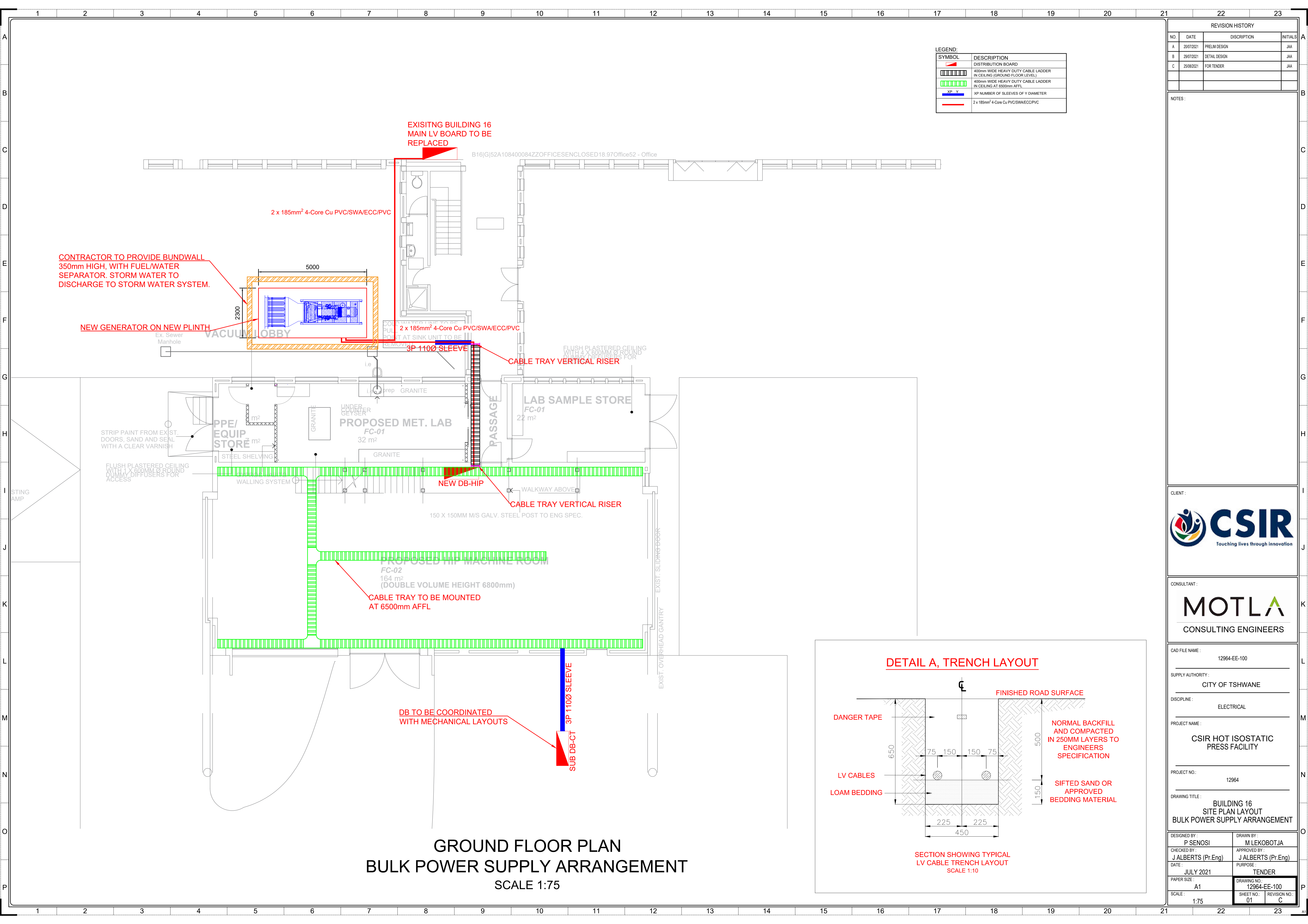




6.3 Annexure C - Electrical Drawings



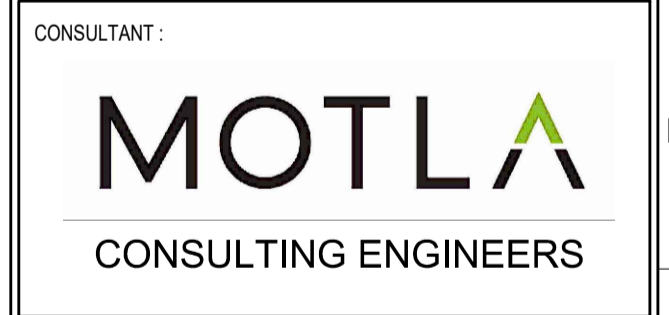
LEGEND:

SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	400mm WIDE HEAVY DUTY CABLE LADDER IN CEILING (GROUND FLOOR LEVEL)
	400mm WIDE HEAVY DUTY CABLE LADDER IN CEILING AT 6500mm AFFL
	XP NUMBER OF SLEEVES OF Y DIAMETER
	2 x 185mm² 4-Core Cu PVC/SWA/ECC/PVC

REVISION HISTORY

NO.	DATE	DISCRIPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	29/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:



CAD FILE NAME: 12964-EE-100

SUPPLY AUTHORITY: CITY OF TSHWANE

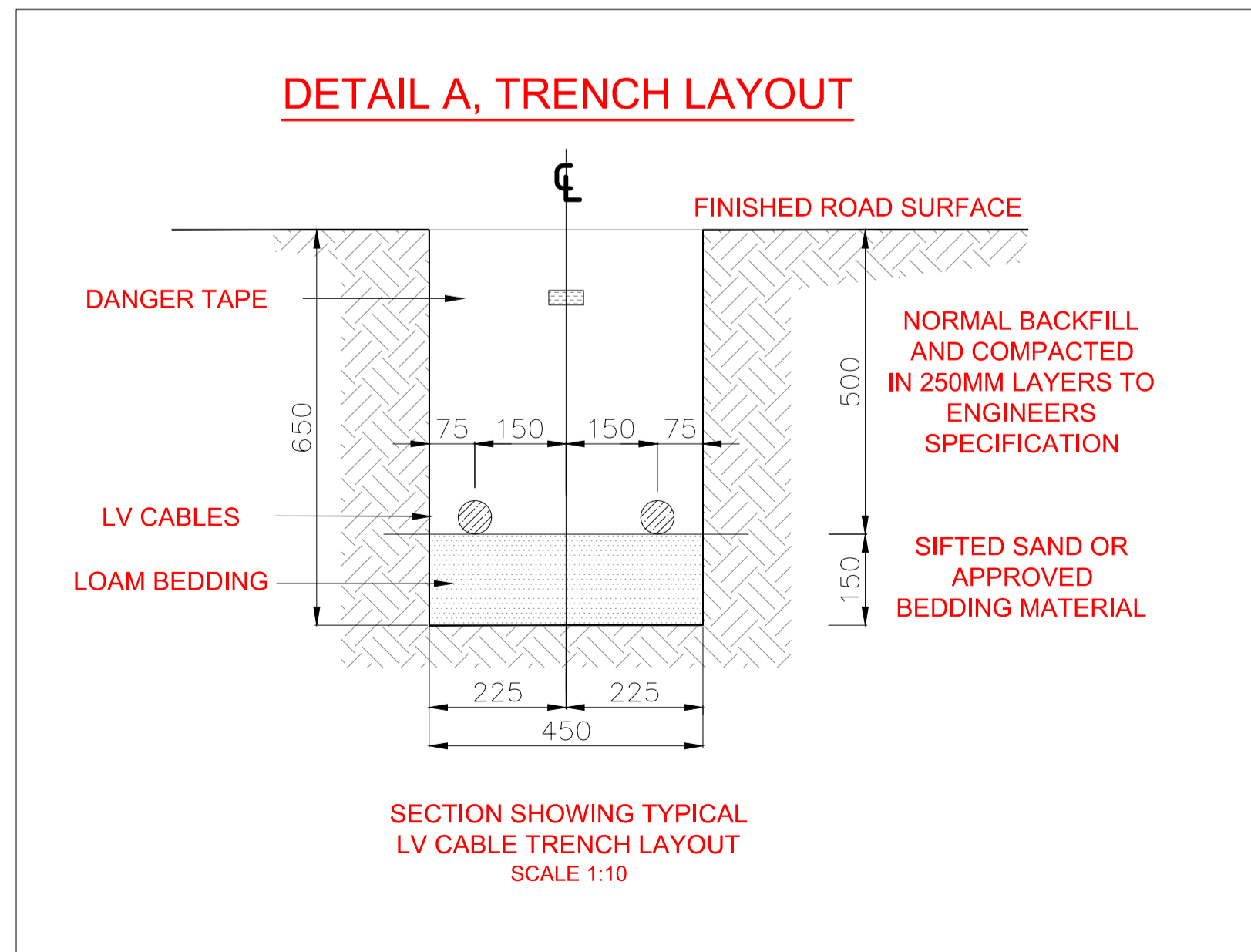
DISCIPLINE: ELECTRICAL

PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

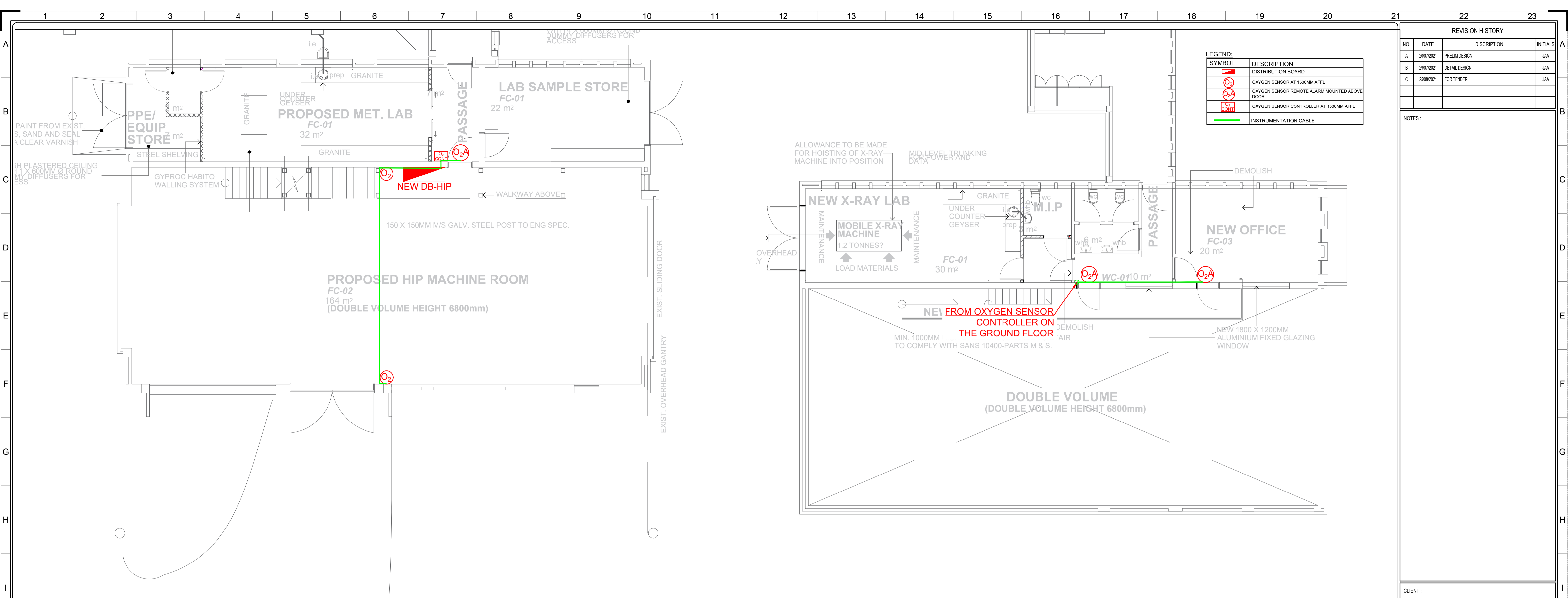
PROJECT NO.: 12964

DRAWING TITLE: BUILDING 16 SITE PLAN LAYOUT BULK POWER SUPPLY ARRANGEMENT

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A1	DRAWING NO.: 12964-EE-100
SCALE: 1:75	SHEET NO.: 01 REVISION NO.: C



**GROUND FLOOR PLAN
BULK POWER SUPPLY ARRANGEMENT
SCALE 1:75**



REVISION HISTORY			
NO.	DATE	DISCRPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	29/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:

**GROUND FLOOR PLAN
OXYGEN LAYOUT**
SCALE 1:75

**FIRST FLOOR PLAN
OXYGEN LAYOUT**
SCALE 1:75



CLIENT:

MOTLA
CONSULTING ENGINEERS

CAD FILE NAME: 12964-EE-101

SUPPLY AUTHORITY: CITY OF TSHWANE

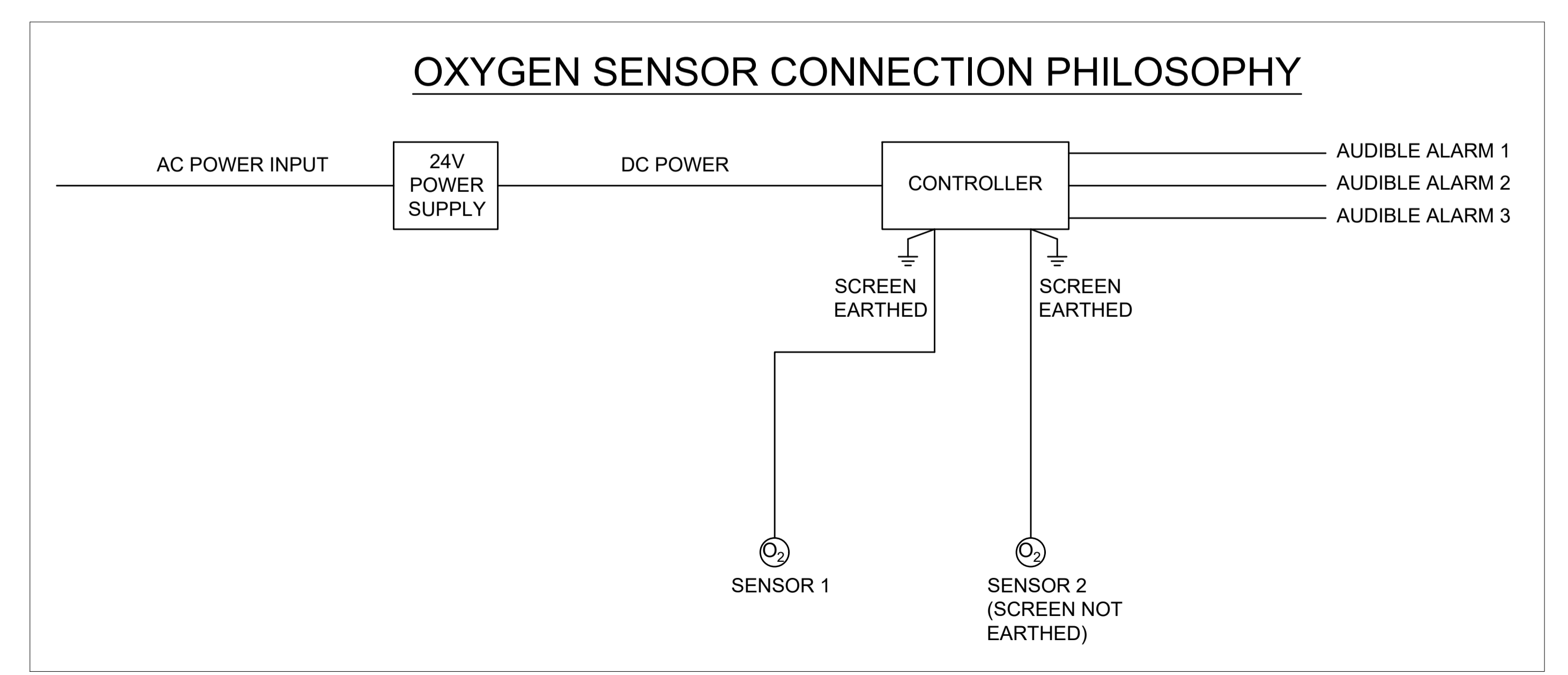
DISCIPLINE: ELECTRICAL

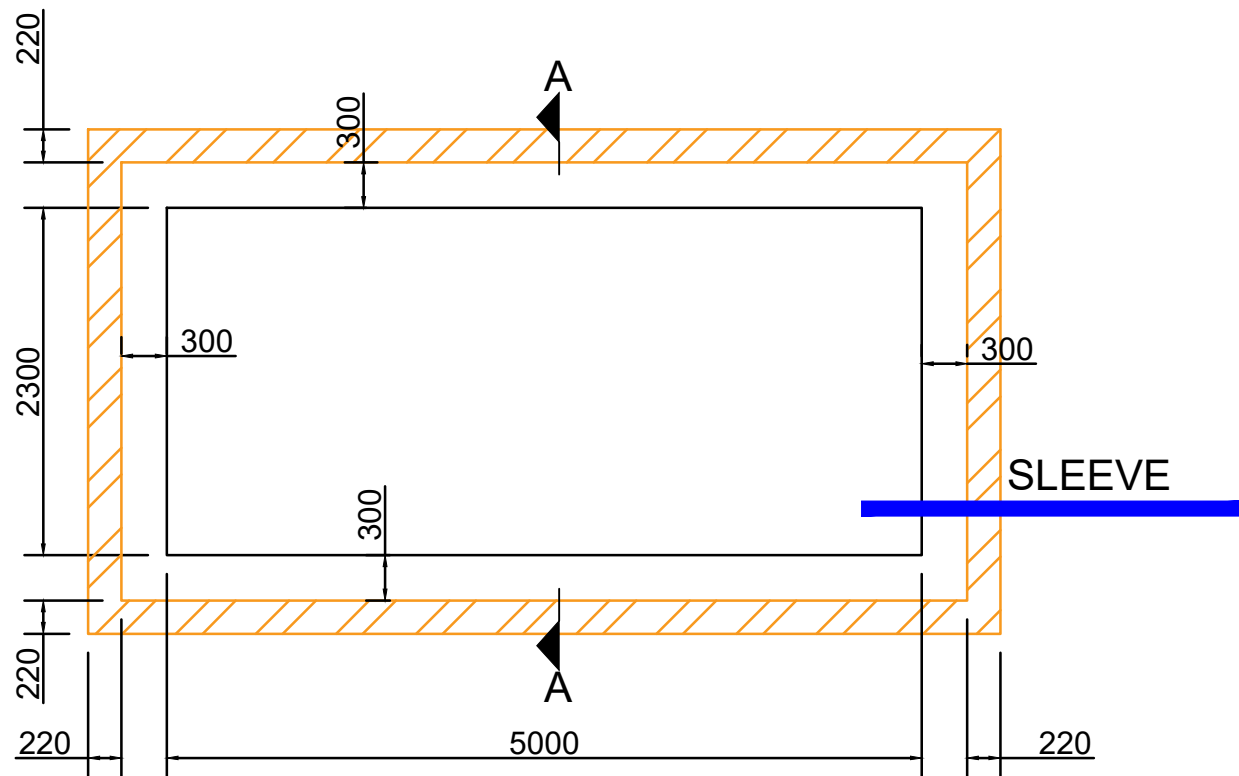
PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

PROJECT NO.: 12964

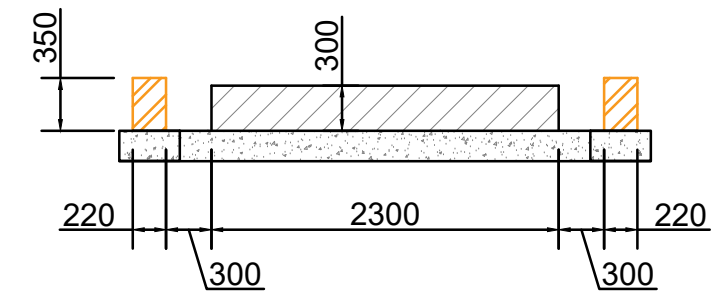
DRAWING TITLE: BUILDING 16 GROUND & FIRST FLOOR PLAN OXYGEN SENSOR LAYOUT

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A1	DRAWING NO.: 12964-EE-101
SCALE: 1:75	SHEET NO.: 01
	REVISION NO.: C





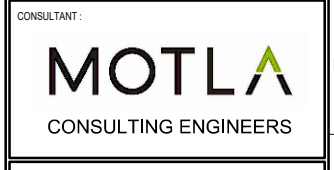
GENERATOR BUNDED PLINTH AREA
SCALE 1:50



SECTION A-A
SCALE 1:50

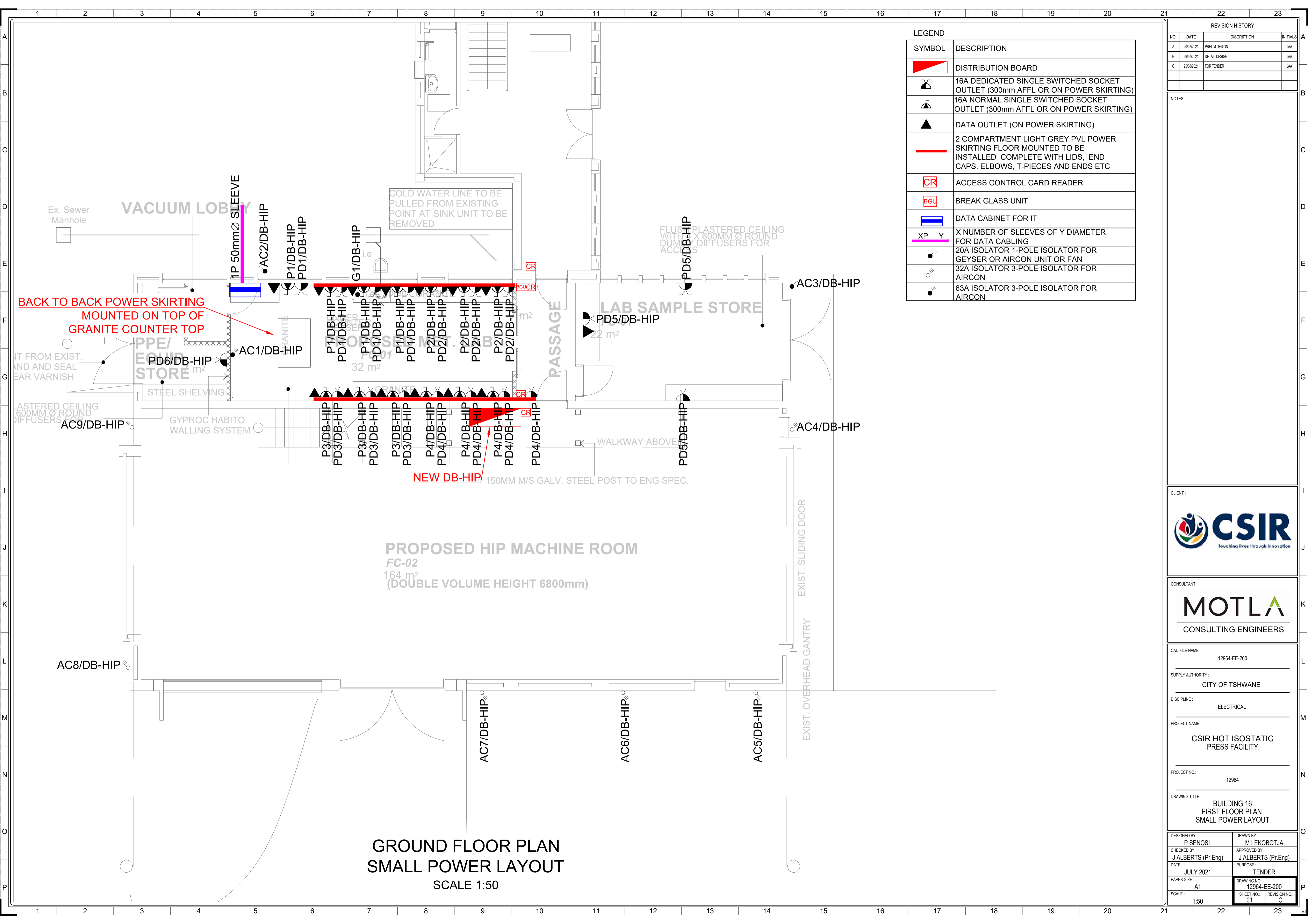
REVISION HISTORY			
NO.	DATE	DISCRPTION	INITIALS
A	30/07/2021	DETAIL DESIGN	JAA
B	25/08/2021	FOR TENDER	JAA

NOTES:



CAD FILE NAME: 12964-EE-102
 SUPPLY AUTHORITY: CITY OF TSHWANE
 DISCIPLINE: ELECTRICAL
 PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY
 PROJECT NO.: 12964
 DRAWING TITLE: BUILDING 16 GENERATOR BUNDED PLINTH AREA

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A3	DRAWING NO.: 12964-EE-102
SCALE: 1:50	SHEET NO.: 01
	REVISION NO.: B



LEGEND

SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	16A DEDICATED SINGLE SWITCHED SOCKET OUTLET (300mm AFFL OR ON POWER SKIRTING)
	16A NORMAL SINGLE SWITCHED SOCKET OUTLET (300mm AFFL OR ON POWER SKIRTING)
	DATA OUTLET (ON POWER SKIRTING)
	2 COMPARTMENT LIGHT GREY PVL POWER SKIRTING FLOOR MOUNTED TO BE INSTALLED COMPLETE WITH LIDS, END CAPS, ELBOWS, T-PIECES AND ENDS ETC
	ACCESS CONTROL CARD READER
	BREAK GLASS UNIT
	DATA CABINET FOR IT
	X NUMBER OF SLEEVES OF Y DIAMETER FOR DATA CABLING
	20A ISOLATOR 1-POLE ISOLATOR FOR GEYSER OR AIRCON UNIT OR FAN
	32A ISOLATOR 3-POLE ISOLATOR FOR AIRCON
	63A ISOLATOR 3-POLE ISOLATOR FOR AIRCON

REVISION HISTORY			
NO.	DATE	DISCRIPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	29/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:

CLIENT:

CONSULTANT:

CONSULTING ENGINEERS

CAD FILE NAME: 12964-EE-200

SUPPLY AUTHORITY: CITY OF TSHWANE

DISCIPLINE: ELECTRICAL

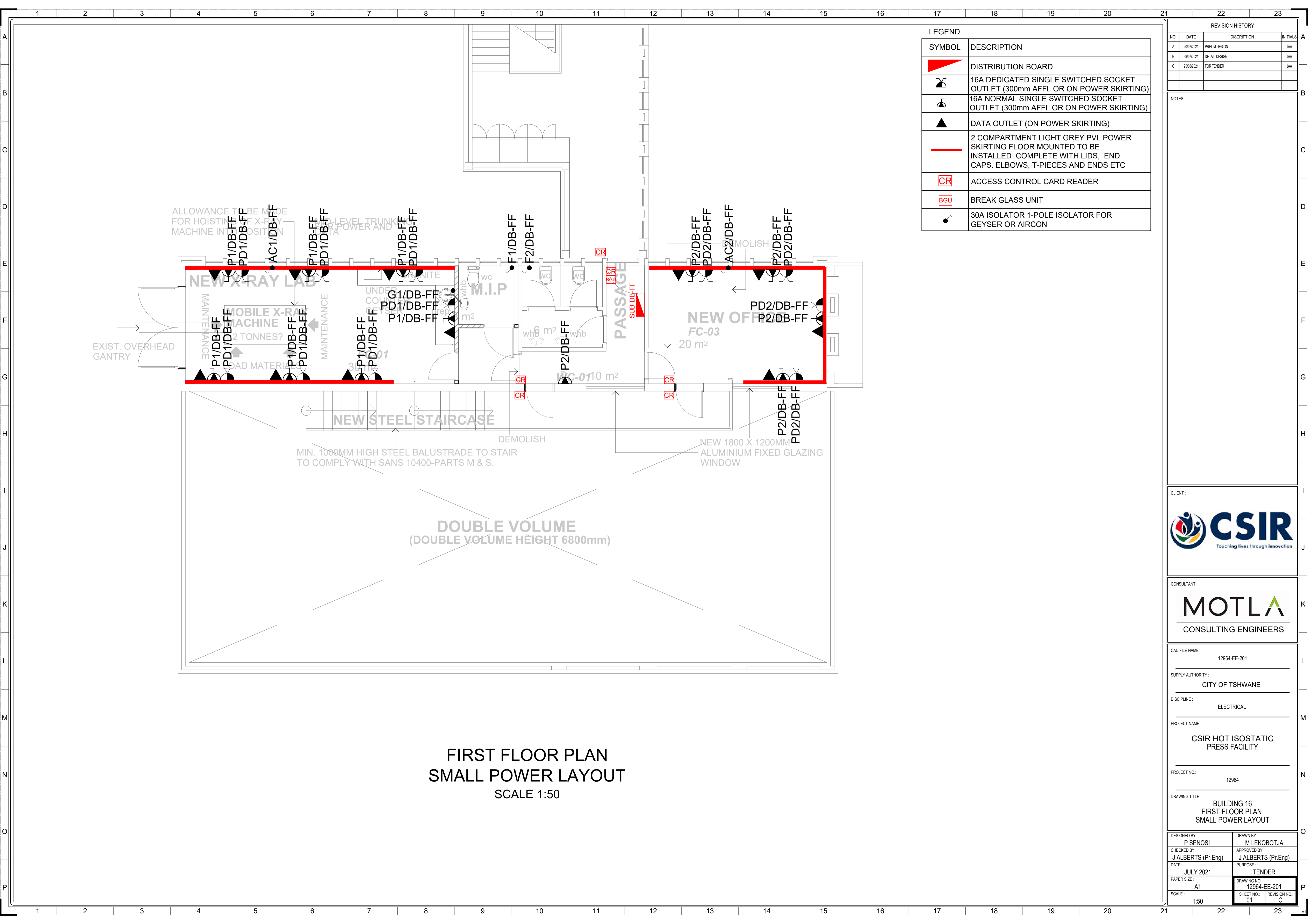
PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

PROJECT NO.: 12964

DRAWING TITLE: BUILDING 16 FIRST FLOOR PLAN SMALL POWER LAYOUT

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A1	DRAWING NO.: 12964-EE-200
SCALE: 1:50	SHEET NO.: 01 REVISION NO.: C

GROUND FLOOR PLAN
SMALL POWER LAYOUT
SCALE 1:50



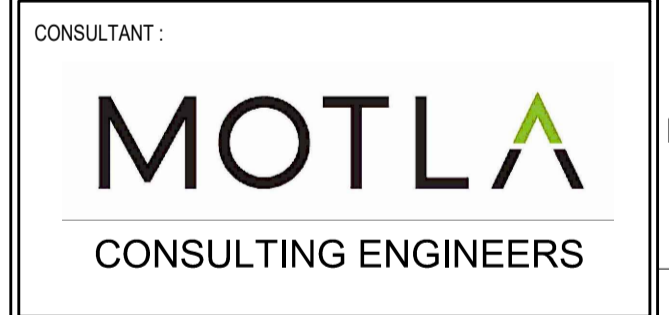
LEGEND

SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	16A DEDICATED SINGLE SWITCHED SOCKET OUTLET (300mm AFFL OR ON POWER SKIRTING)
	16A NORMAL SINGLE SWITCHED SOCKET OUTLET (300mm AFFL OR ON POWER SKIRTING)
	DATA OUTLET (ON POWER SKIRTING)
	2 COMPARTMENT LIGHT GREY PVL POWER SKIRTING FLOOR MOUNTED TO BE INSTALLED COMPLETE WITH LIDS, END CAPS, ELBOWS, T-PIECES AND ENDS ETC
	ACCESS CONTROL CARD READER
	BREAK GLASS UNIT
	30A ISOLATOR 1-POLE ISOLATOR FOR GEYSER OR AIRCON

REVISION HISTORY

NO.	DATE	DISCRPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	29/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:



CAD FILE NAME: 12964-EE-201

SUPPLY AUTHORITY: CITY OF TSHWANE

DISCIPLINE: ELECTRICAL

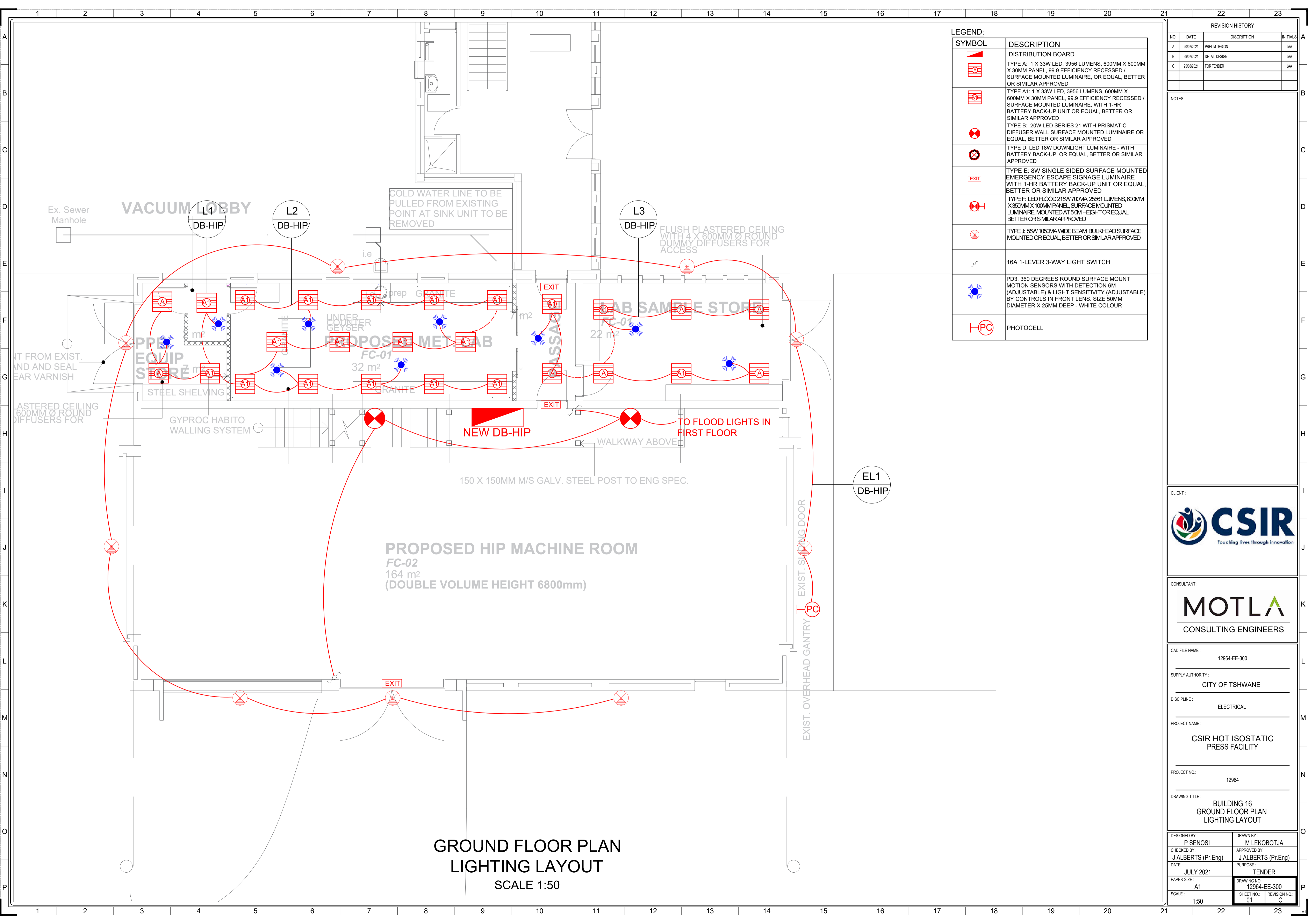
PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

PROJECT NO.: 12964

DRAWING TITLE: BUILDING 16 FIRST FLOOR PLAN SMALL POWER LAYOUT

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A1	DRAWING NO.: 12964-EE-201
SCALE: 1:50	SHEET NO.: 01 REVISION NO.: C

**FIRST FLOOR PLAN
SMALL POWER LAYOUT**
SCALE 1:50

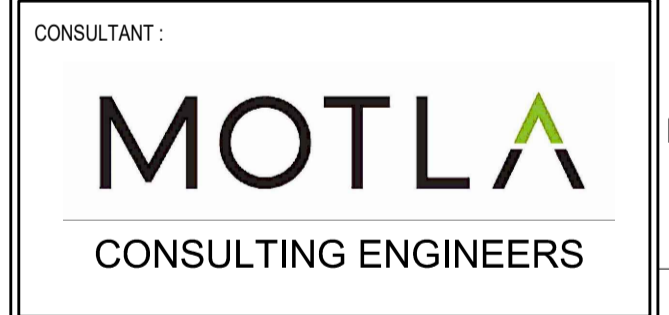


LEGEND:

SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	TYPE A: 1 X 33W LED, 3956 LUMENS, 600MM X 600MM X 30MM PANEL, 99.9 EFFICIENCY RECESSED / SURFACE MOUNTED LUMINAIRE, OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE A1: 1 X 33W LED, 3956 LUMENS, 600MM X 600MM X 30MM PANEL, 99.9 EFFICIENCY RECESSED / SURFACE MOUNTED LUMINAIRE, WITH 1-HR BATTERY BACK-UP UNIT OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE B: 20W LED SERIES 21 WITH PRISMATIC DIFFUSER WALL SURFACE MOUNTED LUMINAIRE OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE D: LED 18W DOWNLIGHT LUMINAIRE - WITH BATTERY BACK-UP OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE E: 8W SINGLE SIDED SURFACE MOUNTED EMERGENCY ESCAPE SIGNAGE LUMINAIRE WITH 1-HR BATTERY BACK-UP UNIT OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE F: LED FLOOD 215W/700MA, 25661 LUMENS, 600MM X 350MM X 100MM PANEL, SURFACE MOUNTED LUMINAIRE, MOUNTED AT 5.0M HEIGHT OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE J: 55W/1050MA WIDE BEAM BULK-HEAD SURFACE MOUNTED OR EQUAL, BETTER OR SIMILAR APPROVED
	16A 1-LEVER 3-WAY LIGHT SWITCH
	PD3, 360 DEGREES ROUND SURFACE MOUNT MOTION SENSORS WITH DETECTION 6M (ADJUSTABLE) & LIGHT SENSITIVITY (ADJUSTABLE) BY CONTROLS IN FRONT LENS, SIZE 50MM DIAMETER X 25MM DEEP - WHITE COLOUR
	PHOTOCELL

REVISION HISTORY			
NO.	DATE	DESCRIPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	29/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:



CAD FILE NAME: 12964-EE-300

SUPPLY AUTHORITY: CITY OF TSHWANE

DISCIPLINE: ELECTRICAL

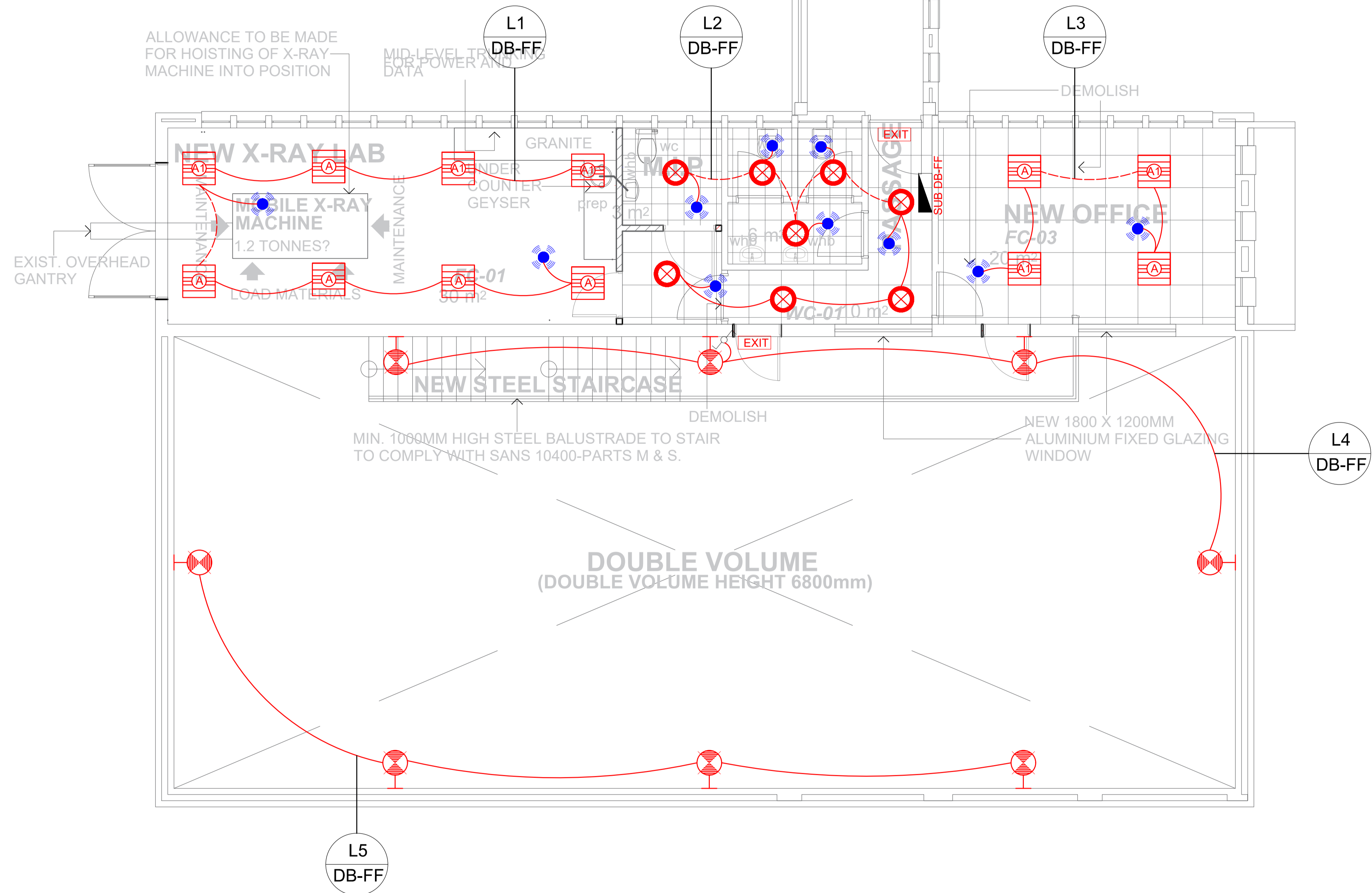
PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

PROJECT NO.: 12964

DRAWING TITLE: BUILDING 16 GROUND FLOOR PLAN LIGHTING LAYOUT

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A1	DRAWING NO.: 12964-EE-300
SCALE: 1:50	SHEET NO.: 01 REVISION NO.: C

GROUND FLOOR PLAN LIGHTING LAYOUT
SCALE 1:50



LEGEND:

SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	TYPE A: 1 X 33W LED, 3956 LUMENS, 600MM X 600MM X 30MM PANEL, 99.9 EFFICIENCY RECESSED / SURFACE MOUNTED LUMINAIRE, OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE A1: 1 X 33W LED, 3956 LUMENS, 600MM X 600MM X 30MM PANEL, 99.9 EFFICIENCY RECESSED / SURFACE MOUNTED LUMINAIRE, WITH 1-HR BATTERY BACK-UP UNIT OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE B: 20W LED SERIES 21 WITH PRISMATIC DIFFUSER WALL SURFACE MOUNTED LUMINAIRE OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE D: LED 18W DOWNLIGHT LUMINAIRE - WITH BATTERY BACK-UP OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE E: 8W SINGLE SIDED SURFACE MOUNTED EMERGENCY ESCAPE SIGNAGE LUMINAIRE WITH 1-HR BATTERY BACK-UP UNIT OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE F: LED FLOOD 215W/700MA 25661 LUMENS 600MM X 350MM X 100MM PANEL SURFACE MOUNTED LUMINAIRE, MOUNTED AT 5.0M HEIGHT OR EQUAL, BETTER OR SIMILAR APPROVED
	TYPE J: 55W 1050MA WIDE BEAM BULKHEAD SURFACE MOUNTED OR EQUAL, BETTER OR SIMILAR APPROVED
	16A 1-LEVER 3-WAY LIGHT SWITCH
	PD3, 360 DEGREES ROUND SURFACE MOUNT MOTION SENSORS WITH DETECTION 6M (ADJUSTABLE) & LIGHT SENSITIVITY (ADJUSTABLE) BY CONTROLS IN FRONT LENS. SIZE 50MM DIAMETER X 25MM DEEP - WHITE COLOUR
	PHOTOCELL

REVISION HISTORY

NO.	DATE	DISCRIPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	29/07/2021	DETAIL DESIGN	JAA
C	25/01/2021	FOR TENDER	JAA

NOTES:

1. ALLOWANCE TO BE MADE FOR HOISTING OF X-RAY MACHINE INTO POSITION

2. MID-LEVEL TRANSFER FOR POWER AND DATA

3. DEMOLISH

4. SUB DB-FF

5. MIN. 1000MM HIGH STEEL BALUSTRADE TO STAIR TO COMPLY WITH SANS 10400-PARTS M & S.

6. NEW 1800 X 1200MM ALUMINIUM FIXED GLAZING WINDOW

7. DOUBLE VOLUME (DOUBLE VOLUME HEIGHT 6800mm)

FIRST FLOOR PLAN LIGHTING LAYOUT
SCALE 1:50

CLIENT:

CONSULTANT:

CAD FILE NAME: 12964-EE-301

SUPPLY AUTHORITY: CITY OF TSHWANE

DISCIPLINE: ELECTRICAL

PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

PROJECT NO.: 12964

DRAWING TITLE: BUILDING 16 FIRST FLOOR PLAN LIGHTING LAYOUT

DESIGNED BY: P SENOSI	DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)	APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021	PURPOSE: TENDER
PAPER SIZE: A1	DRAWING NO.: 12964-EE-301
SCALE: 1:50	SHEET NO.: 01
	REVISION NO.: C



LEGEND

SYMBOL	DESCRIPTION
	FUSE LINK
	POWER TRANSFORMER
	THREE PHASE CIRCUIT BREAKER
	SINGLE PHASE CIRCUIT BREAKER
	ISOLATOR
	EARTH LEAKAGE
	BULK METER
	GENERATOR
	CABLE TERMINATION
	BARE COPPER EARTH WIRE
	SURGE ARRESTOR

REVISION HISTORY

NO.	DATE	DESCRIPTION	INITIALS
A	20/07/2021	PRELIM DESIGN	JAA
B	28/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:

CLIENT:

CSIR
our future through science

CONSULTANT:

MOTLA
CONSULTING ENGINEERS

CAD FILE NAME: 12964-EE-700

SUPPLY AUTHORITY: CITY OF TSHWANE

DISCIPLINE: ELECTRICAL

PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY

PROJECT NO.: 12964

DRAWING TITLE: SINGLE LINE DIAGRAM

DESIGNED BY: P SENOSI
CHECKED BY: J ALBERTS (Pr.Eng)

DRAWN BY: M LEKOBOTJA
APPROVED BY: J ALBERTS (Pr.Eng)

DATE: JULY 2021
PURPOSE: TENDER

PAPER SIZE: A1
SCALE: NTS

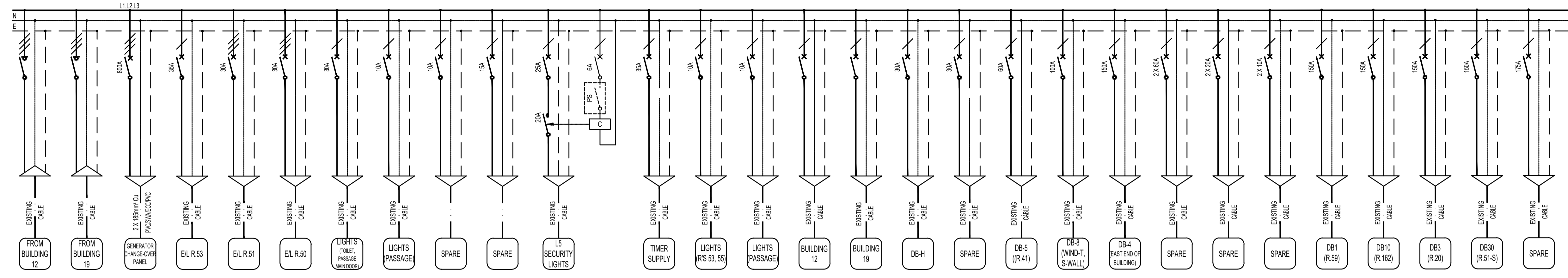
DRAWING NO.: 12964-EE-700
SHEET NO.: 01
REVISION NO.: C

NO.	DATE	DISCRIPTION	INITIALS
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B	29/07/2021	DETAIL DESIGN	JAA
C	25/08/2021	FOR TENDER	JAA

NOTES:

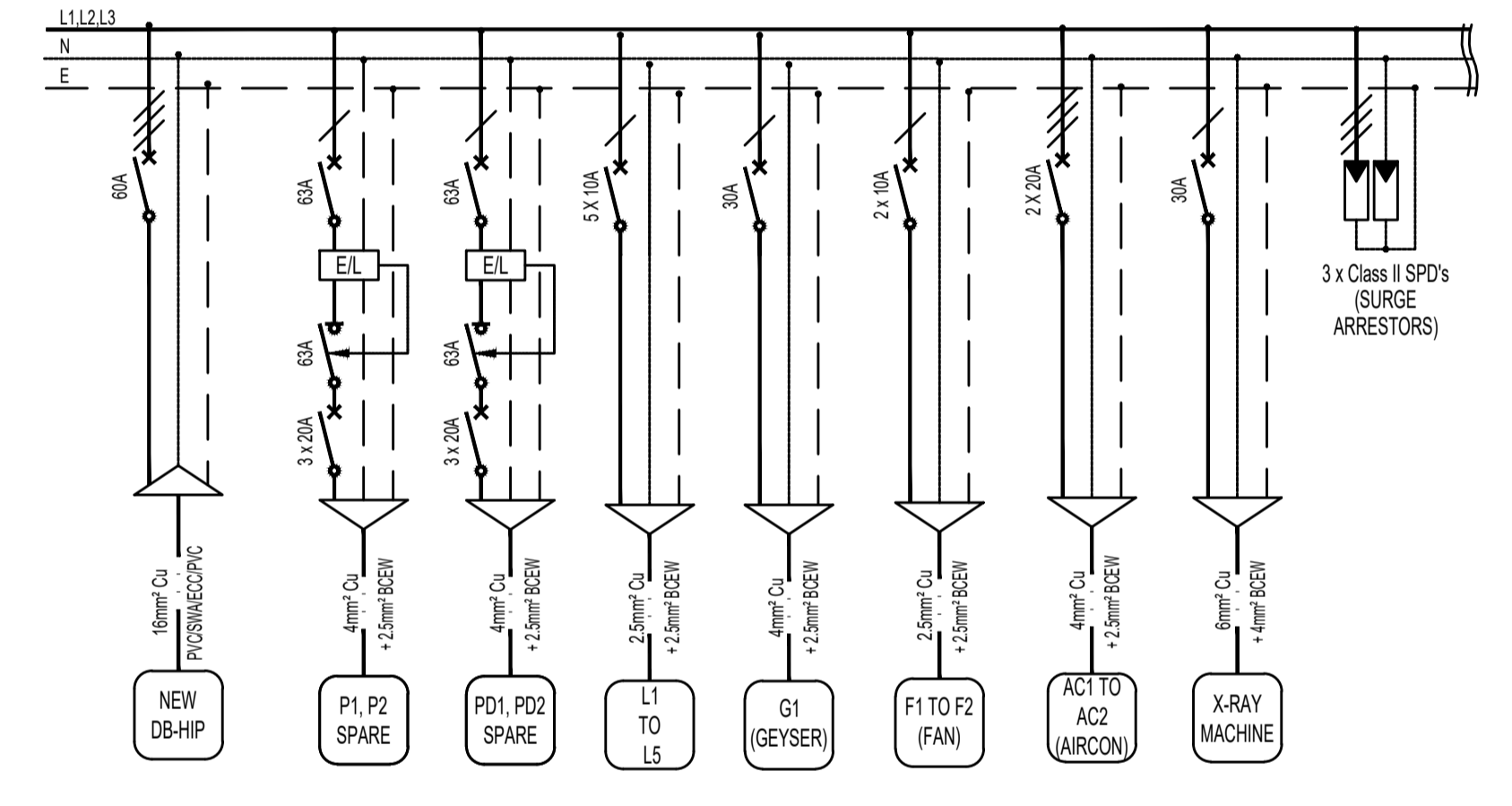
NEW MDB16(1)

NORMAL COMPARTMENT
400V 25kA



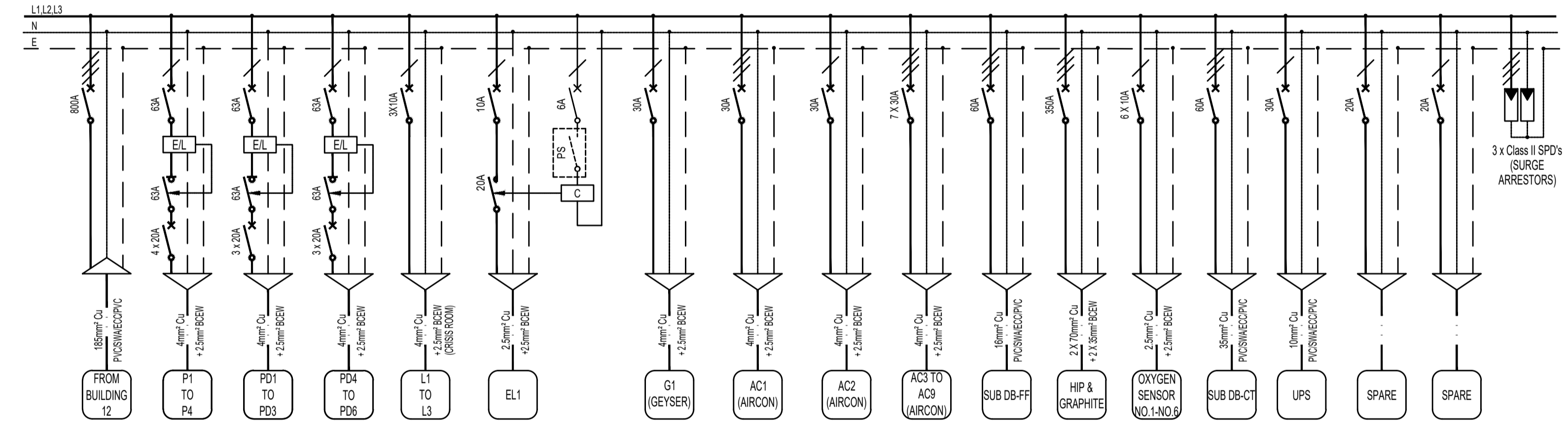
SUB DB-FF

STANDBY COMPARTMENT
400V 60A 10kA



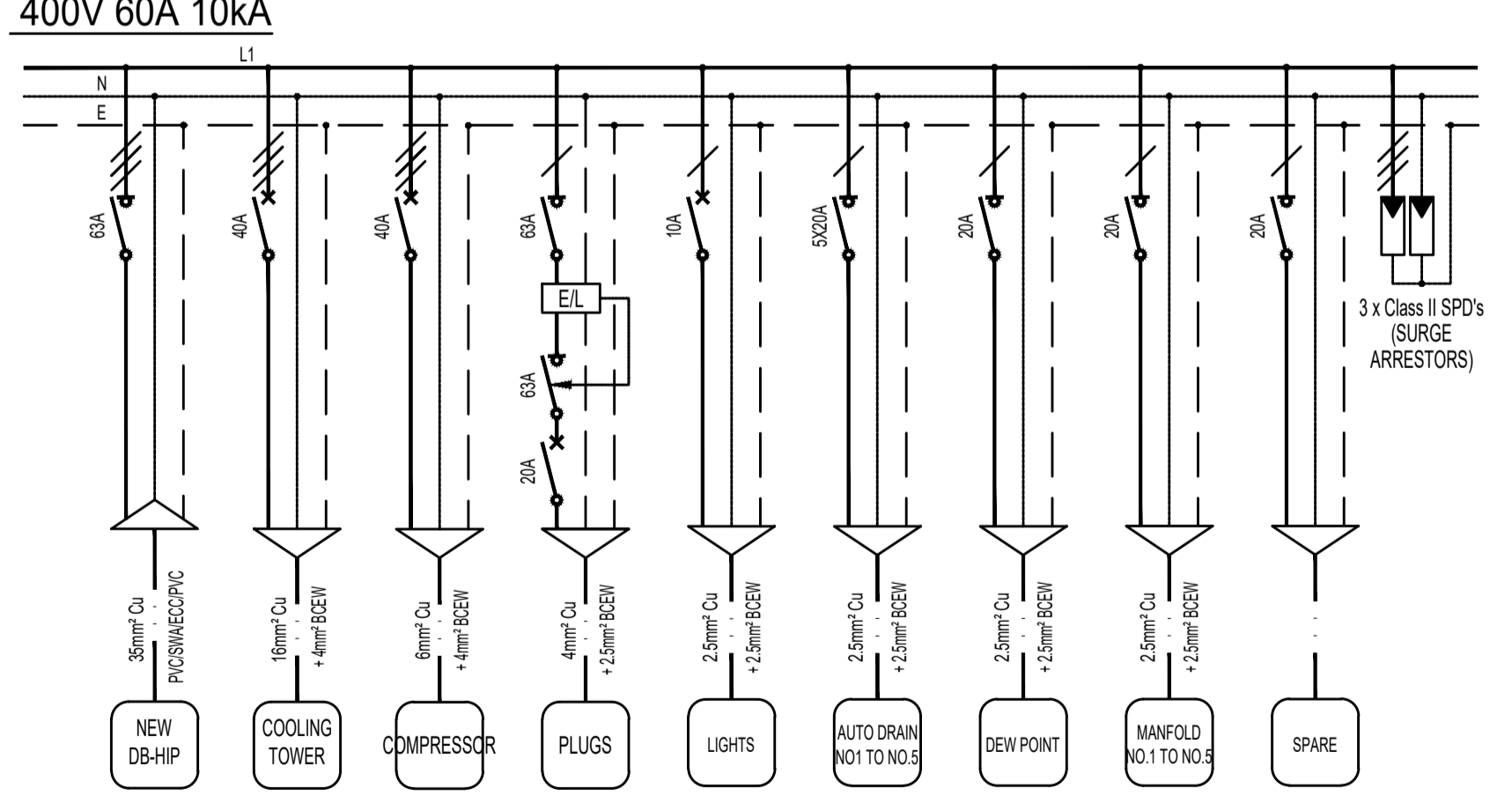
NEW DB-HIP

NORMAL POWER COMPARTMENT
400V 800A 25kA



COOLING TOWER
SUB DB-CT

STANDBY POWER
400V 60A 10kA



LEGEND:

SYMBOL	DESCRIPTION
	POWER TRANSFORMER
	CIRCUIT BREAKER
	GENERATOR
	OFF LOAD ISOLATOR
	BUSBAR
	CHANGE-OVER
	SURGE ARRESTOR
	PHOTOCELL
	CONTACTOR
	EARTH LEAKAGE

NOTES

- CONSTRUCTION :
 - 1.1 DB SHALL COMPLY WITH REQUIREMENTS OF IEC439-1(LV SWITCHGEAR AND CONTROL GEAR ASSEMBLIES)
 - 1.2 NEW MDB16(1) : SINGLE COMPARTMENT, FLOOR MOUNTED DB WITH SQUARE KEY - LOCKABLE FACE PLATES
SUB DB-FF: SINGLE COMPARTMENT, RECESSED OR FLUSHED WALL MOUNTED - KEY PADLOCK ON DOORS
NEW DB-HIP: SINGLE COMPARTMENT, RECESSED OR FLUSHED WALL MOUNTED - KEY PADLOCK ON DOORS
SUB DB-CT: SINGLE COMPARTMENT, RECESSED OR FLUSHED WALL MOUNTED - KEY PADLOCK ON DOORS
 - 1.3 CONDUIT AND CABLE ENTRY : TOP AND BOTTOM
 - 1.4 FACE PLATES TO HAVE CHROME HANDLES (2 OFF) ON EACH PLATE FOR REMOVAL AND BE SECURED WITH CATCHES
 - 1.5 GLAND PLATE : 2mm THICKNESS
 - 1.6 ALLOW 30% SPARE SPACE
- EQUIPMENT:
 - 3.1 SQUARE KEY TURN LOCKS REQUIRED (2 OFF) ON EACH FACE PLATE
 - 3.2 ALL CIRCUIT BREAKERS TO BE OF APPROVED BY ENGINEER
 - 3.3 BUSBARS TO BE COLOUR CODED WITH HEAT SHRINK INSULATION FOR FULL LENGTH
 - 3.4 MINIMUM EARTH WIRE CONNECTION BETWEEN SURGE PROTECTION DEVICES AND EARTH
BAR : 16mm² GREEN INSULATED EARTH WIRE
 - 3.5 COPPER BUSBAR SIZING : 1.5A/mm²
 - 3.6 SWITCHING CONTACTORS TO BE OF MERLIN GERIN MANUFACTURE
 - 3.7 CIRCUIT BREAKERS FOR ALL AIR CONDITIONING CIRCUITS TO BE "CURVE D" TYPE
- LABELLING:
 - 4.1 ALL LABELS SHALL BE ENGRAVED SANDWICH BOARD FIXED WITH METAL THREADED SCREWS AND NUTS
 - 4.2 ALL INTERNAL EQUIPMENT TO BE LABELLED e.g. FUSES, CONTACTORS etc.
 - 4.3 EACH EQUIPMENT TO BE LABELLED WITH 20mm LETTERING
 - 4.4 DB LABELLING TO BE 30mm HIGH
 - 4.5 MCB'S SHALL NOT BE NUMBERED; ENGRAVED LABELS REQUIRED
 - 4.6 PROVIDE STEEL POCKET INSIDE EACH DOOR FOR A4 SIZE DRAWING



CONSULTANT:
MOTLA
CONSULTING ENGINEERS

CAD FILE NAME: 12964-EE-701
SUPPLY AUTHORITY: CITY OF TSHWANE
DISCIPLINE: ELECTRICAL
PROJECT NAME: CSIR HOT ISOSTATIC PRESS FACILITY
PROJECT NO.: 12964

DRAWING TITLE: DISTRIBUTION BOARDS
DESIGNED BY: P SENOSI
DRAWN BY: M LEKOBOTJA
CHECKED BY: J ALBERTS (Pr.Eng)
APPROVED BY: J ALBERTS (Pr.Eng)
DATE: JULY 2021
PURPOSE: TENDER
PAPER SIZE: A1
DRAWING NO.: 12964-EE-701
SCALE: NTS
SHEET NO.: 01
REVISION NO.: C