

TENDER SPECIFICATION

NO: BHE/PW/PUR/NGNRI-ENB/1514

JOB: Construction of concrete blocks for porta cabins, toilet, mess building, associated civil work for PEB closed shed and development of open storage yard, roads, hard surfacing by murum, fencing, drains including internal / external electrification of open storage yard etc at **NMDC Nagarnar Site, District-Bastar, Chhattisgarh**

VOLUME – IE

Tender Drawings



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

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EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR Refer Notice Inviting Tender
TENDER SUBMISSION:

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING VOLUME-I AND VOLUME- II ARE ISSUED TO:

M/s.

.....

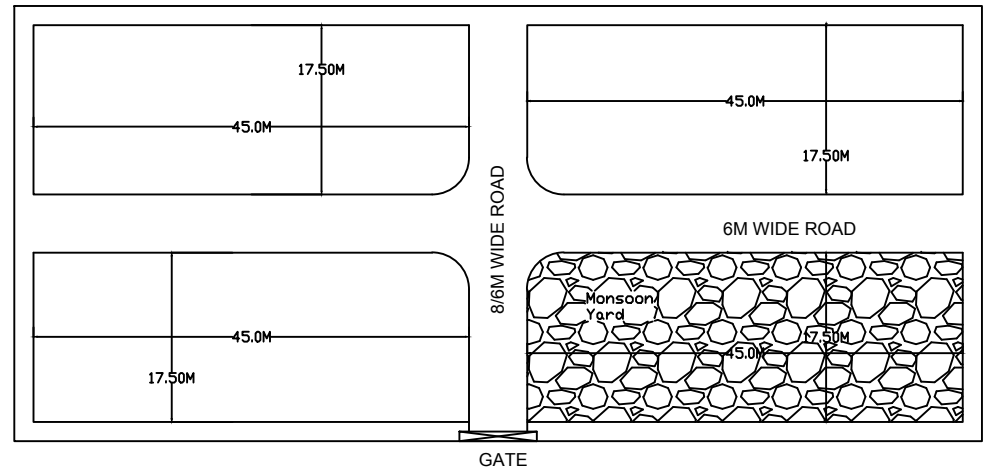
PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)
Place: Nagpur
Date

NOTE :---

1. STORAGE AREA (17.5M X 95M)
2. 8/6M MAIN ROAD & 6M BRANCH ROAD
3. DRAIN SHALL BE PROVIDED AS PER THE NATURAL SLOPE OF THE SITE AND CUSTOMER'S MAIN DRAIN COLLECTION POINT.
4. ROAD CROSSING CULVERT (RCC HUME PIPE) OVER THE DRAIN.
5. MONSOON YARD (900 SQM.) AREA TO BE DEVELOPED BY 200MM THICK COMPACTED HARD MURUM.
6. SITE OFFICE TO BE LOCATED SUITABLY INSIDE THE OPEN STORAGE YARD WITH PROPER DEVELOPMENT AS PER BOQ ITEMS.
7. PROPOSED AREA FOR CLOSED SHED (NOT IN SCOPE OF THIS CONTRACT)



LAYOUT OF OPEN STORAGE YARD (4500 SQM.)

THIS DRAWING IS PURELY INDICATIVE AND GENERAL IDEA PURPOSE OF BIDDERS ONLY. HOWEVER REALISTIC LAYOUT INLINE WITH BOQ SHALL BE MADE OFFER RECEIVING OF LAND FROM CUSTOMER FROM SUCCESSFUL BIDDER

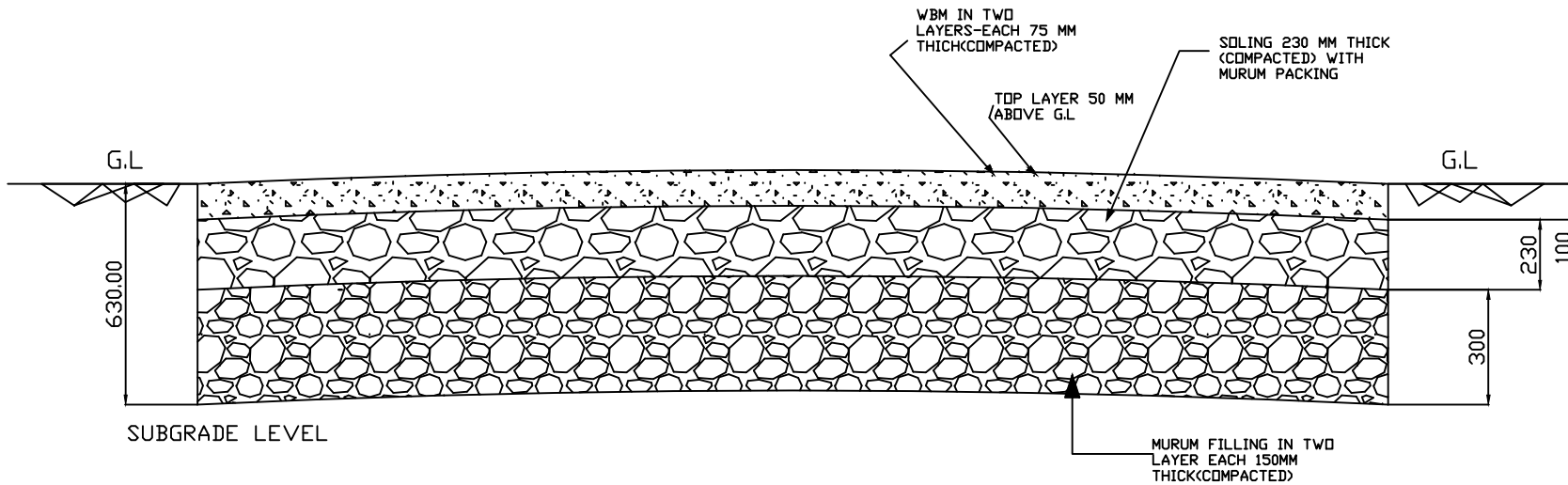
PROJECT:- NMDC Nagarnar Site

TITLE :- LAYOUT FOR OPEN STORAGE YARD-4500 SQM(TENTATIVE DRAWING)

DRG NO. :- BHE/PW/OY-01

OWNER :- BHEL-PSWR NAGPUR





ALL DIMENSIONS ARE IN MM

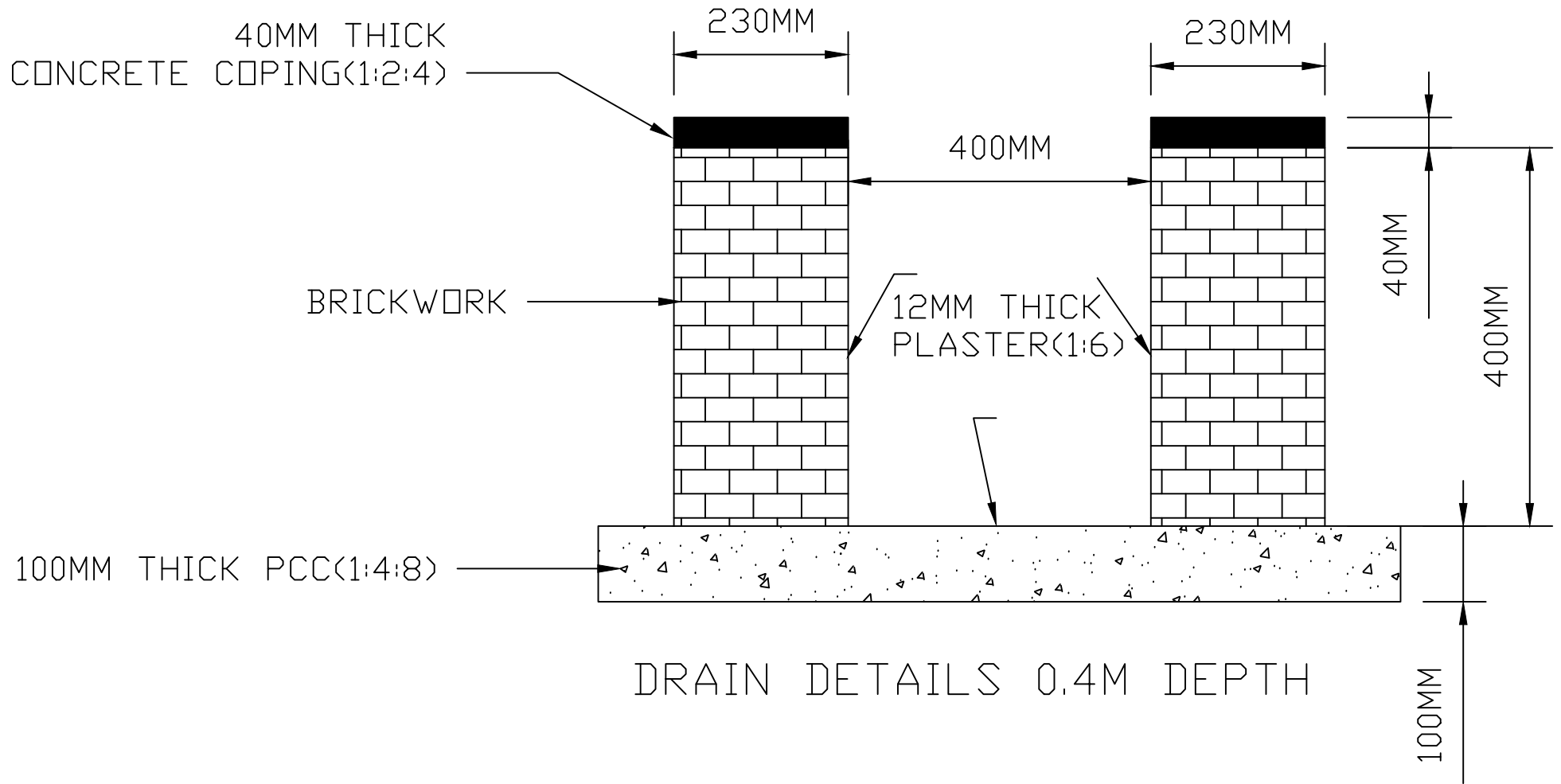
SECTIONAL DETAILS OF 8 /6 M WIDTH WBM ROAD

NOTE:
 1)CAMBER SHALL BE MAINTAINED FROM THE SUBGRADE LEVEL
 2)IN CASE SOFT/HARD ROCK MAT WITH SUBGRADE IS FOUND THAN 150MM THICH MURUM SHALL BE LAID INPLACE OF 300 MM THICK MURUM FILLING.

PROJECT: NMDC Nagarnar Site

TITLE: SECTION OF 8/6 M WIDTH WBM APR.ROAD

DRG. NO. : BHE/PW/OY- 02

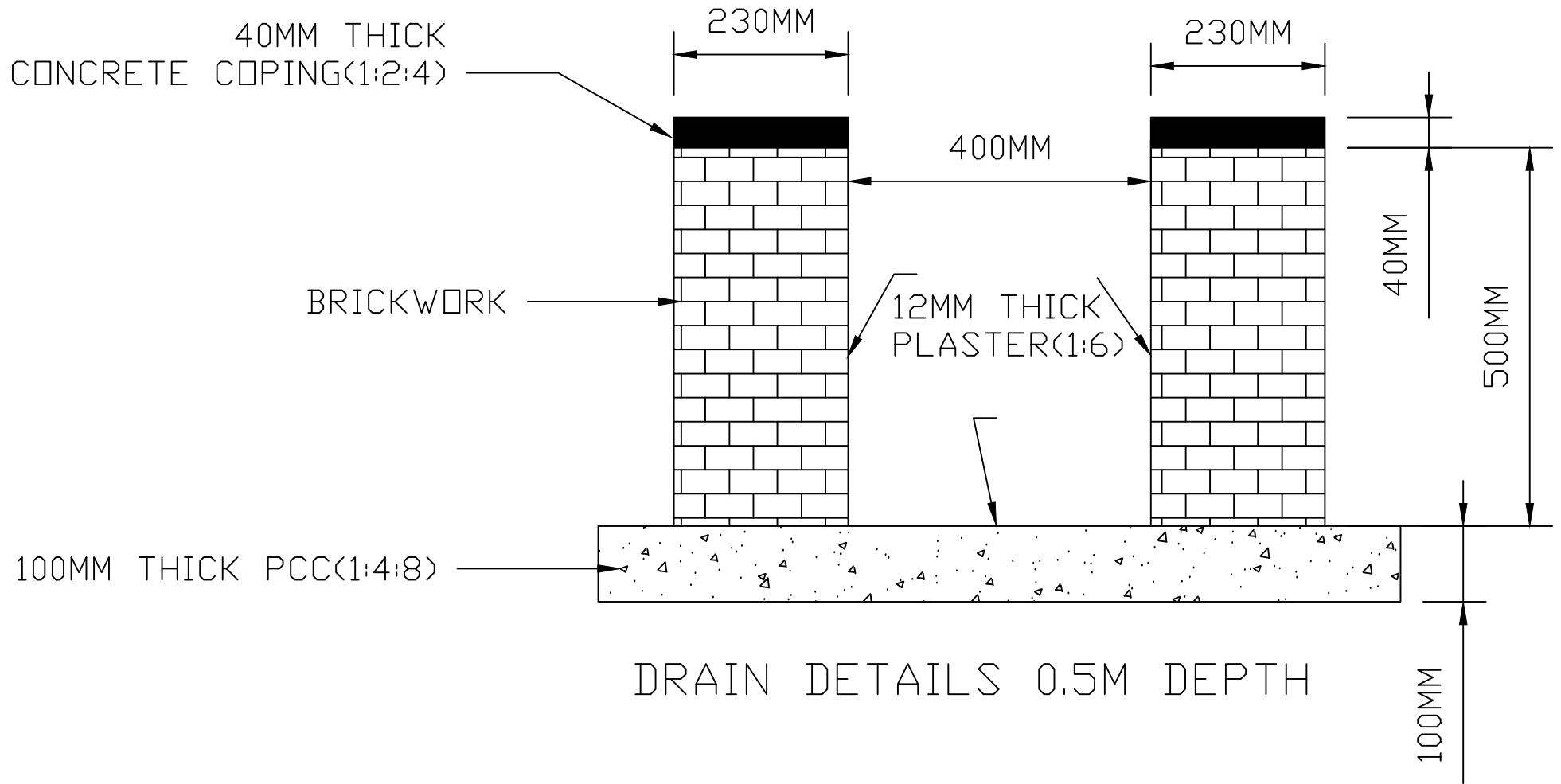


DETAILS OF .4M DEPTH DRAIN

PROJECT: NMDC Nagarnar Site

TITLE: DETAILS OF 0.4M DEPTH DRAIN

DRG. NO. BHE/PW/OY- 03



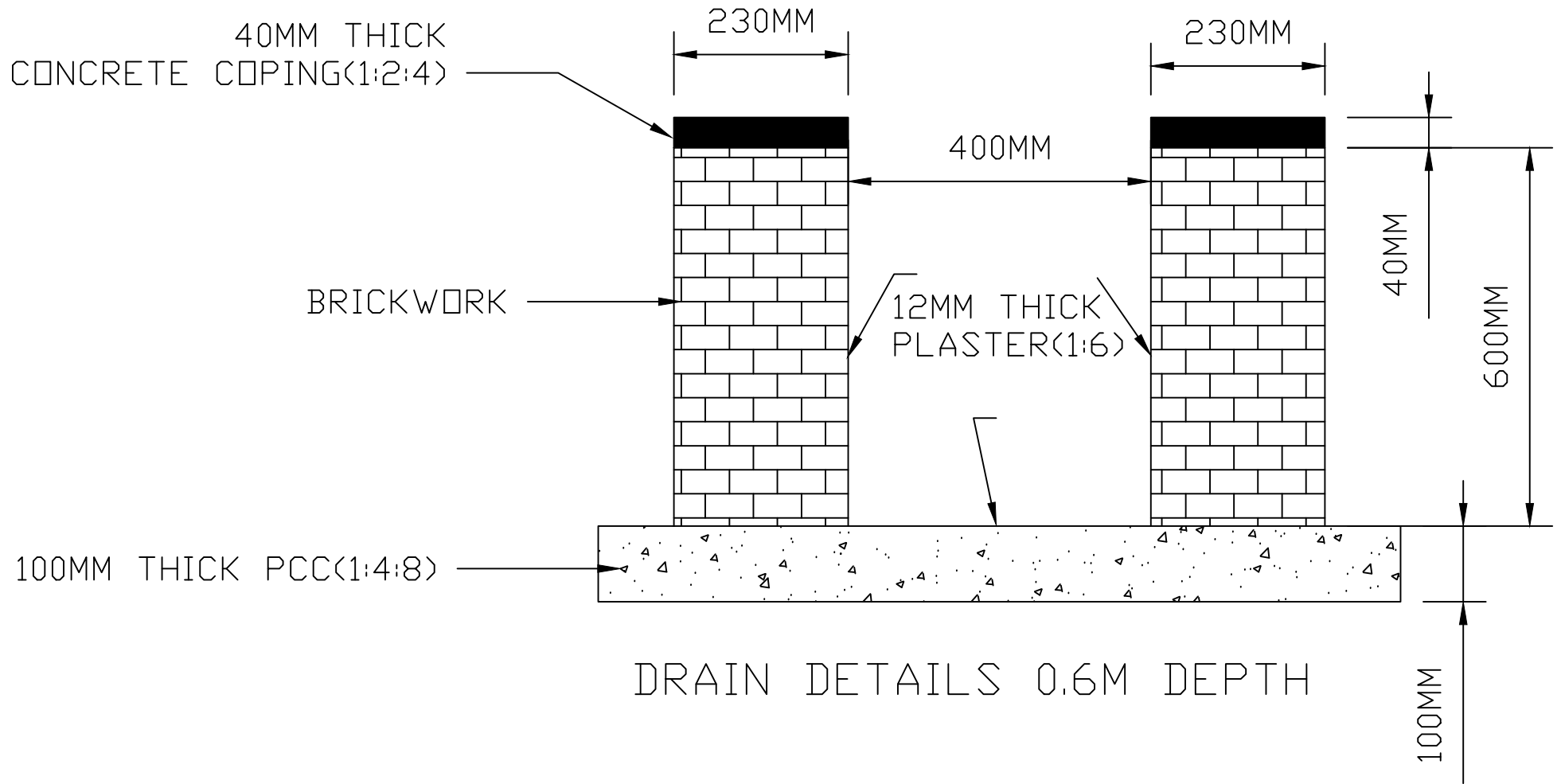
DRAIN DETAILS 0.5M DEPTH

DETAILS OF 0.5M DEPTH DRAIN

PROJECT: NMDC Nagarnar Site

TITLE: DETAILS OF 0.5M DEPTH DRAIN

DRG. NO. BHE/PW/OY- 04



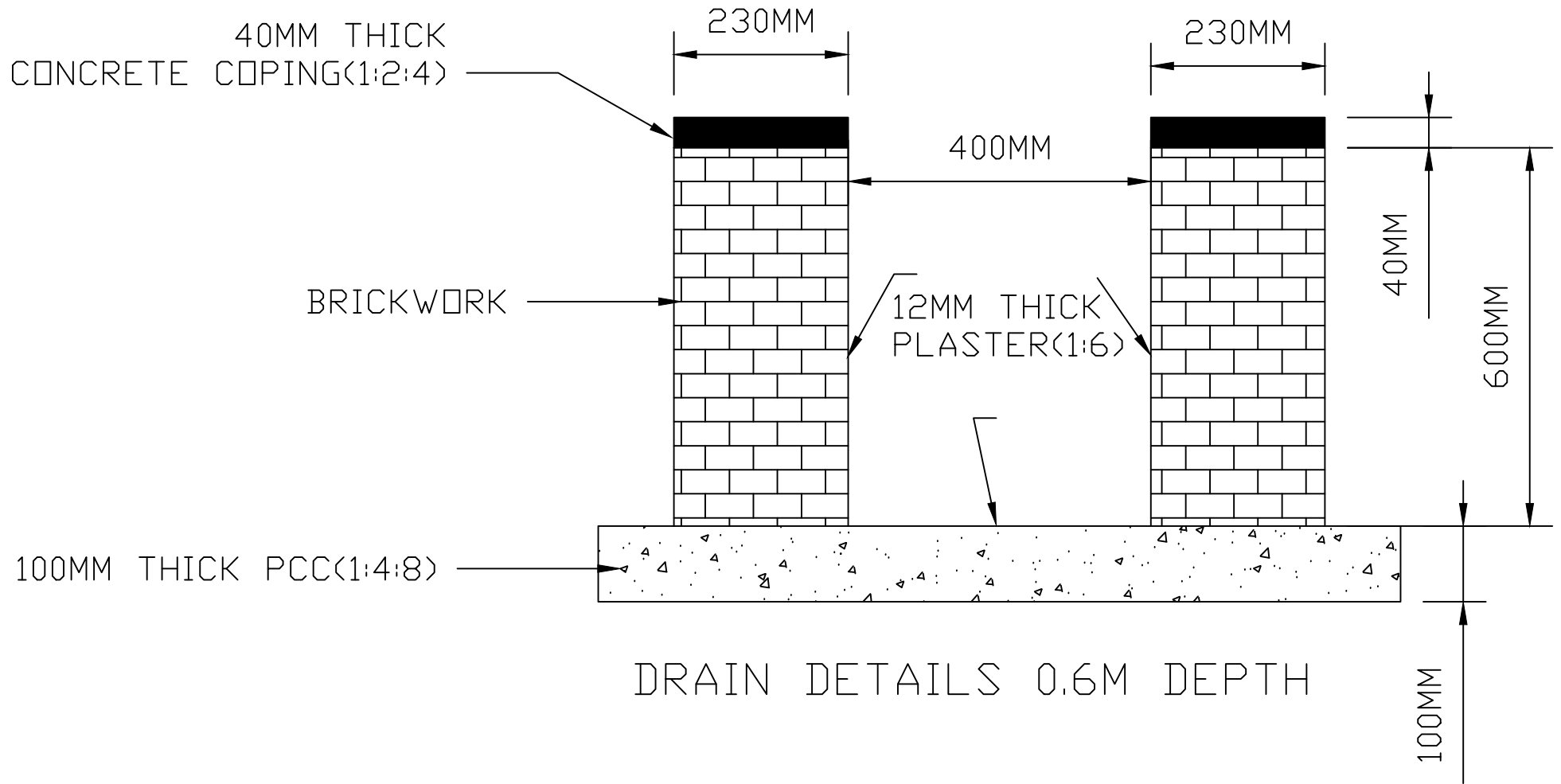
DRAIN DETAILS 0.6M DEPTH

DETAILS OF 0.6M DEPTH DRAIN

PROJECT: NMDC Nagarnar Site

TITLE: DETAILS OF 0.6M DEPTH DRAIN

DRG. NO. BHE/PW/OY- 05

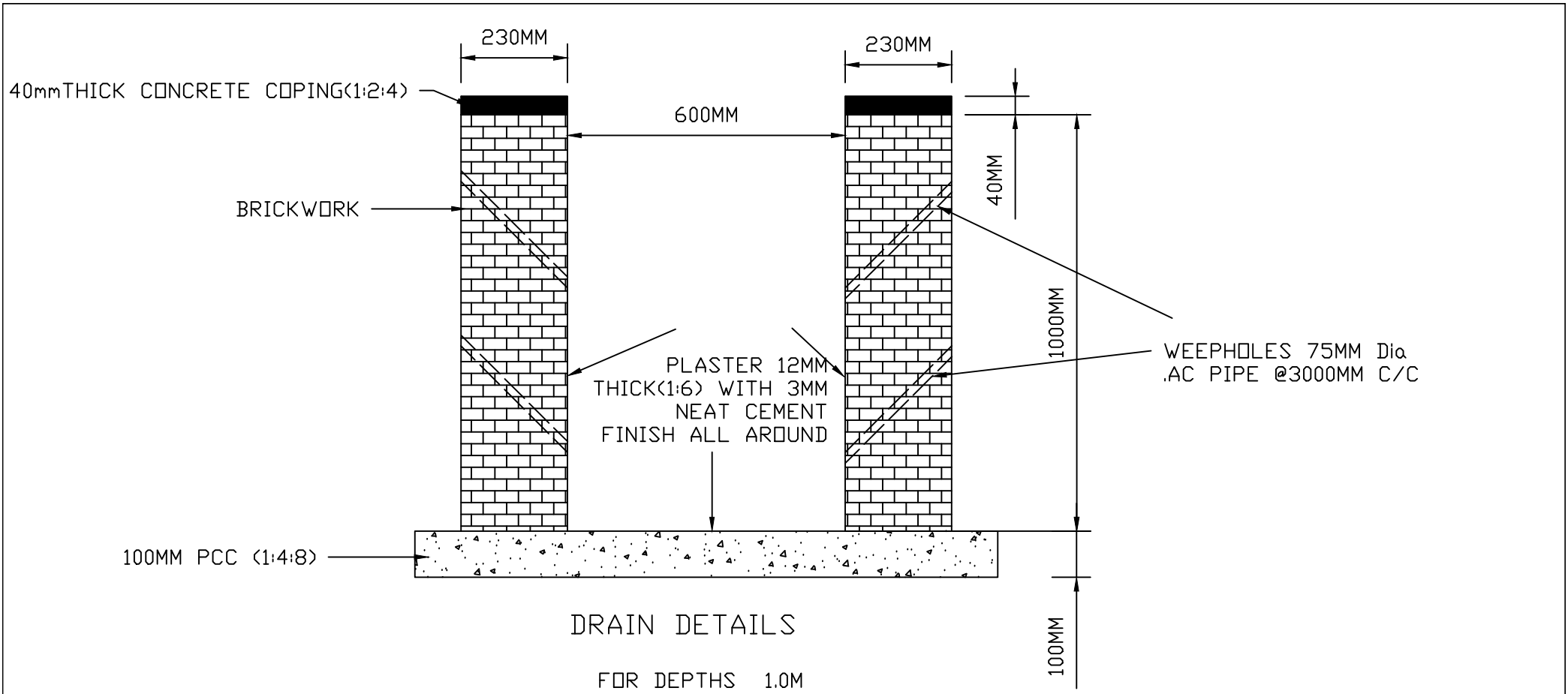


DETAILS OF 0.6M DEPTH DRAIN

PROJECT: NMDC Nagarnar Site

TITLE: DETAILS OF 0.6M DEPTH DRAIN

DRG. NO. BHE/PW/OY- 05

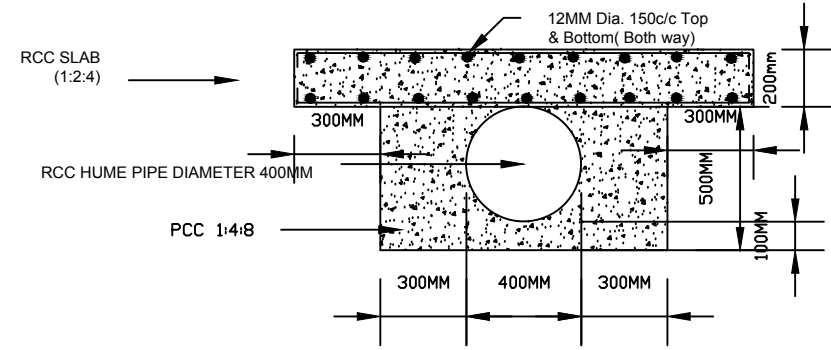
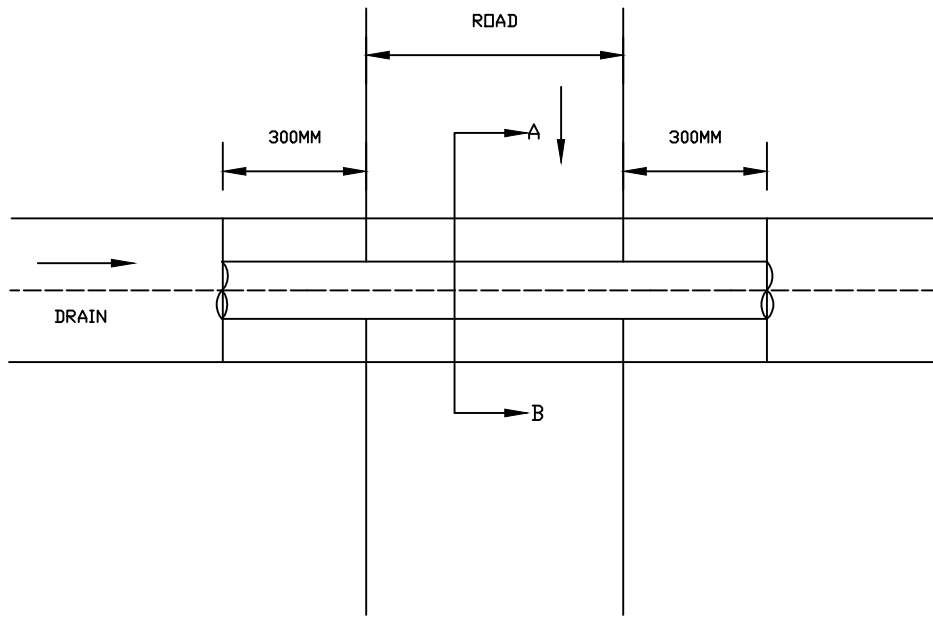


DETAILS OF 1.0M DEPTH WITH 600MM WIDE DRAIN

PROJECT: NMDC Nagarnar Site


TITLE: 1.0 M DEPTH DRAIN

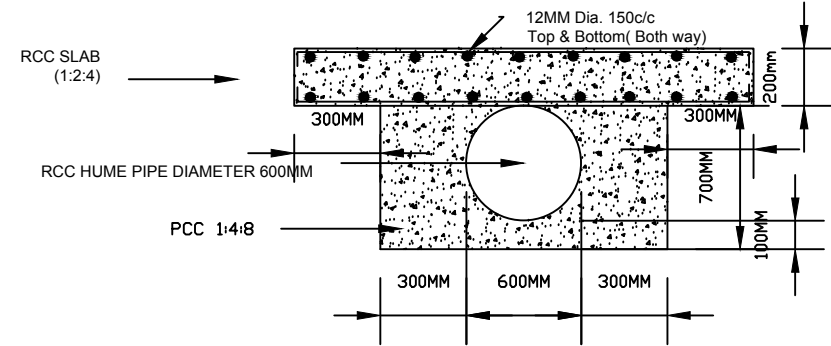
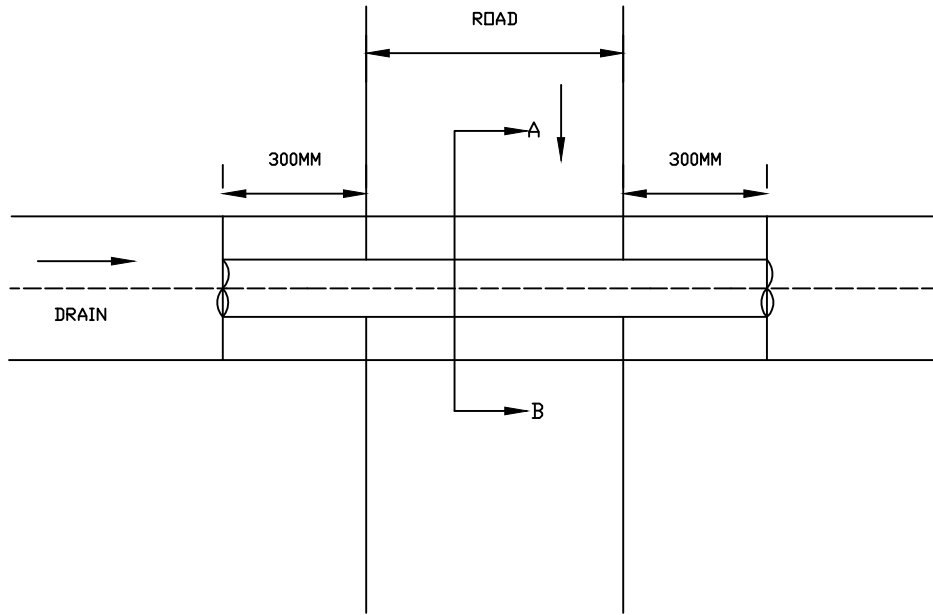
DRG. NO. : BHE/PW/OY-08



CULVERT DETAILS ON SECTION A - B

CULVERT DETAIL FOR 400MM DIA RCC HUME PIPE

| | |
|-------------------|---|
| PROJECT:- | NMDC Nagarnar Site |
| TITLE :- | CULVERT DETAILS FOR 400 MM DIA, RCC HUME PIPE |
| DRG NO. :- | BHE/PW/OY-09 |
| OWNER :- |  BHEL-PSWR NAGPUR |



CULVERT DETAILS ON SECTION A - B

CULVERT DETAIL FOR 600MM DIA RCC HUME PIPE

PROJECT:- NMDC Nagarnar Site

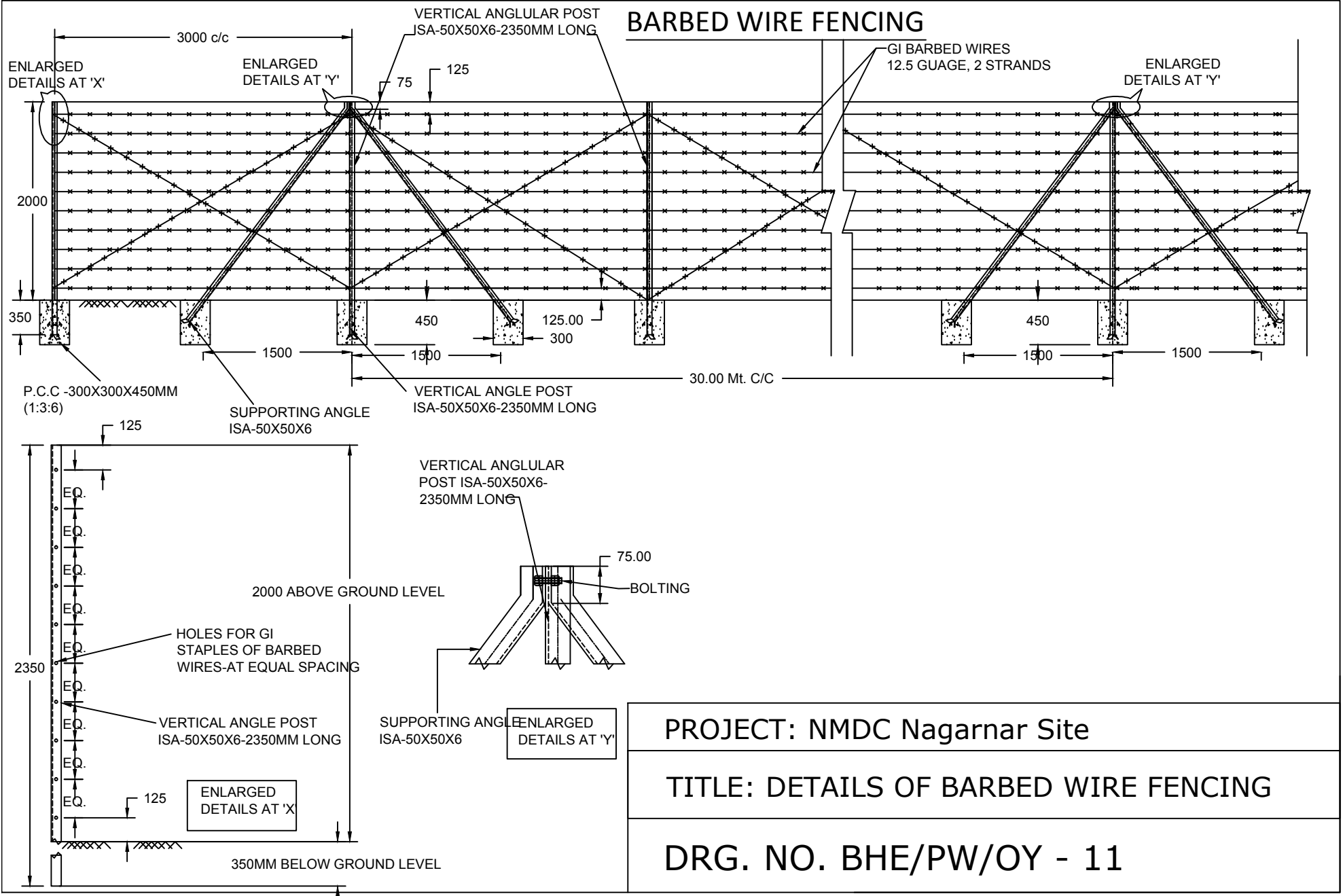
TITLE :- CULVERT DETAILS FOR 600 MM DIA, RCC HUME PIPE

DRG NO. :- BHE/PW/OY-10

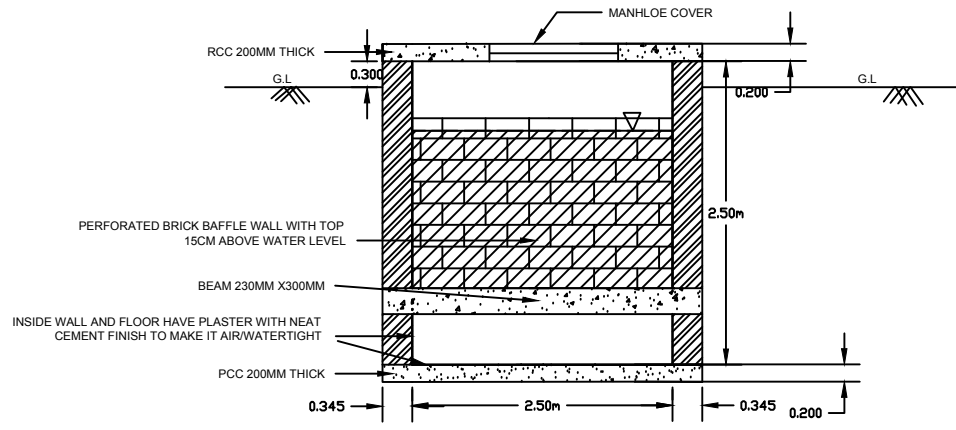
OWNER :- BHEL-PSWR NAGPUR



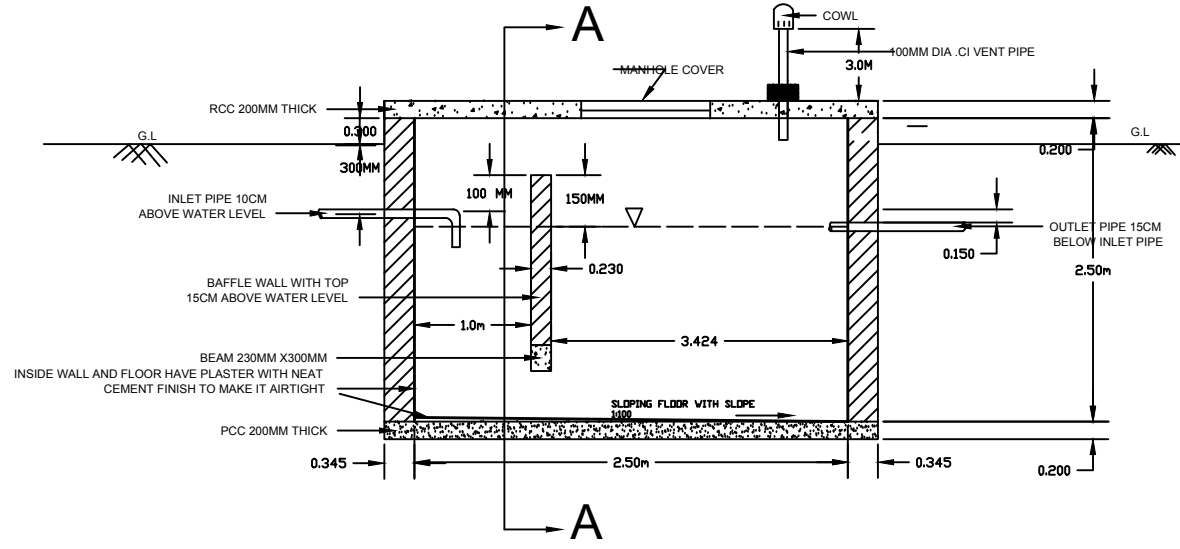
BARBED WIRE FENCING



| |
|---------------------------------------|
| PROJECT: NMDC Nagarnar Site |
| TITLE: DETAILS OF BARBED WIRE FENCING |
| DRG. NO. BHE/PW/OY - 11 |



SECTION

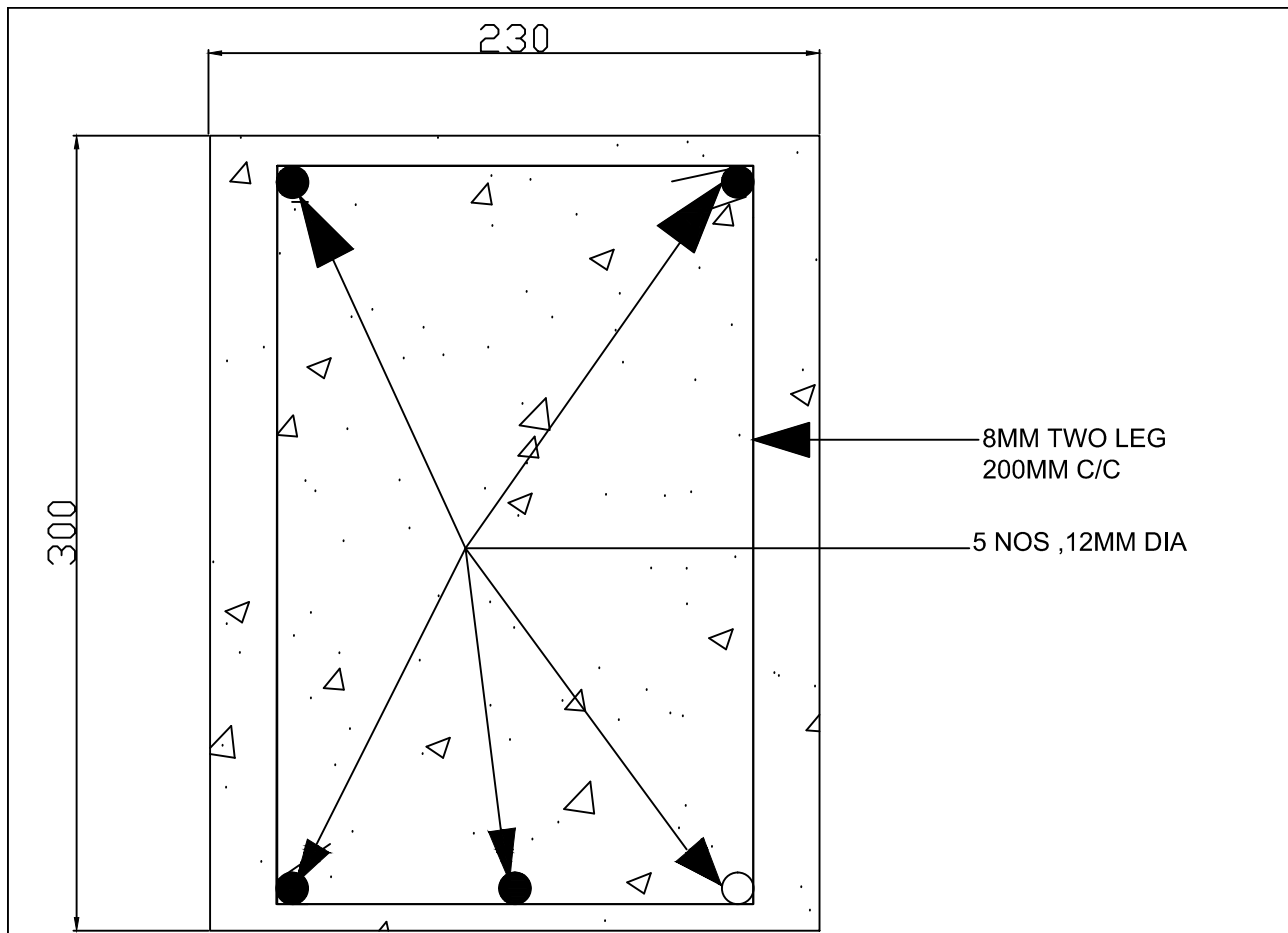


SECTION

NOTE : F.B 30-50CM ABOVE LIQUID LEVEL

DETAIL SECTION

| | |
|-------------------|----------------------------------|
| PROJECT :- | NMDC Nagarnar Site |
| TITLE :- | DETAILS OF SEPTIC TANK & SECTION |
| DRG NO. :- | BHE/PW/ST-SP-01 |
| OWNER :- | BHEL-PSWR NAGPUR |




SECTION OF BAFFLE BEAM (230MM X 300MM)

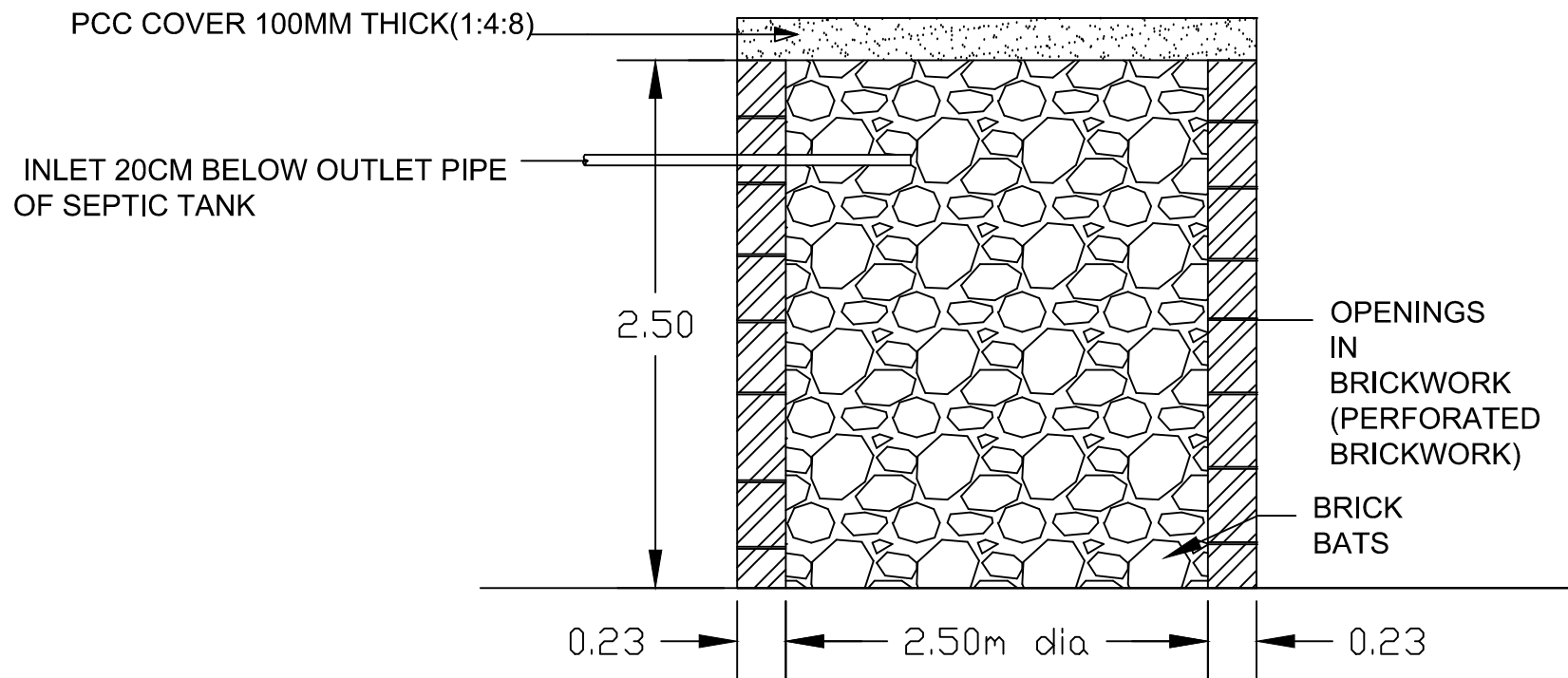
ALL DIMENSIONS ARE IN 'MM'.

PROJECT :- 3 NOS TURBO BLOWER , SAIL-BHILAI

TITLE :- SECTION OF BAFFLE BEAM
(230MMX300MM)

DRG NO. :- BHE/PW/ST-SP-02

OWNER :-  BHEL-PSWR
NAGPUR

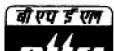


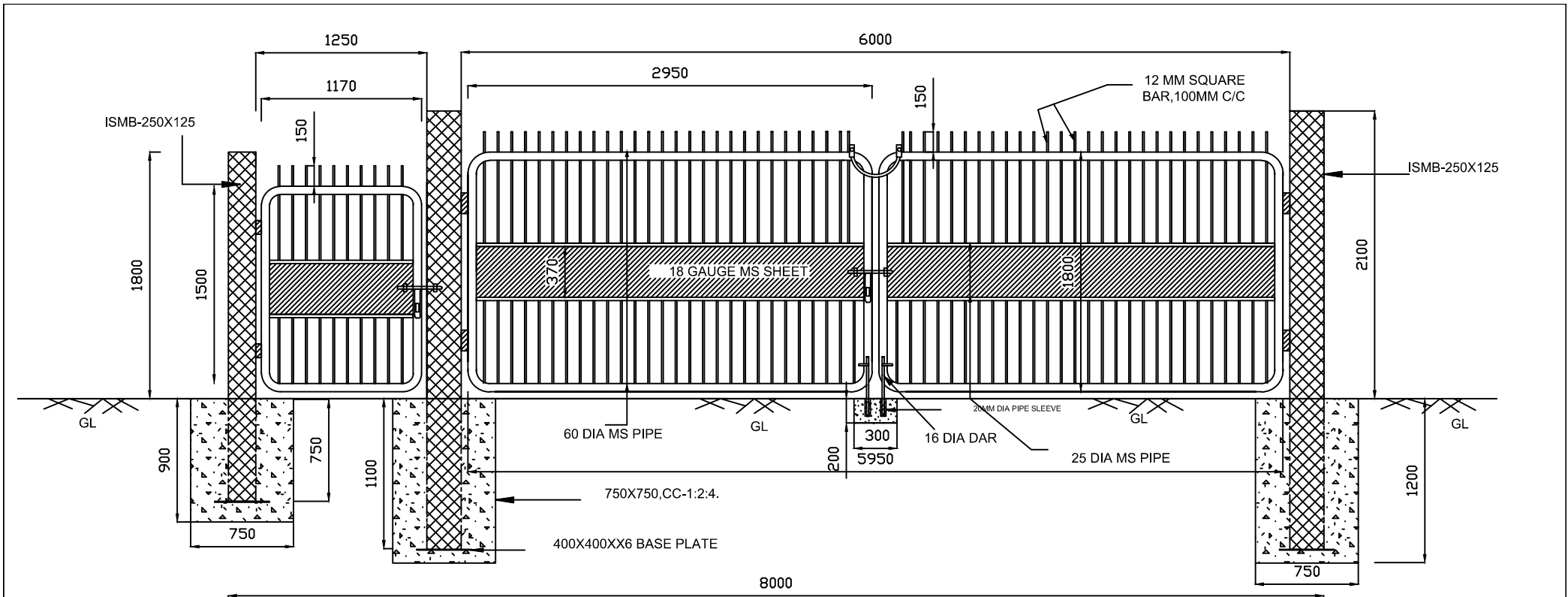
DETAILS OF SOAK PIT

PROJECT :- NMDC Nagarnar Site

TITLE :- DETAILS OF SOAK PIT


DRG NO. :- BHE/PW/ST-SP-03

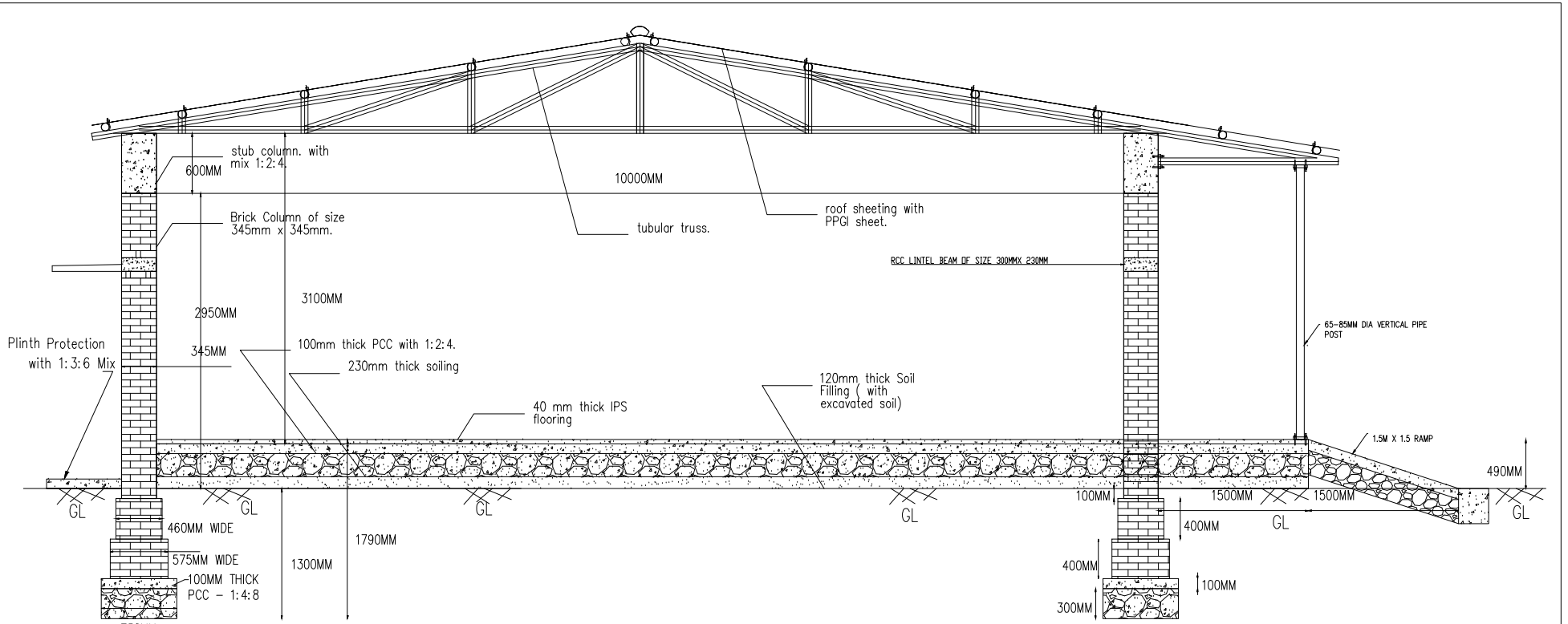
OWNER :-  BHEL-PSWR
NAGPUR



- NOTE:
- 1) ALL DIMENSIONS ARE IN 'MM'.
 - 2) CONCRETE FOR POST FOUNDATION-CC-1:2:4.
 - 3) PANEL: 2950 X 1800.
 - 4) GAP BETWEEN EARTH TO PANAL - 100MM.
 - 5) TOTAL WEIGHT OF GATE - 750 KG (APPROX)

PROPOSED MS PIPE GATE

| | |
|-------------------|---|
| PROJECT :- | 3 NOS TURBO BLOWER , SAIL-BHILAI |
| TITLE :- | PROPOSED MS PIPE GATE |
| DRG NO. :- | BHE/PW/GATE |
| OWNER :- |  BHEL-PSWR NAGPUR |



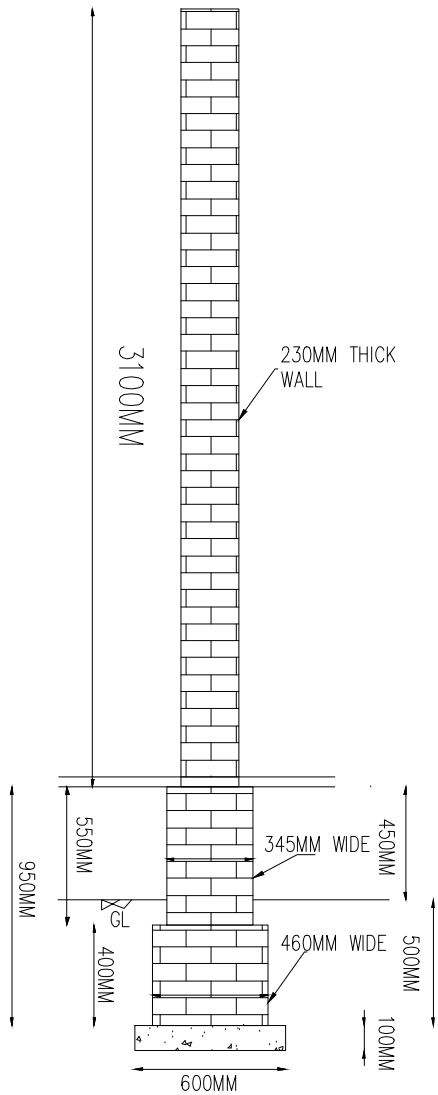
NOTE :

1. FOOTING SHALL BE STRIP FOOTING ALL ALONG THE ALL EXTERNAL AND INTERNAL WALLS.
2. DETAILS FOR INTERNAL WALL FOOTING SHALL BE AVAILABLE IN DRG NO BHE/PW/OFFICE-01/03.
3. SIZE OF THE BRICK COLUMN SHALL BE 345MMX345MM.
4. FINISHING DETAILS AND DOOR , WINDOW AND VENTILATORS DETAILS SHALL BE REFERRED FROM DRG NO BHE/PW/OFFICE 01/01.
5. SEPTIC TANK AND SOCK PIT FOR TOILET AND PANTRY BLOCK SHALL BE CONSTRUCTED NEAR TO THE PANTRY AND TOILET BLOCK. DETAILS FOR THE SAME IS AVAILABLE IN THE RESPECTIVE DRAWINGS.

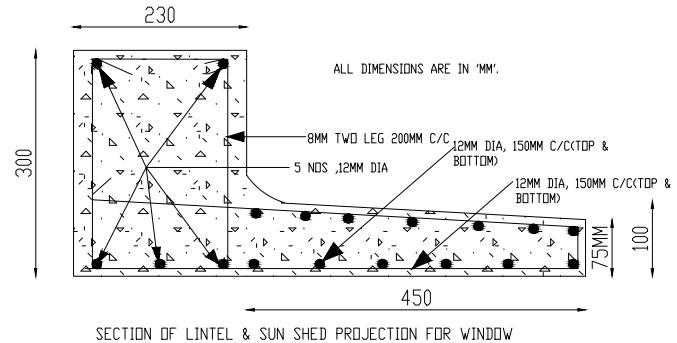
NOTE FOR TUBULAR TRUSS WORK:

1. TENTATIVE TRUSS DETAILS FOR DESIGN CONSIDERATION.
2. CLASS B - MEDIUM QUALITY PIPE SHALL ONLY BE USED.
3. PURLING-65MM DIA.
4. MAIN RAFTER-80MM DIA.
5. VERTICAL POST - AT CENTER-80MM DIA.
6. OTHER VERTICAL POST AND BRACING- 65-45MM DIA.
7. VERTICAL POST FOR VARANDHA TRUSS - 65-80MM DIA.
8. PROVISION SHALL BE MADE AVAILABLE FOR HOLDING OF FALSE CEILING AND OTHER ELECTRICAL FITTING ETC.

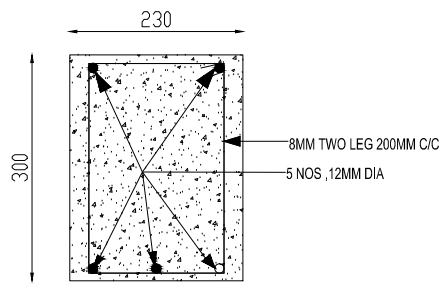
| | |
|---------|-------------------------------------|
| PROJECT | 3 NOS TURBO BLOWER , SAIL-BHILAI |
| TITLE | CROSS SECTIONAL VIEW OF SITE OFFICE |
| DRG NO | BHE/PW/OFFICE-01/02 |



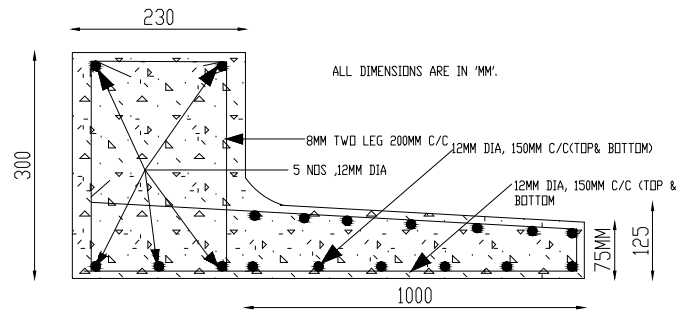
INTERNAL WALL COLUMN/ FOUNDATION



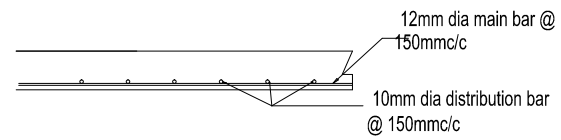
SECTION OF LINTEL & SUN SHED PROJECTION FOR WINDOW



SECTION OF TIE / PLINTH BEAM (230MM X 300MM)
ALL DIMENSIONS ARE IN 'MM'.

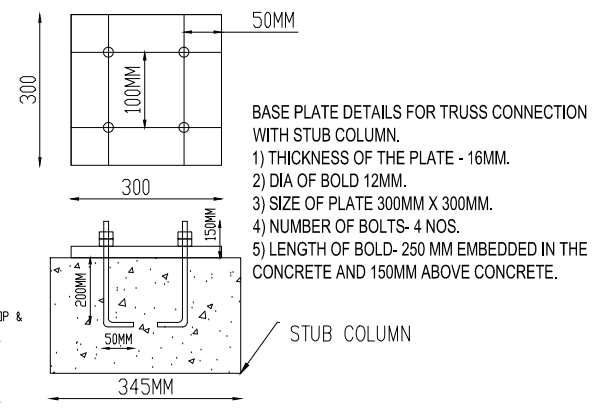


SECTION OF LINTEL & SUN SHED PROJECTION FOR STEEL DOOR AT SITE OFFICE



SLAB REINFORCEMENT DETAILS FOR PANTRY AND TOILET BLOCK (3MX3M)

- NOTE:
1. THICKNESS OF THE SLAB SHALL BE 120MM WITH CONCRETE MIX OF 1:2:4.
 2. PVC WATER TANK SHALL BE PLACED OVER THE RCC ROOF OF PANTRY AND TOILET BLOCKS

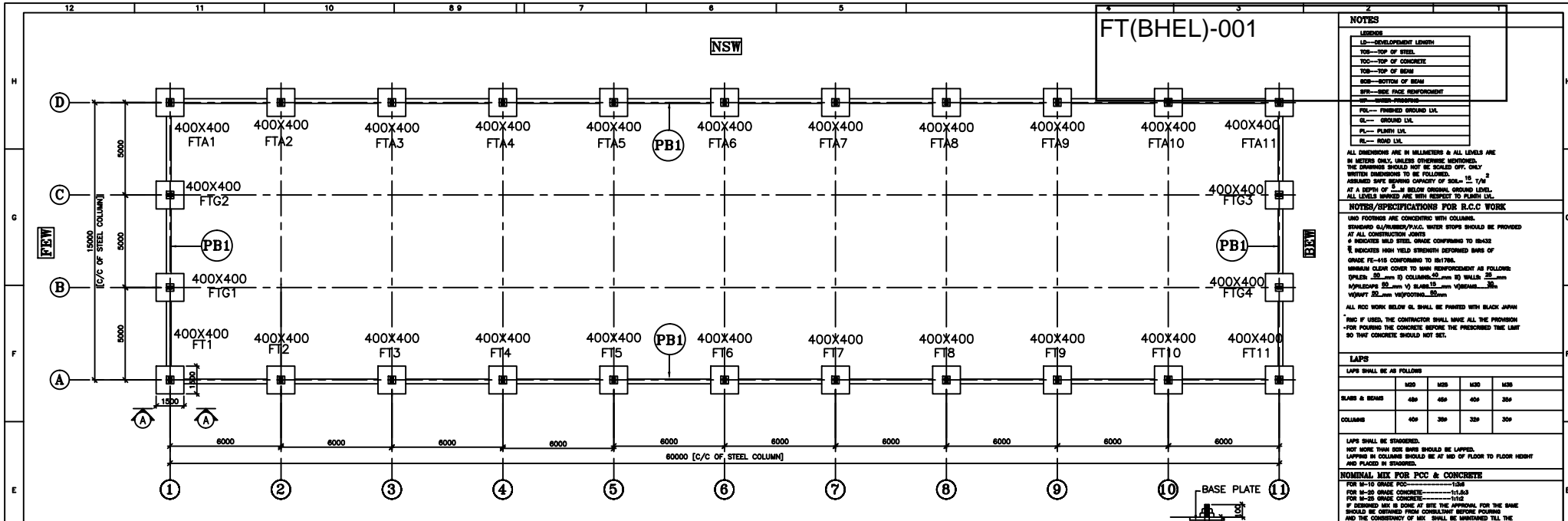


- BASE PLATE DETAILS FOR TRUSS CONNECTION WITH STUB COLUMN.
- 1) THICKNESS OF THE PLATE - 16MM.
 - 2) DIA OF BOLD 12MM.
 - 3) SIZE OF PLATE 300MM X 300MM.
 - 4) NUMBER OF BOLTS- 4 NOS.
 - 5) LENGTH OF BOLD- 250 MM EMBEDDED IN THE CONCRETE AND 150MM ABOVE CONCRETE.

DETAILS OF STRUCTURAL MEMBERS OF SITE OFFICE.

| | |
|---------|---|
| PROJECT | 3 NOS TURBO BLOWER , SAIL-BHILAI |
| TITLE | DETAILS OF STRUCTURAL MEMBERS OF SITE OFFICE. |
| DRG NO | BHE/PW/OFFICE-01 / 03 |

FT(BHEL)-001



NOTES

LEGEND

- LD—DEVELOPMENT LENGTH
- TS—TOP OF STEEL
- TC—TOP OF CONCRETE
- TT—TOP OF BEAM
- BT—BOTTOM OF BEAM
- SPR—SEE PAGE REINFORCEMENT
- FR—FINISHED GROUND LVL
- GL—GROUND LVL
- PL—PLUMB LVL
- RL—ROAD LVL

ALL DIMENSIONS ARE IN MILLIMETERS & ALL LEVELS ARE IN METERS UNLESS OTHERWISE NOTED. THE DRAWING SHOULD NOT BE SCALED OFF. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED. ASSUMED SAFE BEARING CAPACITY OF SOIL= 15 T/M² AT A DEPTH OF 2M BELOW ORIGINAL GROUND LEVEL. ALL LEVELS SHOWN ARE WITH RESPECT TO PLUMB LVL.

NOTES/SPECIFICATIONS FOR R.C.C WORK

UNO FOOTINGS ARE CONCENTRIC WITH COLUMNS. STANDARD G/P/ROOFER/P.V.C. WATER STOPS SHOULD BE PROVIDED AT ALL CONSTRUCTION JOINTS. 4 INDICATES WILD STEEL ORANGE COMPARED TO IS-432. 8 INDICATES HIGH YIELD STRENGTH DEFORMED BARS OF GRADE FE-415 COMPARED TO IS76B. MINIMUM CLEAR COVER TO MAIN REINFORCEMENT AS FOLLOWS: (D)SLAB: 25mm TO COLUMNS: 25mm TO WALLS: 25mm TO PILES/ST: 35mm TO SLABS: 25mm TO BEAMS: 25mm TO ALL ROD WORK BELOW GL SHALL BE FINISH WITH BLACK JAPAH. *MFC IF USED, THE CONTRACTOR SHALL NAME ALL THE PROMOTION FOR POURING THE CONCRETE BEFORE THE PRESCRIBED TIME LIFT SO THAT CONCRETE SHOULD NOT SET.

LAPS

LAPS SHALL BE AS FOLLOWS

| | M20 | M25 | M30 | M35 |
|-------------|-----|-----|-----|-----|
| SLAB & BEAM | 480 | 450 | 400 | 350 |
| COLUMNS | 400 | 380 | 320 | 300 |

LAPS SHALL BE STaggerED. NOT MORE THAN SIX BARS SHOULD BE LAPPED. LAPPING IN COLUMNS SHOULD BE AT MID OF FLOOR TO FLOOR HEIGHT AND PLACED IN SQUARE.

NOMINAL MIX FOR PCC & CONCRETE

FOR M-10 GRADE PCC: 1:3:6
 FOR M-20 GRADE CONCRETE: 1:1.5:3
 IF DESIGNER MIX IS DONE AT SITE THE APPROVAL FOR THE SAME SHOULD BE OBTAINED FROM CONSULTING ENGINEER AND THE CONSISTENCY OF MIX SHALL BE MAINTAINED TILL THE COMPLETION OF PROJECT.

WC RATIO AND SLUMP

WC RATIO SHALL BE 0.4 TO 0.48
 SLUMP SHALL BE AS FOLLOWS
 FOR FOUNDATIONS: 30
 FOR SLAB: 20
 FOR PLUMB AND FINISHED CONCRETE: 40

ANTICORROSIIVE PAINT TO REINFORCEMENT

REINFORCEMENT SHALL BE APPLIED WITH ANTICORROSIIVE PAINT IF HIGH SULPHATE/CHLORIDE CONTENT IS PRESENT IN SUBSOIL OR UNDERGROUND WATER AND IS EXPOSED TO ACIDIC ENVIRONMENT. ANTICORROSIIVE PAINT SHALL BE QUANTITY BASED TO HAVE PROPER COAT TO REINFORCEMENT.

REMOVAL OF FORMWORK

TEMPERATURE ABOVE 21° C:
 WALLS, COLUMNS, VERTICAL SIDES OF BEAM: 7 DAYS
 SLAB: 4.28 SPAN: 14 DAYS
 BEAMS UP TO 6M SPAN: 14 DAYS
 BEAMS ABOVE 6M SPAN: 21 DAYS
 BRACKETING BELOW 10° C:
 WALLS, COLUMNS, VERTICAL SIDES OF BEAM: 14 DAYS
 SLAB UP TO 4.28 SPAN: 14 DAYS
 SLAB ABOVE 4.28 SPAN: 21 DAYS
 BEAMS UP TO 6M SPAN: 21 DAYS
 BEAMS ABOVE 6M SPAN: 31 DAYS
 FOR TEMP. 10° TO 21° C, AVERAGE VALUES CAN BE TAKEN ABOVE THIS PERIOD ARE FOR CONCRETE WITH OPC. WITH RAPID HARDENING CEMENT ABOVE PERIOD SHALL BE REDUCED BY 2/3.

CURING PERIOD

TEMPERATURE ABOVE 21° C:
 RAPID HARDENING CEMENT: 7 DAYS OPC: 14 DAYS
 TEMPERATURE BELOW 10° C:
 RAPID HARDENING CEMENT: 14 DAYS OPC: 21 DAYS
 FOR TEMP. 10° TO 21° C, AVERAGE VALUES CAN BE TAKEN

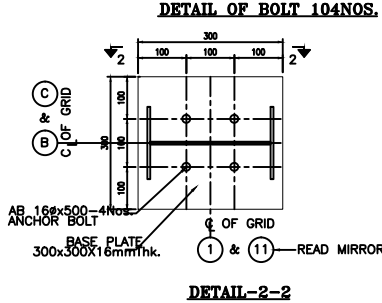
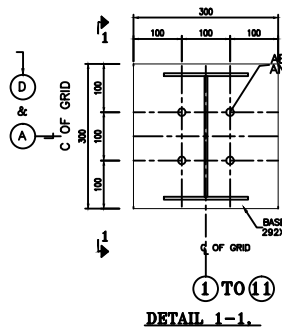
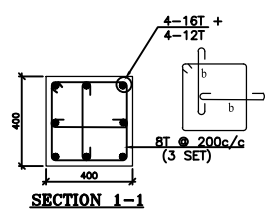
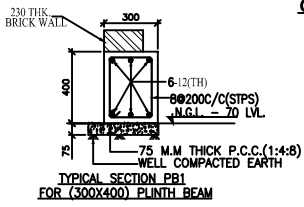
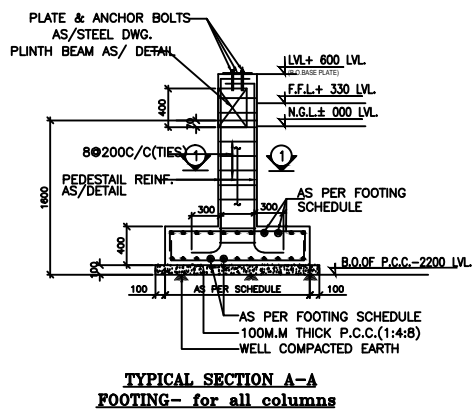
CURING FOR SLAB SHALL BE DONE BY PONDING METHOD AND FOR FOR COLUMNS BY GUNNY BAGS. CURING COMPOUND IF USED THE CONTRACTOR SHALL FOLLOW THE INSTRUCTIONS AS PER THE MANUFACTURER'S ARCHITECTURAL ASSUMPTIONS FOR DESIGN.

- EXTERNAL WALLS 230 mm THICK BOND BRICK MASONRY WALLS
- INTERNAL WALLS 110mm THICK BOND BRICK MASONRY WALLS
- PLUMB LVL. FINISHED AT ± 0.00
- ALL LEVELS CORRESPONDS TO PLUMB LEVEL ± 0.00

COLUMN LAY OUT & FOUNDATION PLAN OF CLOSED SHED

FOOTING DETAIL CONC MIX. (M-20)

| SR/NO. | FOOTING SIZE | REINFORCEMENT | |
|--------|--------------|---------------------|---------------------|
| | | TOP REINF. | BOTTOM REINF. |
| F1 | 1500x1500 | 10Ø200 C/C BOTHWAYS | 12Ø200 C/C BOTHWAYS |



NOTE:- PLEASE REFER DWG.NOS. FT/POR(rev)-02 FOR DIRECTION OF F. BOLTS & BASE PLATE

ANY DISCREPANCY IF THERE SHOULD BE BROUGHT TO OUR NOTICE BEFORE EXECUTION

STAMP AND SIGN

| NO. | REVISION | DRAWN | DATE | CHECKED | APPROVED | CAD FILE | SHEET OF |
|-----|---------------------|---------------|----------|---------|----------|----------|----------|
| 1 | ISSUED FOR APPROVAL | HEMANT MISHRA | 25.01.11 | | | | |

USE M-20 GRADE CONCRETE

PROJECT:-
 M/s. BHARAT HEAVY ELECTRICALS LTD.
 SITE: COMMON DRG FOR ALL SHEDS

TITLE:-
FRAMING PLAN AT FOUNDATION
 SIZE-15m x 60m x 5.25m HT.

DATE: 25.01.11
 SCALE: 1:1
 HEMANT

NEW LIFE STEEL STRUCTURES
 1, Shiv Darshan, Radhabinod, Mithra Road,
 Near 40th St. 42nd St 30/ 2nd St 3.

Stamp and Sign area for approval.