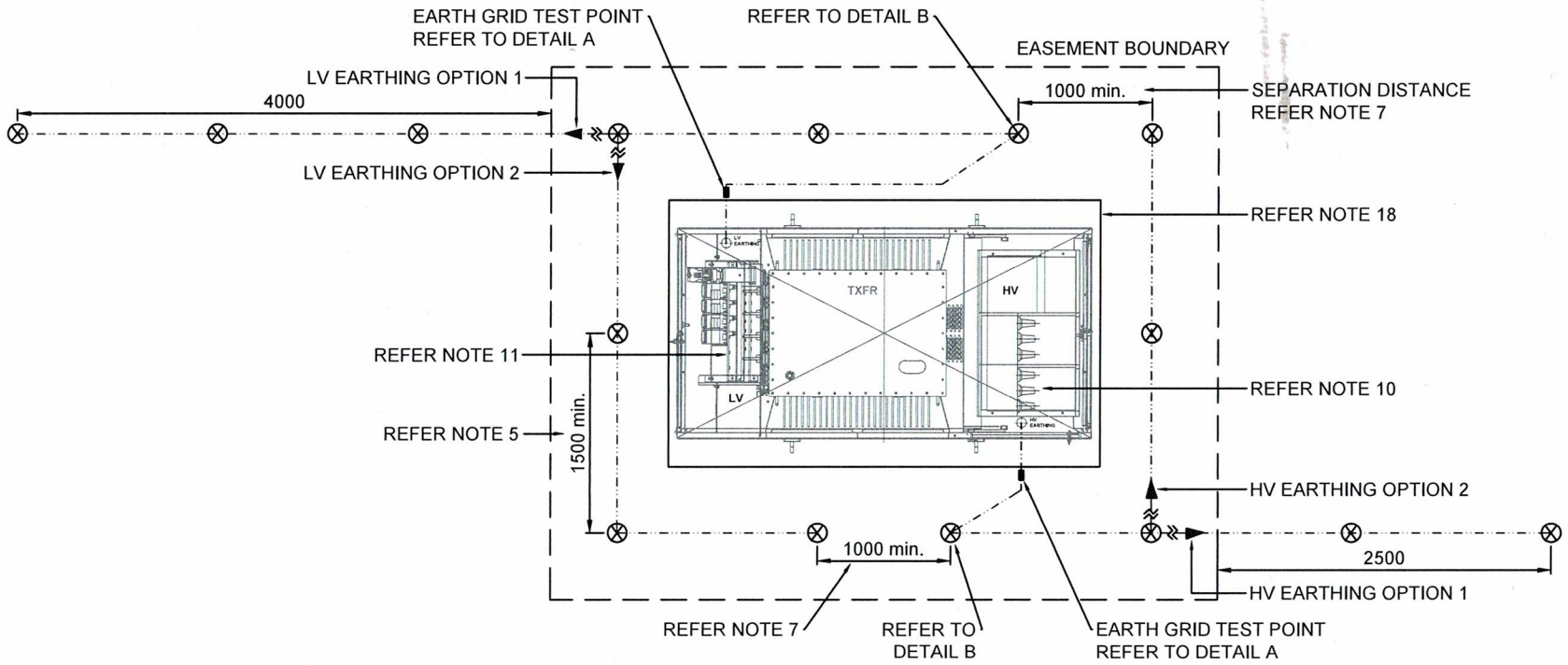
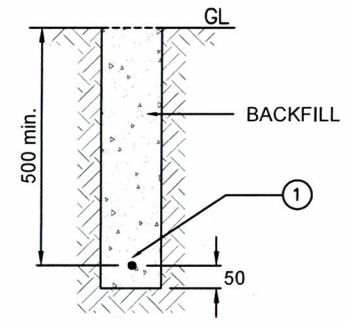
| A3 | 01 | E08 | 007 |
|---|---|---|---|



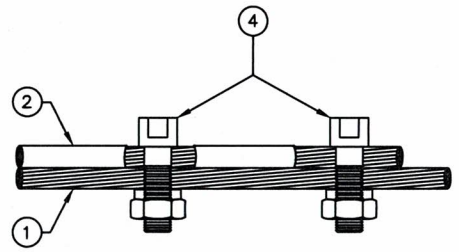

TYPICAL LAYOUT

## LEDGEND

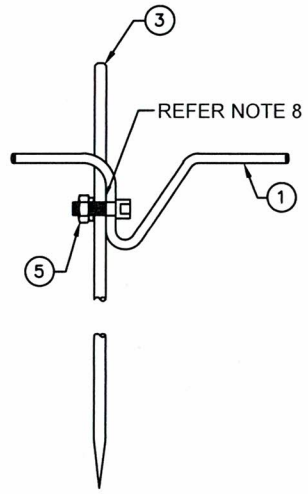
- ⊗ EARTH ELECTRODE
- -·-·- COPPER EARTH WIRE
- ▮ INSULATED AND BARE COPPER CONNECTION DETAIL



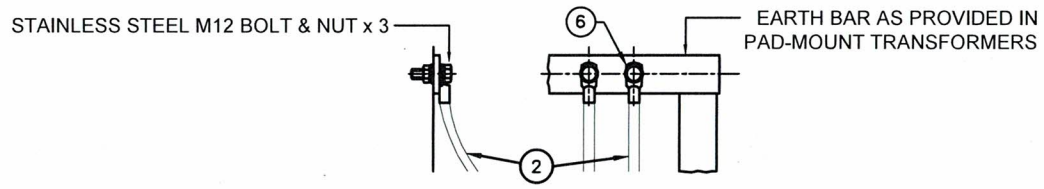

DETAIL C
TYPICAL EARTHING TRENCH LAYOUT




DETAIL A
TYPICAL BARE COPPER TO INSULATED COPPER WIRE CONNECTION




DETAIL B
TYPICAL BARE COPPER TO EARTH ELECTRODE CONNECTION




DETAIL D
TYPICAL INSULATED COPPER EARTH WIRE CONNECTION TO EARTH BAR

## NOTES:

1. PAD-MOUNT TRANSFORMER REQUIRED EASEMENT BOUNDARY - 5000mm x 4000mm. IN SPECIFIC CASES, THIS MAY BE INCREASED TO 6000mm x 5000mm.
2. THE TYPICAL HV & LV SEGREGATED EARTHING DETAILS PROVIDED IS TO BE USED AS A GUIDE ONLY AND MAY BE MODIFIED/CHANGED TO SUIT INSTALLATION LOCATION TO MEET EARTHING REQUIREMENTS.
3. THE MINIMUM SEPARATION DISTANCE ALLOWABLE FROM THE EARTH CABLE TO HV/LV POWER CABLE IS 500mm AT LOCATIONS WHERE THE EARTH GRID IS CROSSING OVER THE HV & LV TRENCHES.
4. THE EARTH ELECTRODE DEPTH FROM GROUND LEVEL SHALL BE A MINIMUM OF 500mm. REFER TO DETAIL C FOR TYPICAL EARTHING TRENCH ARRANGEMENT.
5. THE MINIMUM SPACING DISTANCE BETWEEN EARTH ELECTRODS SHALL BE 1500mm.
6. THE TYPICAL LAYOUT FOR HV & LV SEGREGATED EARTHING SHOWS OPTIONS 1 AND 2. OPTION 1 SHALL BE GIVEN PRECEDENCE WHERE POSSIBLE.
7. THE MINIMUM SEPARATION DISTANCE BETWEEN THE HV AND LV EARTH GRID AT ANY POINT SHALL BE 1000mm.
8. WHERE APPLICABLE, EXOTHERMIC WELDING (CADWELD) CAN BE USED DEPENDING ON THE AVAILABILITY OF TOOLS AND MATERIAL.
9. IF THE MINIMUM HV & LV RESISTANCES ARE NOT ACHIEVED, GROUND ENHANCING MATERIAL (EFL STOCK CODE: I04334) MAY BE USED TO IMPROVE THE EARTHING RESISTIVITY. THE MINIMUM HV/LV EARTHING RESISTANCE REQUIRED MUST BE MEET AT ALL TIMES.
10. THE HV CABLE SCREEN EARTHING SHALL BE CONNECTED TO THE HV EARTH GRID VIA HV EARTH BAR (REFER DETAIL D).
11. THE LV & NEUTRAL CABLE SCREEN EARTHING SHALL BE CONNECTED TO THE LV EARTH GRID VIA LV EARTH BAR (REFER DETAIL D).
12. IN CASES WHERE TWO PAD-MOUNT TRANSFORMERS ARE INSTALLED SIDE-BY-SIDE, THE MINIMUM SEPARATION DISTANCE BETWEEN THE TWO TRANSFORMERS SHALL BE 2000mm. THE REQUIRED EASEMENT BOUNDARY FOR SUCH INSTALLATIONS SHALL BE 10 000mm x 5000mm.
13. THE QUANTITIES STATED FOR THE INSULATED AND BARE COPPER EARTH WIRES ARE APPROXIMATIONS ONLY AND SHALL BE SUBJECT TO REVIEW AT DESIGNERS DISCRETION.
14. FOR IDENTIFYING EARTH RESISTANCE, PLEASE REFER TO DOCUMENT - GUIDE TO SOIL RESISTIVITY TESTING (DOCUMENT No. *NDP-F09*)
15. THE EARTHING COMPONENTS ARE PROVIDED IN TABLE 1.
16. THE MAXIMUM ACCEPTABLE VALUES FOR HV AND LV EARTH RESISTANCE ARE PROVIDED IN TABLE 2.
17. FOR TYPICAL FENCE CONSTRUCTION WITH EARTHING DETAILS, REFER TO DRAWING NUMBER A3/01/C15/005.
18. FOR PAD-MOUNT TRANSFORMER PLINTH DETAILS, REFER TO DRAWING NUMBERS A3/01/C12/010 & A3/01/C12/011.
19. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.

| EARTH SYSTEM | RESISTANCES |
|---|---|
| LV | ≤ 10Ω |
| HV | ≤ 30Ω |

MAXIMUM EARTH RESISITANCES

TABLE 2

| EFL STOCK CODE | ITEM | DESCRIPTION | QUANTITY HV | QUANTITY LV |
|---|---|---|---|---|
| I03089 | 8 | M10 BRASS WASHER | 4 | 1 |
| I03028A | 7 | 1 1/4 x 3/8 BRASS BOLT & NUT | 7 | 1 |
| I02326 | 6 | COPPER CRIMP LUG TO SUIT 35mm² INSULATED EARTH CABLE | | |
| | | FOR TEE-OFF CIRCUIT | 3 | 1 |
| | | FOR LOOP IN LOOP OUT (LILO) CIRCUIT | 6 | 1 |
| I02558 | 5 | LINE TAP TINNED COPPER 50mm² (19/1.78) | 4 | 6 |
| I02557 | 4 | LINE TAP TINNED COPPER 35mm² (19/1.53) | 2 | 2 |
| I05386 | 3 | EARTH ROD COPPER ELECTRODE Ø12 x 1200 | 4 | 6 |
| I04032 | 2 | INSULATED COPPER EARTH WIRE 35mm² (19.1.53) | 5m | 5m |
| I03950 | 1 | BARE COPPER EARTH WIRE 35mm² (19/1.53) | 10m | 13m |

TABLE 1

| No. | REVISION | DATE | BY | CHK | SE | APP |
|---|---|---|---|---|---|---|
| 0 | ORIGINAL ISSUE | 22.09.20 | SK | | | |

| | | |
|---|---|---|
| DRAWN | SHANE | 22.09.20 |
| CHECKED | RAJIV | 10.11.20 |
| CHIEF DRAUGHTSMAN | KM | 10.11.20 |
| DESIGN ENGINEER | Zainal. | 10.11.20 |
| STANDARDS ENGINEER | RAJIV | 10.11.20 |
| HEAD OF DEPARTMENT | Basant/K | 10/11/20. |

EFL energising our nation

# ENERGY FIJI LIMITED

STANDARD CONSTRUCTION
TYPICAL SEGREGATED HV/LV
EARTHING DETAILS FOR
PAD–MOUNT TRANSFORMERS

DRAWING NUMBER
A3 | 01 | E08 | 007

SCALE : NTS