

## **ANNEX I**

# **Specifications of Survey Monuments for Horizontal Controls**

## **Annex I     Specifications of Survey Monuments for Horizontal Controls**

### **1.     Type A Triangulation Monument**

Type A Triangulation Monument is a concrete structure which is composed of a 1250mm height cylindrical pillar and a 1500mm x 1500mm horizontal platform. A stainless steel plate is installed on the top of the pillar for forced-centering of survey instrument. The detail specification is described in Drawing No. 1A and 1B on Page I-2 and I-3 respectively.

### **2.     Type B Triangulation Monument**

Type B Triangulation Monument is a concrete structure which is composed of a 380mm height cylindrical pillar and a 1500mm x 1500mm horizontal platform. The detail specification is described in Drawing No. 2A and 2B on Page I-4 and I-5 respectively.

### **3.     Picket Box (fixed in open ground)**

A 400mm stainless steel rod is fixed vertically in the open ground by concrete block. A metallic picket box is installed for protection of the protruded part of the stainless steel rod. The detail specification is described in Drawing No. 4 on Page I-6.

### **4.     Picket Box with Concrete Platform**

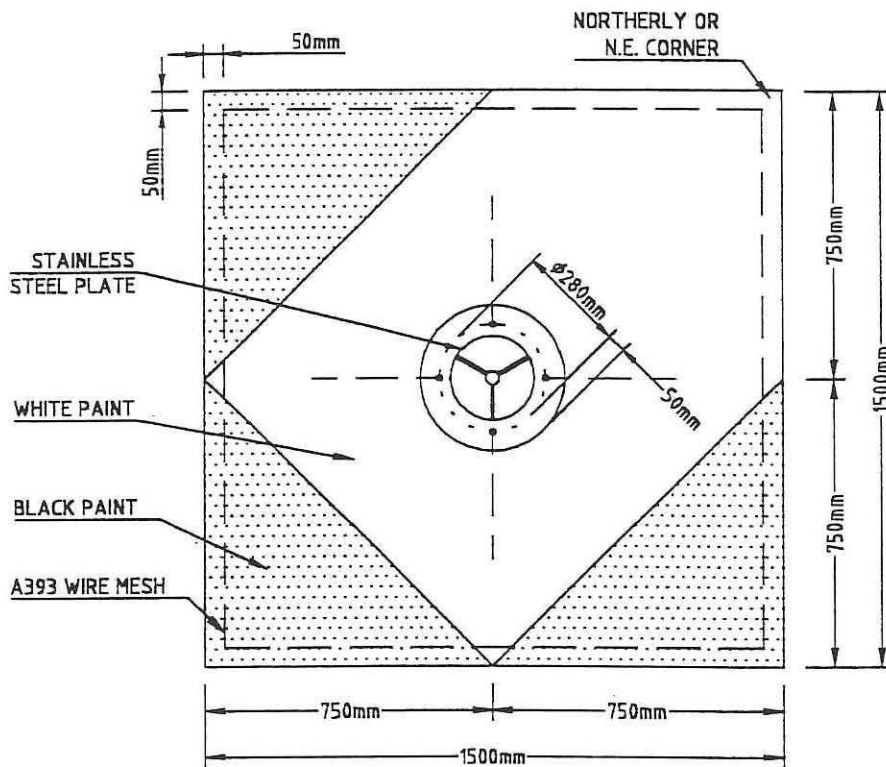
A 400mm stainless steel rod is fixed vertically in the ground by concrete block. A metallic picket box installed on a 1500mm x 1500mm concrete platform is constructed for protection of the protruded part of the stainless steel rod. The detail specification is described in Drawing No. 5 on Page I-7.

### **5.     Picket Box (fixed on rock surface)**

A 210mm stainless steel rod is fixed vertically in the rock by epoxy. A metallic picket box is firmly installed on the rock surface by concrete for protection of the protruded part of the stainless steel rod. The detail specification is described in Drawing No. 6 on Page I-8.

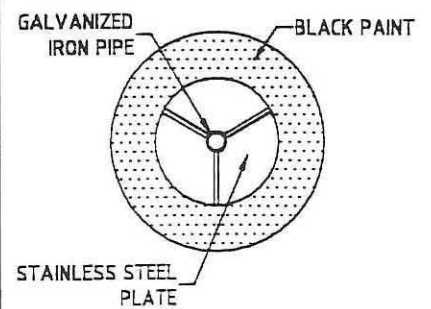
### **6.     Urban Survey Mark**

An urban survey mark is a small stainless steel survey marker which is usually installed on the existing concrete surface. The detail specification is described in Drawing No. 7 on Page I-9.



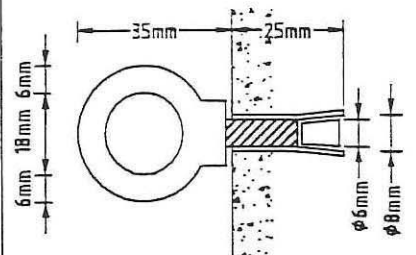
PLAN VIEW

DIAGRAM A

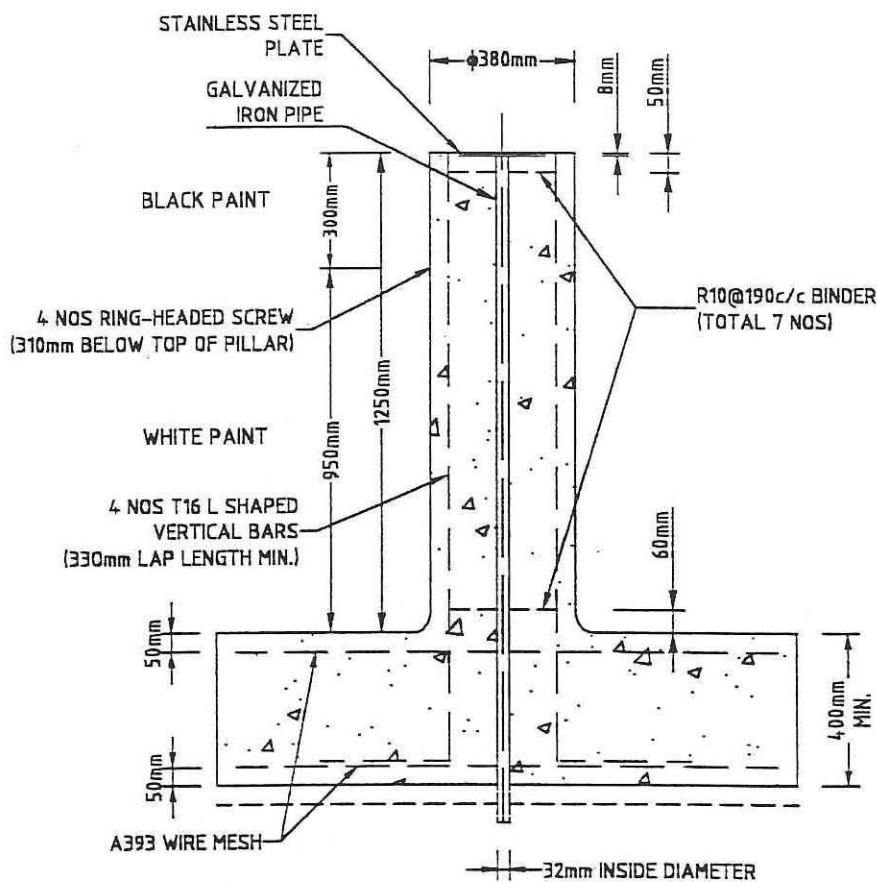


DETAIL OF BEACON TOP  
(NOT TO SCALE)

DIAGRAM B



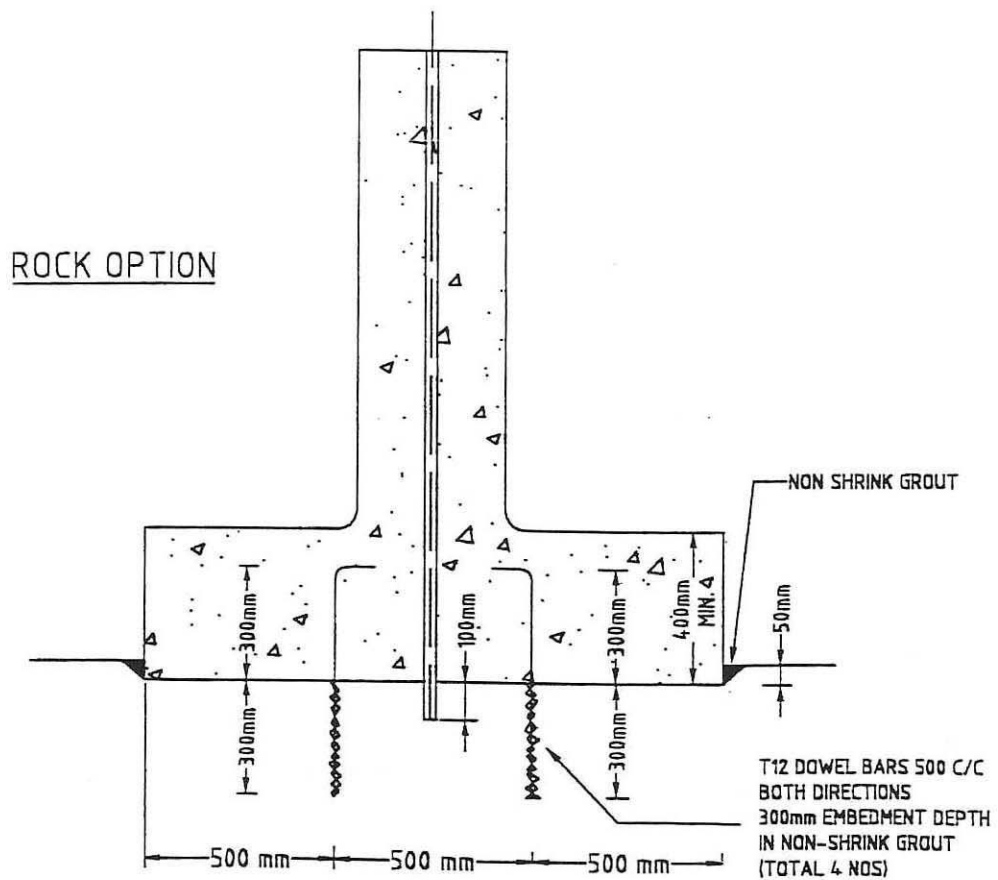
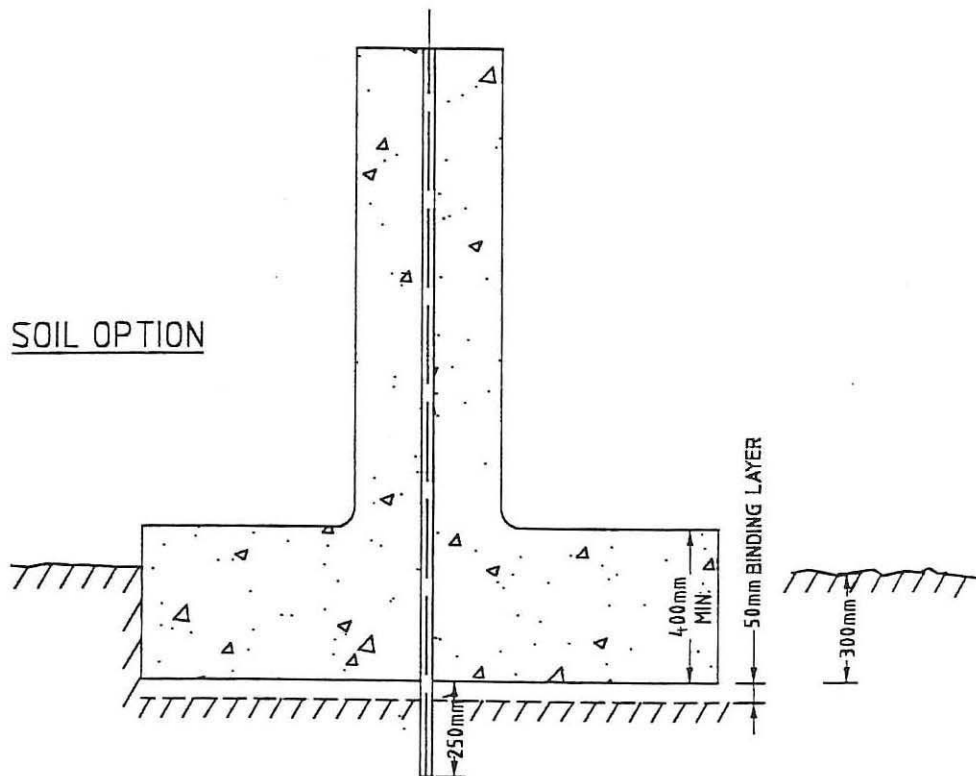
DETAIL OF RING-HEADED SCREW  
INSTALLATION (NOT TO SCALE)



SIDE VIEW

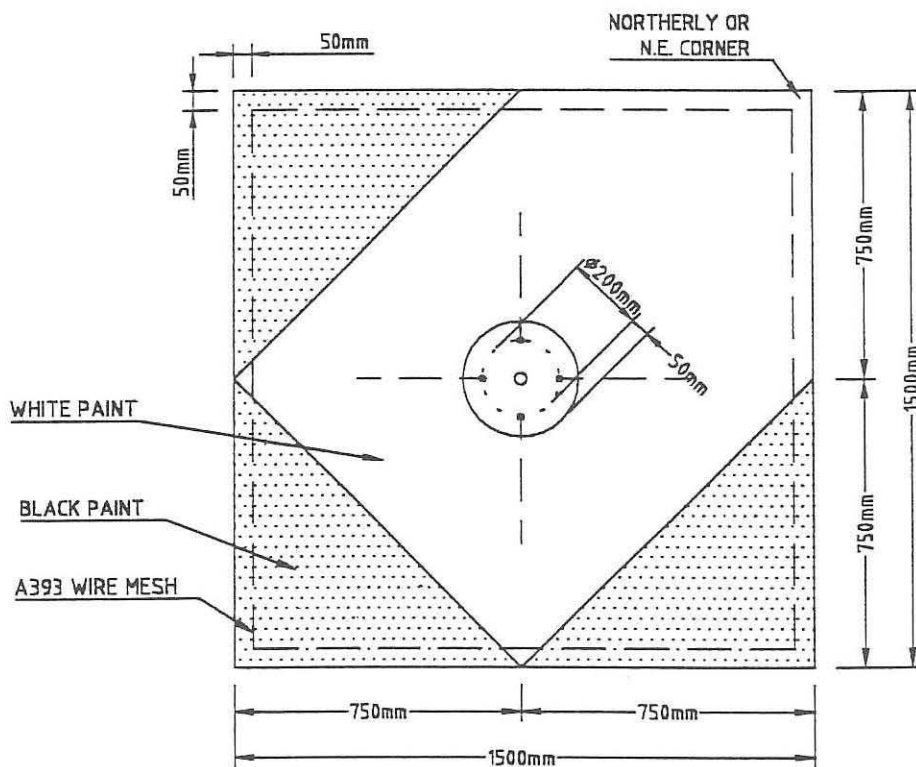
# TYPE A TRIANGULATION MONUMENT

SCALE 1: 20

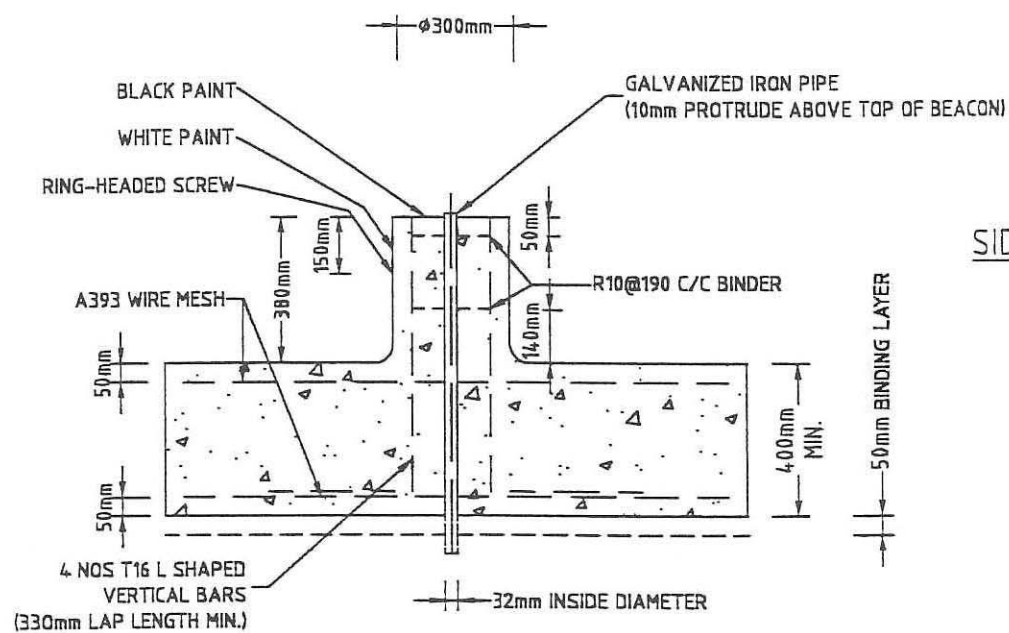


# TYPE A TRIANGULATION MONUMENT

SCALE 1 : 20



PLAN VIEW

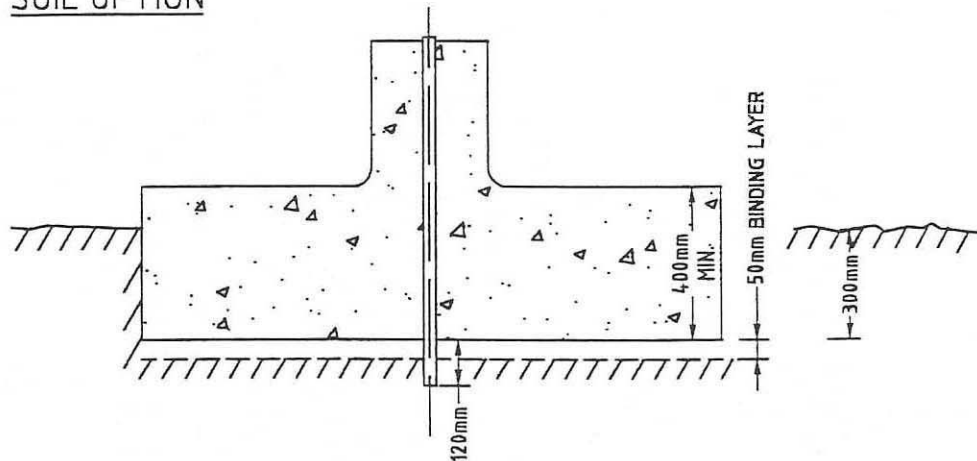


SIDE VIEW

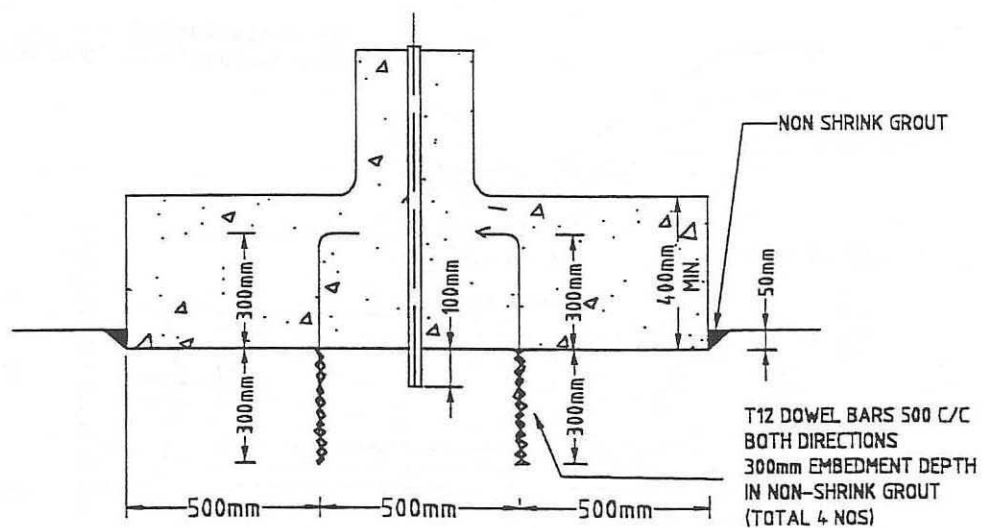
## TYPE B TRIANGULATION MONUMENT

SCALE 1 : 20

SOIL OPTION



ROCK OPTION

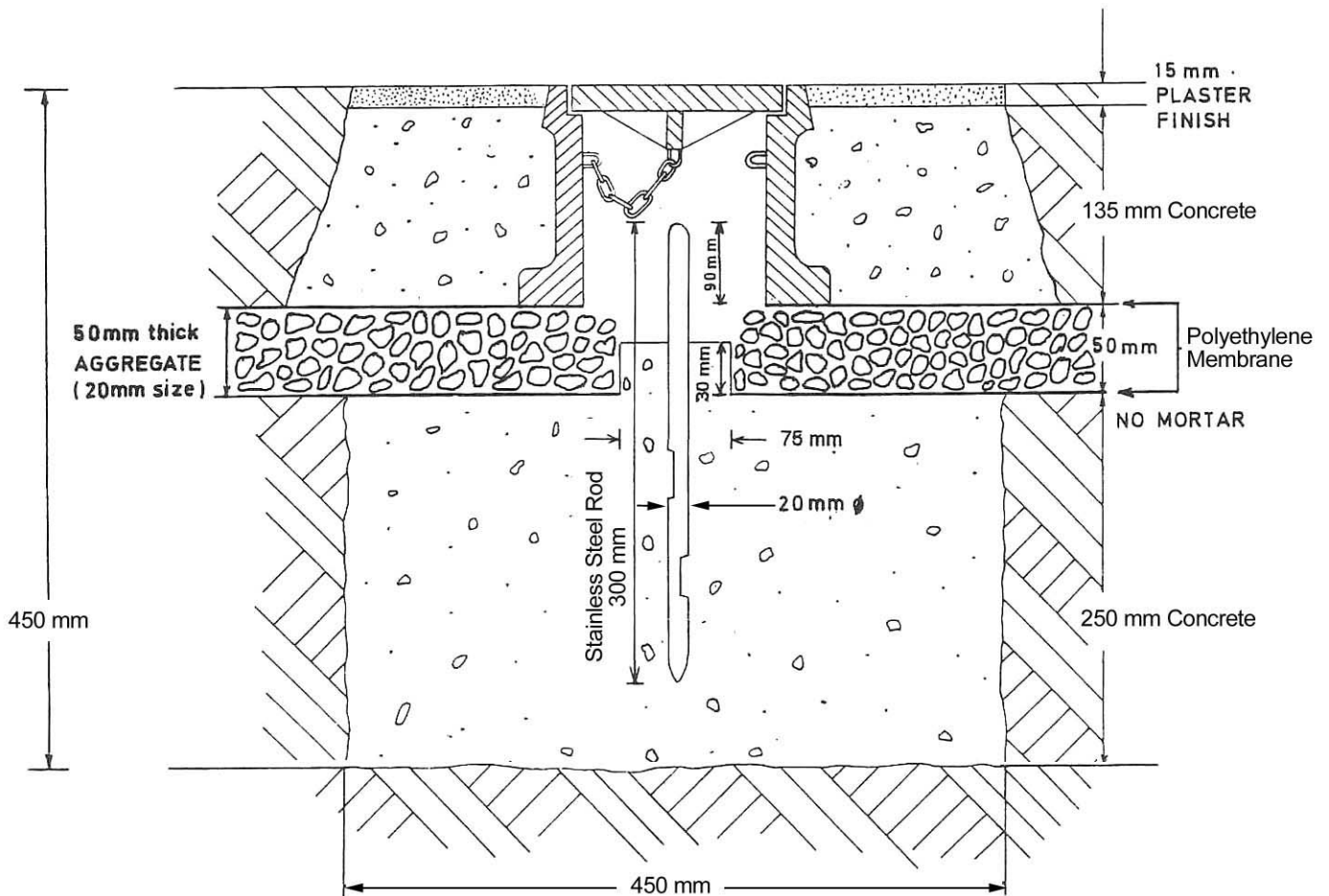


TYPE B TRIANGULATION MONUMENT

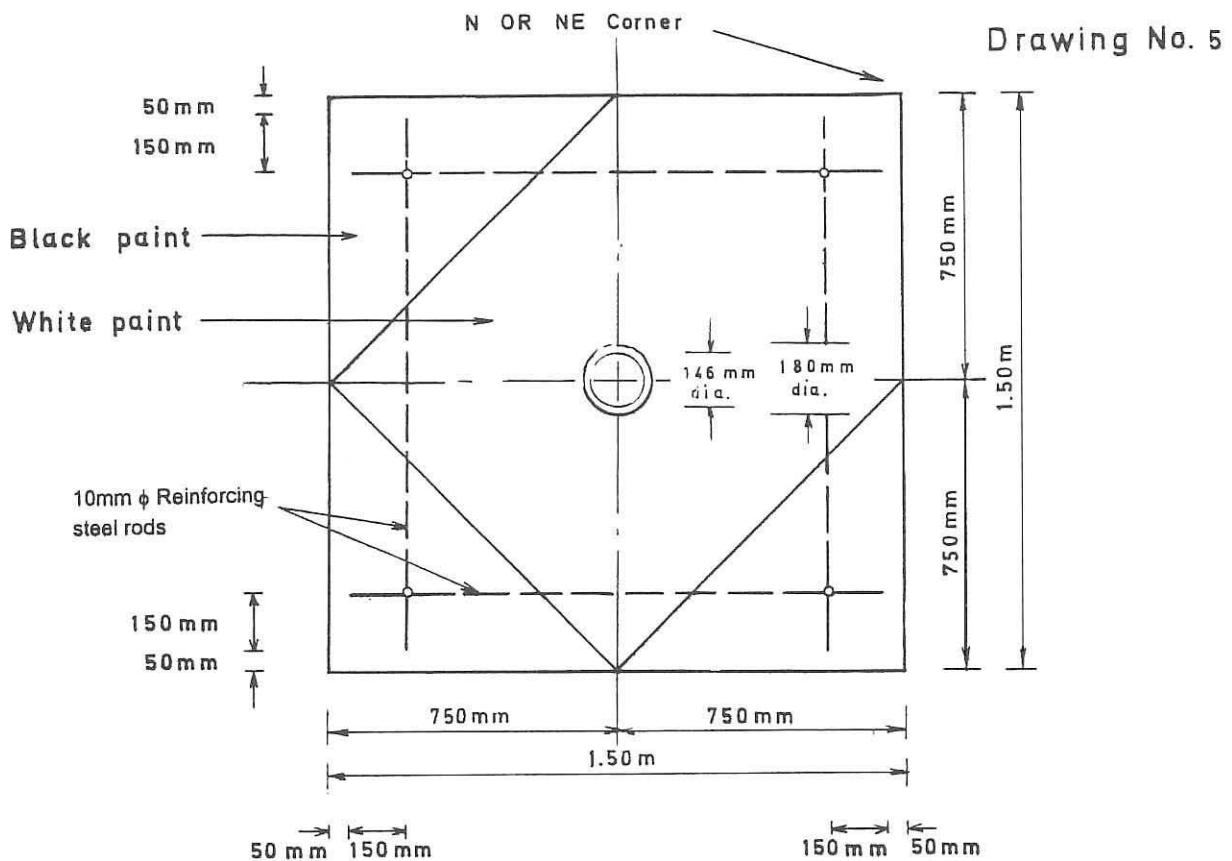
SCALE 1 : 20

PICKET BOX

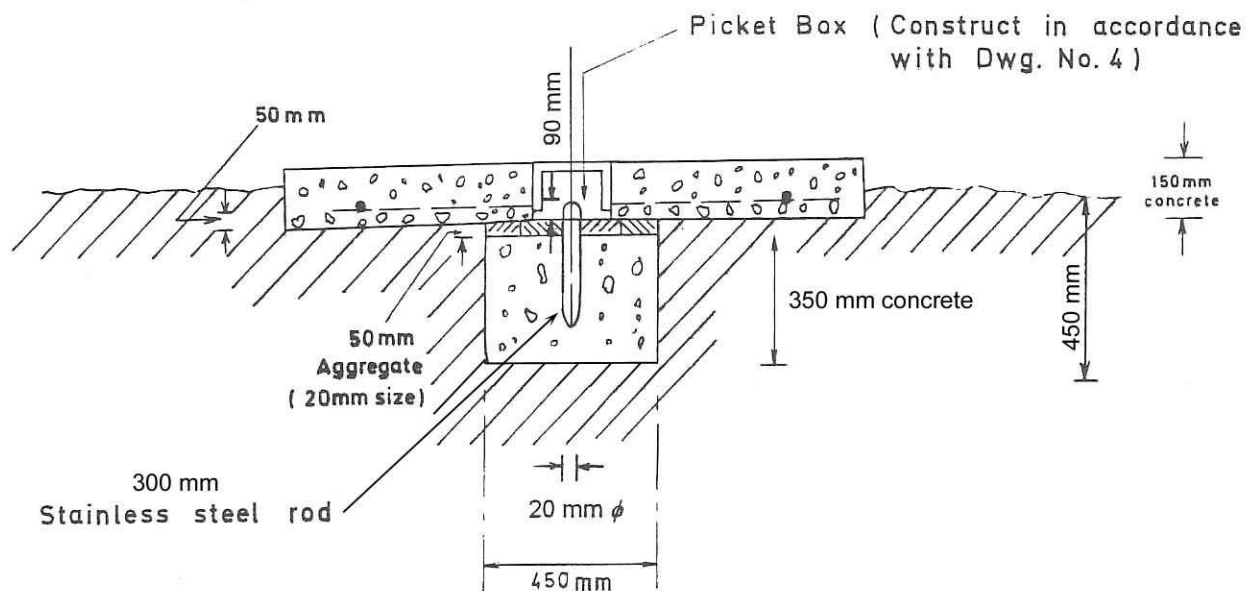
( Fixed in open ground etc. )



SIDE VIEW  
NOT TO SCALE



PLAN VIEW



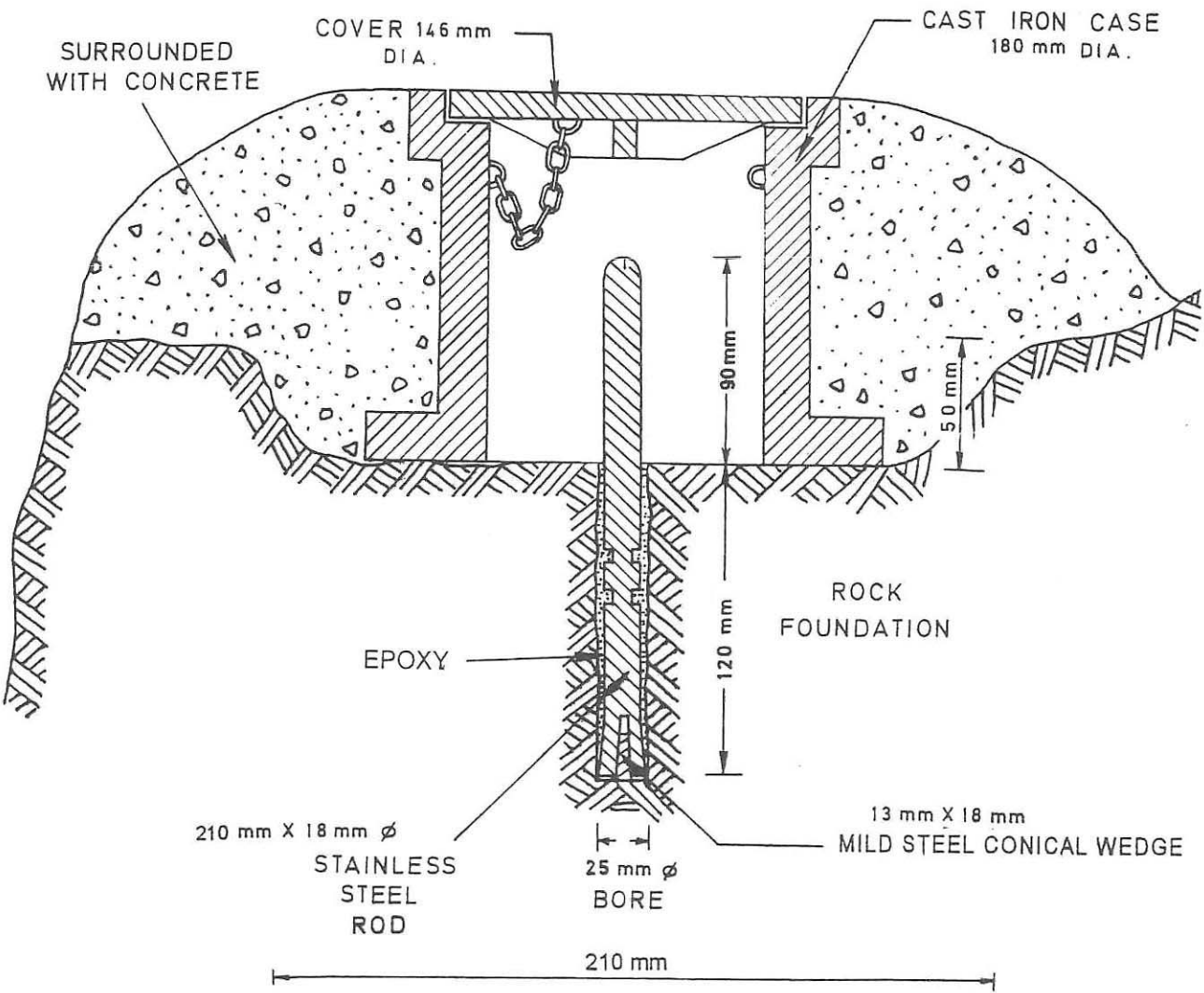
SIDE VIEW

PICKET BOX WITH CONCRETE PLATFORM

Scale 1:20



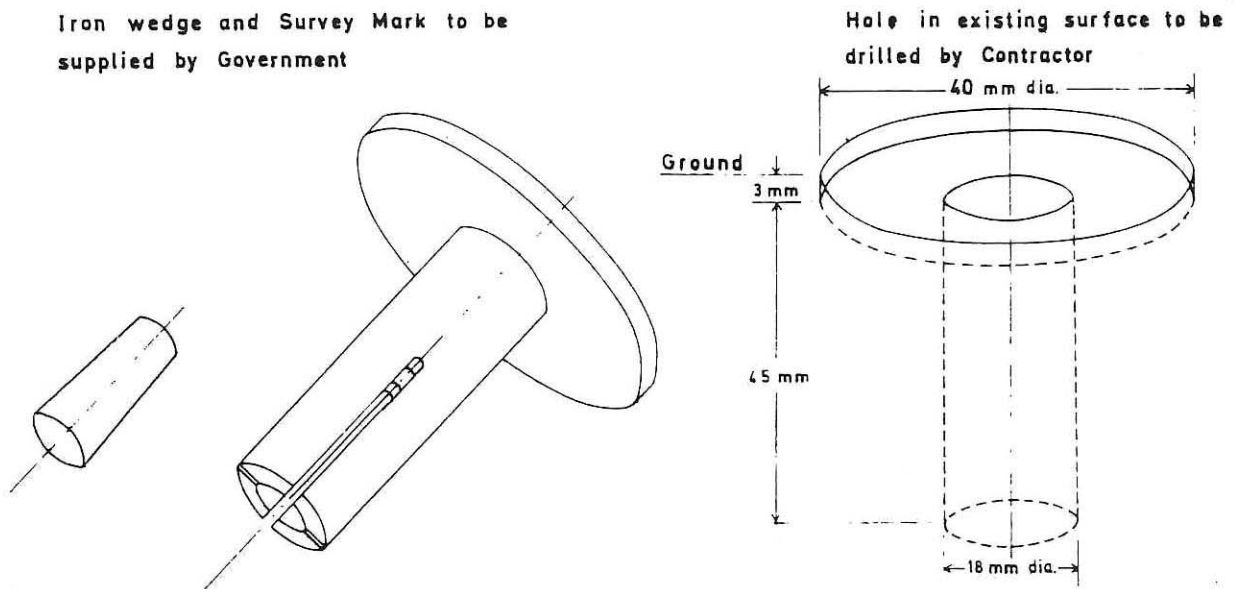
# PICKET BOX ( Fixed on Rock Surface )



SIDE VIEW  
( Not to Scale )

URBAN SURVEY MARKI Before Fixing

Iron wedge and Survey Mark to be supplied by Government

II Method of Fixing

1. Insert smaller end mild steel conical wedge halfway into open end of Survey Mark.
2. Fill half of hole with Epoxy
3. Insert Survey Mark and mild steel conical wedge into hole.
4. Hammer Survey Mark into position.

III After Fixing (as diagram below)