

**Saudi Electricity Company**



**الشركة السعودية للكهرباء**

**SEC DISTRIBUTION CONSTRUCTION STANDARD**

**SDCS-02**

**DATE: September 2016G**

**SDCS-02**

**CONSTRUCTION STANDARD  
FOR  
UNDERGROUND DISTRIBUTION NETWORK**

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## **PART 8**

### **PROTECTIVE BARRIERS**



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## **1 Introduction**

This construction standard specifies the design of Protective Barriers and installation practices to be applied with SEC Distribution equipment's which installed in public locations for providing safety and protection from cars crashing. This standard is intended to assist the field engineers and technicians to achieve unified standard in construction to ensure a satisfactory and economical level of service without operating restrictions so that the operational errors are minimized for safety and reliability of the system.

## **2 Service conditions and system parameters.**

For construction and installation of Protective Barriers, the service conditions and system requirements shall be as given in the latest revision of SEC general requirements for all Equipment/Material specification No. 01-SDMS-01.

## **3 Design and Protective Barriers.**

### **3.1 Heavy Protective barrier.**

- Heavy protective barriers shall be used where the equipment are highly exposed to car crashing hazards, like in the centers of the roads, etc..
- Steel pipe with outer diameter 203mm and 5mm thickness shall be used.

### **3.2 Light Protective Barrier.**

- Light protective barriers should be used where the equipment are less exposed to car crashing hazards.
- Steel pipe with outer diameter 152mm and 3mm thickness shall be used.



### 3.3 Painting.

- The protective barriers shall be painted Yellow (RAL 1018) with Black stripe, each stripe shall be 183 mm wide.
- The color of top most stripe shall be yellow followed alternatively by black.

### 3.4 CONCRETE & SLOPE DETAIL FOR BARRIERS:

- CONCRETE MIX :

1. For Normal Concrete Mix.

Cement: 250 Kg/ m<sup>3</sup>

Sand: 0.4 m<sup>3</sup>

Gravel: 0.8 m<sup>3</sup>

2. For Reinforcement Concrete

Cement: 350 Kg/m<sup>3</sup>

Sand: 0.4 m<sup>3</sup>

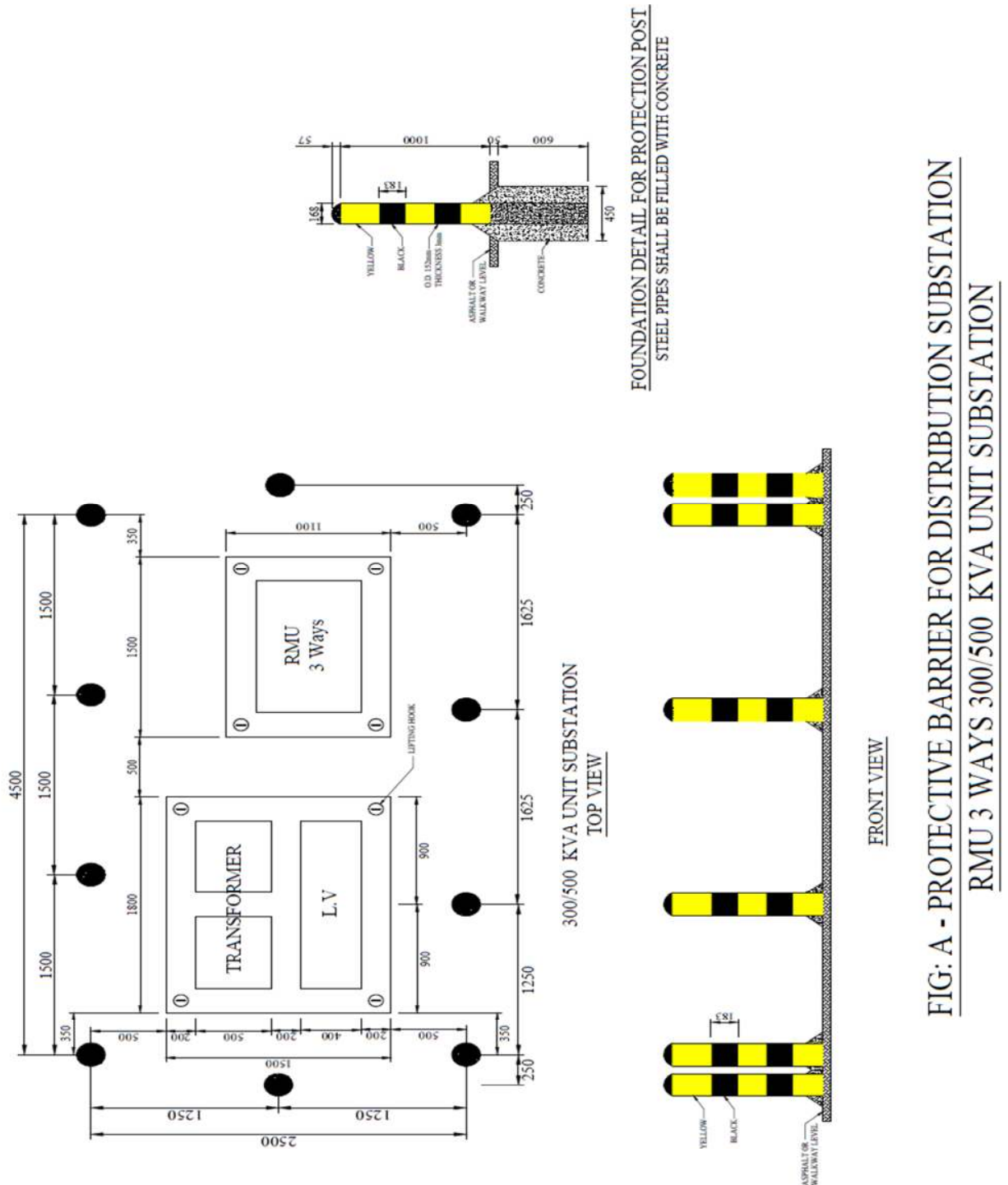
Gravel: 0.8 m<sup>3</sup>

- SLOPE FOR BARRIERS Concrete base:

Slope angle for all barriers Concrete base shall be 45° .

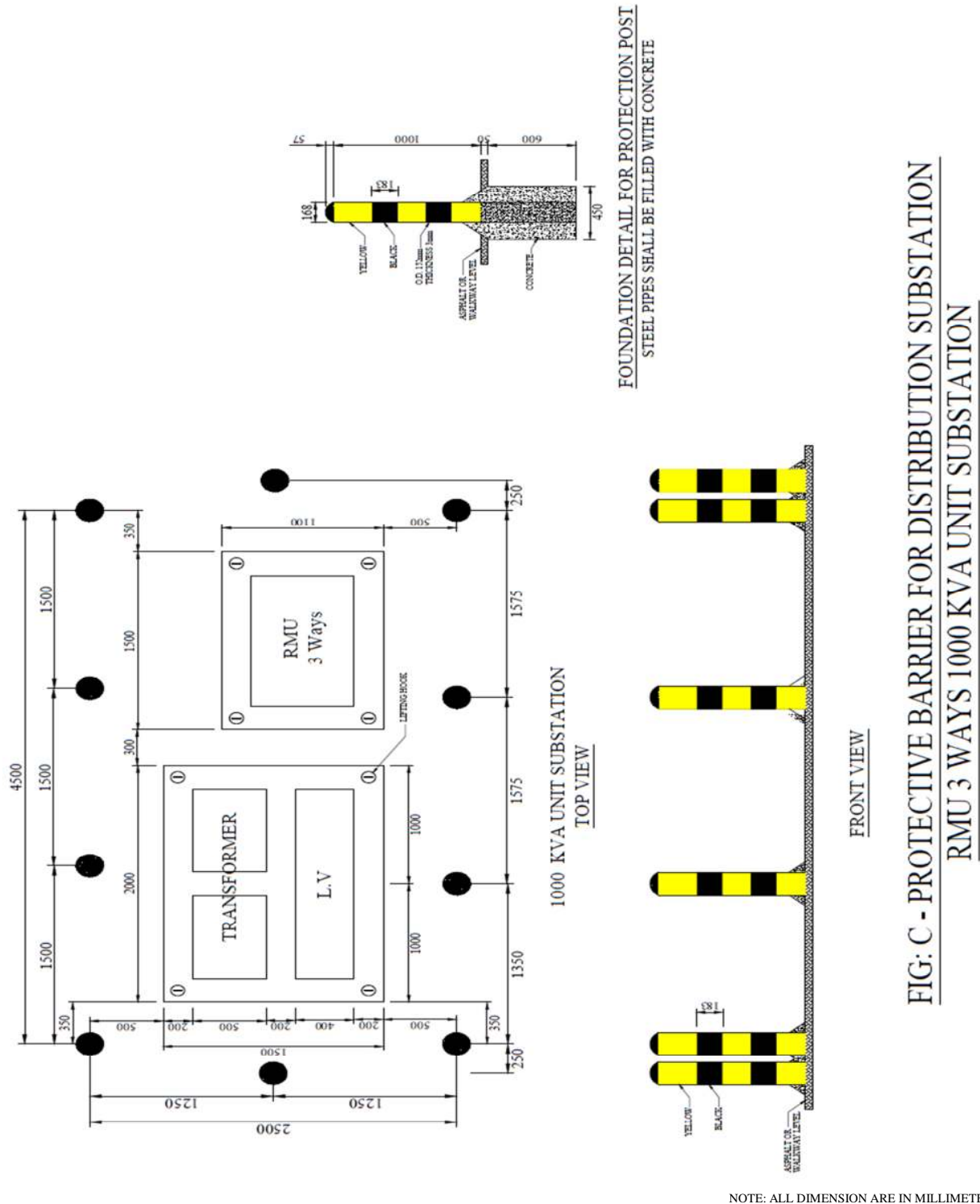
DRAWINGS

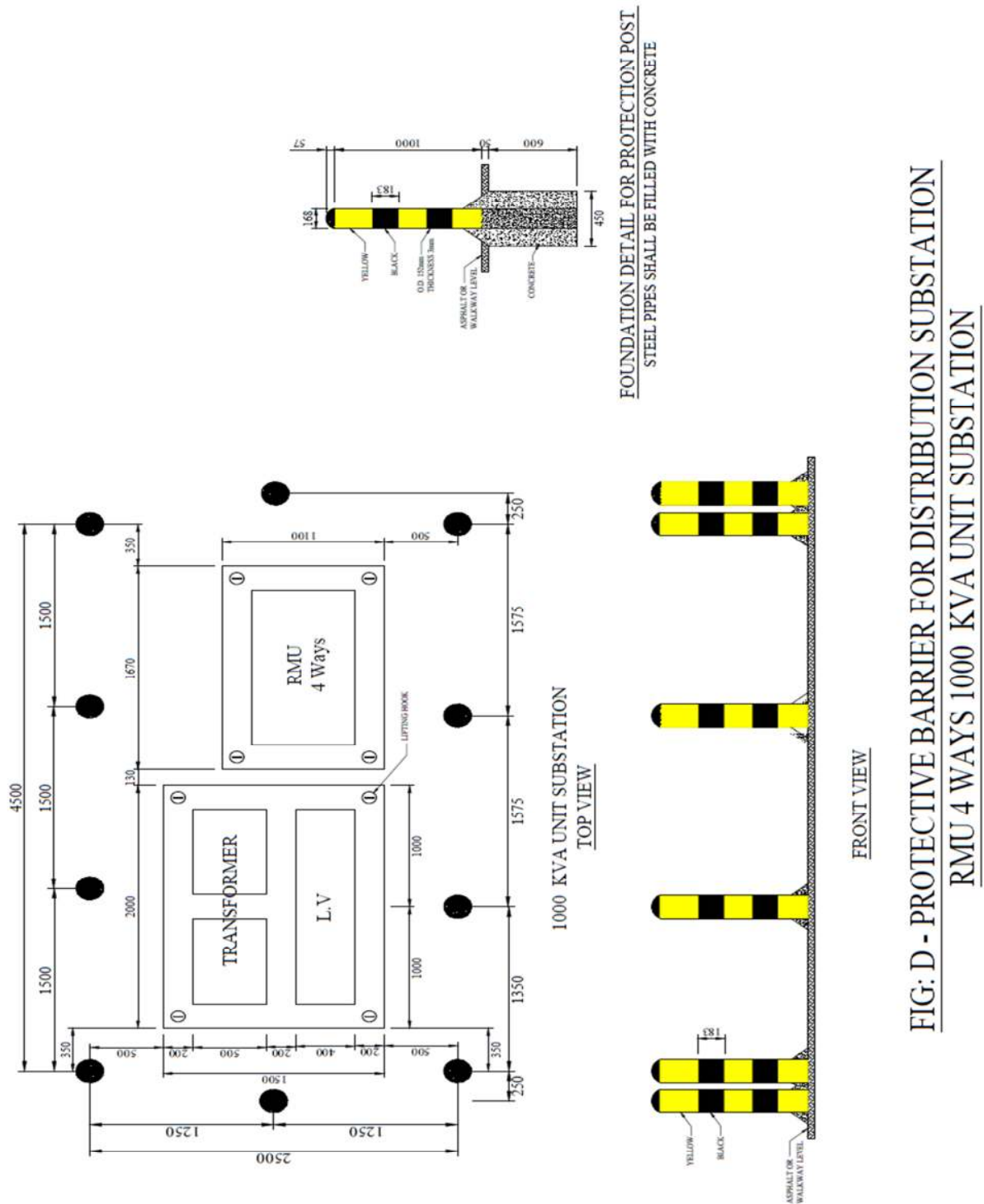
- FIG: A PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
300/500 KVA UNIT SUBSTATION WITH RMU 3 WAYS.
- FIG:B PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
300/500 KVA UNIT SUBSTATION WITH RMU 4 WAYS.
- FIG:C PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
1000 KVA UNIT SUBSTATION WITH RMU 3 WAYS.
- FIG:D PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
1000 KVA UNIT SUBSTATION WITH RMU 4 WAYS.
- FIG:E PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
1500 KVA UNIT SUBSTATION WITH RMU 3 WAYS.
- FIG:F PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
1500 KVA UNIT SUBSTATION WITH RMU 4 WAYS.
- FIG:G PROTECTIVE BARRIER FOR RMU 3 WAYS.
- FIG:H PROTECTIVE BARRIER FOR RMU 4 WAYS.
- FIG:I PROTECTIVE BARRIER FOR LV PILLAR.
- FIG:J PROTECTIVE BARRIER FOR POLES.
- FIG:K PROTECTIVE BARRIER FOR POLES (HEAVY PROTECTION).











NOTE: ALL DIMENSION ARE IN MILLIMETERS

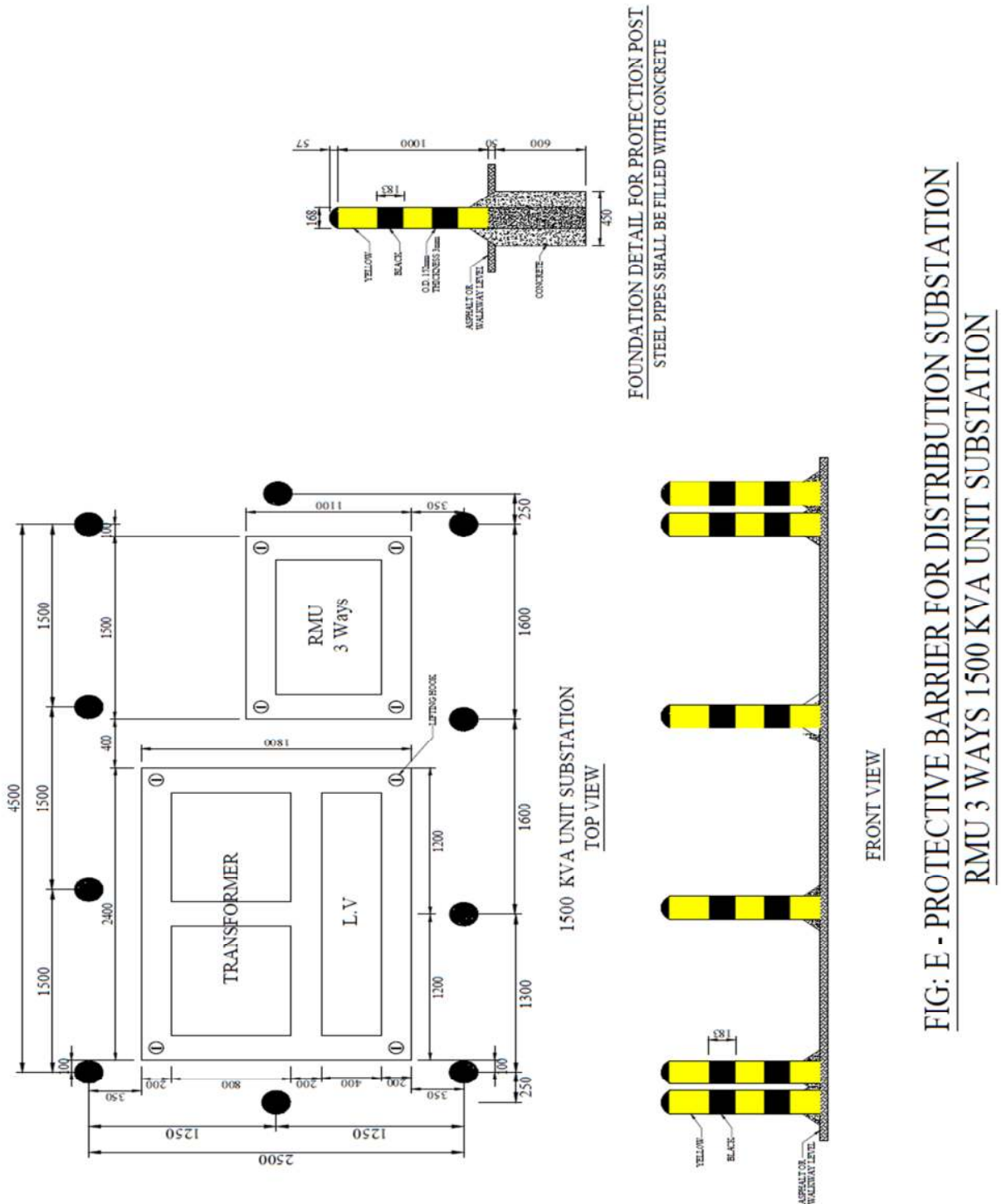
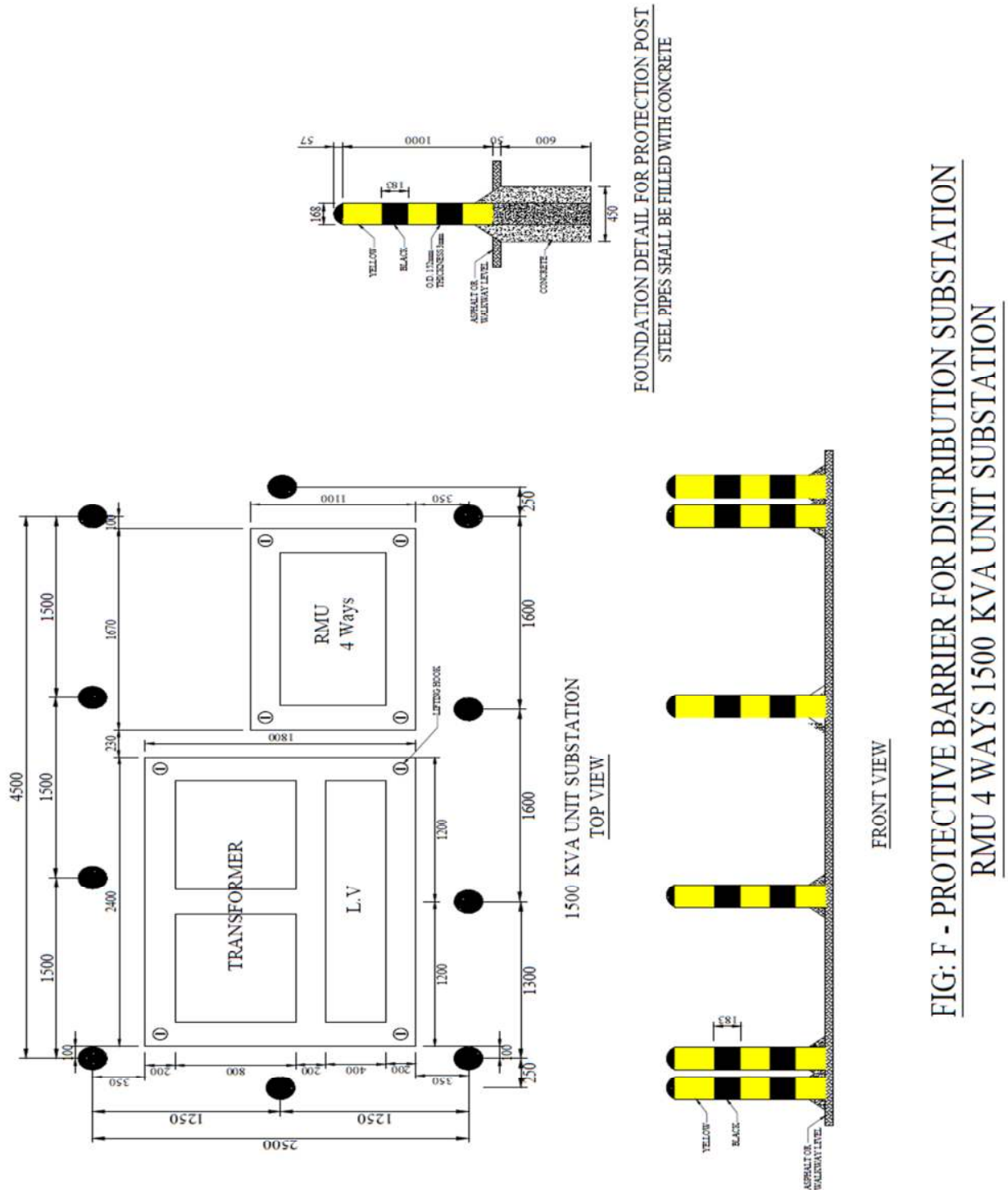


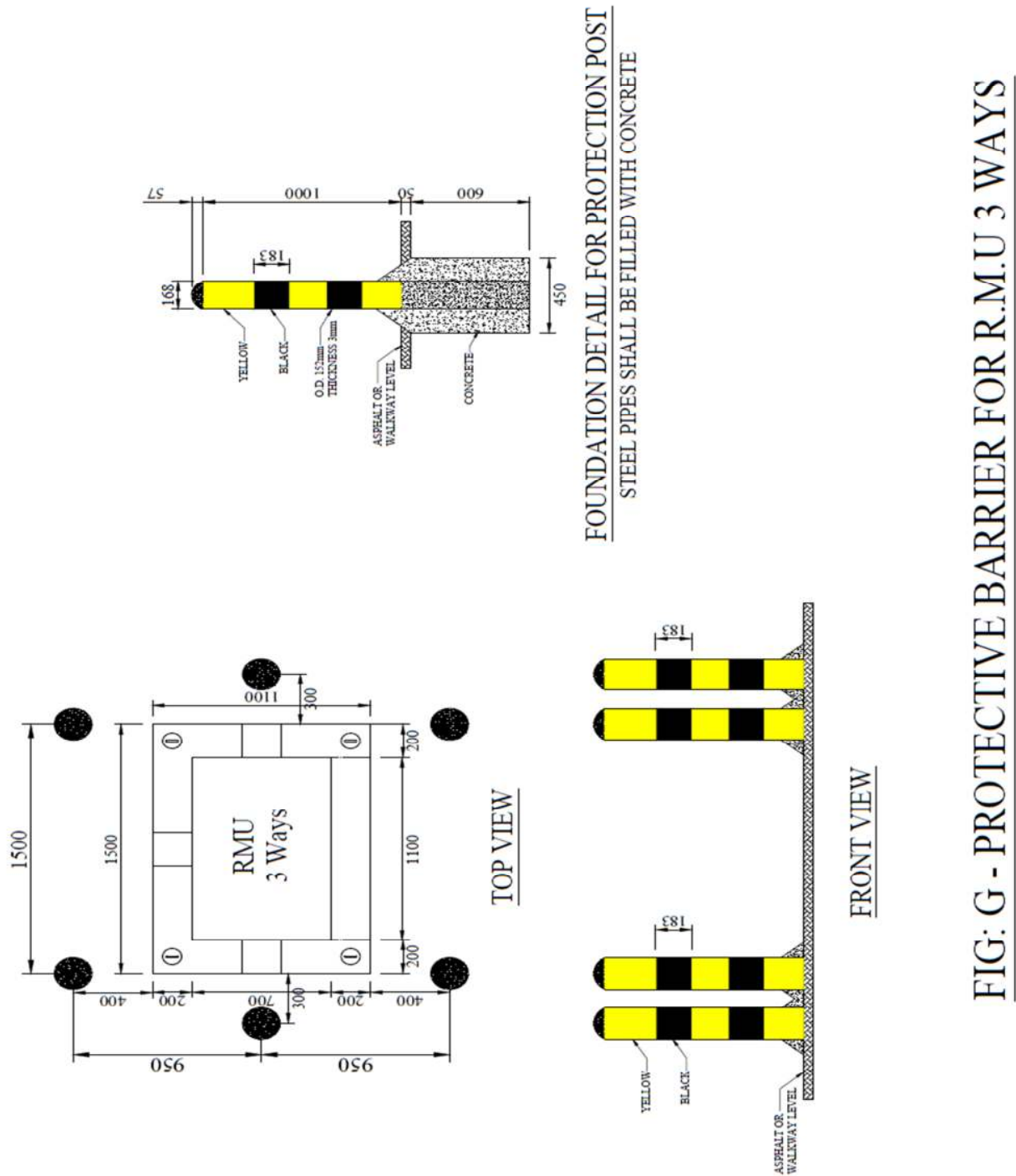
FIG: E - PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
RMU 3 WAYS 1500 KVA UNIT SUBSTATION



FOUNDATION DETAIL FOR PROTECTION POST  
STEEL PIPES SHALL BE FILLED WITH CONCRETE

FIG: F - PROTECTIVE BARRIER FOR DISTRIBUTION SUBSTATION  
RMU 4 WAYS 1500 KVA UNIT SUBSTATION

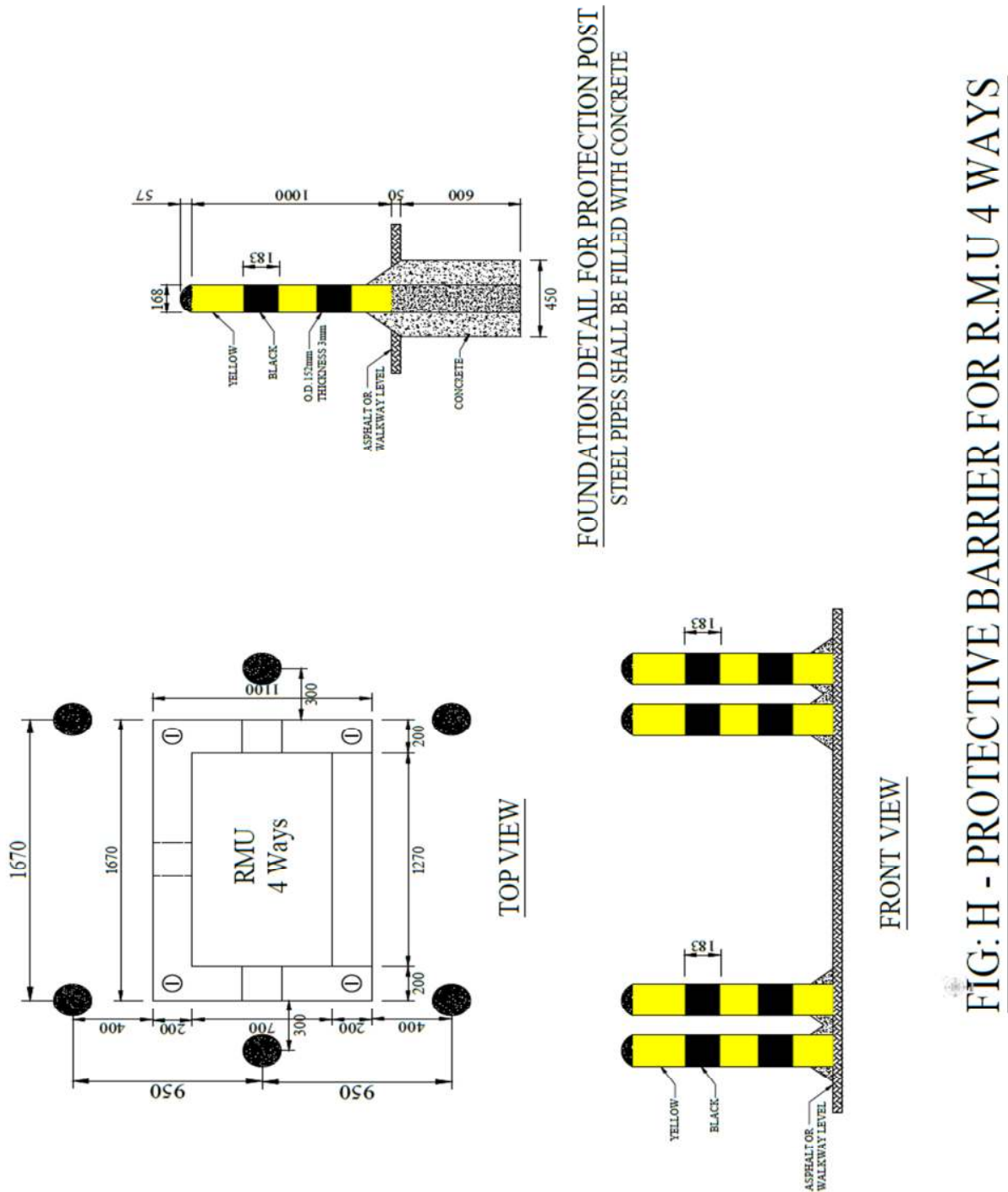
NOTE: ALL DIMENSION ARE IN MILLIMETERS



FOUNDATION DETAIL FOR PROTECTION POST  
STEEL PIPES SHALL BE FILLED WITH CONCRETE

FIG: G - PROTECTIVE BARRIER FOR R.M.U 3 WAYS

NOTE: ALL DIMENSION ARE IN MILLIMETERS



FOUNDATION DETAIL FOR PROTECTION POST  
STEEL PIPES SHALL BE FILLED WITH CONCRETE

TOP VIEW

FRONT VIEW

FIG: H - PROTECTIVE BARRIER FOR R.M.U 4 WAYS

NOTE: ALL DIMENSION ARE IN MILLIMETERS



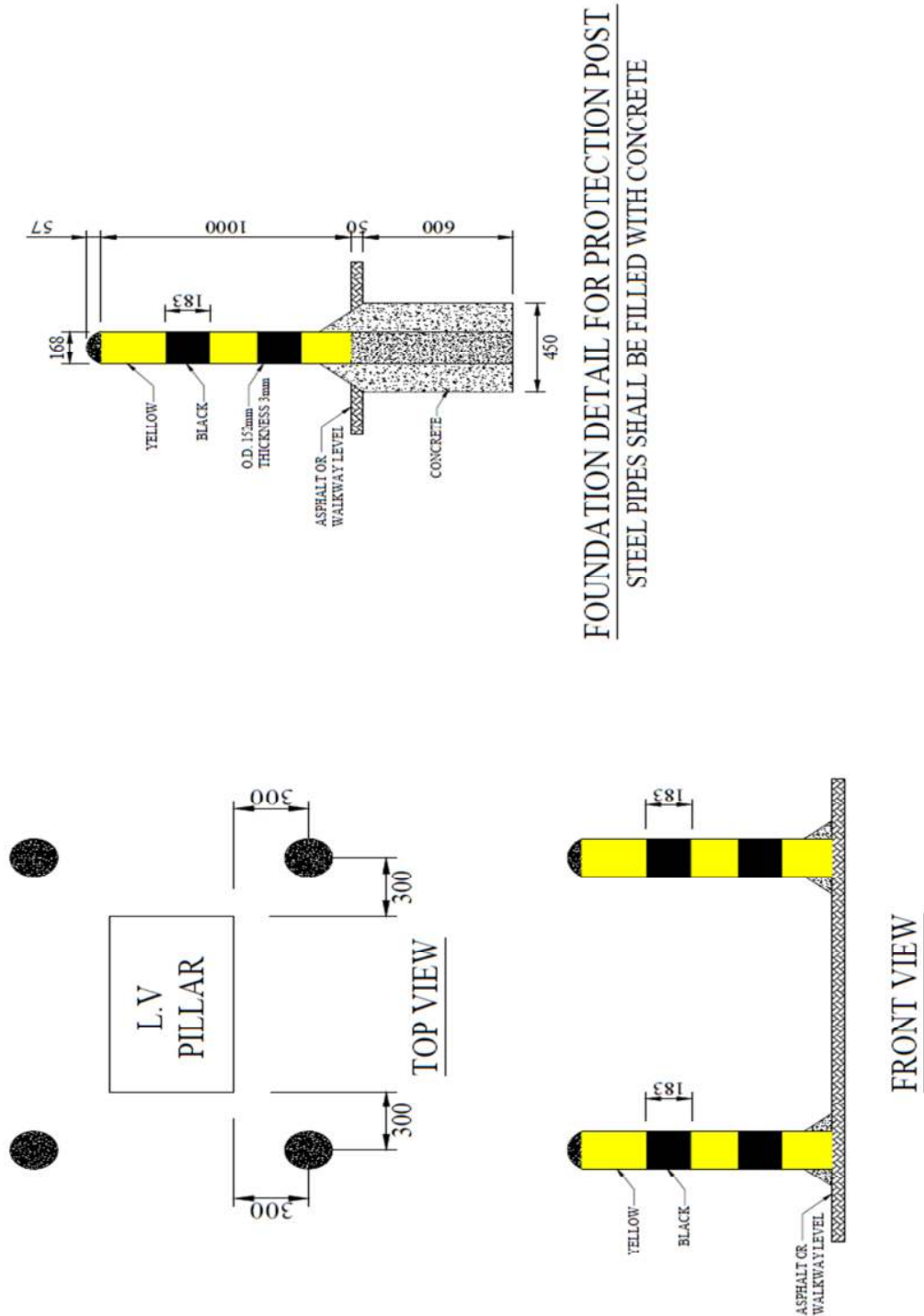


FIG: I - PROTECTIVE BARRIER FOR L.V PILLAR

NOTE: ALL DIMENSION ARE IN MILLIMETERS

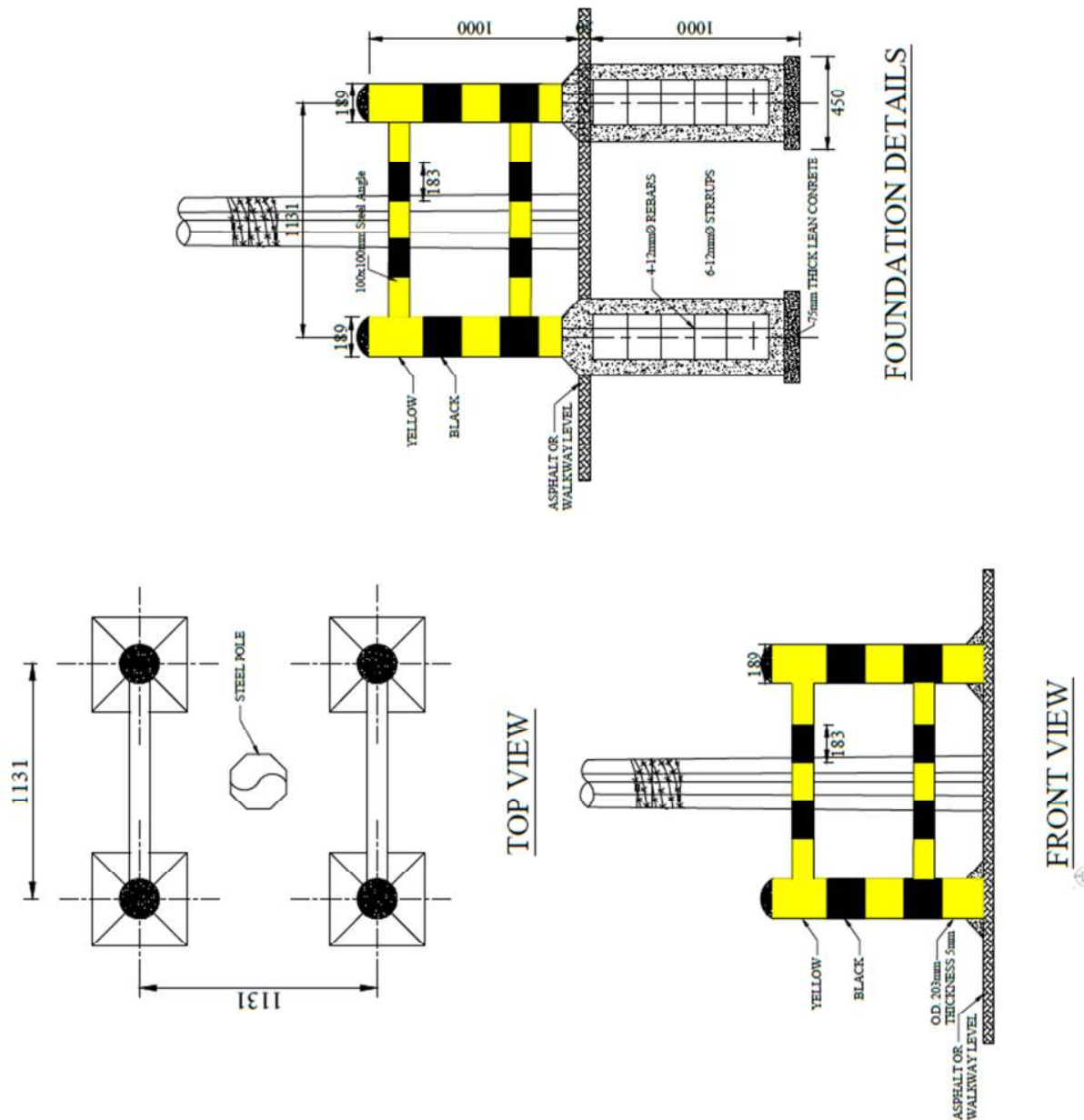


FIG: J - PROTECTIVE BARRIER FOR POLES



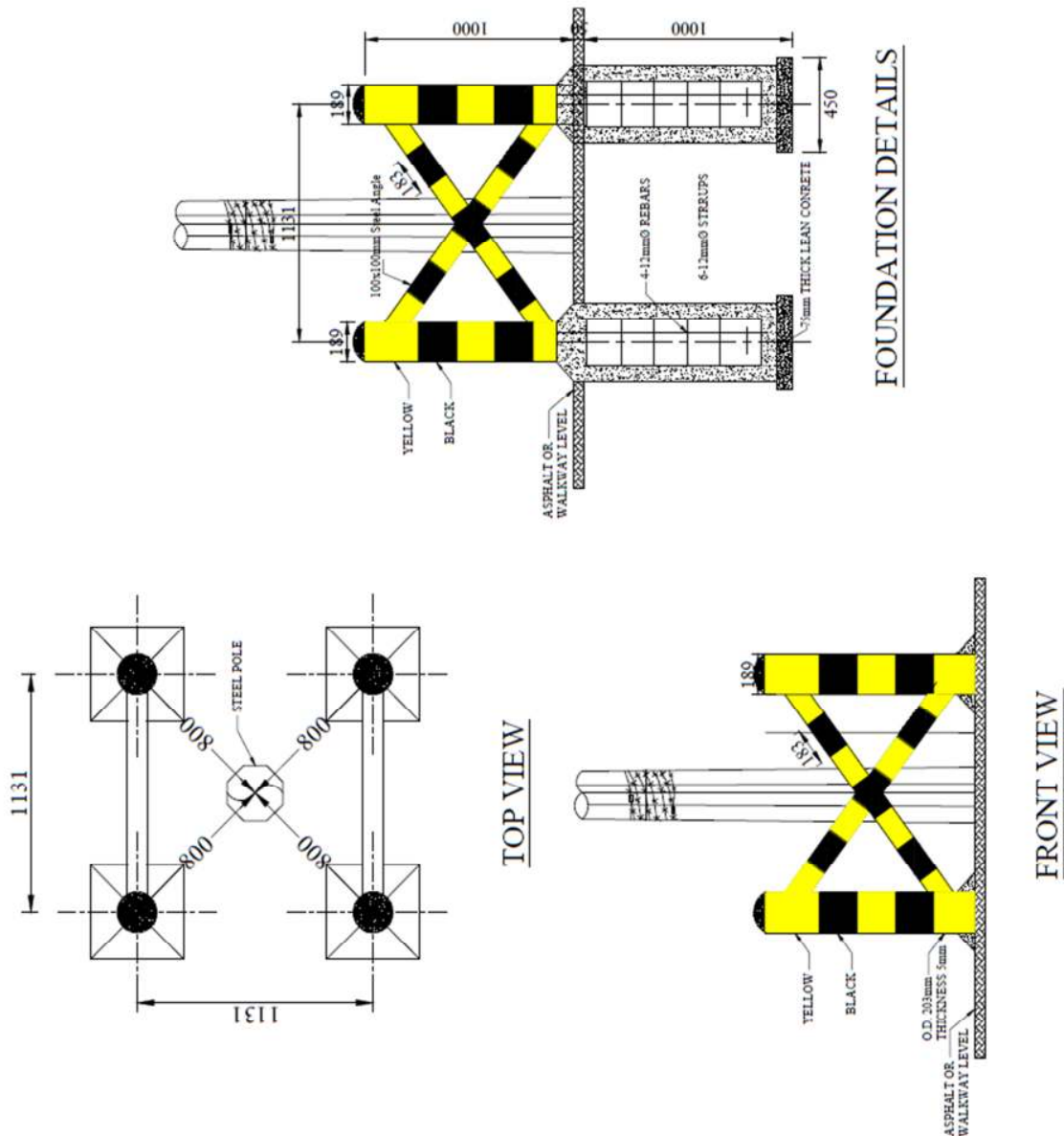


FIG: K - PROTECTIVE BARRIER FOR POLES HEAVY PROTECTION

NOTE: ALL DIMENSION ARE IN MILLIMETE