



MAHARASHTRA NATURAL GAS LIMITED

(MNGL)

TENDER FOR LAYING AND CONSTRUCTION OF U/G STEEL PIPELINE AND ASSOCIATED WORKS FROM GAIL'S IP-4 (SHAHAPUR) TO MEHKAR AND LONAR TO DEGAON PHATA (PARBHANI DISTRICT).

UNDER OPEN DOMESTIC

COMPETITIVE BIDDING

(THROUGH E-TENDERING MODE)

Bid Document No.: MNGL/CP/2024-25/109

VOLUME III OF III

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- | | |
|--|-----------------------|
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- | | |
|--|-----------------------|
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S.No.	DESCRIPTION	QTY.
1	10" BALL VALVE (EXTENDED STEM) WITH ACTUATOR	- 01 NO.
2	4" BALL VALVE (EXTENDED STEM)	- 02 NOS.
3	4" PLUG VALVE (EXTENDED STEM)	- 02 NOS.
4	4" BALL VALVE	- 01 NO.
5	3/4" BALL VALVE	- 04 NOS.
6	BARRER TEE 10"x10"x4"	- 03 NOS.
7	TEE 4"x4"x4"	- 01 NO.
8	FLUOW (1.5D) 4"	- 01 NO.

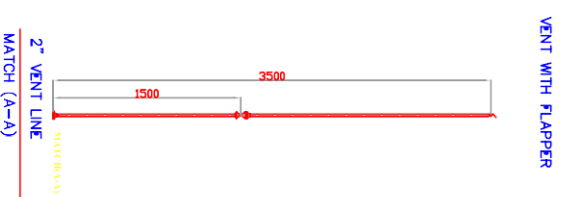
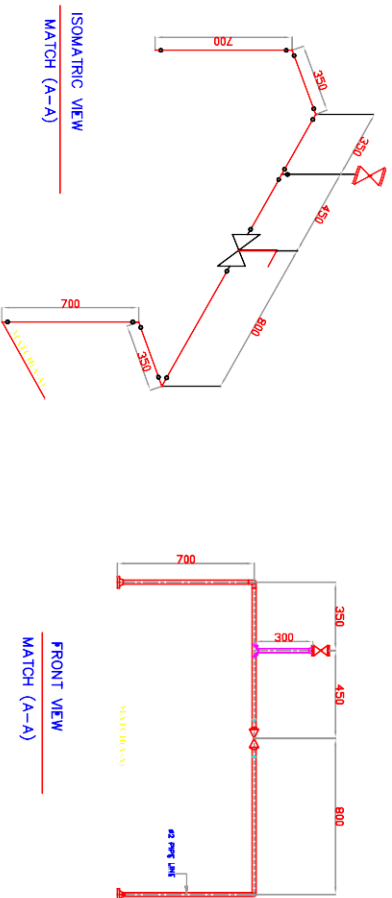
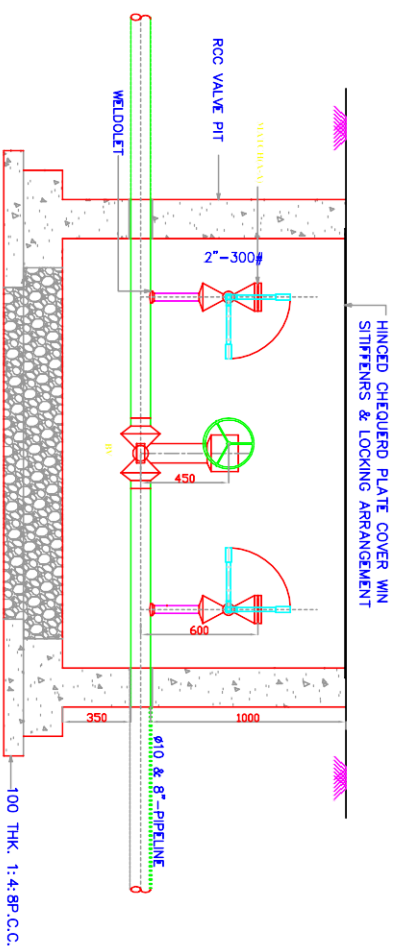
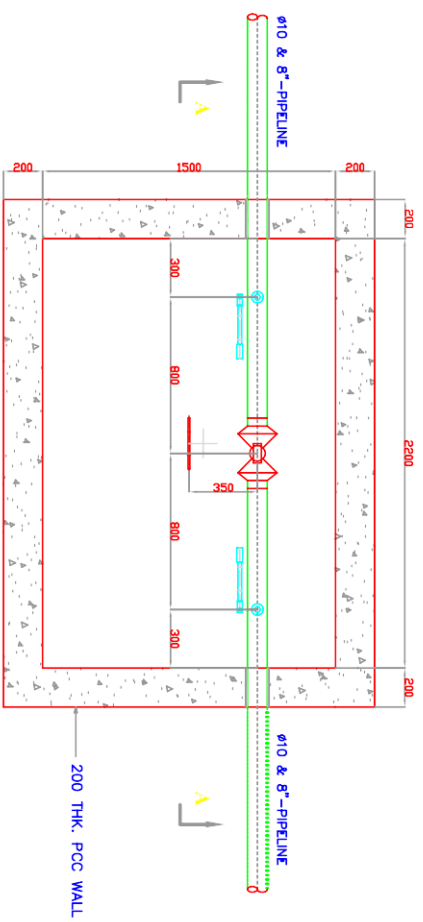
	BALL VALVE		VALVE PIT AREA
	PLUG VALVE.		ROAD
	FGL		CHANKLINK FENCING
	FRL		
	I.J.		

1. ALL DIMENSIONS ARE IN MM, UNLESS OTHERWISE MENTIONED.
2. FINISHED GROUND LEVEL +0.00 CORRESPONDS TO THE TOP OF THE NEAREST EXISTING ROAD LEVEL.
3. LOCATION OF GATE SHOWN ABOVE ARE OF INDICATIVE ONLY, HOWEVER FIRM LOCATION OF GATE SHALL BE DECIDED AS PER SITE CONDITION.

KEY	INST.	CONCURRED BY										SEC.									
		NOTES:																			
		1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE MENTIONED. 2. FINISHED GROUND LEVEL +0.00 CORRESPONDS TO THE TOP OF THE NEAREST EXISTING ROAD LEVEL. 3. LOCATION OF GATE SHOWN ABOVE ARE OF INDICATIVE ONLY, HOWEVER FIRM LOCATION OF GATE SHALL BE DECIDED AS PER SITE CONDITION.																			
		CNG & CITY GAS DISTRIBUTION IN PUNE TYPICAL DETAIL OF SV STATION (TYPE-II)																			
		SCALE: H/S _____ DATE _____ SHEET 1 OF 1 REV _____ DRG. NO. _____																			

महाराष्ट्र नैचुरल गॅस लिमिटेड
MAHARASTRA NATURAL GAS LTD

DRG No.	MINGL/ Ping. / Speed/02
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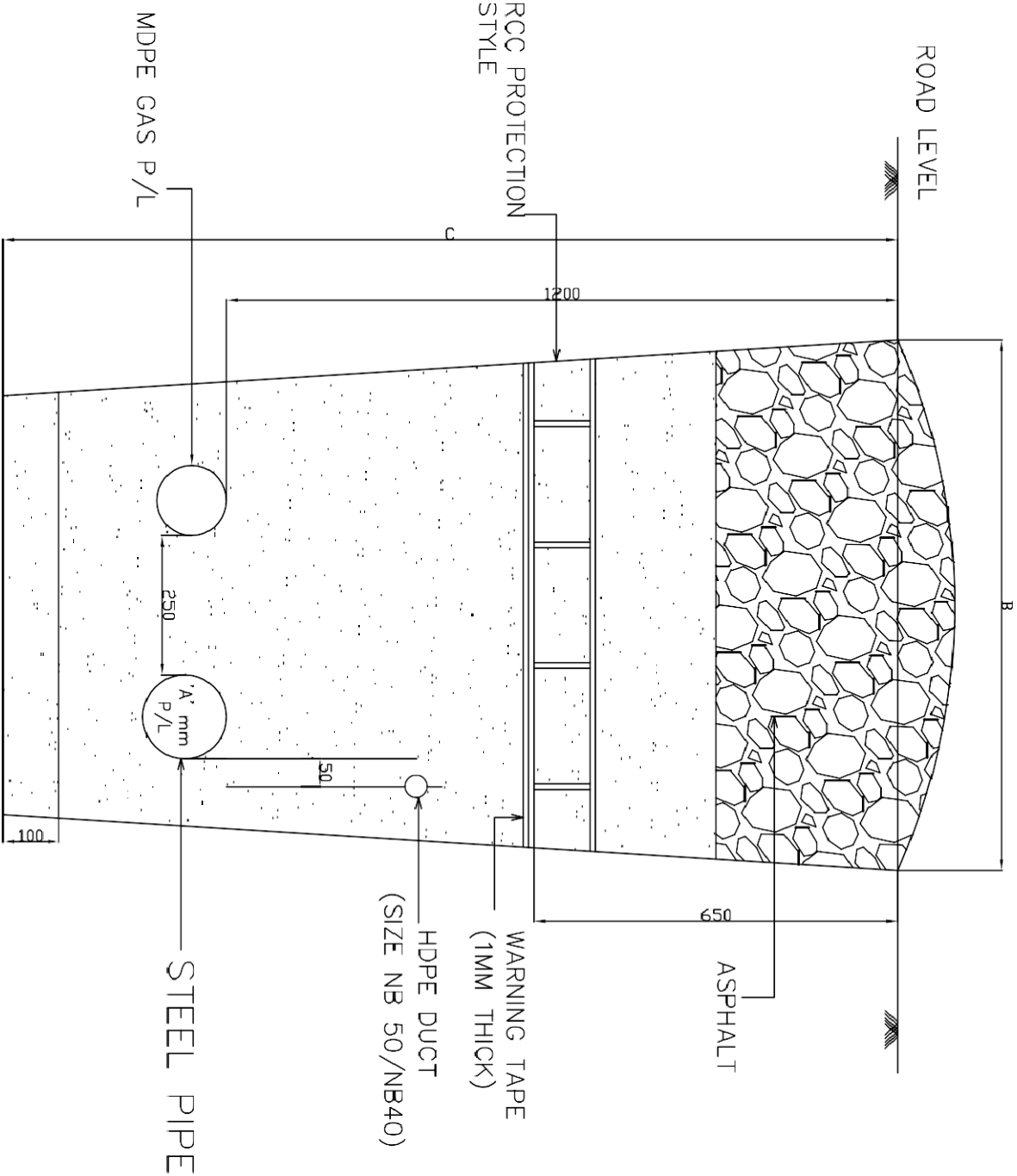
1. ALL DIMENSIONS IN MM, & ALL LEVELS ARE IN METERS.
2. VALVE PIT DIMENSION ARE TENTATIVE WELL BE DECIDED DURING DETAILENGINEERING

GENERAL NOTES

LEGEND

- | | |
|---|--|
|  | NEW PIPE
(BELO GROUND) |
|  | NEW PIPE
(BELO GROUND) |
|  | BUTT WELD BALL VALVE (B.V.) |
|  | FLANGED PLUG VALVE (P.V.) |
|  | FLANGED PLUG VALVE |
|  | FLANGED BALL VALVE |
|  | ONE SIDE B.W. & ONE SIDE F.L.G. BALL VALVE |
|  | ONE SIDE B.W. & ONE SIDE F.L.G. PLUG VALVE |
|  | BOTTOM OF PIPE |
|  | CENTER OF PIPE |
|  | TOP OF PIPE |

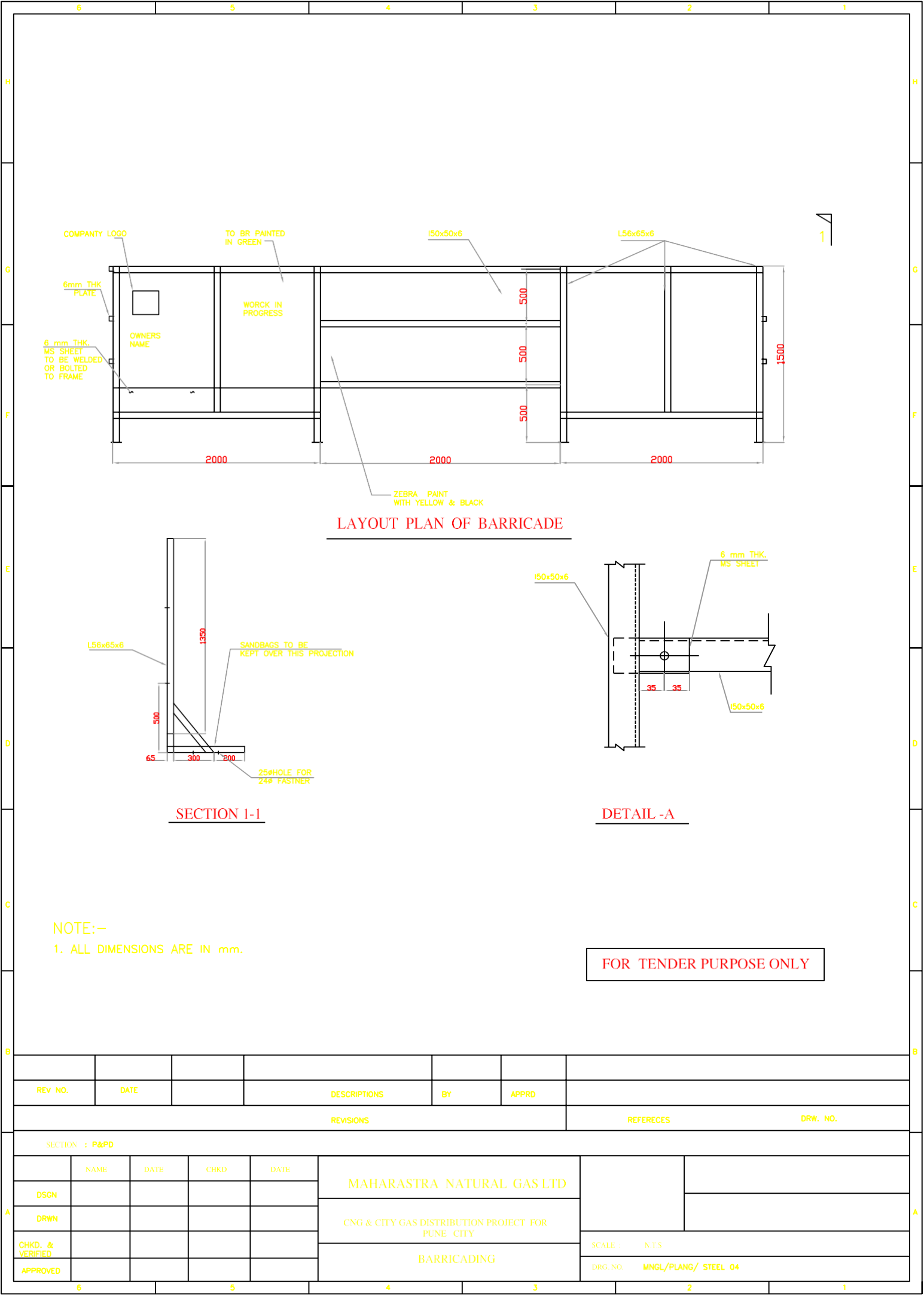
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'A' mm	B mm	C mm
10" NB	950 mm	1650 mm
06" MB	800 mm	1450 mm
04" NB	750 mm	1400 mm

ALL DIMENSIONS ARE IN MM

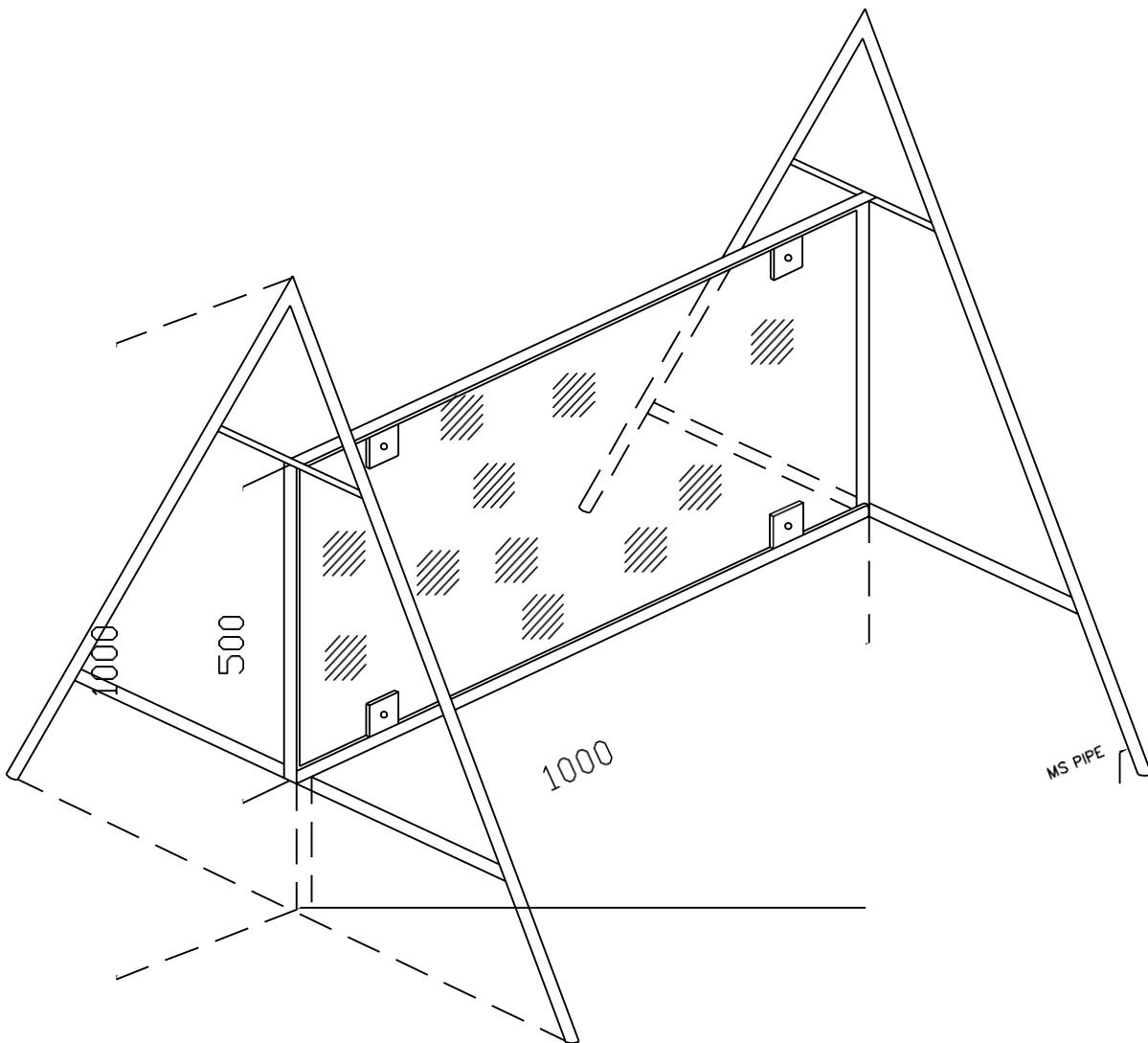
DRG. NO.- MNGL /PLANG /STEEL/ 03



REV. NO.	DATE	DESCRIPTIONS	BY	APPRD	REVISIONS	REFERECES	DRW. NO.
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SECTION : P&PD							
NAME	DATE	CHKD	DATE	MAHARASTRA NATURAL GAS LTD			
DSGN				CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY			
DRWN				BARRICADING			
CHKD. & VERIFIED				SCALE : N.T.S			
APPROVED				DRG. NO. MNGL/PLANG/ STEEL 04			

51 24 33 42 15



IN RED

IN BLACK

CAUTION
WORK IN PROGRESS
LATING OF HITH PRESSURE PIPELINE
CLIENT : CLIENT'S NAME
CONTRACTOR : CONTRACTOR'S NAME
EMERGENCY PHONE NOS :

NOTES: -

1. ALL DIMENSIONS ARE IN mm

FOR TENDER PURPOSE ONLY

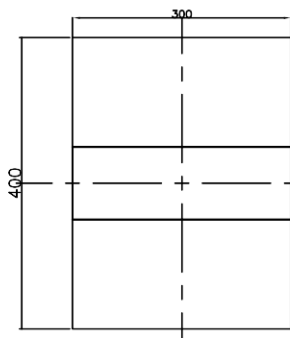
REV NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD		
REVISIONS					REVISIONS		DRG NO.
DSGN							
DRWN							
CHD. & VERIFIED							
APPROVED							

5

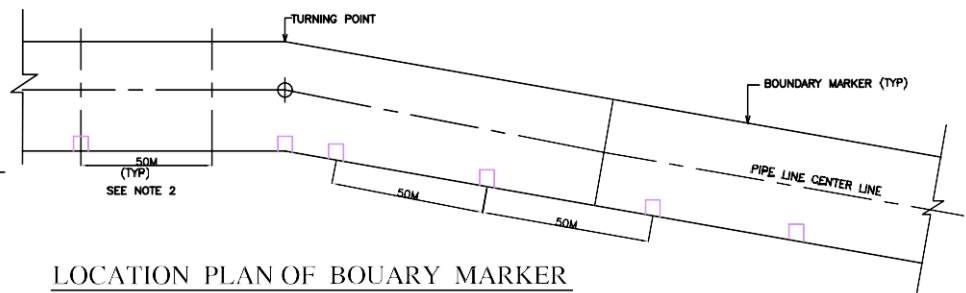
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2

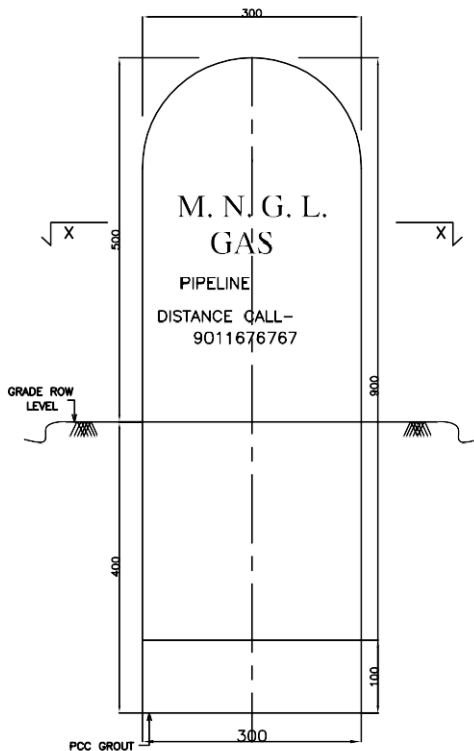
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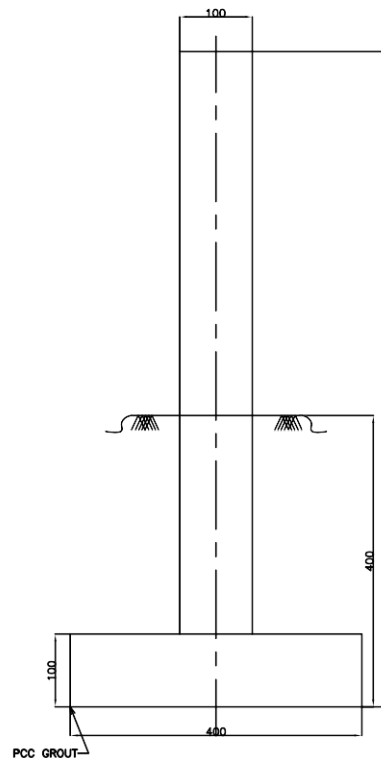
PLAN



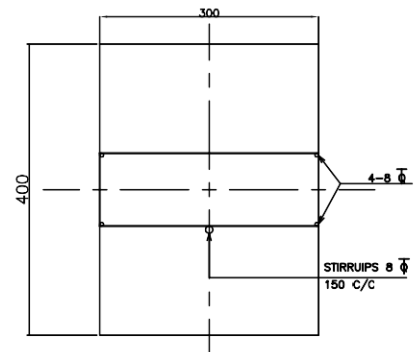
LOCATION PLAN OF BOUARY MARKER



ELEVATION



SIDE VIWE

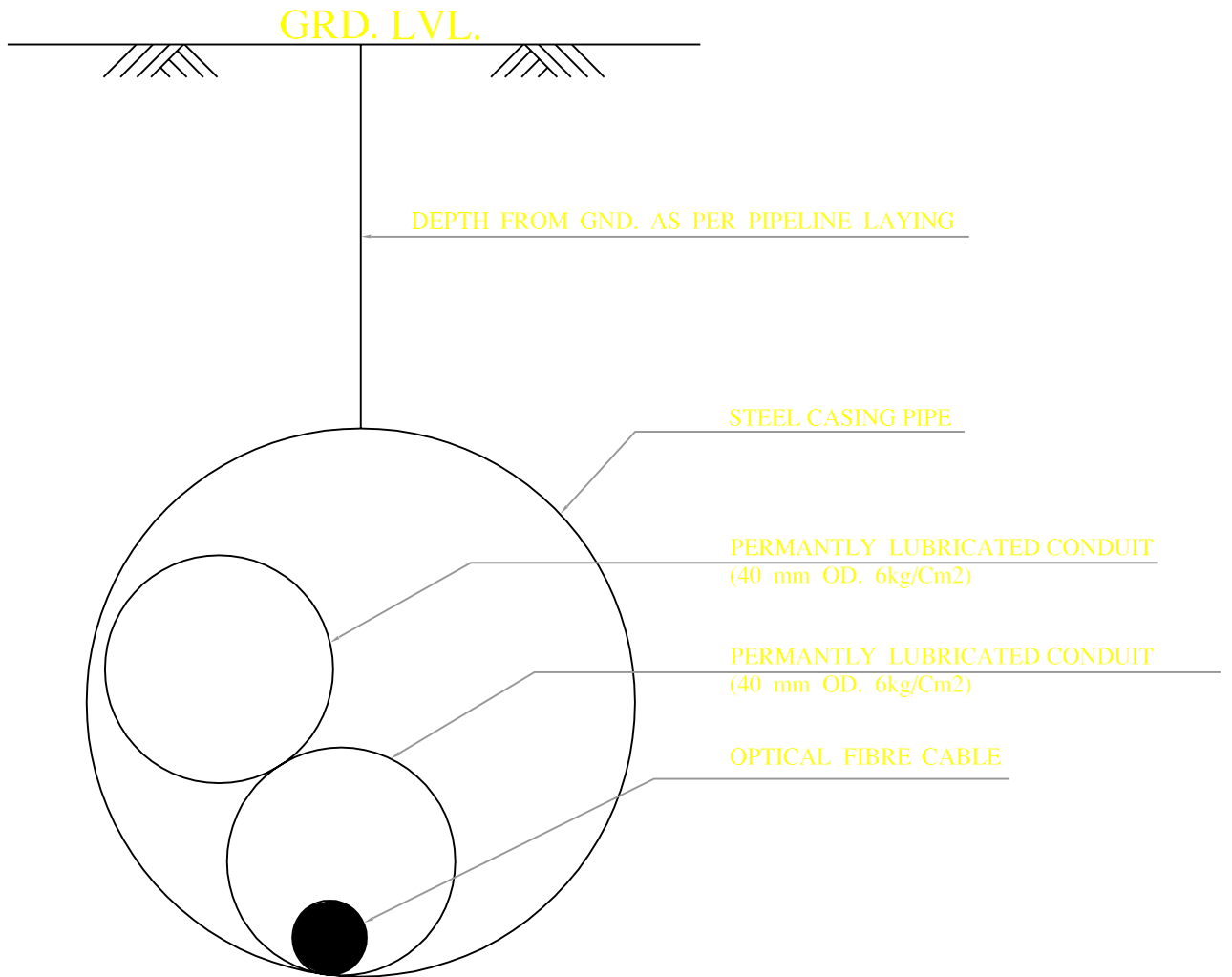


SECTION X-X

NOTES:-

1. ALL DIMENSIONS ARE MM UNLESS OTHARWISE SPECIFIED.
2. MARKERS SHALL BE INSTALLED IN EVERY 50M INTERVAL AS PER INSTRUCTION OF EIC
3. ALL BOUNDRY MARKERS SHALL BE PRECAST AND INSCRIPTIONS SHALL BE ENGAVED CENTRALLY IN THE MOLULD ON ONE FACE .
4. LETTERS SHALL BE 60 HIGH AND 5 DEEP.
5. INSCRIPTIONS SHALL THE PIPELINE.
6. CONCRETE FOR BOUNDARY MARKERS SHALL BE 20.
7. ABOVE GROUND PART OF BOUNDARY MARKERS BE PAINTED YELLOW WITH MINIMUM THREE COATS OF APPROVED QUALITY PAINT INSCRIPTIONS SHALL BE PAINTED BLACK.(35MICRONS COAT)

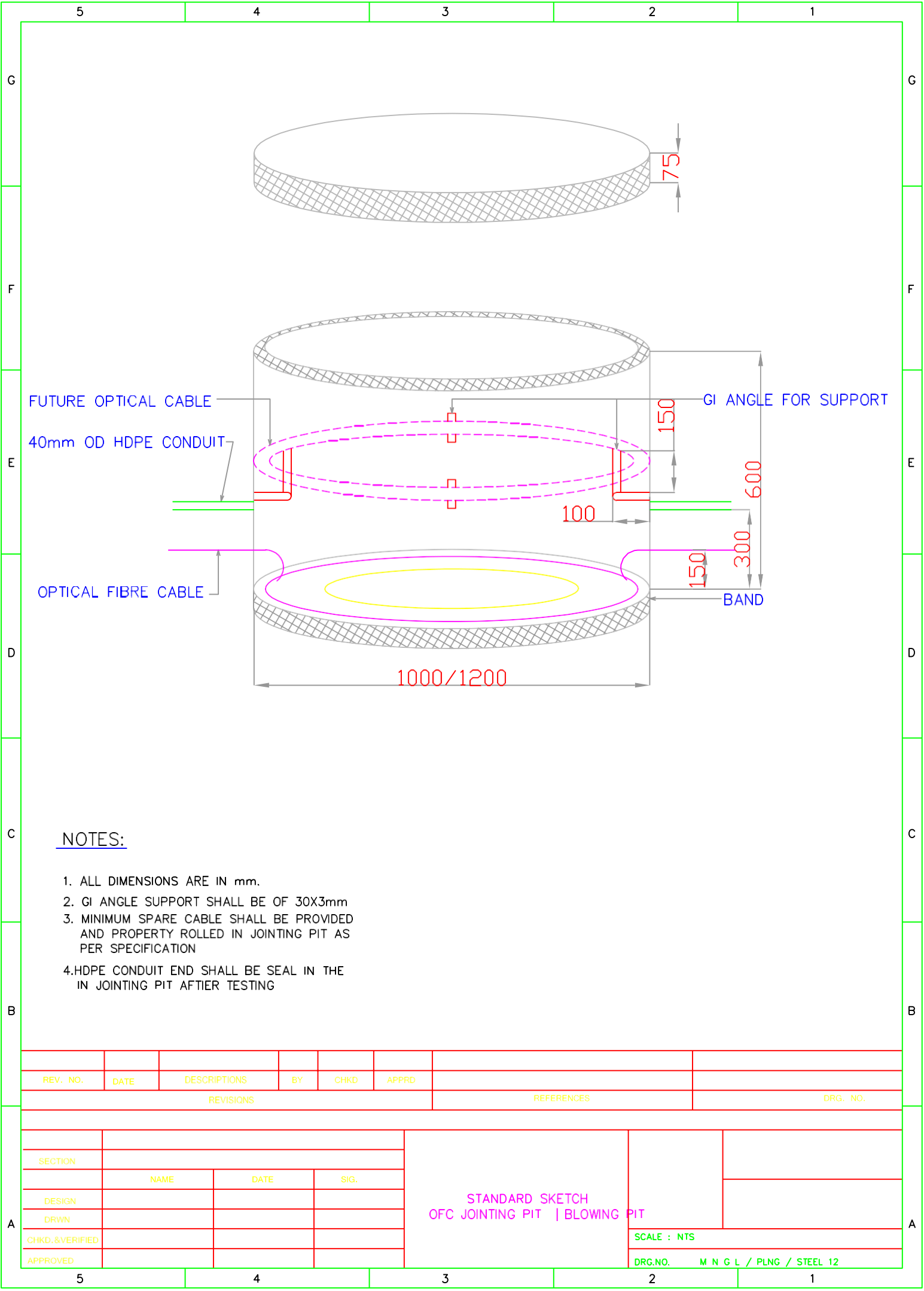
REV NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD	REFRECNCES	DRG . NO.
REVISIONS						DRG . NO.	
MAHARASTRA NACHURAL GAS LTD						DRG . NO.	
CNG & CITY GAS DISTRIBUTION IN PUNE						SCALE : N.T.S	
DSGN						DRG. NO. M N G L / PLAN / STEEL #06	
DRWN							



NOTE :-

1. OPTICAL FIBER SHALL BE LAID ON RIGHT SIDE OF THE PIPELINE IN THE DIRECTION OF GAS FLOW.
2. OFC SHALL BE LAID AS PER THE SPECIFICATION NO. MEC/S/05/E5/T/001 REV-0

REV NO.	DATE		DESCRIPTIONS	BY	APPRD		
REVISIONS						REFERECES	DRW. NO.
SECTION : P&PD							
	NAME	DATE	CHKD	DATE	OPTICAL FIBER CABLE LAYING (CASSED CROSSING) 2 Nos. HDPE DUCT		
DSGN							
DRWN							
CHKD& VERIFIED							
APPROVED							
						SCALE : N.T.S	
						DRG. NO. MNGL/PLANG/ STEEL 11	
6	5		4	3	2		1



NOTES:

1. ALL DIMENSIONS ARE IN mm.
2. GI ANGLE SUPPORT SHALL BE OF 30X3mm
3. MINIMUM SPARE CABLE SHALL BE PROVIDED AND PROPERTY ROLLED IN JOINTING PIT AS PER SPECIFICATION
- 4.HDPE CONDUIT END SHALL BE SEAL IN THE IN JOINTING PIT AFTIER TESTING

REV. NO.	DATE	DESCRIPTIONS	BY	CHKD	APPRD			
REVISIONS						REFERENCES	DRG. NO.	
					STANDARD SKETCH OFC JOINTING PIT BLOWING PIT			
SECTION								
	NAME	DATE	SIG.					
DESIGN								
DRWN								
CHKD.&VERIFIED								
APPROVED								
						SCALE : NTS		
						DRG.NO.	M N G L / PLNG / STEEL 12	

6	5	4	3	2	1
H					
G					
F					
E					
D					
C					
B					
A					

SEE DETAIL X

MS CORE

VIWE A

PER-PACKED ZINC ANODE

CHEMICAL COPOISTON OF ANODE (% WEIGHT)

CHEMICAL	TYPE- I	TYPE- II
Al	: 0.1% – 0.5 %	0.005% MAX
Cd	: 0.25% –0.07%	0.003% MAX
Cu	: 0.005% MAX	0.002% MAX
Fe	: 0.005% MAX	0.0014% MAX
Pb	: 0.006% MAX	0.003% MAX
OTHERS	: 0.1% MAX	—
Zn	: REMAINDER	REMAIDER

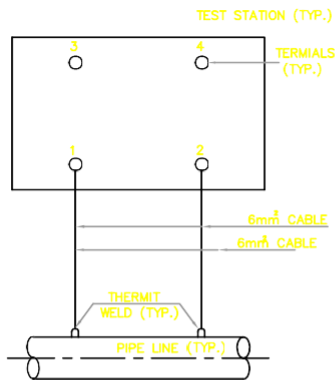
NOTES:—

1. ANODE COMPOSITION, NET WEIGHT GROSS WIGHTE DIMENSIONS SHALL BE FURNISHED BY CONTRACTOR
2. ANODE TAIL CABLE SHALL BE HIGH CONDUCTIVITY, STRANDED, COPPER CONDUCTOR, 600/1100 V GRADE XLPE INSULATED, PVC SHATHED & UNARMoured.

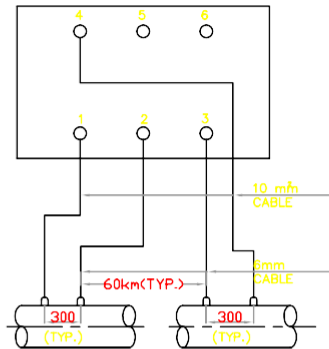
7	2.5 THICK X 15 WIDE GI CORE STRIP (PART OF ZINC ANODE)	
6	SILVER SOLDER	AS REQD.
5	BACKFILL MATERIAL	AS REQD.
4	COTTON BAG	1
3	M- SEAL COMPOUND	AS REQD.
2	ANODE TAIL CABLE PE INSULATED, PVC SHATHED, UNARMoured 6 mm2 SINGLE CORE COPPER, 600/1100 V,	AS REQD.
1	ZINC ANODE, WEIGHT 17 ibs (7.7kg)	1
ITEM	DESCRIPTION	QTY.
BILL OF MATERIALS		

REV NO.	DATE	DESCRIPTIONS	BY	APPRD	REVISIONS	REFERECES	DRW. NO.
SECTION : P&PD							
DSGN	NAME	DATE	CHKD	DATE	PREPACKAGED ZINC ANODE		
DRWN							
APPROVED							
					SCALE : N.T.S		
					DRG NO. MNGL/PLANG/ STEEL 14		

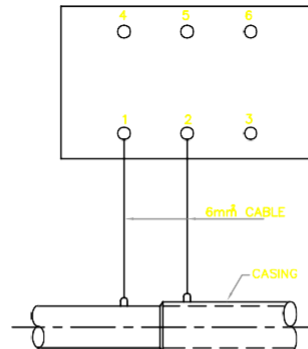
6	5	4	3	2	1
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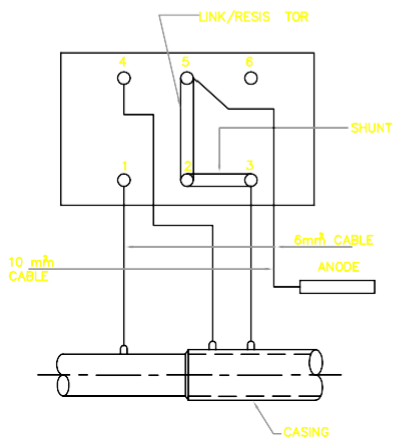
POTENTIAL MEASUREMENT
(CONNECTION SCHEME-A)



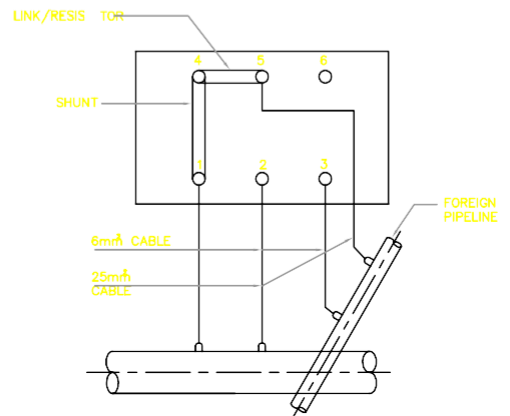
CURRENT MEASUREMENT
(CONNECTION SCHEME-B)



CASED CROSSING WITH
UNCOATED CASING
(CONNECTION SCHEME-C)

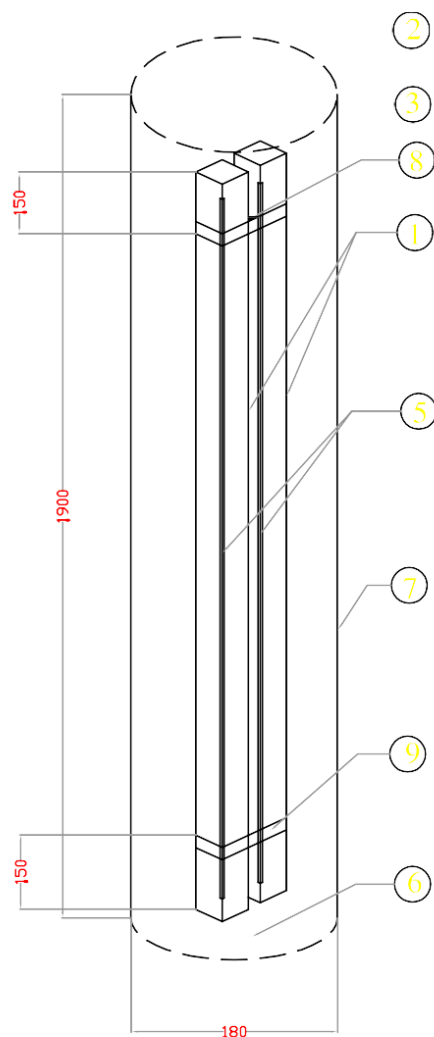


CASED CROSSING WITH
COATED CASING
(CONNECTION SCHEME - D)

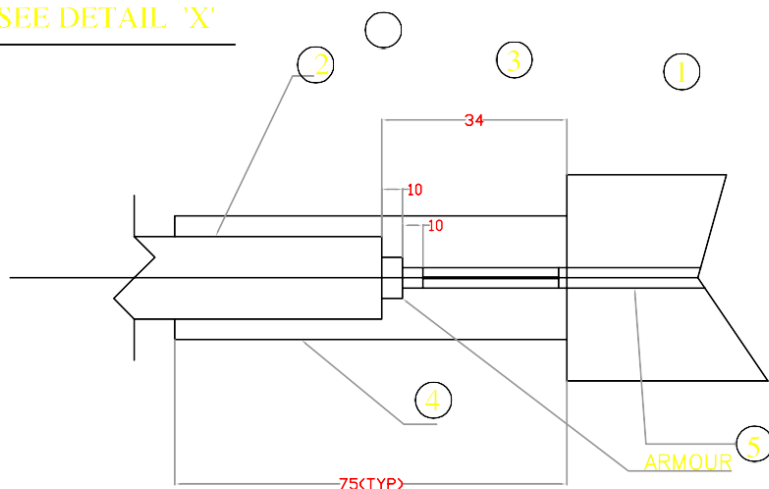


FOREING PIPELINE CROSSING
(CONNECTION SCHEME -E)

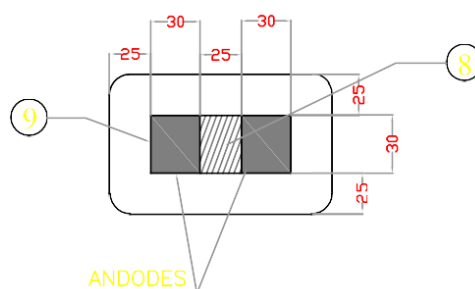
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SEE DETAIL 'X'



DETAIL 'X'



NOTES :-

1. ALL DIMENSIONS ARE IN mm.
2. ZINC GROUNDING CELLS SHALL BE INSTALLED VERTICALLY SUCH THAT THE TOP OF THE CELL IS APPROX AT THE SAME ELEV. AS PIPE BOTTOM.
3. ALL CABLE LEADS FOR ZINC GROUNDING CELL SHALL BE AS SHORT AND DIRECT AS POSSIBLE.
4. GROUNDING CELL CABLE ARMOUR SHALL NOT HAVE ELECT. CONNECTION TO ANODE

ZINC ANODE COMPOSITION (% WEIGHT)

ALUMINIUM	0.005% MAX
MAGNESIUM	0.003% MAX
COPPER	0.002% MAX
IRON	0.0014% MAX
LEAD	0.003% MAX
OTHERS	—

ZINC REMAINDER

ZINC ALLOY CONFORMING TO ASTM-B-418-G7

BACKFILL COMPOSITION

GYPSUM	75%
BENTONITE	20%
SODIUM SULPHATE	5%

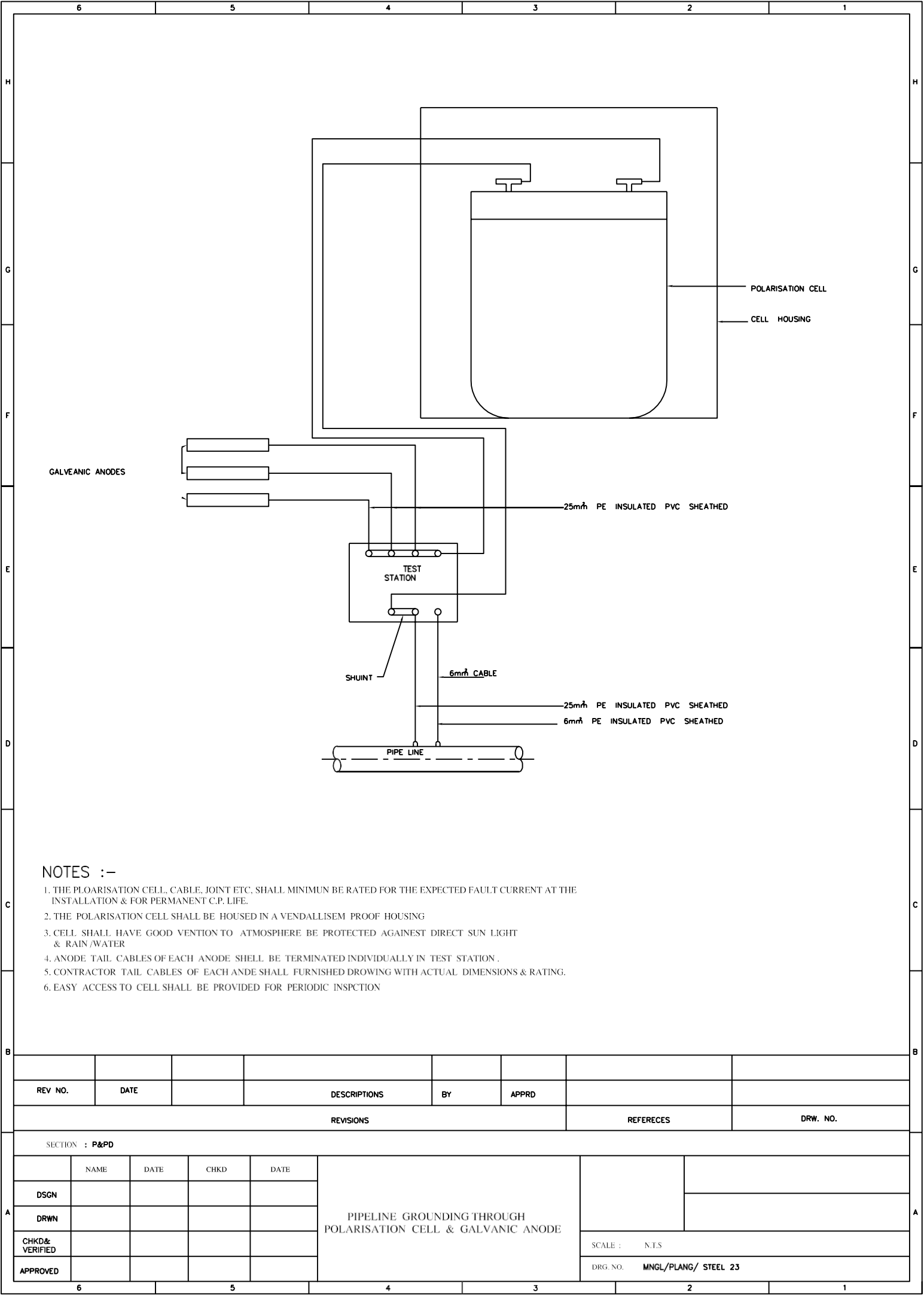
1 IAP- SIRAP AS REQD.

2	2-1/2" ELITE INSULATING SPACER 23030M50	2 NOS
3	2-1/2" B&B 102M	1 NOS
4	SPACK FILL MAT.	AS REQD.
5	2-1/2" GALVANIZED STEEL CURE	AS REQD.
6	HEAT SHRINK SLEEVE	2 NOS.
7	SILVER BRAZED CONNECTION	2 NOS.
8	ANODE TIE CABLE 25mm Sq 10 GA ALP/TYPE 316 LLD ARMORED 600/1000 V.	2 NOS.
9	ZINC ANODE 36X36X1525	2 NOS.

ITEM NO. DESCRIPTION QTY.

BILL OF MATERIALS

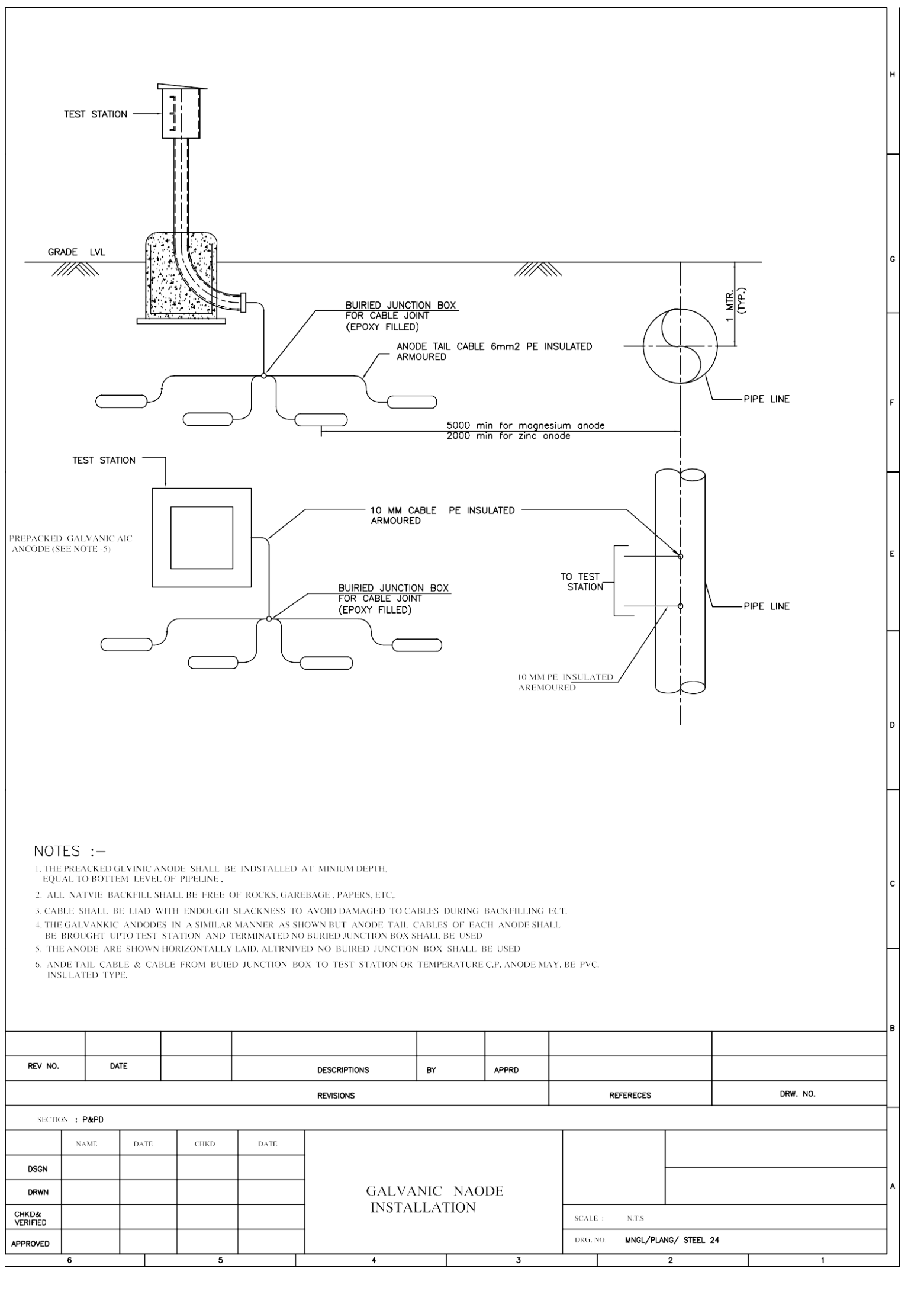
REV NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD	REFRECES	DRW. NO.
SECTION : P&PD							
DSGN	NAME	DATE	CHKD	DATE	DETAILS OF ZINC GROUNDING CELL		
DRWN					APPROVED		
APPROVED					SCALE : N.T.S		
					DRG NO. MNG/PLANG/ STEEL/21		



NOTES :-

- 1. THE PLOARISATION CELL, CABLE, JOINT ETC, SHALL MINIMUN BE RATED FOR THE EXPECTED FAULT CURRENT AT THE INSTALLATION & FOR PERMANENT C.P. LIFE.
- 2. THE POLARISATION CELL SHALL BE HOUSED IN A VENDALLISEM PROOF HOUSING
- 3. CELL SHALL HAVE GOOD VENTION TO ATMOSPHERE BE PROTECTED AGAINST DIRECT SUN LIGHT & RAIN/WATER
- 4. ANODE TAIL CABLES OF EACH ANODE SHELL BE TERMINATED INDIVIDUALLY IN TEST STATION .
- 5. CONTRACTOR TAIL CABLES OF EACH ANDE SHALL FURNISHED DROWING WITH ACTUAL DIMENSIONS & RATING.
- 6. EASY ACCESS TO CELL SHALL BE PROVIDED FOR PERIODIC INSPCTION

SECTION : P&PD							
REV NO.	DATE		DESCRIPTIONS	BY	APPRD		
REVISIONS						REFERECES	DRW. NO.
PIPELINE GROUNDING THROUGH POLARISATION CELL & GALVANIC ANODE							
NAME	DATE	CHKD	DATE				
DSGN							
DRWN							
CHKD& VERIFIED							
APPROVED							
						SCALE :	N.T.S
						DRG. NO.	MNGL/PLANG/ STEEL 23



NOTES :-

- 1. THE PREACKED GLVINIC ANODE SHALL BE INSTALLED AT MINIUH DEPTH, EQUAL TO BOTTEM LEVEL OF PIPELINE.
- 2. ALL NATVIE BACKFILL SHALL BE FREE OF ROCKS, GAREBAGE, PAPERS, ETC.
- 3. CABLE SHALL BE LIAD WITH ENDOUGH SLACKNESS TO AVOID DAMAGED TO CABLES DURING BACKFILLING ECT.
- 4. THE GALVANKIC ANODES IN A SIMILAR MANNER AS SHOWN BUT ANODE TAIL CABLES OF EACH ANODE SHALL BE BROUGHT UPTO TEST STATION AND TERMINATED NO BURIED JUNCTION BOX SHALL BE USED
- 5. THE ANODE ARE SHOWN HORIZONTALLY LAID, ALTRNIVED NO BUIRED JUNCTION BOX SHALL BE USED
- 6. ANDE TAIL CABLE & CABLE FROM BUIED JUNCTION BOX TO TEST STATION OR TEMPERATURE C.P. ANODE MAY, BE PVC. INSULATED TYPE.

REV NO.	DATE		DESCRIPTIONS	BY	APPRD		
REVISIONS						REFERECES	DRW. NO.
SECTION : P&PD							
	NAME	DATE	CHKD	DATE	GALVANIC NAODE INSTALLATION		
DSGN							
DRWN							
CHKD& VERIFIED							
APPROVED							
6		5		4		3	
						2	
						1	

SCALE :	N.T.S
DRG. NO	MNGL/PLANG/ STEEL 24

6

5

4

3

2

1

NOTES

1. TEST STATION SHALL HAVE WEATHRPROOF ENCLOSURE HAVING DEGREE OF PROTECTION IP-55,DEFINED IN AS DEFINED IP AS DEFINED INIEC-529(1989)/IS:2147 (1962) THE SHUTTER AND THE BOX HINGED TYPE WITH CONCEALED LOCK AND SHALL HAVE DOOR GASKET

2. THE HINGES SHALL BE WELDED TO THE SHUTTER AND THE BOX SUITABLY.

3. THE MS ANGLES SHALL BE WELDED TO THE SIDES THE ANGLES SHALL HAVE TAPPED HOLES FOR FIXIG TERMINAL PLATE.

4. THE INNER SURFACE OF THE TEST STATION SHALL BE PAPPED WITH LAED OXIDE TAPPED FOR FIXING PRIMER GRADE.

5. THE OUTSIDE OF TEST STATION SHALL BE PANTED WITH TWO COATS OF ZINC RED EPOXY PRIMER AND THREE COATS OF GREY COLOURED EXPOXY PAINT COMPLETE WITH CABLE PIPE & FDN PLATE.

6. THE NAME PLATE SHALL BE OF ANDODISED OF ALUMINIUM WITH BLACK BACKGROUND AND WHITE LETTERS (SIZE 3mm) THE NAME PLATE SHALL BE FIXED TO INNER SIDE OF SHUER BY ARALDITE OR EQUIVALENT

7. THE NAME PLATE OF EACH TEST STATION SHALL CARRY THE FOLLOWING INFORMATION.

A) TEST STACION CONNECTION SCHEME TYPE

B) RELEVANT TEST STACION CONNECTION SCHEME DIAGRAM

C) TEST STATION NO.

D) CHAINAGE IN KM

E) DISTANCE FROM PIPE IN m

F) DISTANCE OF GAS FLOW

8. WHEN ERECTED THE TEST STAION SHALL BE IN UPRIGHT POSITION.

9. TEST STACION SHALL BE SO ERECTED AS TO SERVE ALSO AS PIPELINE MARKER, AND ANODE GRAUNDBED MARKER ,THEIR SHUTTER SHALL BE TO THE LINE OF AXIS OF

10. THE NUMBER OF ALL TEST STATION SHALL BE WRITTEN WITH BLACK PAINT USING 40mm STENCIL BLOCK ON THE OUTER SIDE OF THE SHUTTER IN A UNIFORM MANNER AN ARROW SHOWING DIRECTION OF OF FLOW OF GAS SHALL BE MARKED TO UNDERLINE THE TEST STECHTION NUMBER ON SHUTTER PIPELINE AND FACING IT.

11. HEIGHT OF THE STATION ABOVE GROUND LEVEL SHOWN IN THE DRAWING IS TYPICAL.

12. ALL CABLES COMMING TO TEST STACION SHALL BE LABELLED ON BOTH ENDS WHITH INDENTIFICATION NUMBERS

13. TOTAL NUMMBER OF TEST STATIONS AND THEIR TYPE ARE MENNTIONED IN CONSOLIDATED B.O.M.

14. TEST BETWEEN BRASS TERMINALS AND BODY AT 2kV FOR ONE MINUTE

15. ALL DIMENSION ARE APPROXIMATE AND CAN VARY SLIGHTLY.

17. THE ENTRY SHALL BE SEALED WITH BITUIMEN COMPOUND AFTER CABLE LAYING TO PREVENT WATER ENTRY.

16. ALL DIMENSION ARE IN MM.

30	VARIABLE RESISTANCE 0-0.1 OHM.	01
29	100 MM ØM.S. SCH.40 90° ELBLOW R=50	01
28	BILDING WIRE MS,	AS REQD.
27	PCC MIX 1:5:10	0.064m3
26	PCC MIX M20	0.324m3
25	ROD, 8Ø MS	28m
24	STIFFENER PLATE 8 THK	04
23	FONDATION BLOT M12	04
22	RUBBER BUSH MATCHING WITH PIPE	01
21	FOUNDATION PLATE 6THKX400X400MS PLATE	02
20	NEOPRENE RUBBER GASKET 6THK.	01SET
19	MS PIPE 100Ø IS: 1239 P,T (1990)- HAVY GRADYE	01
18	COUPLING PLATE 5THKX180X130 MS PLATE , 100ØHOLE AT CENTRE	01
17	LATCH FOR SHUTTER	01
16	BRASS SCREW M6XM16	04
15	ANGLE 5THK,X 50 X 50 X30	04
14	SHUNT , 0.1 OHM, 0.5 A, 50 mV	01
13	COPPER LINK 2.5 THK .X 12 X LENGTH AS REQD.	01
12	BRASS WASHER	AS REQD
11	BRASS NUT,M6	AS REQD
10	BRASS STUD, M6 X 50	AS REQD
9	TEMINAL PLATE,6THKX160X200PHLINOLICLAM SHT	01
8	HINGE FOR SHUTTER	02
7	CASTLE LOCK WITH ONE KEY PER TEST STATION	01
6	NAME PLATE 0.9THKX 120 X 160 X ANODISED ALUMINUM	01
5	SHUTTER 3mm THK MS SHT	01
4	TOP 475X350X3mm THK MS SHT	01
3	SIDE PLATE 300X420X300X3mm THK MS SHT	01
2	REAR PLATE 425X420X3mm THK, MS SHT	01
1	BOTTOM PLATE 250X175X3mmTHK, MS 100Ø HOLE AT CENTER	01
ITEM	DESCRIPTION	QTY
BILL OF MATERIALS		

REV NO.

DATE

ZONE

DESCRIPTIONS

BY

APPRD

REFERECE

DRW. NO.

REVISIONS

REFERECE

DRW. NO.

SECTION : P&PD

NAME

DATE

CHKD

DATE

DSGN

DRWN

DETAILS OF TEST STATION

POLARISATION CELL

SCALE : N.T.S

DRG NO. MNGL/PLANG/ STEEL/ 27

APPROVED

6

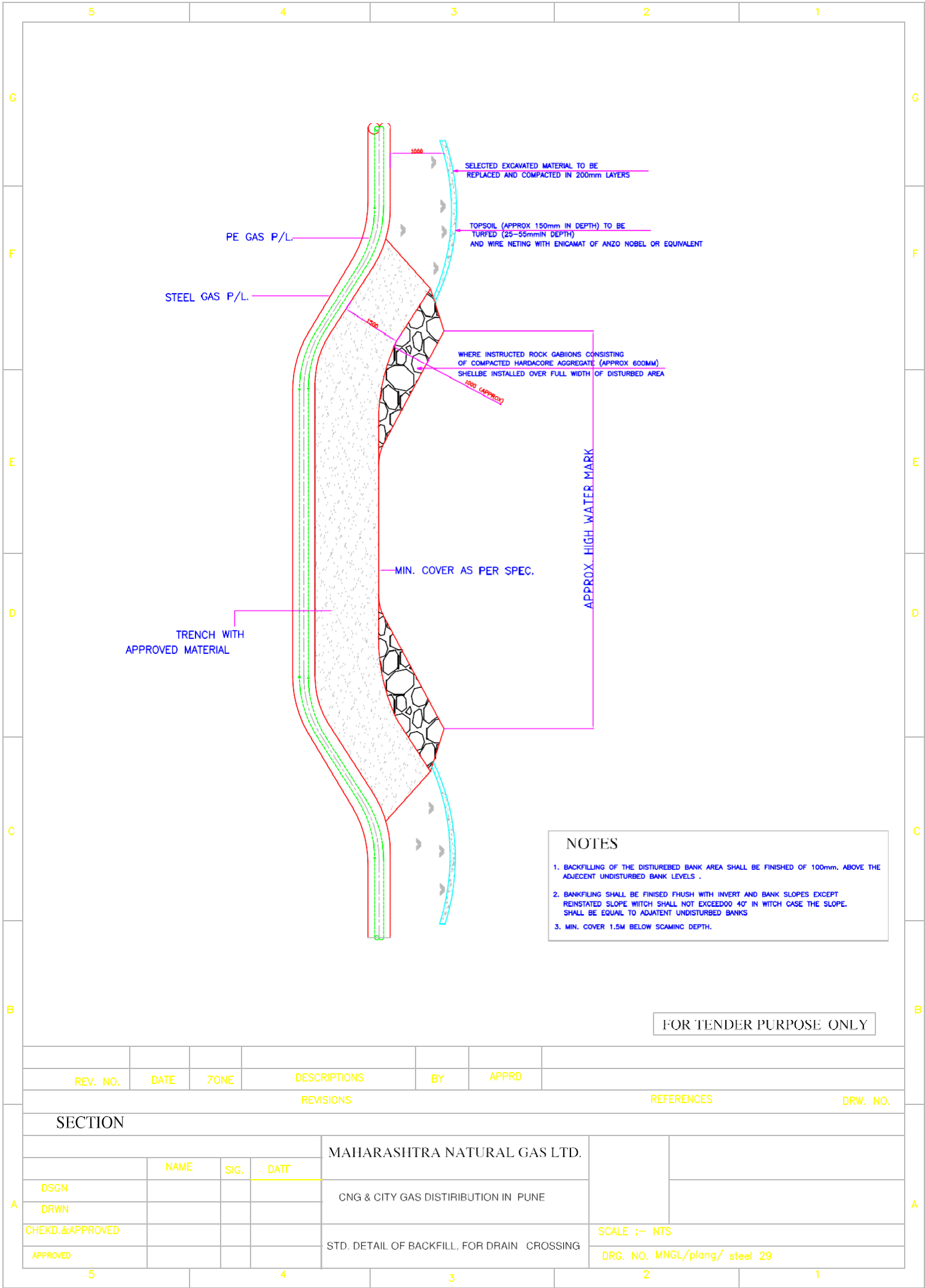
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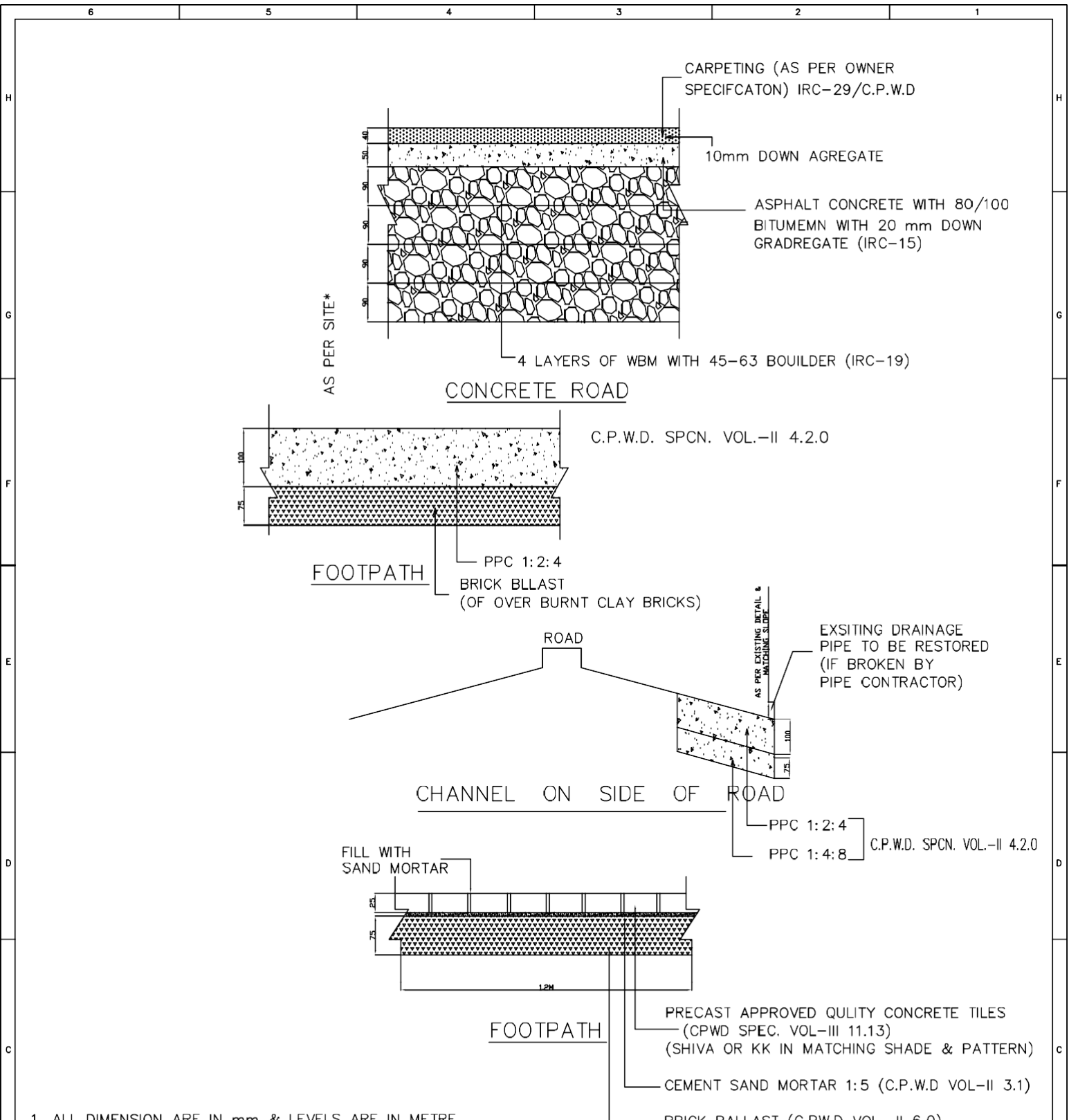
4

3

2

1





- 1. ALL DIMENSION ARE IN mm & LEVELS ARE IN METRE
- 2. ONLY FIGRED DIMENSIONS ARE TO BE FOLLOWED
- 3. THESE ARE INDICATIOVE SCHEME ONLY ACTUAL WORK TO FLOLOW AS PER ARE CPWD/PWD CONCERNED ATUTHOREIES REQUIREMENTS IN RESPECTIVE AREA

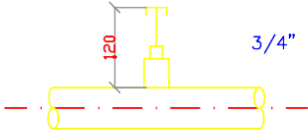
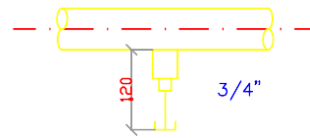
FOR TENDER PURPOSE ONLY

SECTION : P&PD					
	NAME	SIG.	CHKD	MAHARASTRA NATURAL GAS LTD	
DSGN					
DRWN				CNG & CITY GAS DISTRIBUTION PUNE	
CHKD & VERNIFIED				SCALE : 1:10	
APPROVED				DRG NO MNG/PLANG/ STEEL/30	
6	5	4	3	2	1

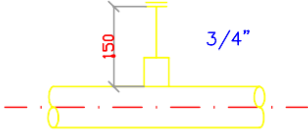
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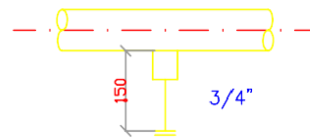
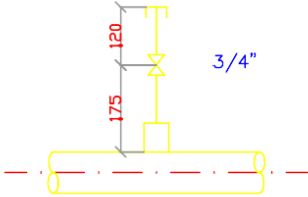
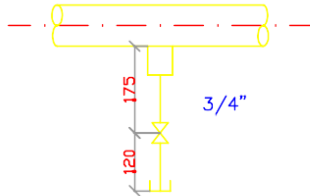
DRAIN

V1
V1PD1
D1P

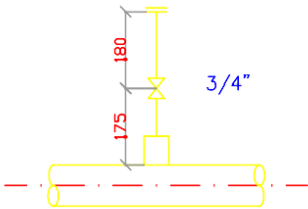
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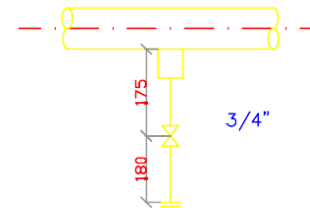
D2

V3
V3PD3
D3P

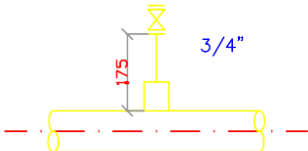
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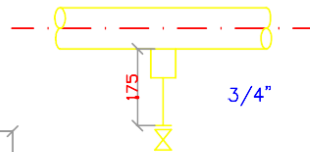
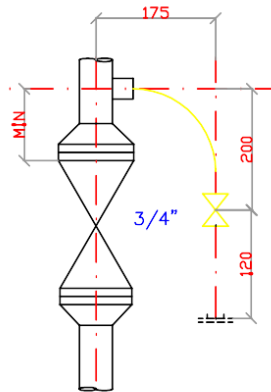
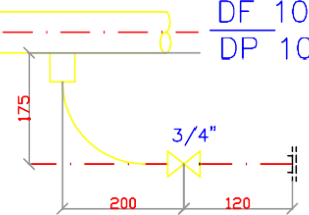
D4



V5



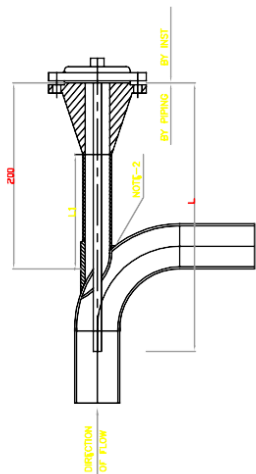
D5

DC 9
DF 9
DP 9DC 10
DF 10
DP 10

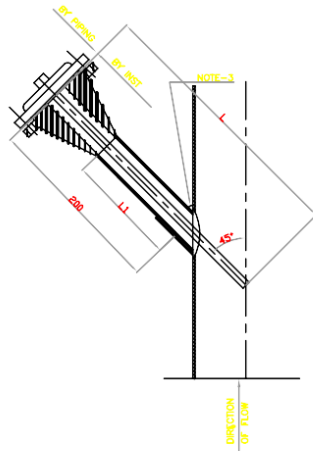
NOTES

1. DIMENSIONS ARE VALID FOR 75mm (MAX) THICKNESS INSULATION FOR HIGHER INSULATION THICKNESS INCREASE DIMENSION AS REQUIRED.
2. VENTS & DRAINS SHALL BE PROVIDED WITH GATE GLOBE OR PLUG VALVE WITH HALF COUPLING OR STUB IN WITH CAP OR FLANGE BLIND FLANGE AS PER PIPING SPECIFICATIONS
3. VENTS/DRAINS CAN BE PROVIDED ON FLAT SIDE OF ECCENTRIC REDUCERS ON SIZES 4" & ABOVE
4. LEGND V=VENT, D=DRAIN, C=CAP, F=FLANGE, P=PLUG
5. PLUGGED END OF VALVE OR FITTING SHALL BE THREADED

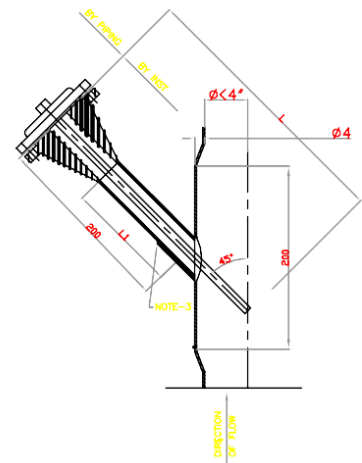
SECTION : P&PD							
REV NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD		
REVISIONS						REFERECS	DRW. NO.
DSGN	NAME	DATE	CHKD	DATE	VENT & DRAIN FOR LINE 2" & ABOVE		
DRWN							
APPROVED					SCALE :	N.T.S	
					DRG NO	MNGI/PLANG/ STEEL/31	



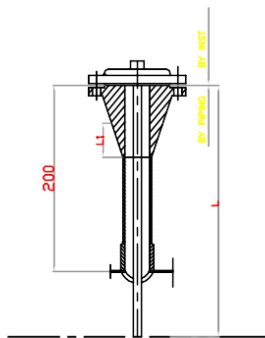
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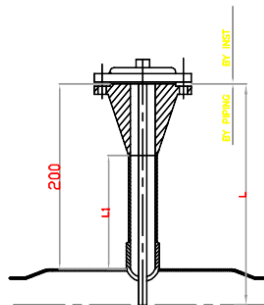
TYPE TW-7



TYPE TW-9



TYPE TW-8



TYPE TW-10

LINE DIA	1.5" FLANGED WELD
4"	200
6"	300
8"	300
10"	300
12"	300
14"	300
16"	400
18"	400
20" & LARGER	500
VESSELS	AS REQUIRED

6. ELABOLW MIN. 4"Ø OR LARGER
7. VERTICAL LINE 4"Ø OR LARGER
8. HORIZNTAL LINE 4"Ø OR LARGER
9. VERTICAL LINE LESS THAN 4"
10. HORIZNTAL LINE DIA LESS THAN 4"

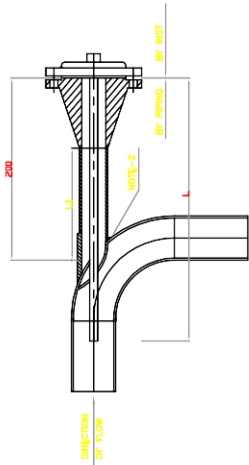
NOTES:

1. BOLTS, NUTS AND GASCKETS BY PIPING.
2. MIN. CLERANCE FOR REMOVAL BY PIPING.
3. COUPLING TO SPECIAL LENGTH.

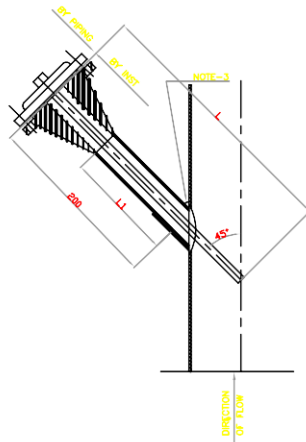
REV. NO.	DATE	DESCRIPTIONS	BY	APPRD	REFERECS	DRW. NO.
REVISIONS						

SECTION : P&PD

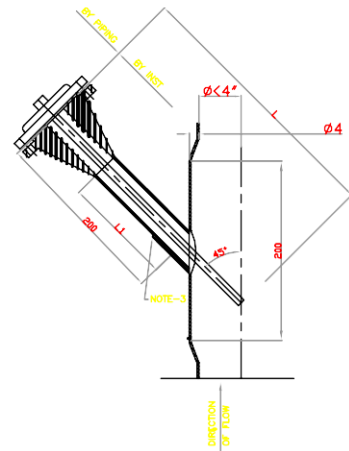
	NAME	DATE	CHKD	DATE	WELLS INSTALLATION 1 1/2" DIA TAPS		
DSGN							
DRWN							
APPROVED						SCALE : N.T.S.	
					DRG. NO.	MNGL/PLANG/ STEEL 32	



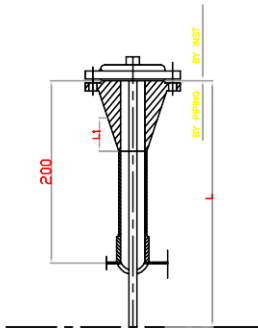
TYPE TW-6



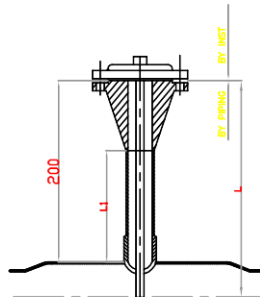
TYPE TW-7



TYPE TW-9



TYPE TW-8



TYPE TW-10

LINE	DIA	1.5" FLANGED WELD
4"	200	
6"	300	
8"	300	
10"	300	
12"	300	
14"	300	
16"	400	
18"	400	
20" & LARGER	500	
VESSELS	AS REQUIRED	

6. ELABOLW MIN. 4"Ø OR LARGER
7. VERTICAL LINE 4"Ø OR LARGER
8. HORIZONTAL LINE 4"Ø OR LARGER
9. VERTICAL LINE LESS THAN 4"
10. HORIZONTAL LINE DIA LESS THAN 4"

NOTES:

1. BOLTS, NUTS AND GASKETS BY PIPING.
2. MIN. CLERANCE FOR REMOVAL BY PIPING.
3. COUPLING TO SPECIAL LENGTH.

REV NO.

DATE

DESCRIPTIONS

BY

APPRO

REVISIONS

REFERECES

DRW. NO.

SECTION : P&PD

DSGN

NAME

DATE

CHKD

DATE

DRWN

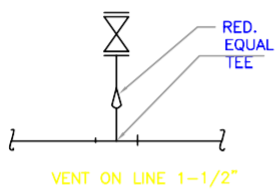
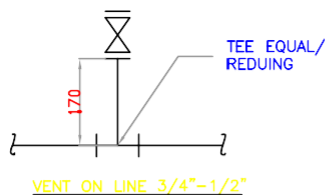
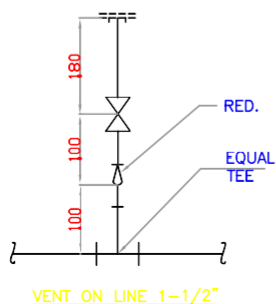
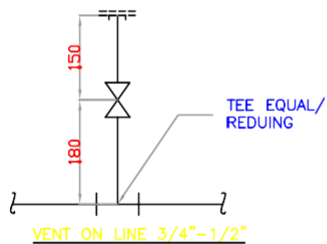
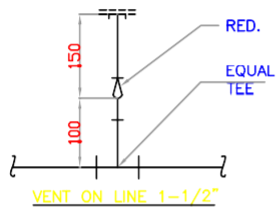
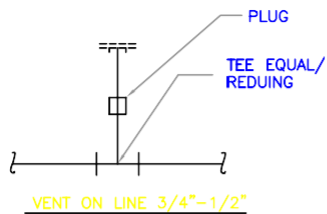
APPROVED

WELLS INSTALLATION

1 1/2" DIA TAPS

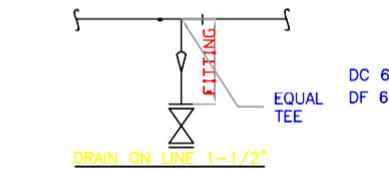
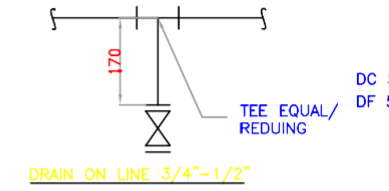
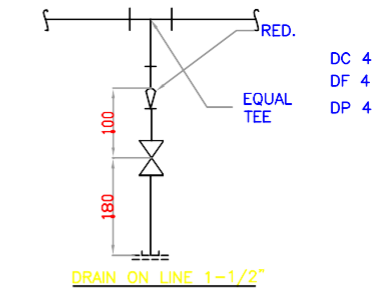
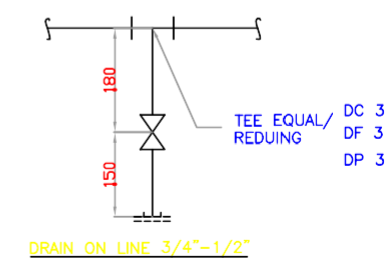
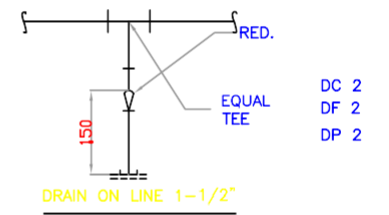
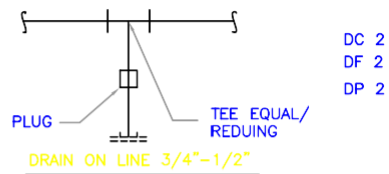
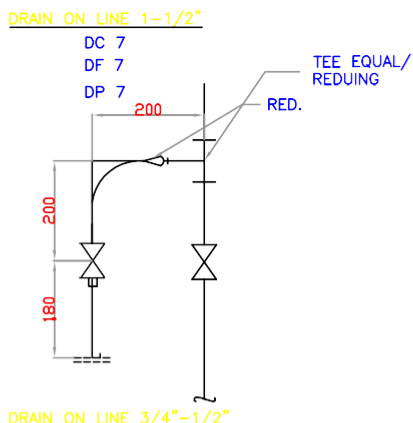
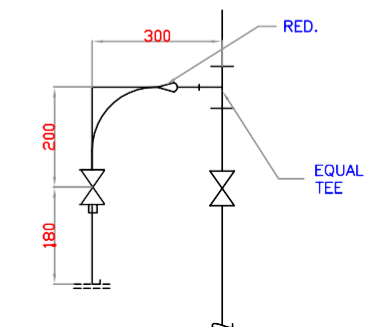
SCALE: N.T.S

DRG NO: MNGI/PLANG/ STEEL 32

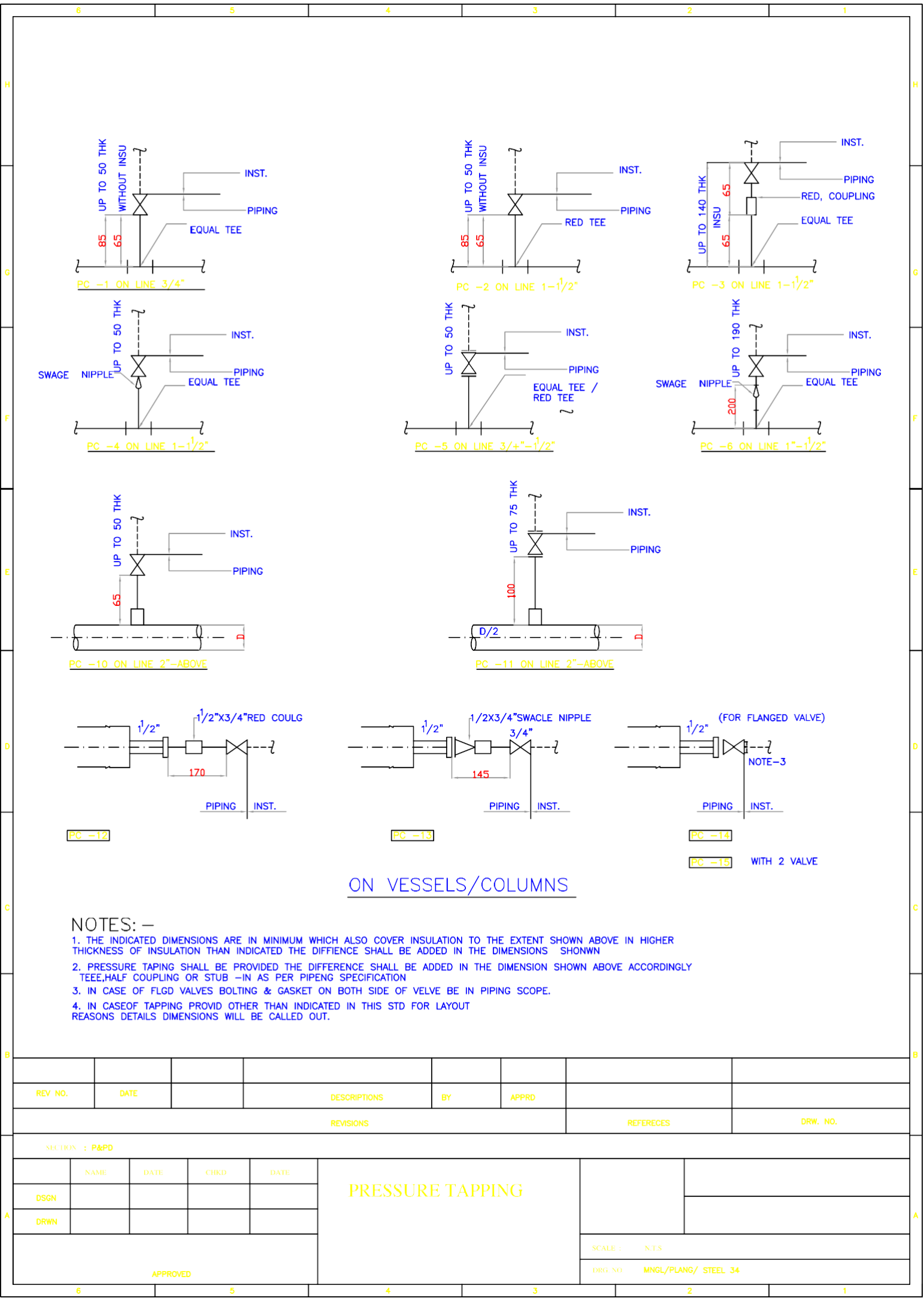


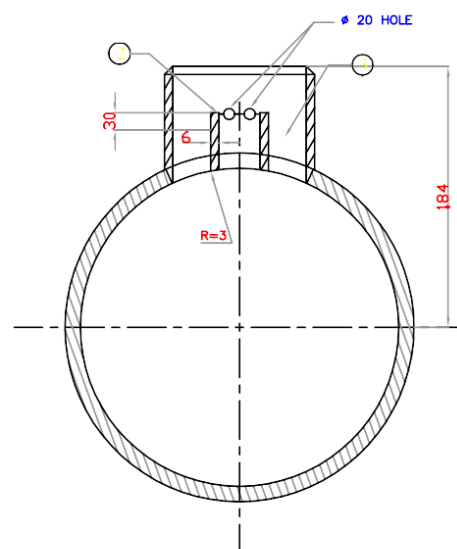
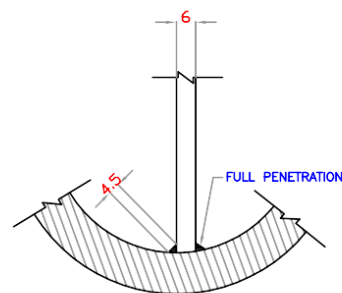
NOTES:-

1. DIMENSIONS ARE VALID FOR 50mm (MAX) THICKNESS INSULATION FOR HIGHER INSULATION THICKNESS IN CASE DIMENSIONS AS PREQUIRED.
2. VENTS & DRANS SHALL BE PROVIDED WITH GATE GLOBE OR PLUG VALVE
3. LEGEND V=VENT D=DRAIN C=CAP F=LANGE R=REDUCER
4. PLUGGED END OF VELVE OR FITING SHALL BE THREADED



REV NO.	DATE	DESCRIPTIONS	BY	APPRD	REVISIONS	REFERECES	DRW. NO.
SECTION : P&PD							
DSGN					WELLS INSTALLATION ON LINES 1 1/2" DIA TAPS		
DRWN							
APPROVED					SCALE :	N.T.S	
					DRG NO	MNGL/PLANG/ STEEL 33	



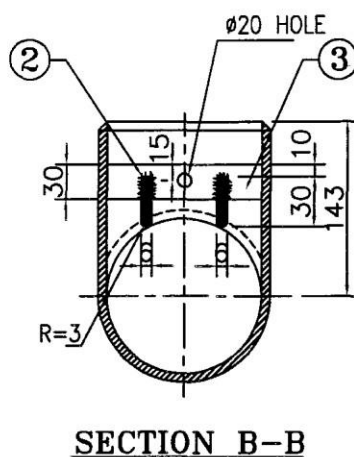
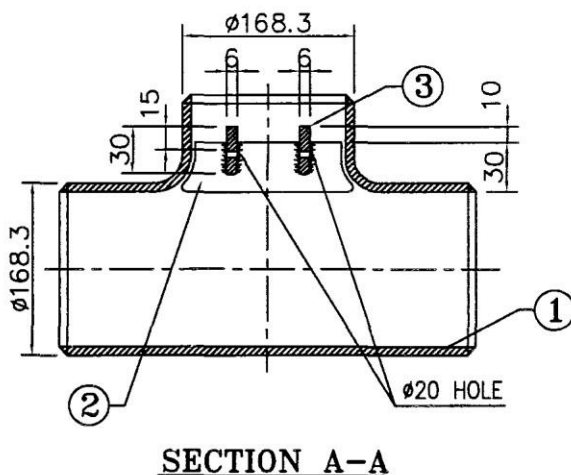
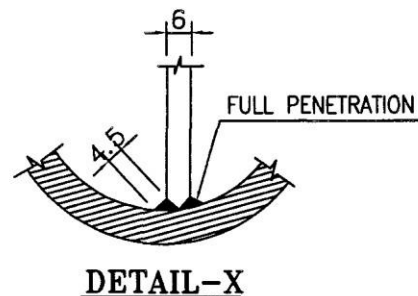
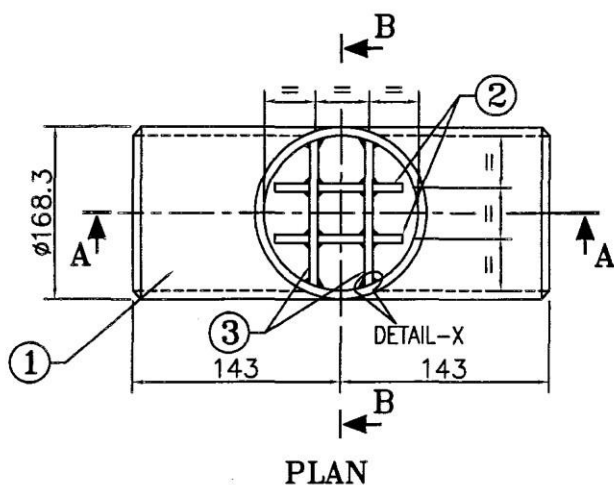


- | ITEM NO. | DESCRIPTION | QTY. | MATERIAL |
|----------|--|------|---------------------------------|
| 1 | RED TEE B.W. END PER ASME 18.9 SIZE 10"X10"X4" | 1 | A 234 WP Sdsh,atdXsdh (thk)(mm) |
| 2 | GUDE BAR | 2 | ASTMA-36/
ASTMA-516Gr.70 |
| 3 | CONNECTING PLATE | 2 | ASTMA-36/
ASTMA-516Gr.70 |

1. SERVICE	:	NATURAL GAS
2. DESIGN PRESSURE	:	19 KG/cm
3. DESIGN TEMP.	:	0 TO 65°C
4. CORROSION ALLOWANCE	:	1.5mm
5. HYDRO-TEST PRESSURE	:	28.5 Kg/cm

1. RUN PIPE : $\phi 10''(273) \times \text{WT } 6.4\text{mm}$.
2. BRANCH PIPE : $\phi 4(114.3) \times \text{WT } .6\text{mm}$
API 5L Gr.B

[illegible]



QUANTITY - As per SOR

NOTES:-

1. THE BARRED TEE IS INTENDED TO BE SUITABLE FOR SCRAPER PIGS AND USE IN LINE FOR BIRDIRECTIONAL GAS FLOW.
2. THE GUIDE BARS SHALL BE EXTENDED INTO THE RUN SO THAT THEY GET FLUSHED WITH THE INSIDE DIAMETER OF THE SAME.
3. THE CONTOUR OF THE GUIDE BARS SHALL BE SUCH THAT THEY GO ALONG THE INTERNAL SHAPE OF THE BRANCH.
4. THE CONNECTING PLATE SHALL BE WELED WITH THE STRAIGHT PORTION OF THE BRANCH.
5. READ THIS DRAWING TOGETHER WITH TECHNICAL SPECIFICATION NO. *MNG/L/Spec/T-119* FOR BARRED TEES
6. THE BARRED TEE IS INTENDED TO BE SUITABLE FOR UNDER GROUND INSTALLATION.
7. BUTT-WELD ENDS SHALL BE BEVELED IN ACCORDANCE WITH MSS-SP-75 / B 16.25 AND SHOULD MATCH WITH RUN PIPE AND BRANCH PIPE'S WALL THICKNESS AS INDICATED IN CONNECTING PIPE DETAILS.


DESIGN DATA

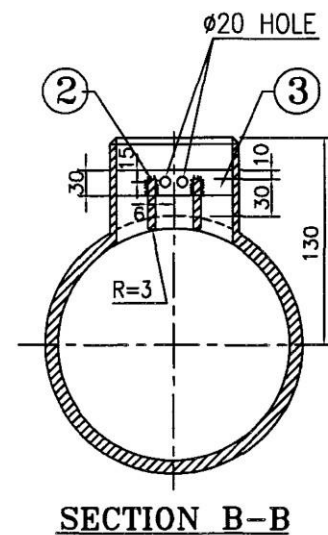
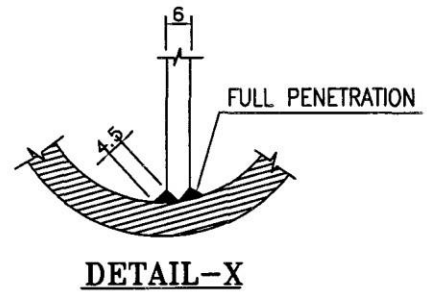
1. SERVICE : NATURAL GAS
2. DESIGN PRESSURE : 19 Kg/cm²
3. DESIGN TEMP. : 0 TO 65°C
4. COEEOSION ALLOWANCE : 0.5mm
5. HYDRO-TEST PRESSURE : 28.5 Kg/cm²



CONNECTING PIPE DETAILS

1. RUN PIPE : $\phi 6''(168.3) \times \text{WT } 6.4 \text{ mm, API 5L GR. B}$
2. BRANCH PIPE : $\phi 6''(168.3) \times \text{WT } 6.4 \text{ mm, API 5L GR. B}$

REV NO	DATE	ZONE	DESCRIPTIONS	BY	APPRD	REFERENCES	DRG. NO.
REVISIONS							

	महाराष्ट्र नैचुरल गॅस लिमिटेड MAHARASTRA NATURAL GAS LTD	
CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY		
BARRED TEES		SCALE : NTS DRG.NO <i>MNG/L/Plan/Spec/138</i>



REV NO	DATE	ZONE	DESCRIPTIONS	BY	APPROD	REFERENCES	DRG. NO.
			 महाराष्ट्र नैचुरल गॅस लिमिटेड MAHARASTRA NATURAL GAS LTD				
			CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY				
			BARRER TEES			SCALE : NTS DRG.NO MNGI/Plng/Steel/39	

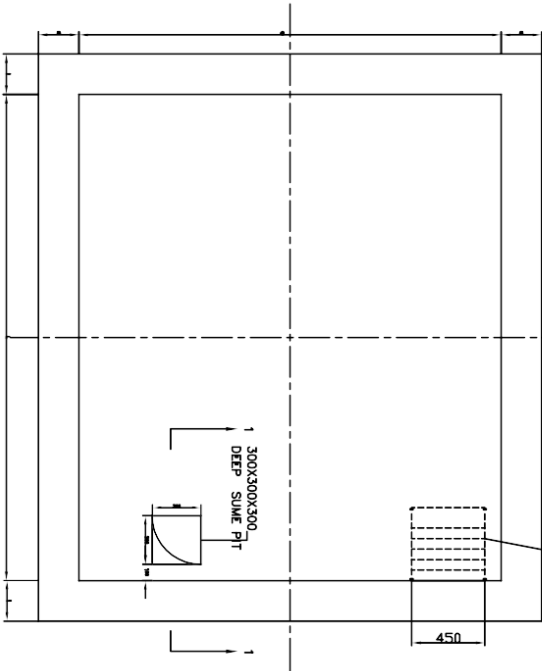
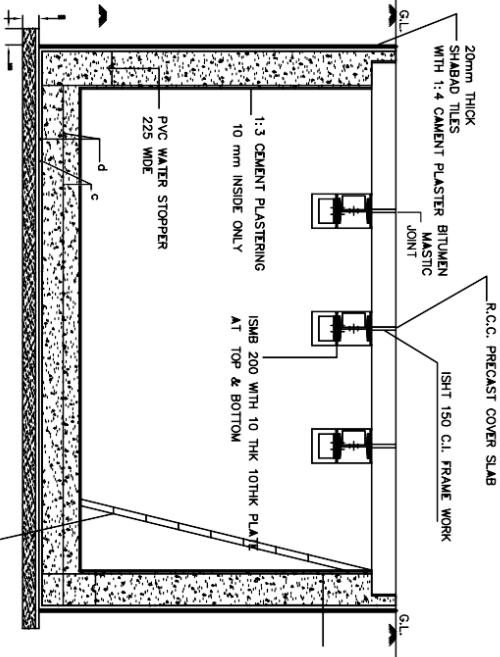
DETAILS OF CHAMBER I									
VALVE PIT NO.	REINFORCEMENT DETAIL								REMARKS
	L	B	H	T	a	b	c	d	
01	3000	2600	2200	250	10Y@150CRS	0Y@300CRS	10Y@150CRS	10Y@150CRS	
02	2600	2300	2200	250	10Y@150CRS	0Y@300CRS	10Y@150CRS	10Y@150CRS	
03	2800	2000	2200	250	10Y@150CRS	0Y@300CRS	10Y@150CRS	10Y@150CRS	
04	1300	1000	2200	150	10Y@150CRS	0Y@150CRS	10Y@150CRS	10Y@150CRS	
05	2100	2000	2200	150	10Y@150CRS	0Y@300CRS	10Y@150CRS	10Y@150CRS	
06	2800	2500	2200	250	10Y@150CRS	0Y@300CRS	10Y@150CRS	10Y@150CRS	
07	2000	1720	2200	250	10Y@150CRS	0Y@300CRS	10Y@150CRS	10Y@150CRS	

NOTES

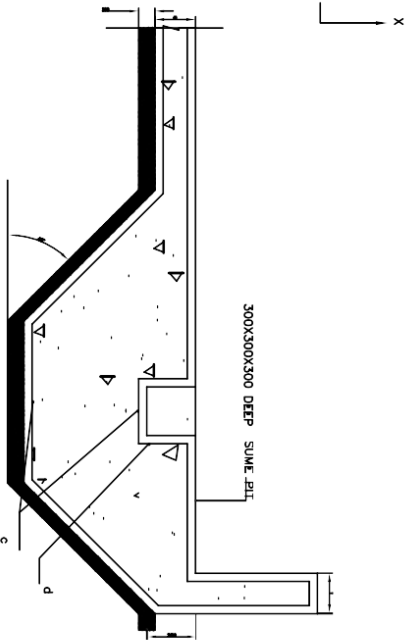
01. ALL DIMENSIONS ARE IN MM
02. GRADE OF C CONCRETE SHALL BE M25
03. Y INDICATES COLD TWIST DEFORMED RODS CONFORMING IS 1786
04. PROVIDE 25mm CLAYER COVER TO MAIN REINFORCEMENT UNLESS OTHERWISE SPECIFIED
05. SBC OF SOIL IS ASSUMED AS 15/50M
06. WATER TABLE IS ASSUMED AT 1M BELOW GRADE LEVEL
07. FOR COVER SLAB DETAILS REFER DRG. NO. 50046-12-DG-00002
08. BOX TYPE WATER PROOFING SHOULD BE DONE TO MAKE THE CHAMBER WATER PROOF
09. APPLY BITUMEN MASTIC ON ALL THE JOINTS OF THE COVER FOR MAKING IT LEAKPROOF
10. PROVIDE SLOPE FOR THE BASE SLAB TOWARDS THE SUMP PIT
11. ENGRAVING TO BE DONE ON COVER SLABS
- I. MAHARASTRA NATURAL GAS LTD
- II. YEAR OF CONSTRUCTION
- III. MANUFACTURERS NAME

MS LADDER
(ISMIC 50 FRAME
ISMA40X40X3 STEPS)

SECTION - "AA"

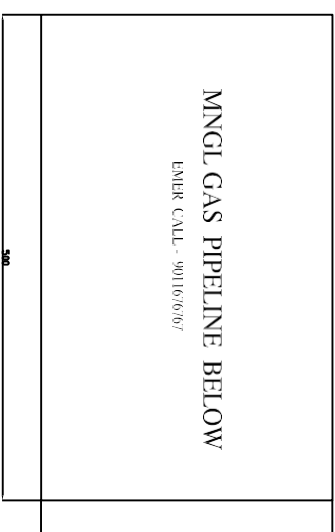
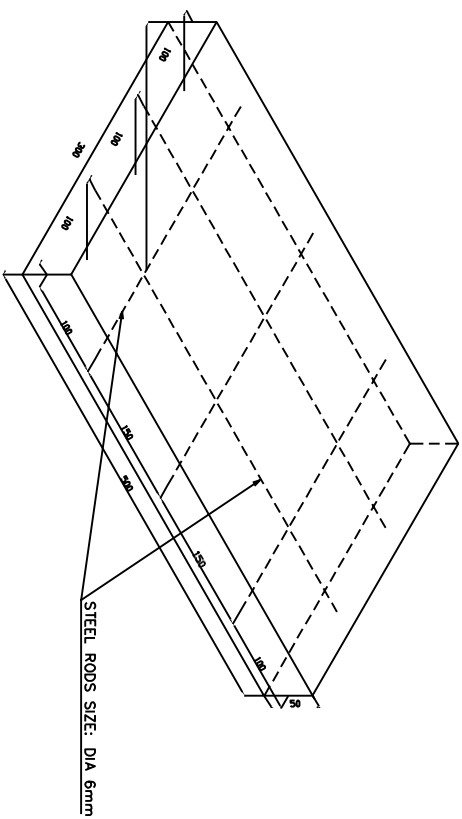


PLAN VIEW

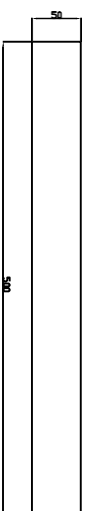


SECTION-I-I

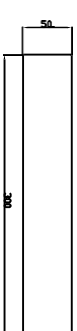
MAHARASTRA NATURAL GAS LTD.				DRAWING NO: 50046-12-DG-00001	
DATE	13.07.04	TITLE	VALVE CHAMBER DETAIL	REV 1	
DESIGNED BY	DATE	APPROVED BY	DATE		
REV	DATE	DATE	DATE		



PLAN



FRONT VIEW

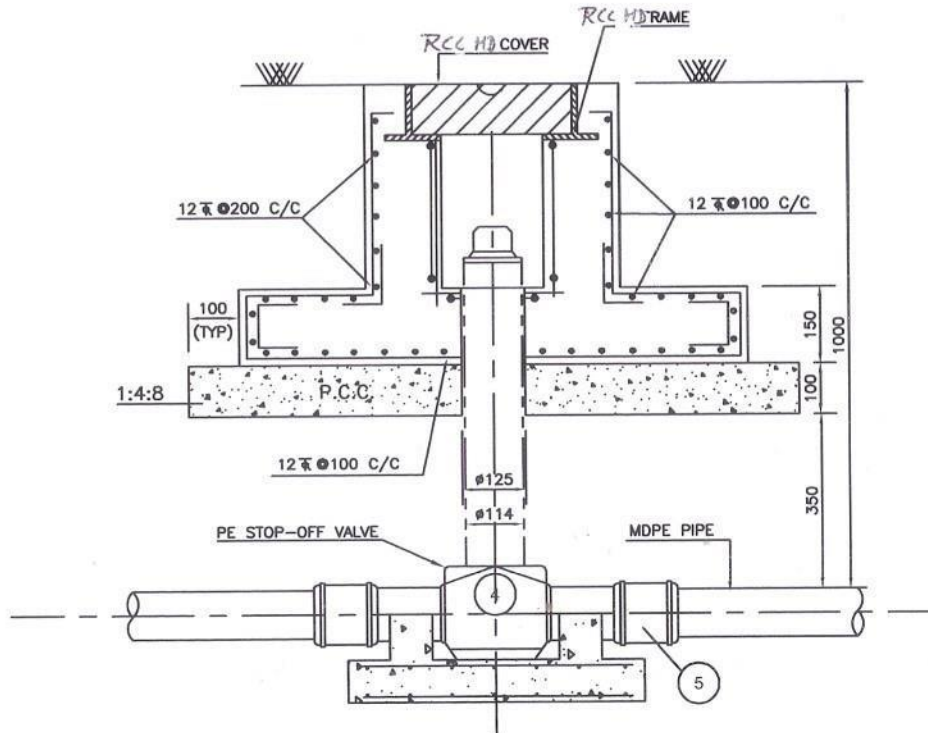
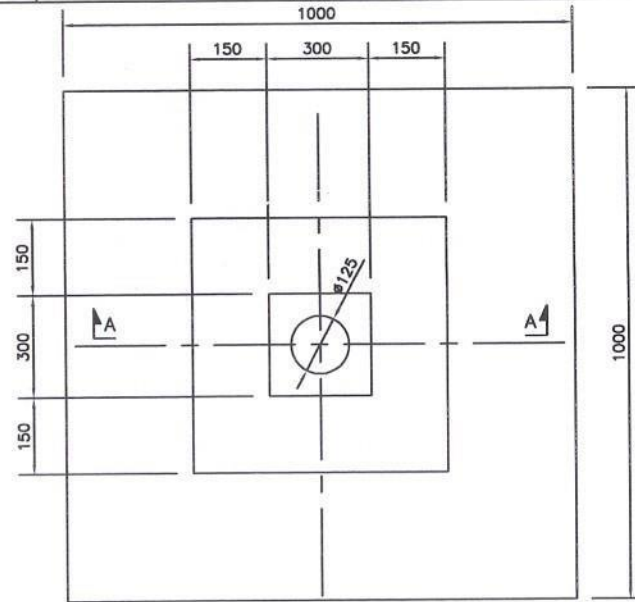


SIDE VIEW

NOTES:

1. ALL DIMENSION ARE IN MM UNLESS OTHERWISE SPECIFIER SPECIFIED.

2. CONCRETE FOR MARKER SHALL BE M-20.



SECTION A-A

NOTES -

1. ALL DIMENSIONS ARE IN MM.
2. THE CONCRETE SHALL HAVE A CHARACTERISTIC STRENGTH OF 20 N/MM²
3. THE COVER FOR REINFORCEMENT SHALL BE 50 MM ON OUTER FACES AND 50 MM ON INNER FACE.
4. THE SFRC COVER SHALL HAVE REINFORCED CONCRETE OF GRADE M-35 CONFORMING TO IS:456-1978.
5. DEBRIS BACKFILL TO BE REMOVED & GOOD EARTH TO BE FILLED IN AREA OF 1.5 M x 1.5 M WITH PROPER COMPACTION AND CONSOLIDATION BY WATER.
6. GASKET OF RUBBER OR ANY OTHER EQUIVALENT MATERIAL OF MATCHING DIMENSIONS SHALL BE SUPPLIED & USED BY THE CONTRACTOR TO PREVENT INGRESS OF WATER INTO THE VALVE PIT.
7. 75mm THICK PCC(1:2:4) OF DIMENSION 300mm X 300mm FOR VALVE OF SIZES FROM 63mm TO 125mm SHOULD BE PROVIDED FOR SUPPORTING THE PE STOP OFF VALVE AT THE BASE.
8. RUBBER SHEET OF MIN. 6mm THICK SHOULD BE PROVIDED BETWEEN BASE OF THE VALVE AND PCC TOP SURFACE.

MAHARASHTRA NATURAL GAS LIMITED

DRAWN BY PLNG	DATE 06/05/04	TITLE - RCC PIT FOR PE STOP-OFF VALVE(Ø63 TO 125 mm)	
CHECKED BY	DATE		
APPRD. BY	DATE	DRAWING NO: MNGL/ENG/CIVIL/10A	REV. 0

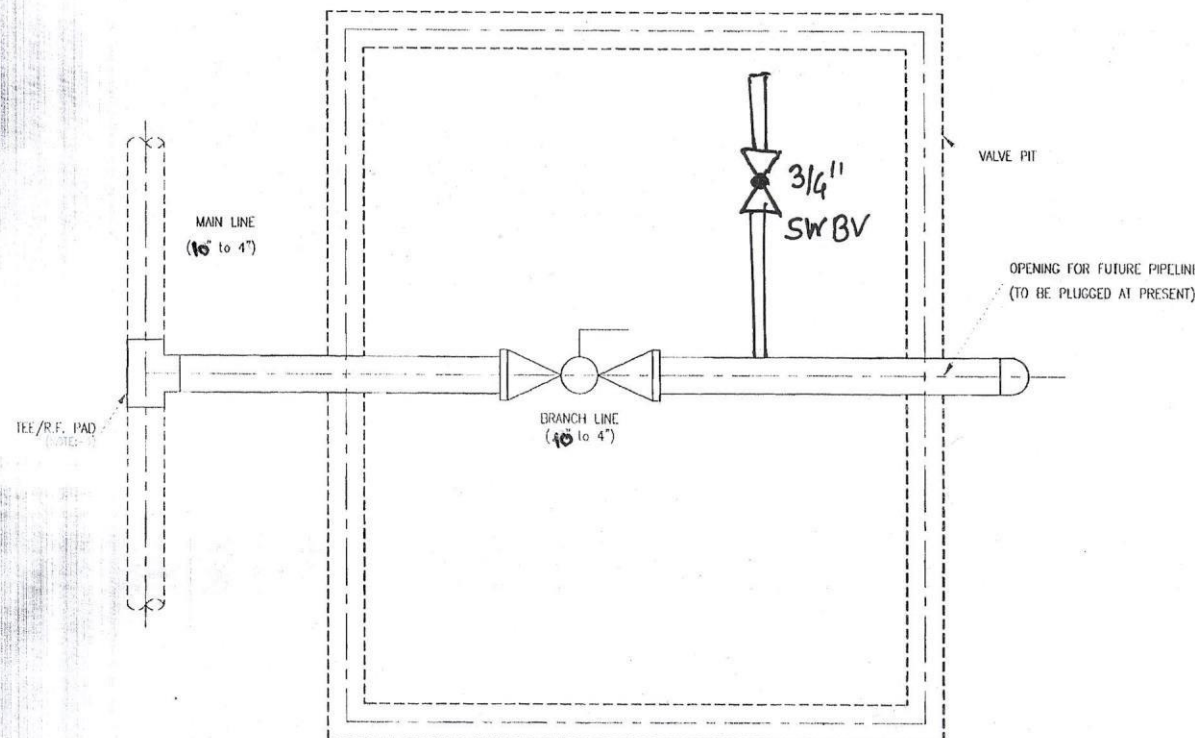
NOTES

1. TOP OF THE PIPE SHALL BE AT MINIMUM 1.2M DLPIT.
2. APPROXIMATE SIZE OF THE PIT WILL BE 2Mx2M & 2Mx1.5M. IT DEPENDS ON THE SITE CONDITION.
3. BRANCHING CONNECTIONS (TEE/ R.F. PAD) SHALL DEPEND UPON THE MAIN LINE & BRANCH LINE.

LEGEND



BW BALL VALVE



PLAN

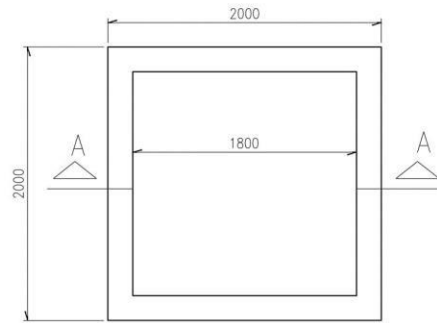
STATUS

TITLE: GENERAL ARRANGEMENT DRAWING FOR FUTURE TAP-OFF POINTS

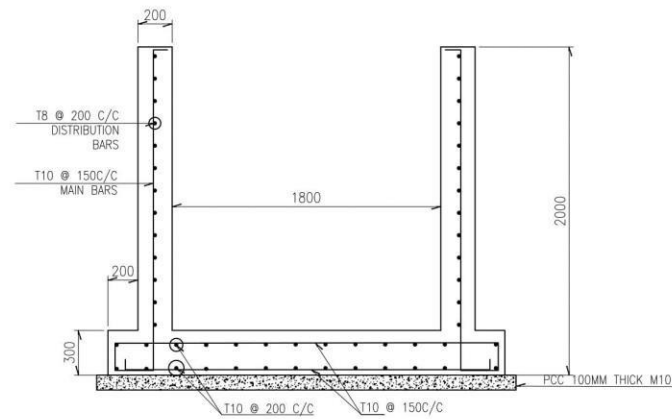
CLIENT: MING L. PUNE

PROJECT: CGD PUNE

MING L. PUNE / Steel / 40



TYP PLAN OF CHAMBER



SECTION A-A

LEGENDS:

CL	----	CENTRE LINE
OGL	----	ORIGINAL GROUND LEVEL
NGL	----	NATURAL GROUND LEVEL
EL	----	ELEVATION
FFL	----	FINISHED FLOOR LEVEL
TYP.	----	TYPICAL
LVL.	----	LEVEL
THK.	----	THICK / THICKNESS
DET.	----	DETAIL
RCC	----	REINFORCED CEMENT CONCRETE
PCC	----	PLAIN CEMENT CONCRETE

NOTES:

- 1) IF DOUBT ASK, DO NOT SCALE THE DRAWING.
- 2) BEARING CAPACITY = 400 KN/SQM IS CONSIDERED FOR DESIGN
- 3) GRADE OF MATERIAL:-
CONCRETE:- M25 WITH 20MM DOWN GRADED AGGREGATES.
STEEL:- FE500 DEFORMED BARS AS PER IS-1786.

ENGINEERING REFERENCE

CONSTRUCTION REFERENCE

HOLD

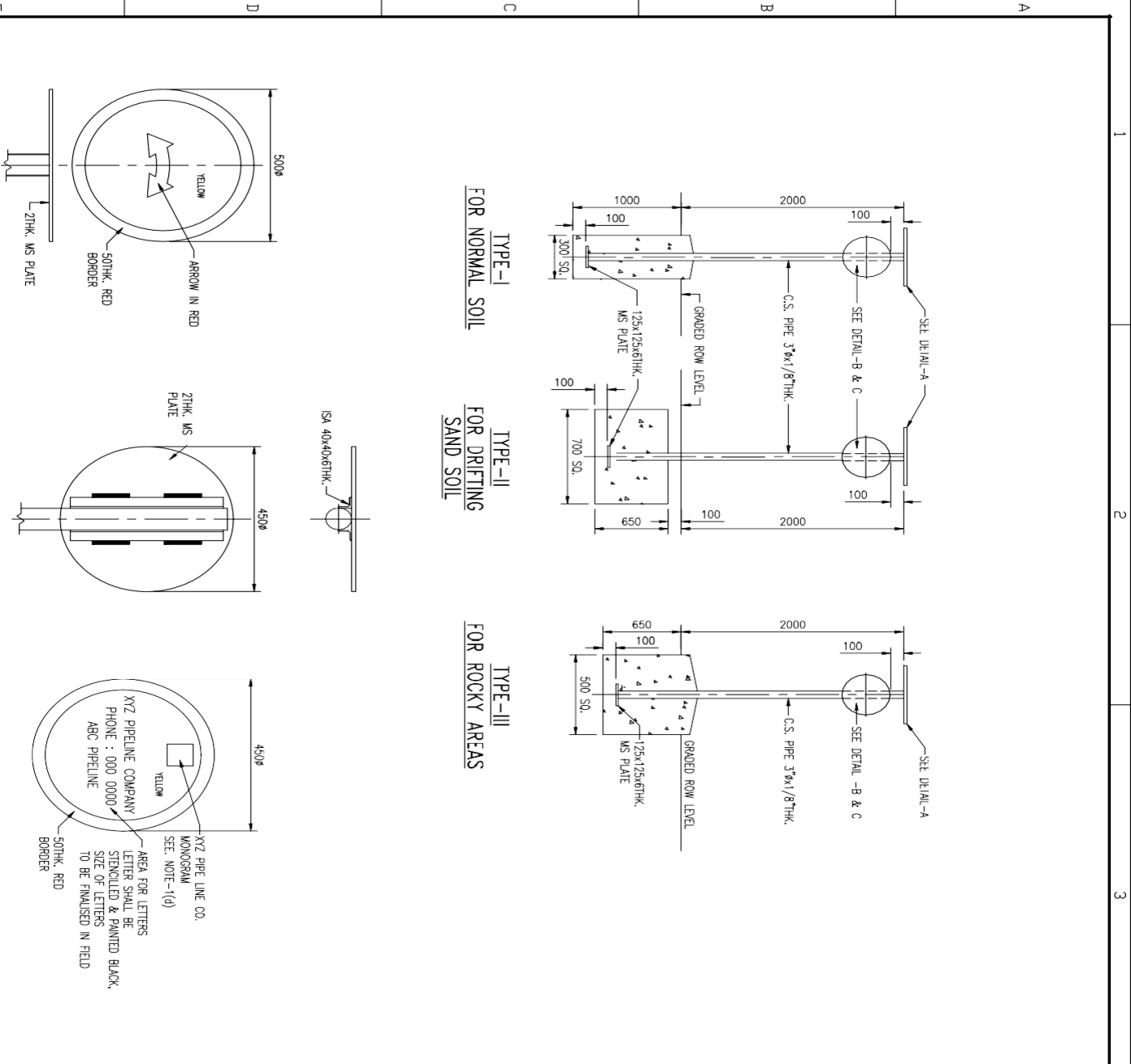
--NIL--

REVISION STATUS

DO NOT SCALE

FOR RO ISSUE ONLY			ISSUE	REVISIONS	DRN	CLEARED					APPO	DATE	FILE NAME : 33339999	MAHARASHTRA NATURAL GAS LTD.	CHAMBER RC DETAILS			
DEPT	SIGNATURE	DATE				CHEM	CIVIL	ELEC	I&C	MECH					SCALE: NTS	APPROVED: PVP	DATE (RO ISSUE)	
CIVIL															OFFICE-DISC:		DATE (CURRENT ISSUE)	
															DRN: SKL			
															PROJECT :	DWG NO	ECS-2019-MNGL-DK-02-RC-07	ISSUE RO
															CHB: AM			

Steel Markers Drawing



NOTES

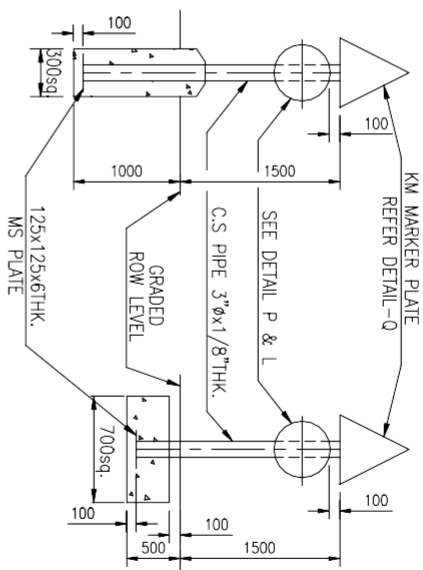
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. SCHEME OF PAINTING & COLOURING.
 - (a) UNDERGROUND STEEL STRUCTURE (EXCEPT THAT EMBEDDED IN CONCRETE) COAT 1ST EPOXY MIN. 300 MICRON THK.
 - (b) OVERGROUND STEEL STRUCTURE : ONE COAT OF PRIMER & TWO COATS SPECIFIED COLOUR PAINT.
 - (c) FIGURES SHALL BE STENCILED ON BOTH SIDES OF THE POSTS IN BLACK.
 - (d) COLOUR SCHEME FOR XYZ PIPELINE CO. MONOGRAM SHALL BE AS DIRECTED BY OWNER.
 - (e) POST SHALL BE PAINTED WITH 250 WIDE ALTERNATE BANDS OF BLACK & WHITE PAINT.
 - (f) ALL OTHER ABOVEGROUND STEEL SHALL BE PAINTED YELLOW.
3. LOCATION
 - (a) DIRECTION MARKER SHALL BE INSTALLED AS PER SPECIFICATIONS AS DIRECTED IN APPROVED DRAWINGS AND AS DIRECTED BY OWNER.
 - (b) TWO NOS. ADDITIONAL DIRECTIONAL MARKERS SHALL BE PROVIDED 200M AWAY FROM CHANGE IN DIRECTION ON EITHER SIDE.
 - (c) OWNER NAME PLATE SHALL FACE THE PIPELINE.
 - (d) DIRECTION MARKER SHALL BE INSTALLED 100MM TO LEFT OF THE PIPE CENTER LINE/VEINING TOWARDS THE DIRECTION OF FLOW AND AS INDICATED IN LOCATION SKETCH.
 - (e) THE FOUNDATION SHALL BE MADE OF CONCRETE M20.
 - (f) SIGN PLATE IN REGIONAL LANGUAGE SHALL BE PREPARED BY CONTRACTOR ON SIMILAR LINES AND APPROVED BY THE OWNER.
 - (g) ALL WELDS SHALL BE 4 MM.
 - (h) IN ADDITION TO THIS, OSD AND PNGRB GUIDELINES MUST BE COMPLIED WITH.

STANDARD

TYPICAL DIRECTION MARKER DETAILS

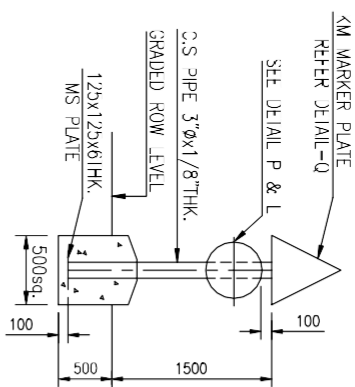
NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. SCHEME OF PAINTING & COLOURING.
 - (a) UNDERGROUND STEEL STRUCTURE (EXCEPT THAT EMBEDDED IN CONCRETE) COAT TAR EPOXY MIN. 300 MICRON THK.
 - (b) OVERGROUND STEEL STRUCTURE : ONE COAT OF PRIMER & TWO COATS SPECIFIED COLOUR PAINT.
 - (c) FIGURES SHALL BE STENCILED ON BOTH SIDES OF THE POSTS IN BLACK.
 - (d) COLOUR SCHEME FOR XYZ PIPELINE CO. MONOGRAM SHALL BE AS DIRECTED BY OWNER.
 - (e) POST SHALL BE PAINTED WITH 250 WIDE ALTERNATE BANDS OF BLACK AND WHITE PAINT.
3. LOCATION
 - (1) ALL OTHER ABOVEGROUND STEEL SHALL BE PAINTED YELLOW.
 - (a) K.M. POST SHALL BE INSTALLED AT EVERY KILOMETERS AS PER REQUIREMENTS OF CONTRACT AND AS DIRECTED BY OWNER.
 - (b) OWNER NAME PLATE SHALL FACE THE PIPELINE.
 - (c) K.M. POST SHALL BE 500MM TO THE LEFT OF THE PIPE CENTRE LINE VIEWING TOWARDS THE DIRECTION OF FLOW AND AS INDICATED IN SKETCH.
 4. THE FOUNDATION SHALL BE MADE OF CONCRETE M20.
 5. REQUIRMENTS.
 6. IN ADDITION TO THIS, OISD AND PIRABG GUIDELINES MUST BE COMPLIED WITH.

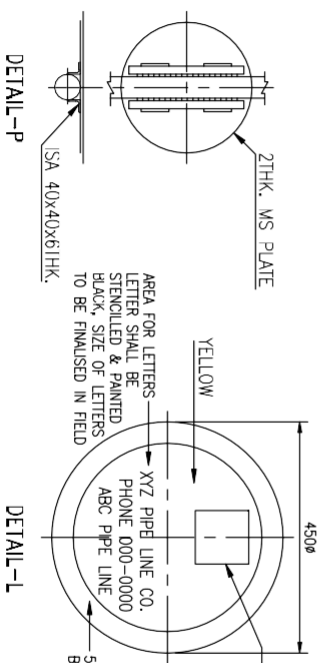


TYPE-1
FOR NORMAL SOIL

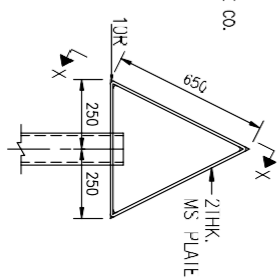
TYPE-II
FOR DRIFTING SAND SOIL



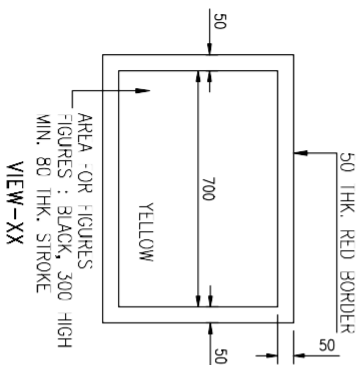
TYPE-III
FOR ROCKY AREAS



DETAIL-L



DETAIL--Q



VIEW-XX

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. SCHEME OF PAINTING & COLOURING.
 - (a) UNDERGROUND STEEL STRUCTURE (EXCEPT THAT EMBEDDED IN CONCRETE) COAT TAR EPOXY MIN. 300 MICRON THK.
 - (b) OVERGROUND STEEL STRUCTURE : ONE COAT OF PRIMER & TWO COATS SPECIFIED COLOUR PAINT.
 - (c) ALL LETTERS EXCEPT WARNING SHALL BE PAINTED BLACK..
 - (d) COLOUR SCHEME FOR XYZ PIPELINE CO. MONOGRAM SHALL BE AS DIRECTED BY OWNER.
 - (e) POST SHALL BE PAINTED WITH 250 WIDE ALTERNATE BANDS OF BLACK AND WHITE PAINT.
3. LOCATION
 - (f) ALL OTHER ABOVEGROUND STEEL SHALL BE PAINTED YELLOW.
 - (g) THE PIPE LINE WARNING SIGN SHALL BE INSTALLED IN ACCORDANCE WITH CONTRACT REQUIREMENTS AND AS DIRECTED BY OWNER IT SHALL BE INSTALLED TO THE LEFT OF THE PIPE CENTER LINE, VIEWING IN THE DIRECTION OF FLOW AT 300MM FROM PIPELINE O.D. AND THE WARNING SIGN PLATE SHALL FACE THE UTILITY BEING CROSSED.
 - (h) THE WARNING SIGN PLATE MAY BE MOUNTED ON VENT PIPES OR KM POST WHERE EVER POSSIBLE.
4. THE FOUNDATION SHALL BE MADE OF CONCRETE M20.
5. SIGN PLATE IN REGIONAL LANGUAGE SHALL BE PREPARED BY CONTRACTOR ON SIMILAR LINES AND APPROVED BY THE OWNER.
6. IN ADDITION TO THIS, OSD AND PDRNG GUIDELINES MUST BE COMPLIED WITH.

