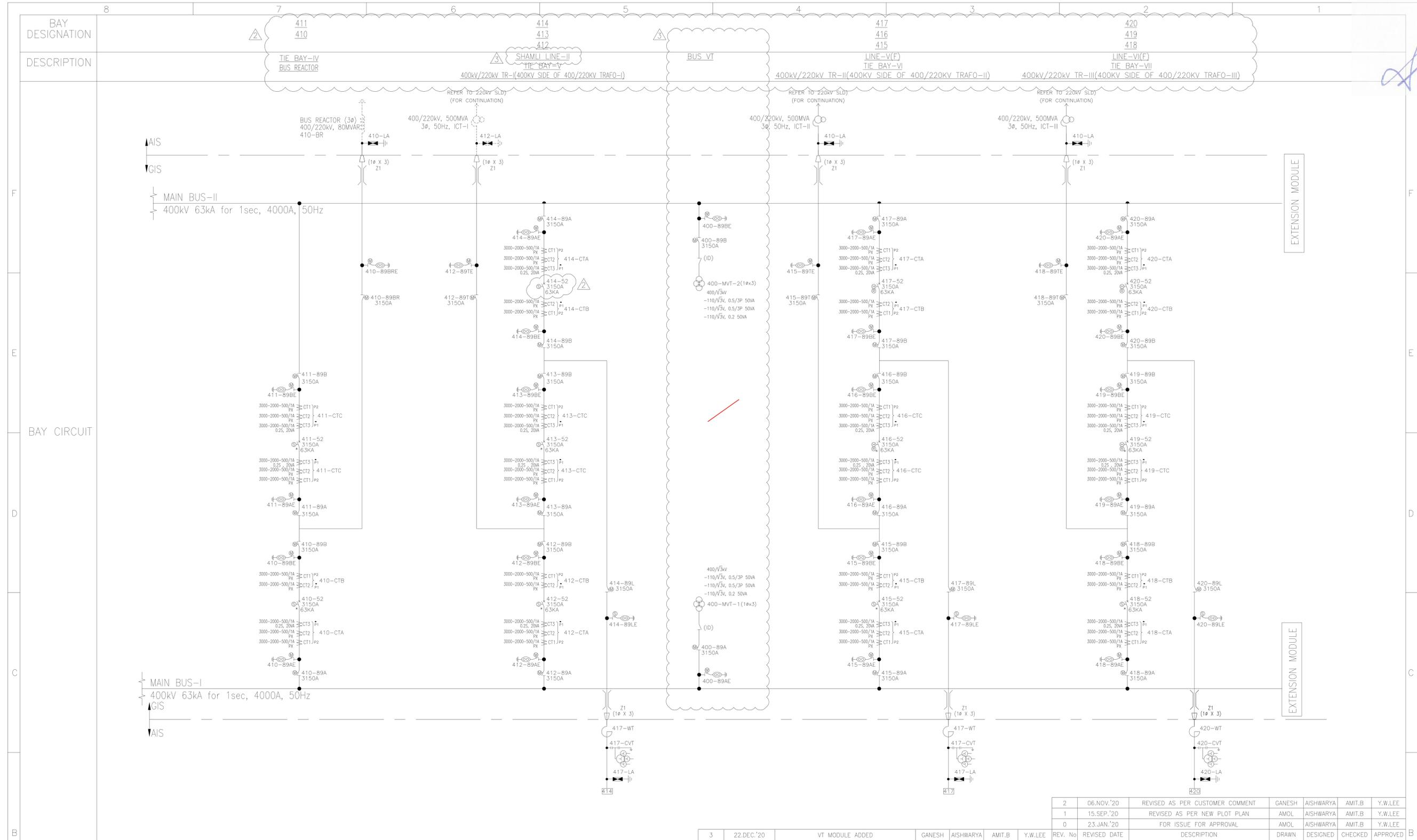
SUPPLIER / CONTRACTOR: HYOSUNG T&D INDIA Pvt. Ltd. **L&T Construction** Power Transmission & Distribution

PROJECT: 400/220kV GIS SUBSTATION AT MEERUT

JOB No.:	SCALE: N.T.S.
TITLE: 400kV GIS SUBSTATION (SINGLE LINE DIAGRAM WITH CT DATA)	PROJECTION: N.A.
DRG No.: H I - 1 0 1 4 5 8 7 7 - M 4 - A 0 1 - 0 1	SIZE: A1
	REV.: 3

SHEET 1 OF 2

RELEASED FOR: PRELIMINARY TENDER INFORMATION APPROVAL CONSTRUCTION



LEGEND

SYMBOL	DEVICE NO.	DESCRIPTION	OPERATION TYPE	BPS QTY.	ENGG QTY.
	4**-52	CIRCUIT BREAKER WITHOUT PIR & WITHOUT CONTROLLED SWITCHING DEVICE	SPRING, MANUAL	2 (3-PHASE)	4 (3-PHASE)
	4**-52	CIRCUIT BREAKER WITHOUT PIR & WITH CONTROLLED SWITCHING DEVICE	SPRING, MANUAL	10 (3-PHASE)	12 (3-PHASE)
	4**-52	CIRCUIT BREAKER WITH PIR & WITHOUT CONTROLLED SWITCHING DEVICE	HYDRAULIC, MANUAL	5 (3-PHASE)	2 (3-PHASE)
	4**-52	CIRCUIT BREAKER WITH PIR & WITH CONTROLLED SWITCHING DEVICE	HYDRAULIC, MANUAL	3 (3-PHASE)	2 (3-PHASE)
	4**-89A, 89B, 89I, 89L	DISCONNECTING SWITCH (SINGLE PHASE OPERATION)	MOTOR DRIVEN, MANUAL (3-PHASE OPERATION)	52 (3-PHASE)	52 (3-PHASE)
	4**-89T	DISCONNECTING SWITCH (SINGLE PHASE OPERATION)	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	9 (1-PHASE)	9 (1-PHASE)
	4**-89TS	DISCONNECTING SWITCH (SINGLE PHASE OPERATION) WITHSTAND PHASE TO PHASE INSULATION	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	9 (1-PHASE)	9 (1-PHASE)
	4**-89AE, 89BE, 89TE	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL (3-PHASE OPERATION)	46 (3-PHASE)	46 (3-PHASE)
	4**-89TE, 89TSE	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL (SINGLE PHASE OPERATION)	10 (1-PHASE)	10 (1-PHASE)
	4**-89LE	HIGH-SPEED EARTHING SWITCH	MOTOR DRIVE SPRING CHARGED, MANUAL	6 (3-PHASE)	6 (3-PHASE)
	CTA, CTC	CURRENT TRANSFORMER (FOR MAINBAY & TIE)	RING TYPE	75 (1-PHASE)	75 (1-PHASE)
	CTB	CURRENT TRANSFORMER (FOR MAINBAY)	RING TYPE	37 (1-PHASE)	37 (1-PHASE)
	4**-MVT-1, 2	VOLTAGE TRANSFORMER	GAS INSULATED INDUCTIVE (WITH MANUAL ISOLATING DEVICE)	6 (1-PHASE)	6 (1-PHASE)
	Z1	GAS TO AIR BUSHING		40 (1-PHASE)	40 (1-PHASE)

CT DATA

DEVICE NO.	CT NO.	CTA						CTB								
		CT1	CT2	CT3	CT1	CT2	CT3	CT1	CT2	CT3	CT1	CT2	CT3			
FOR TRAF0 BAY & LINE BAY	Ratio(A/A)	3000/1	2000/1	500/1	3000/1	2000/1	500/1	3000/1	2000/1	500/1	3000/1	2000/1	500/1	3000/1	2000/1	500/1
	Burden(VA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Vk[V]	>3000	>2000	>500	>3000	>2000	>500	-	-	-	>3000	>2000	>500	>3000	>2000	>500
	Im[ma]	<20	<30	<120	<20	<30	<120	-	-	-	<20	<30	<120	<20	<30	<120
	Rct[Ohm]	<15	<10	<2.5	<15	<10	<2.5	-	-	-	<15	<10	<2.5	<15	<10	<2.5
FOR TIE BAY	ISF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Accuracy class	PX	-	-	PX	-	-	0.2S	-	-	PX	-	-	-	-	-
	APPLICATION	PROTECTION	-	-	PROTECTION	-	-	METERING	-	-	PROTECTION	-	-	PROTECTION	-	-

VT DATA

SPECIFICATION	MVT-1&2		
	2'DRY 1	2'DRY 2	2'DRY 3
PRIMARY VOLTAGE[kV]	400/√3	400/√3	400/√3
SECONDARY VOLTAGE[V]	110/√3	110/√3	110/√3
ACCURACY	0.5 & 3P	0.5 & 3P	0.2
MIN. BURDEN[VA]	50	50	50
APPLICATION	PROTECTION	PROTECTION	METERING

HYOSUNG REFERENCE DRAWINGS

TYPE	DESCRIPTION
SINGLE LINE	SINGLE LINE DIAGRAM WITH CT & VT DATA : HI-10145877-M4-A01-01
LAYOUT	LAYOUT FOR GIS (OVERALL) : HI-10145877-M4-A02-01 LAYOUT FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M4-A02-02
FOUNDATION	FOUNDATION FOR GIS (INSIDE GIS BUILDING) : HI-10145877-M4-A03-01 FOUNDATION FOR BUS DUCT (GIS) : HI-10145877-M4-A03-02
GAS SYSTEM	GAS SYSTEM DIAGRAM : HI-10145877-M4-A06-01

REVISIONS

REV. No	REVISED DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED	APPROVED
2	06.NOV.'20	REVISED AS PER CUSTOMER COMMENT	GANESH	AISHWARYA	AMIT.B	Y.W.LEE
1	15.SEP.'20	REVISED AS PER NEW PLOT PLAN	AMOL	AISHWARYA	AMIT.B	Y.W.LEE
0	23.JAN.'20	FOR ISSUE FOR APPROVAL	AMOL	AISHWARYA	AMIT.B	Y.W.LEE

CLIENT: MEERUT-SIMBHAVALI TRANSMISSION LIMITED (A 100% SUBSIDIARY OF POWER GRID CORPORATION OF INDIA)

SUPPLIER / CONTRACTOR: HYOSUNG T&D INDIA Pvt. Ltd. **L&T Construction** Power Transmission & Distribution

PROJECT: 400/220kV GIS SUBSTATION AT MEERUT

JOB No.:

NAME	SIGN	DATE
DRWN	AMOL	23.JAN.'20
DSGN	AISHWARYA	23.JAN.'20
CHKD	AMIT.B	23.JAN.'20
APPD	Y.W.LEE	23.JAN.'20

TITLE: 400kV GIS SUBSTATION (SINGLE LINE DIAGRAM WITH CT DATA)

SCALE: N.T.S

PROJECTION: N.A.

DRG. No.: H I - 1 - 0 1 0 1 4 5 8 7 7 - M 4 - A 0 1 - 0 1

RELEASED FOR: PRELIMINARY TENDER INFORMATION APPROVAL CONSTRUCTION

संदर्भ/Ref : CC-ENGG-TB202002-1001071-SS3230-400/220kV-ELECT-LAYOUT

Date : 25/02/2022

From : S J Lahiri
Senior GM

To : M/S LARSEN And TOUBRO LIMITED
D, MANAPAKKAM, CHENNAI 600089
ECC DIVISION, MOUNT POONAMALLEE
Chennai-600089, Tamil Nadu

Cc : RHQ NR3

Subject : Substation Package SS01 for 400/220kV Meerut GIS S/S and 400/220/132KV GIS S/S
LOA Ref : MSTL/400KV/Meerut-Simbahvali/SS01/G4/NOA-I/01(I) & NOA-II/01(II) Dated 26/12/2019

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : O20211-E-IS-SY-EL-0101
Orgn. Drg. No. : TB202002-1001071-SS3230-400/220kV-ELECT-LAYOUT
Revision No. : 07
Drg. Title : MEERUT S/S- 400/220KV ELECTRICAL LAYOUT PLAN & SECTION
App. Category : CAT-I
Release Date : 25/02/2022



Scan to verify

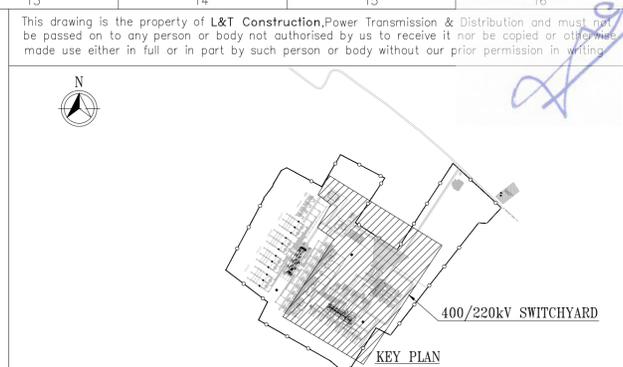
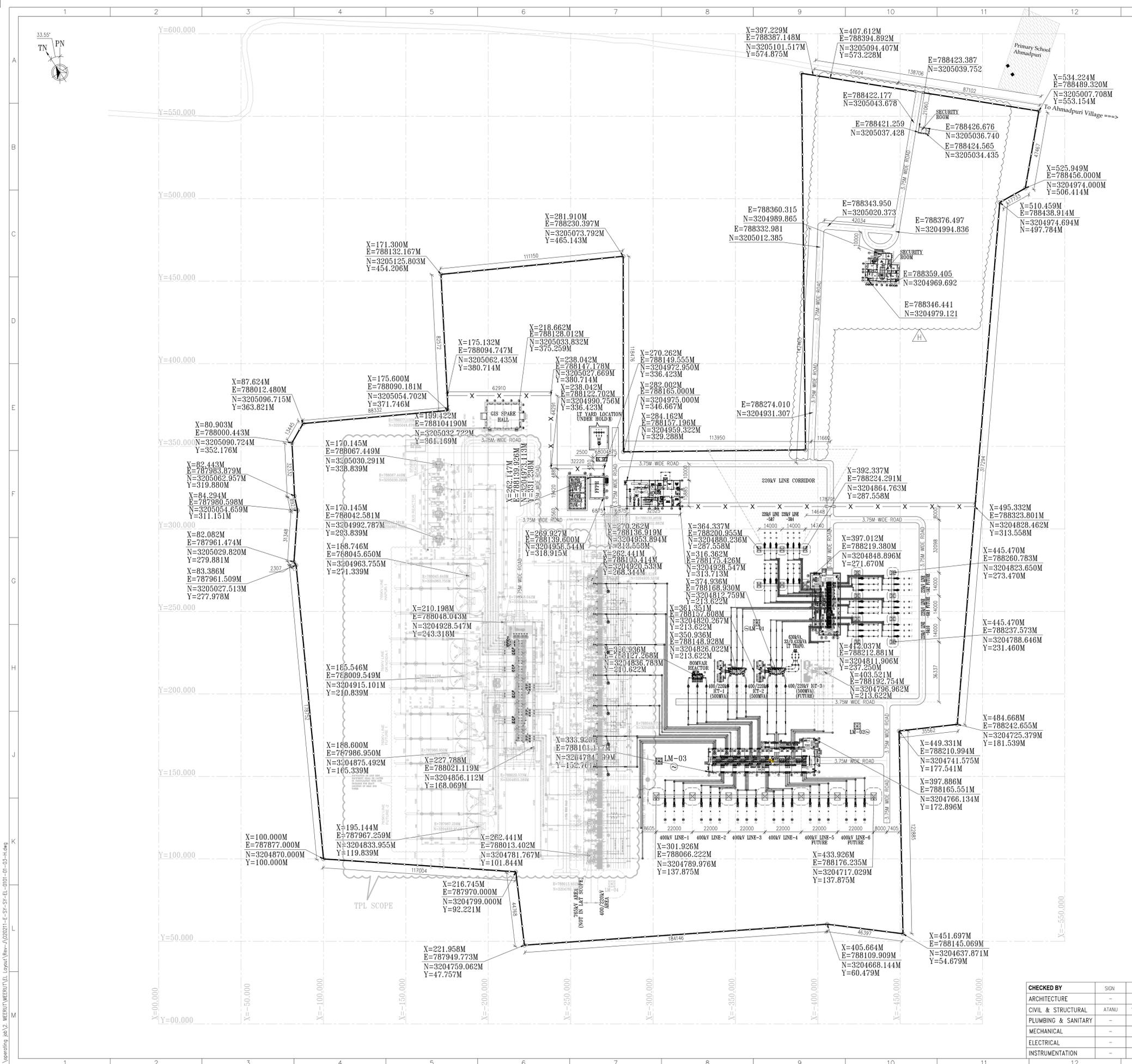
Comments : Approved with comments, to be taken care of.

अनुमोदित श्रेणी/App. Category:

- I. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।
Approved/released for fabrication/construction.
 - II. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइज्ड दस्तावेज अनुमोदनार्थ प्रस्तुत करें।
Approved/released for fabrication/ construction subject to incorporation of comments and modification as noted. Revised drawing required for approval.
 - III. टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।
To be resubmitted for approval after incorporating the comments.
 - IV. सूचनार्थ एवं रिकार्ड हेतु।
For information and record.
- REL-CON निर्माण हेतु जारी।
Released for construction.

नोट/Note:

1. Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.
2. The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.



LEGEND:-
 - - - - - BOUNDARY WALL (NOT IN L&T SCOPE OF WORK)
 - - - - - PRESENT SCOPE OF WORK
 - - - - - FUTURE / NOT IN L&T'S SCOPE OF WORK
 X FENCE
 □ GATE

- PGCIL REFERENCE DRAWINGS:-**
 1. GENERAL ARRANGEMENT DRAWING FOR NEW 765/400/220KV GIS SUBSTATION AT MEERUT, DWG No. T19233-E-IS-SY-EL-004-01-03-F
HYOSUNG REFERENCE DRAWING:-
 1. 400KV GIS SUBSTATION (GIS OVERALL PLAN), DWG No: HI-10145877-M4-A02-01_R3
 2. 400KV GIS SUBSTATION (PLAN & SECTION), DWG No: HI-10145877-M4-A02-02_R3
 3. 220KV GIS SUBSTATION (OVERALL PLAN VIEW), DWG No: HI-10145877-M2-A02-01_R0
 4. 220KV GIS SUBSTATION (GIS PLAN & SECTION), DWG No: HI-10145877-M2-A02-02-R3
TATA POWER REFERENCE DRAWING:-
 1. ELECTRICAL LAYOUT FOR 765/400/220KV MEERUT GIS SUBSTATION, DWG No: TPL-236-EL-GA-0001-R3
L&T REFERENCE DRAWINGS:-
 1. 765/400/220KV MEERUT GIS SUBSTATION - 400KV GIS BUILDING EQUIPMENT LAYOUT, DWG NO:020211-E-IS-GB-EL-0104-01-01
 2. 765/400/220KV MEERUT GIS SUBSTATION - 220KV GIS BUILDING EQUIPMENT LAYOUT, DWG NO:020211-E-IS-GB-EL-0116-01-01

- NOTES:-**
 1. ALL DIMENSIONS ARE IN MM AND LEVELS & CO-ORDINATES ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
 2. SYSTEM PARTICULARS:-
 a. OPERATING SYSTEM VOLTAGE 400kV 220kV
 b. MAXIMUM OPERATING SYSTEM VOLTAGE 420kV 245kV
 c. ONE MINIMUM POWER FREQUENCY WITHSTAND VOLTAGE (RMS) 630kV 460kV
 d. BASIC IMPULSE WITHSTAND VOLTAGE (PEAK) 1550kVp 1050kVp
 e. SWITCHING IMPULSE WITHSTAND VOLTAGE (PEAK) 1050kVp -
 f. SHORT CIRCUIT LEVEL (kA) 63KA FOR 1SEC 50KA FOR 1SEC
 g. MINIMUM CREEPAGE DISTANCE (3mm/kV) 10500mm 6125mm
 3. MINIMUM CLEARANCES AS PER TECHNICAL SPECIFICATION:-

S.NO.	DESCRIPTION	DETAILS FOR 400KV	DETAILS FOR 220KV
a.	PHASE TO PHASE (PPC)	4000mm (FOR CONDUCTOR CONFIGURATION) 4200mm (FOR ROD - CONDUCTOR CONFIGURATION)	2100mm
b.	PHASE TO EARTH (PEC)	3500mm	2100mm
c.	SECTIONAL CLEARANCE (SC)	6500mm	5000mm

4. CONDUCTOR DETAILS:-

S.NO.	DESCRIPTION	DETAILS FOR 400KV	DETAILS FOR 220KV
a.	EQUIPMENT INTERCONNECTION	TWIN MOOSE ACSR / 4.5" IPS AL TUBE (GH TYPE)	TWIN MOOSE ACSR / 4.5" IPS AL TUBE (GH TYPE)
b.	STRUNG BUS & JUMPER CONNECTION	TWIN MOOSE ACSR / SINGLE MOOSE ACSR	TWIN MOOSE ACSR / SINGLE MOOSE ACSR
c.	EARTHWARE	7/3.66mm GS WIRE	7/3.66mm GS WIRE

5. ALL HEIGHTS ARE REFERRED FROM TOP OF PLINTH LEVEL & PLINTH LEVEL SHALL BE 300mm.
 6. SUPPLY AND STRINGING OF SHIELD WIRE AND ITS HARDWARE FOR THE TRANSMISSION LINE SIDE OF 400kV & 220kV ARE NOT IN L&T'S SCOPE.
 7. 400kV & 220kV LINE SIDE CONDUCTOR CONFIGURATION INDICATED IN THIS DRAWING TO BE CONFIRMED BY PGCIL.
 8. ERECTION, TESTING AND COMMISSIONING OF 400/220KV EQUIPMENTS & STRUCTURES TILL 400kV SF6 TO AIR BUSHING ARE L&T SCOPE OF SUPPLY. FROM 400kV BUSHING (HATCH MARKED PORTION) ARE NOT IN L&T SCOPE OF SUPPLY.
 9. 400kV & 220kV LINE SIDE CONDUCTOR CONFIGURATION INDICATED IN THIS DRAWING TO BE CONFIRMED BY PGCIL.
 10. THE PRESENT LOCATION OF LT STATION YARD IS UNDER HOLD AND TO BE FINALIZED IN CONSULTATION WITH PGCIL SITE INCHARGE.
 11. LIGHTNING MAST LOCATION SHOWN IS TENTATIVE ONLY. ACTUAL LOCATION SHALL BE INDICATED IN DIRECT STROKE LIGHTNING PROTECTION LAYOUT.
 12. 400kV & 220kV WAVE TRAP SHALL BE PROVIDED IN 'R' & 'B' PHASES. IN 'Y' PHASE ONLY WAVE TRAP FOUNDATION SHALL BE PROVIDED.
 13. 765kV EQUIPMENTS/TRANSFORMERS ARE NOT IN L&T SCOPE OF SUPPLY. LOCATION OF EQUIPMENT SHALL BE AS PER APPROVED 'M/S.TATA POWER LAYOUT.

REV. NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
H	REVISED BASED ON PGCIL COMMENTS DATED 18.02.2022	AMAR	SSDU	SJ/RAAJ	KK/K
G	REVISED BASED ON PGCIL COMMENTS DATED 01.02.2021	AMAR	SSDU	SJ/RAAJ	KK/K
F	REVISED BASED ON PGCIL COMMENTS DATED 28.12.20	AMAR	SSDU	SJ/RAAJ	KK/K
E	REVISED BASED ON PGCIL COMMENTS DATED 03.12.2020	AMAR	SSDU	SJ/RAAJ	KK/K
D	REVISED BASED ON PGCIL COMMENTS DATED 02.11.2020	AMAR	SSDU	SJ/RAAJ	KK/K
C	REVISED BASED ON PGCIL COMMENTS DATED 25.09.20	AMAR	SSDU	SJ/RAAJ	KK/K
B	REVISED BASED ON PGCIL COMMENTS DATED 16.04.2020	AMAR	SSDU	SJ/RAAJ	KK/K
A	ISSUED FOR APPROVAL	SJ	SSDU	RAAJ	KK/K

HYOSUNG CORPORATION
 (A 100% WHOLLY OWNED SUBSIDIARY OF POWER GRID CORPORATION OF INDIA LIMITED (POWERGRID))

L&T Construction
 Power Transmission & Distribution

CLIENT: MEERUT-SIMBHAVALI TRANSMISSION LIMITED
CONSULTANT: -

PROJECT: GIS SUBSTATION PACKAGE SS01 FOR TRANSMISSION LINES ASSOCIATED WITH INTRASTATE TRANSMISSION PROJECTS OF UTTAR PRADESH- CONSTRUCTION OF 400/220KV MEERUT GIS SUBSTATION & 400/220/132KV SIMBHAVALI GIS SUBSTATION
 Ref: i) MSTL/400KV/Meerut-Simbhavali/SS01/G4/NOA-I/01(I)
 ii) MSTL/400KV/Meerut-Simbhavali/SS01/G4/NOA-II/01(II)

020211-E-SY
TITLE: 765/400/220KV MEERUT GIS SUBSTATION OVERALL EQUIPMENT LAYOUT 400/220KV (PLAN & SECTION)

SCALE: 1:1100
 PROJECTION:

CHECKED BY:
 ARCHITECTURE: -
 CIVIL & STRUCTURAL: ATANU, 13.01.21
 PLUMBING & SANITARY: -
 MECHANICAL: -
 ELECTRICAL: -
 INSTRUMENTATION: -

DRG. No.: 0 2 0 2 1 1 - E - S Y - S Y - E L - 0 1 0 1
 SHEET 01 OF 03

RELEASED FOR: PRELIMINARY TENDER INFORMATION APPROVAL CONSTRUCTION

