MAHARASHTRA NATURAL GAS LIMITED

(MNGL)

TENDER FOR LAYING AND CONSTRUCTION OF 10", 6" & 4" STEEL PIPELINE NETWORK AND ASSOCIATED WORKS ON RATE CONTRACT BASIS FOR THE PERIOD OF 2 YEARS IN PUNE GA OF MNGL.

UNDER OPEN DOMESTIC

COMPETITIVE BIDDING

(THROUGH E-TENDERING MODE)

Bid Document No.: MNGL/CP/2024-25/53

VOLUME III OF III

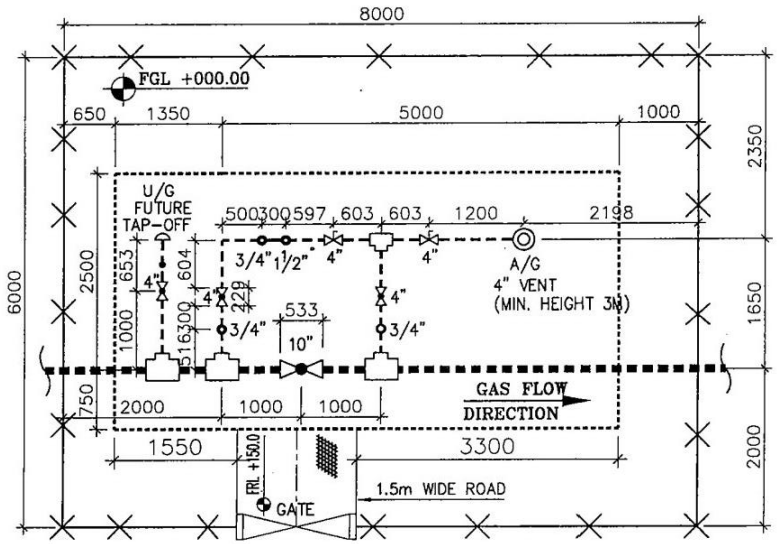
A) GENERAL PIPELINE & MECHANICAL DRAWINGS

1. Typical Detail of SV Stations (type-I) - MNGL/Plng./Steel/01
2. Typical Detail of SV Stations (type-II) - MNGL/Plng./Steel/02
3. Trench cross section detail - MNGL/Plng./Steel/03
4. Barricading - MNGL/Plng./Steel/04
5. Cautions Board - MNGL/Plng./Steel/05
6. Typical Detail of Marker - MNGL/Plng./Steel/06

B) CP DRAWINGS

1. Prepacked Zinc Anode - MNGL/Plng./Steel/14
2. Magnesium Ribbon Anode for Grounding - MNGL/Plng./Steel/16
3. Test Station with Foundation Details - MNGL/Plng./Steel/18
4. Test Station Connection Schemes - MNGL/Plng./Steel/19
5. Prepacked Permanent Ref. Electrode & Installation Details - MNGL/Plng./Steel/20
6. Details of Zinc Grounding Cell - MNGL/Plng./Steel/21
7. Pipeline Grounding through Polarization Cell & Galvanic anode - MNGL/Plng./Steel/23
8. Galvanic Anode Installation - MNGL/Plng./Steel/24
9. Test Station for Polarization Cell - MNGL/Plng./Steel/27
10. Zinc Ribbon Anode for Cased Crossings with Coated Casing - MNGL/Plng./Steel/22
11. Std. detail of backfill for Drain Crossing - MNGL/Plng./Steel/29
12. Restoration of roads, footpath, channel - MNGL/Plng./Steel/30
13. Vent & Drain for Line 2” & Above - MNGL/Plng./Steel/31

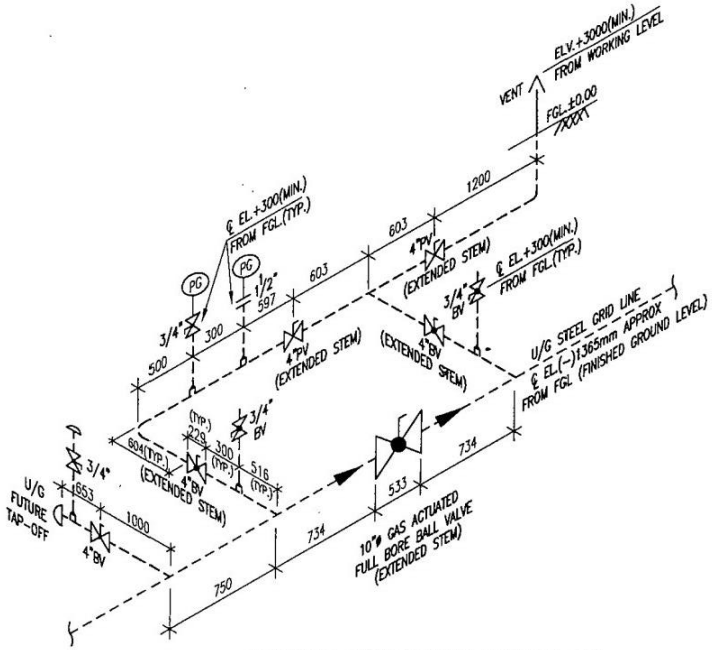
14. Wells Installation 1 ½" & Above (1 of 2) - MNGL/Plng./Steel/32
15. Wells Installation 1 ½" & Above (2 of 2) - MNGL/Plng./Steel/33
16. Pressure Tapping - MNGL/Plng./Steel/34
17. Barred Tees (10" NB x 10" NB x 4"NB) - MNGL/Plng./Steel/37
18. Barred Tees (6" NB x 6" NB x 6"NB) - MNGL/Plng./Steel/38
19. Barred Tees (6" NB x 6" NB x 4"NB) - MNGL/Plng./Steel/39
20. Valve Chamber Details
21. RCC Slab Typical Drawing
22. PE stop off valve drawing -MNGL/ENG/CIVIL/0A
23. Typical drawing of isolation/tap-off valve assembly - MNGL/Plng./Steel/40



TYPE–II

SV STATION WITH A/G VENT AND TAP–OFF

TYP. PLOT PLAN WITH PLOT SIZE (8.0M x 6.0M)



TYPICAL ISOMETRIC DETAIL OF SECTIONALISING VALVE (TYPE–II)

BILL OF MATERIAL

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	BARRED TEE 10"x10"x4"	- 03 NOS.
7	TEE 4"x4"x4"	- 01 NO.
8	ELBOW (1.5D) 4"	- 01 NO.

LEGEND:

- BALL VALVE
- PLUG VALVE.
- DISC END
- FGL. FINISHED GROUND LEVEL
- FRL. FINISHED ROAD LEVEL
- I.J. INSULATING JOINT
- VALVE PIT AREA
- ROAD
- CHAINLINK FENCING

NOTES:

1. ALL DIMENSSIONS 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.

REV / SEC | INST. | CONCURRED BY

REV.NO | DATE | ZONE | DESCRIPTION | BY | VERIFIED — REVISION

P&ID REFERENCES | DRG.NO.

महाराष्ट्र नॅचरल गॅस लिमिटेड
MAHARASTRA NATURAL GAS LTD

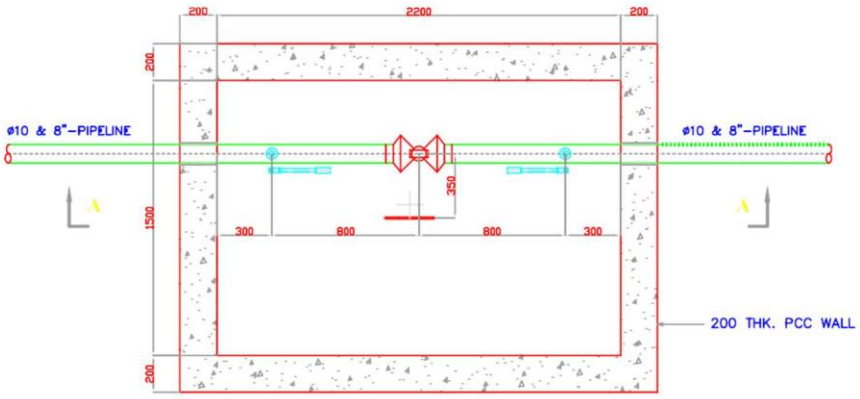
DRG NO. MNGL/Plng./Steel/02

CNG & CITY GAS DISTRIBUTION IN PUNE

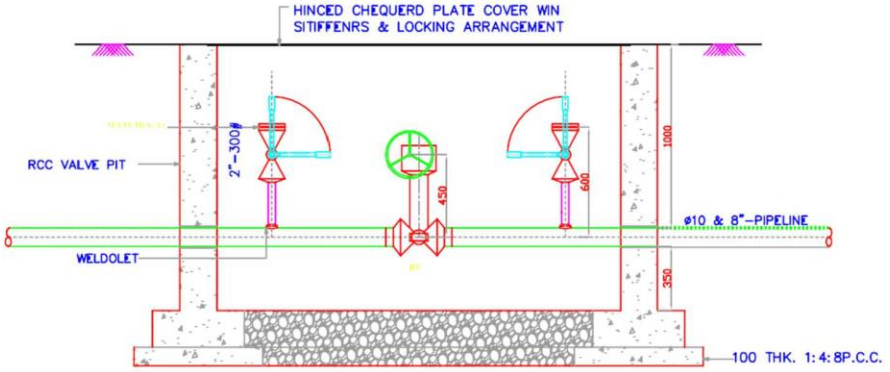
TYPICAL DETAIL OF SV STATION (TYPE–II)

SCALE : NTS | SHEET 1 OF 1 | REV

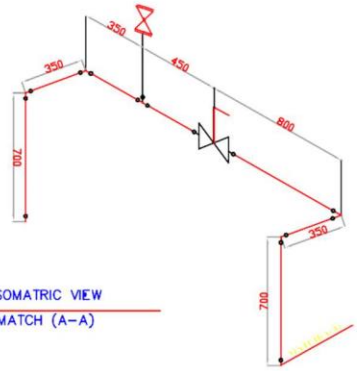
DRG. NO. | 0



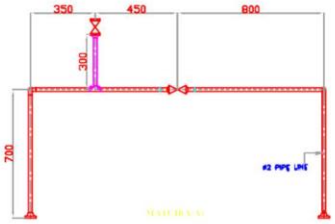
VALE CHAMBER



(SECTION A-A)

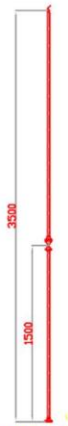


ISOMATRIC VIEW
MATCH (A-A)



FRONT VIEW
MATCH (A-A)

VENT WITH FLAPPER



2" VENT LINE
MATCH (A-A)

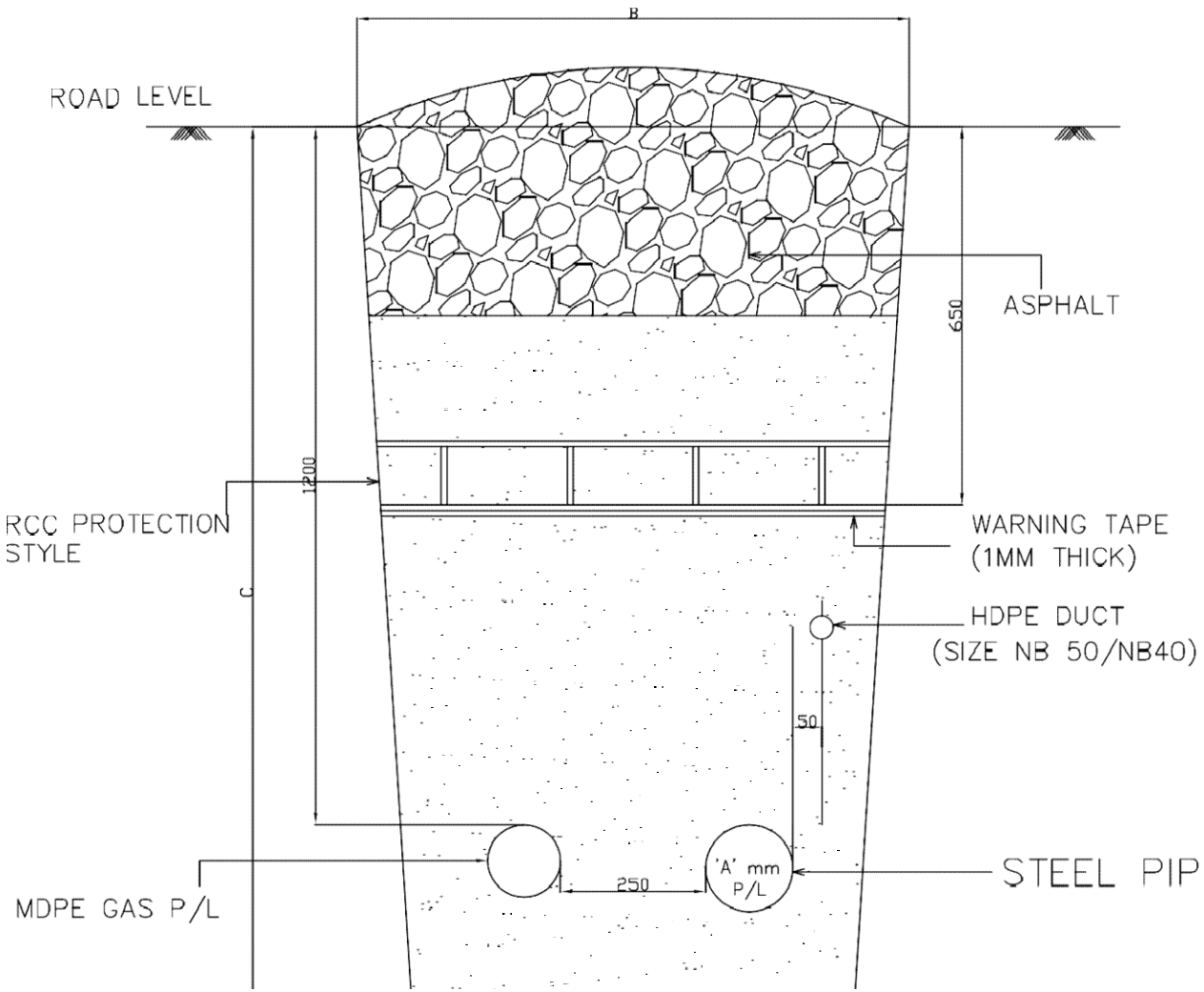
GENERAL NOTES

1. ALL DIMENSIONS IN MM, & ALL LEVELS ARE IN METERS.
2. VALVE PIT DIMENSION ARE TENTATIVE WELL BE DECIDED DURING DETAILENGGERING

LEGEND

- NEW PIPE (BELO GROUND)
- NEW PIPE (BELO GROUND)
- BUTT WELD BALL VELVE (B.V.)
- FLANGED PLUG VELVE (P.V.)
- FLANGED PLUG VELVE
- FLANGED BALL VELVE
- ONE SIDE B.W. & ONE SIDE FLG. BALL VALVE
- ONE SIDE B.W. & ONE SIDE FLG. PLUG VALVE
- BOTTOM OF PIPE
- T.O.P TOP OF PIPE
- CENTER OF PIPE

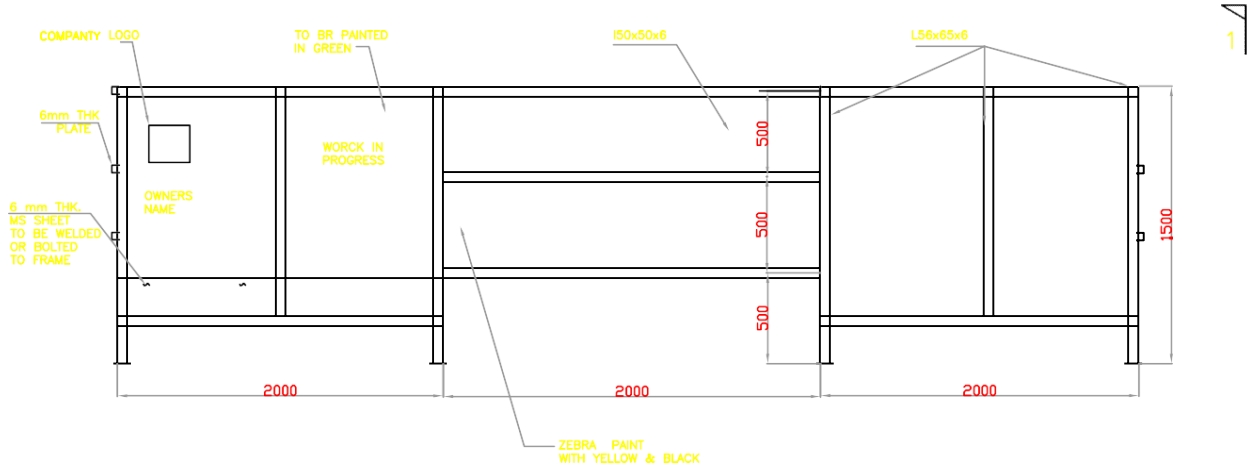
REFERRENCE DRAWING / DOCUMENTS



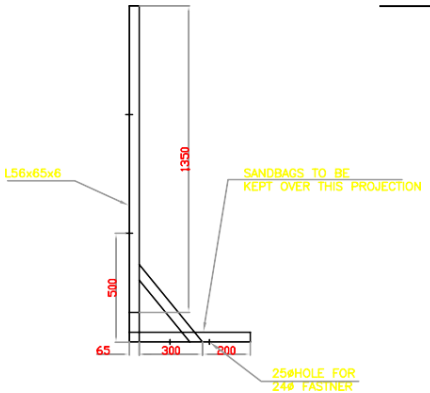
'A' mm	B mm	C mm
10" NB	950 mm	1650 mm
06" MB	800 mm	1450 mm
04" NB	750 mm	1400 mm

ALL

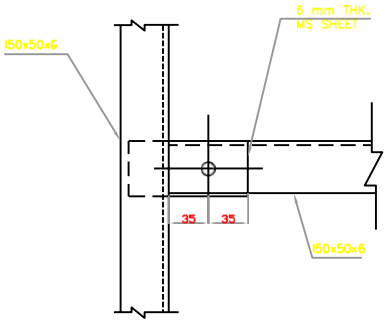
DRG. NO. MMGL / PLANS / STEEL/ 05



LAYOUT PLAN OF BARRICADE



SECTION 1-1



DETAIL -A

NOTE:–

1. ALL DIMENSIONS ARE IN mm.

FOR TENDER PURPOSE ONLY

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

SECTION : P&PD

	NAME	DATE	CHKD	DATE
DSGN				
DRWN				
CHKD. & VERIFIED				
APPROVED				

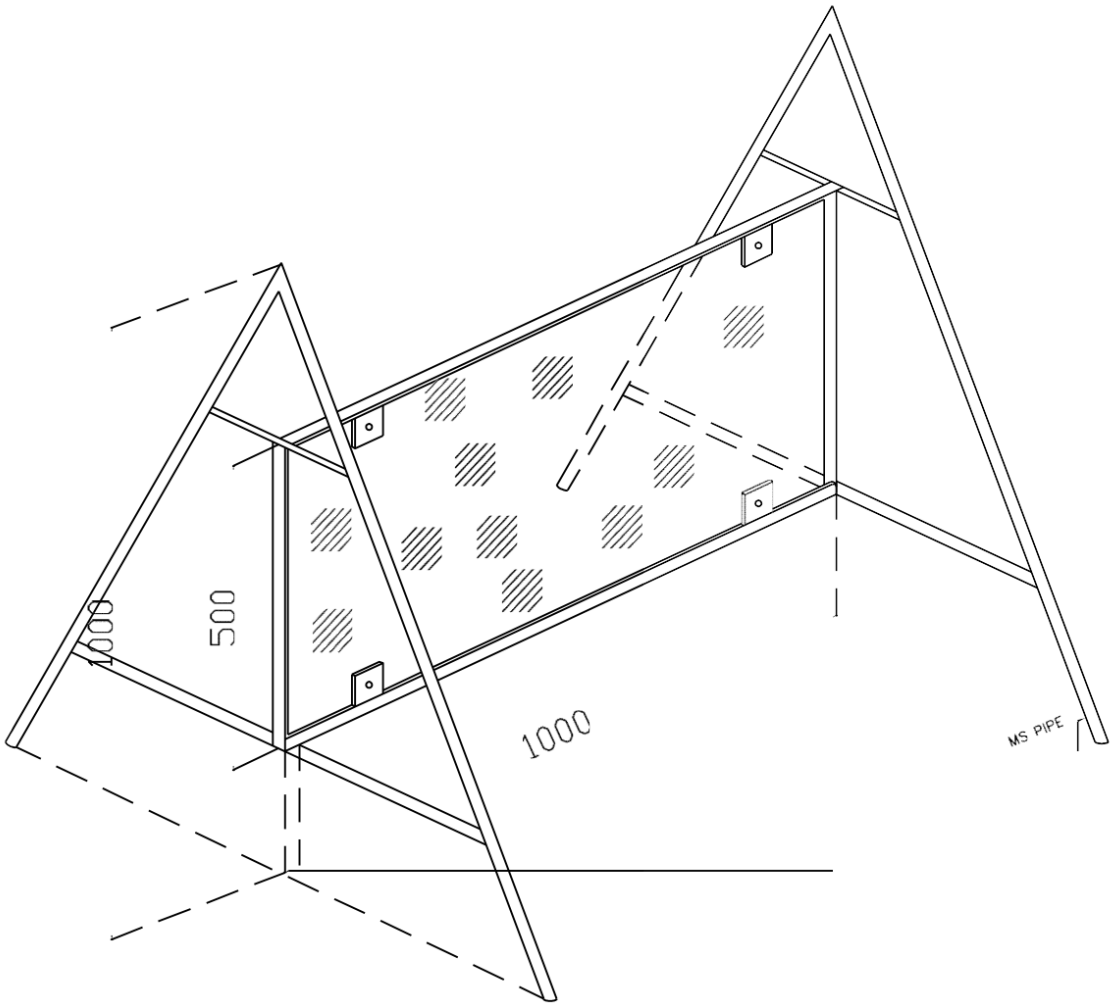
MAHARASTRA NATURAL GAS LTD

CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY

BARRICADING

SCALE : N.T.S

DRG NO. MNGL/PLANG/ STEEL 04



IN RED

C A U T I O N

WORK IN PROGRESS

LATING OF HITH PRESSURE PIPELINE

IN BLACK

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				R:-ERNCCES	DRG NO.

	NAME	SIG.	DATE
DSGN			
DRWN			
CHED. & VERIFIED			
APPROVED			

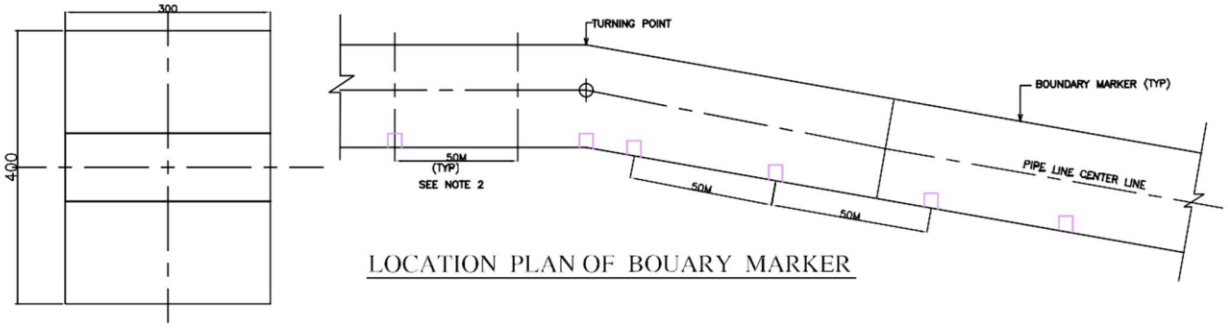
MAHARASTRA NATURAL GAS LTD.

CNG & CITY GAS DISTRBUTION IN PUNE

CAUTION BOARD

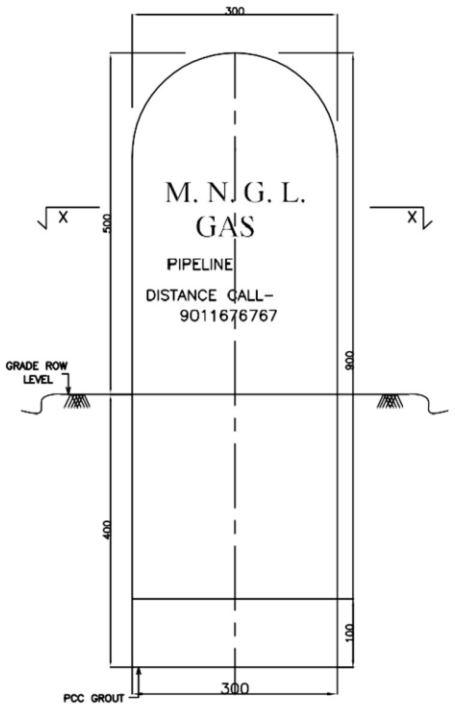
SCA F :- NTS

DRG. NO. M N G L / PLANG STEEL/05

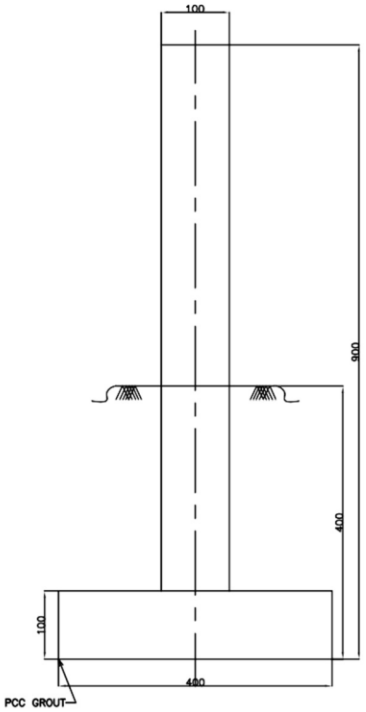


PLAN

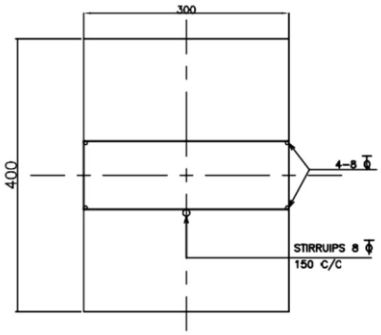
LOCATION PLAN OF BOUARY MARKER



ELEVATION



SIDE VIWE



SECTION X-X

NOTES:-

1. ALL DIMENSIONS ARE MM UNLESS OTHARWISE SPECIFED.
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 INSCRITIONS SHALL BE PAINTED BLACK.(35MICRONS COAT)

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

	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

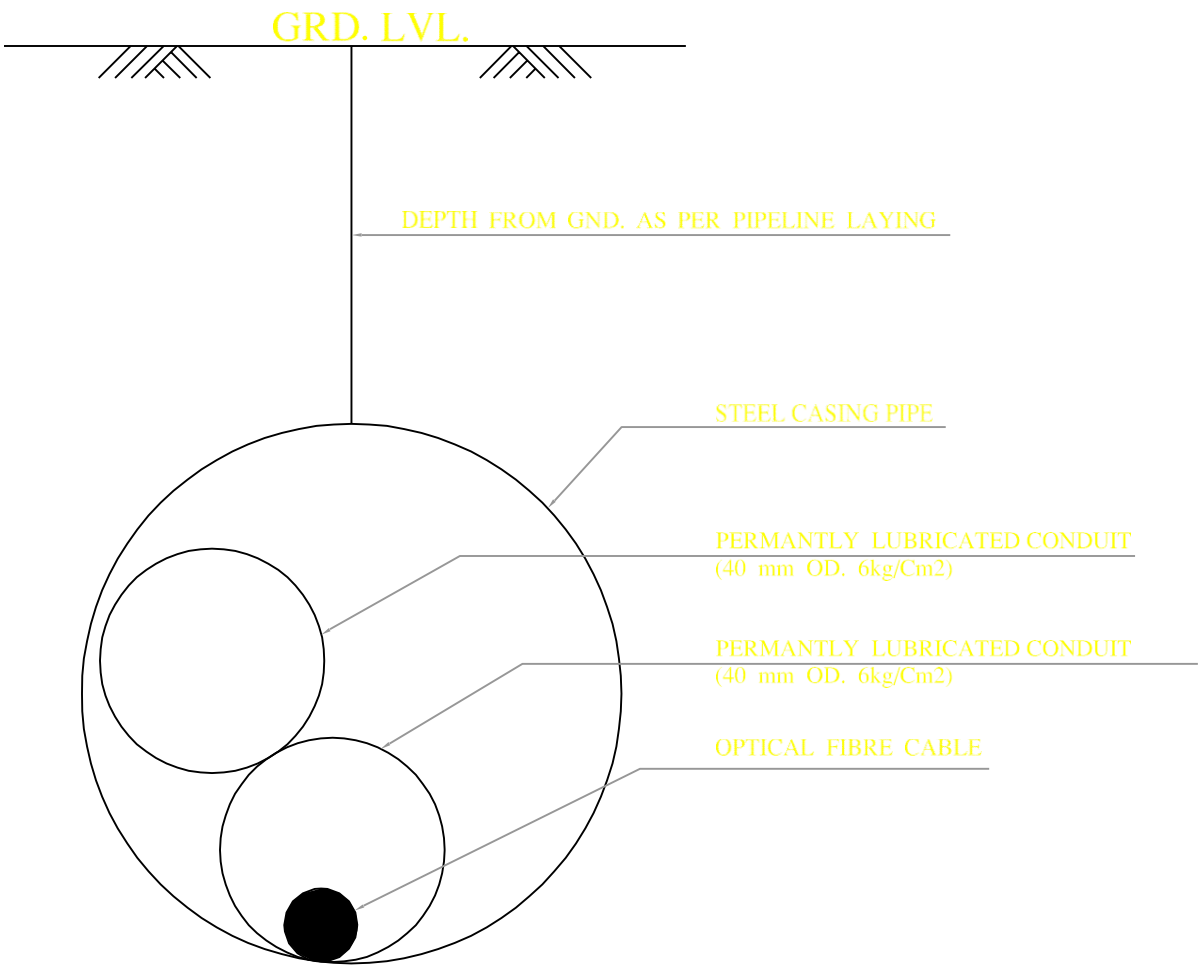
MAHARASTRA NACHURAL GAS LTD

CNG & CITY GAS DISTIBUTON IN PUNE

ROUTE BOUNDARY MARKER

SCALE : N.T.S

DRG. NO. M N G L / PLAN / STEEL /06



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.

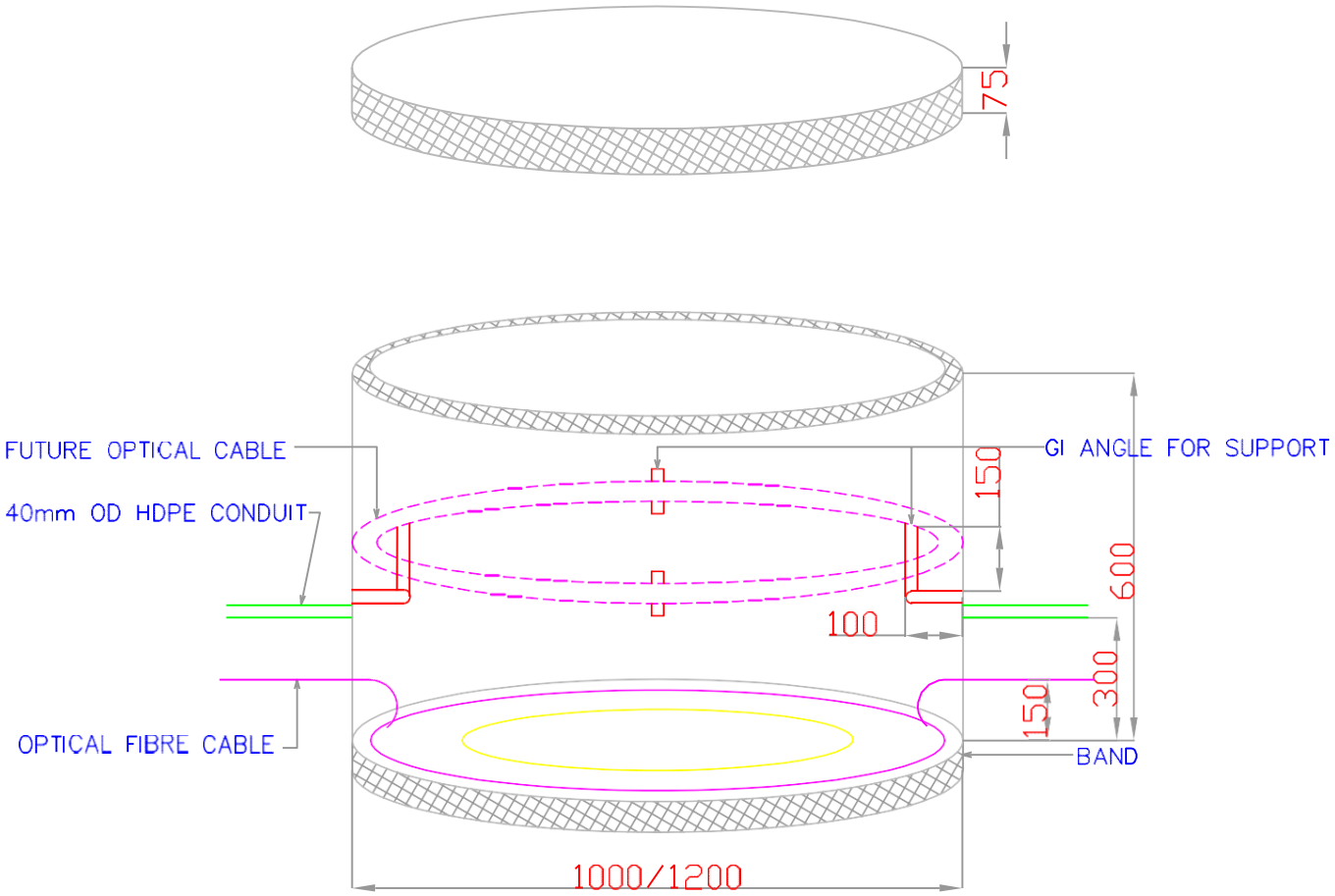
SECTION : P&PD

	NAME	DATE	CHKD	DATE
DSGN				
DRWN				
CHKD& VERIFIED				
APPROVED				

OPRICAL FIBER CABLE
LAYING (CASSED CROSSING)
2 Nos. HDPE DUCT

SCALE : N.T.S

DRG. NO. MNGL/PLANG/ STEEL 11



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	REFERENCES	DRG. NO.

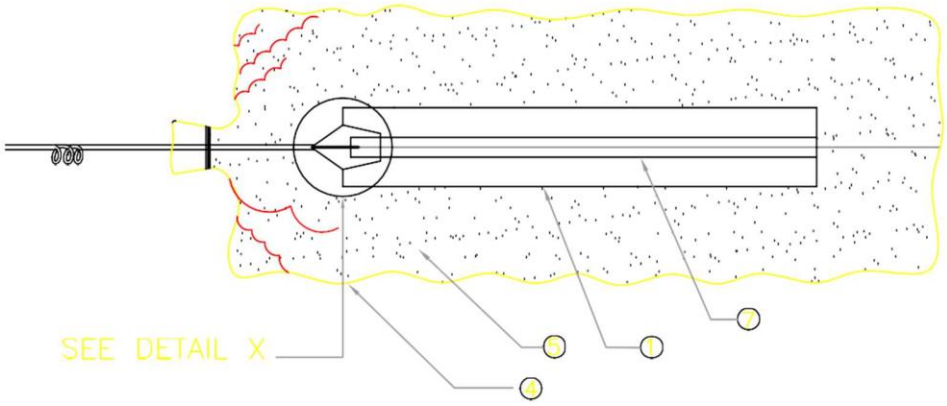
REVISIONS

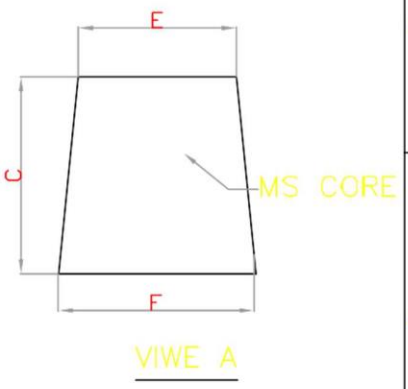
	NAME	DATE	SIG.
SECTION			
DESIGN			
DRWN			
CHKD.&VERIFIED			
APPROVED			

STANDARD SKETCH
OFC JOINTING PIT | BLOWING PIT

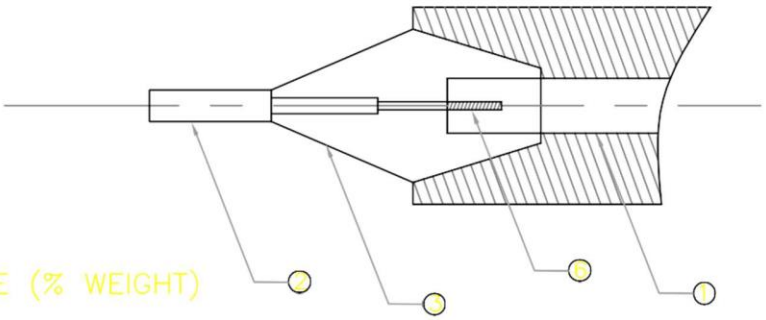
SCALE : NTS

DRG.NO. M N G L / PLNG / STEEL 12





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.

ITEM	DESCRIPTION	QTY.
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 lbs (7.7kg)	1

BILL OF MATERIALS

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

SECTION : P&PD

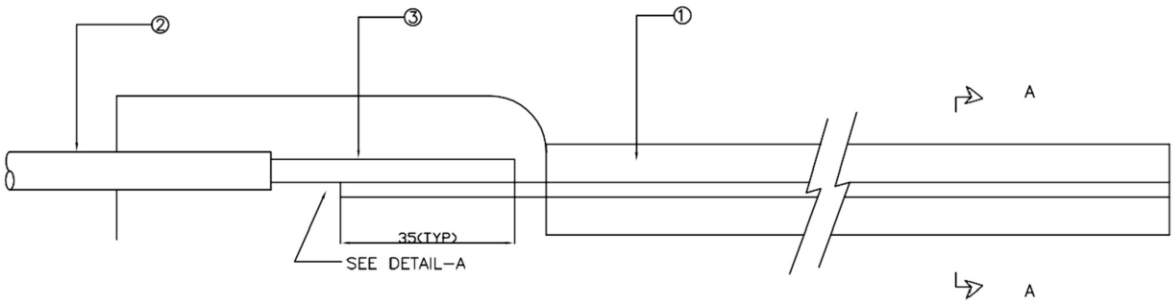
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

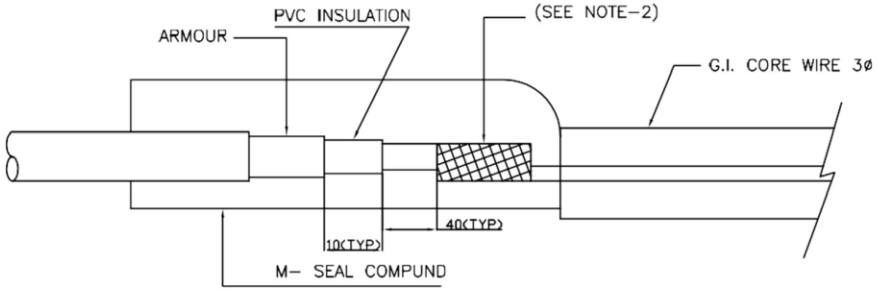
APPROVED

PREPACKAGED ZINC ANODE

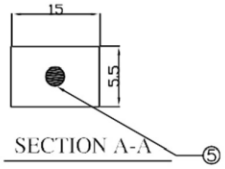
SCALE : N.T.S

DRG SIZ : MNGL/PLANG/ STEEL 14





DETAIL - A



SECTION A-A

NOTES:–

1. ALL DIMENSIONS ARE IN mm.
2. CABLE CONNECTION WITH G.I. CODE CORE WILL BE SILVER SOLDERED AT SITE.

CHEMICAL COMPOSITION OF ANODE

Al : 0.10% MAX.

Mn : 0.2% MAX.

CU : 0.02% MAX.

Fe : 0.03%MAX

Ni: 0.001%MAX

OTHER METALLIC ELMENTS: ETCH 0.05% MAX.

TOTAL : 0.3MAX

Mg ;REMAINDER

WEIGTH : 0.39 kg PER LINER METER

ITEM NO.	DESCRIPTION	QTY.
5	SHEATHED GI ARMOURED 3ø GI CORE WIRE (PART OF MAGNSIUM ANODE)	1
4	SILVER SOLDER	AS REQD
3	M– SEAL COMPOUND	AS REQD
2	ANODE LEAED CABLE 25mm2 COVPPER XLPE INSULATED PVC SHATHED GI ARMOURED COMPLETE WITH LUG	10m
1	MAGNESIUM ANDE, WEIGHT 0.39kg	1

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

SECTION : P&PD

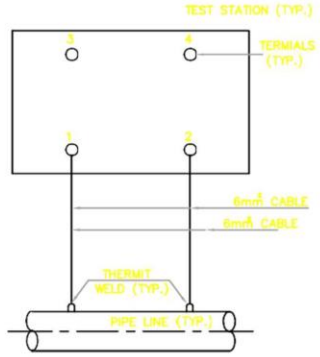
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

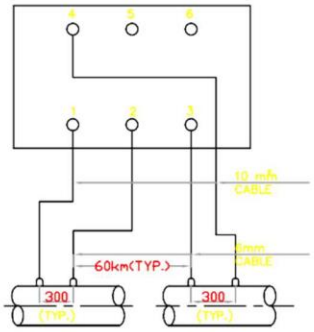
MAGNESIUM RIBBON ANODE FOR GROUNDING

SCALE : N.T.S

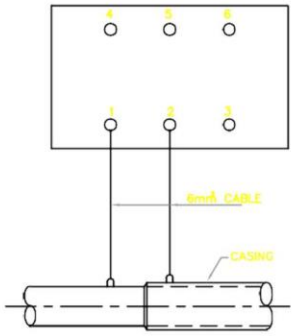
DRG NO MNGL/PLANG/ STEEL 16



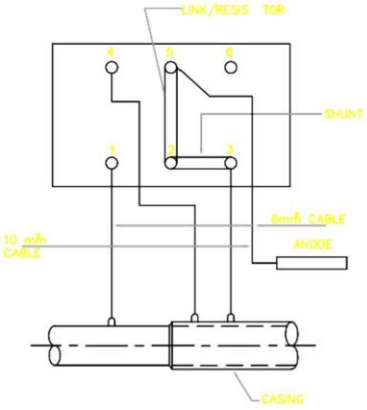
POTENTIAL MEASUREMENT (CONNECTION SCHEME–A)



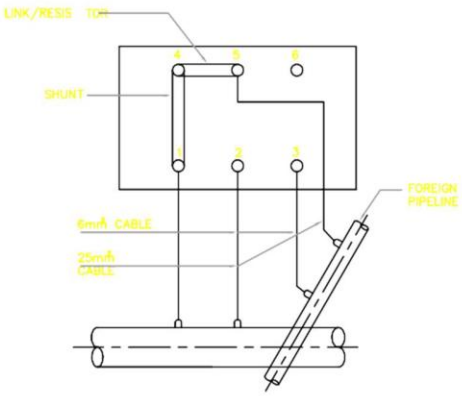
CURRENT MEASUREMENT (CONNECTION SCHEME–B)



CASED CROSSING WITH UNCOATED CASING (CONNECTION SCEME–C)



CASED CROSSING WITH COATED CASING (CONNECTION SCEME – D)



FOREING PIPELINE CROSSING (CONNECTION SCHEME –E)

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

SECTION : P&PD

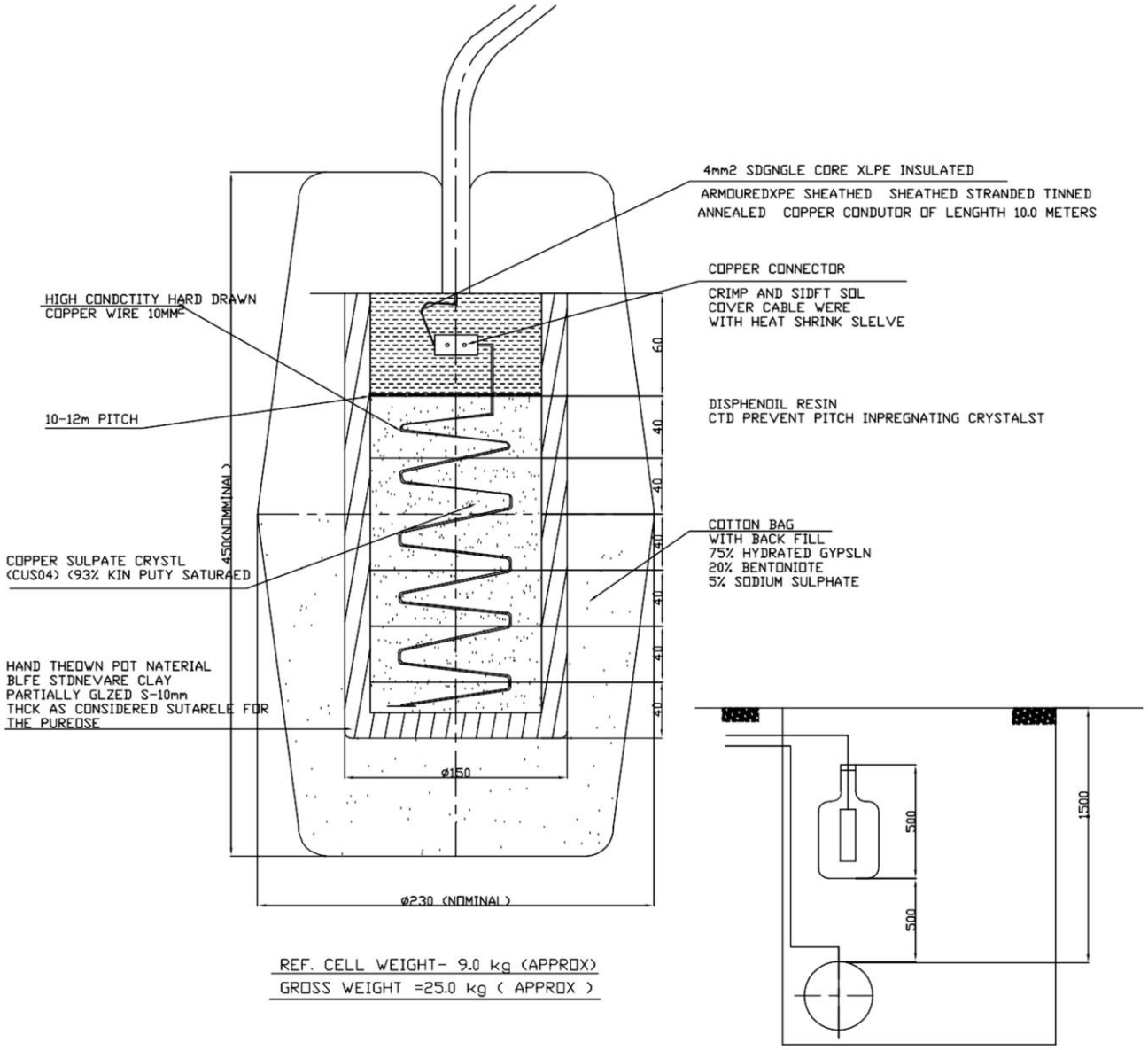
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

TEST STATION CONNECTION SCHEMES

SCALE : N.T.S

DRG.NO : MNGL/PLANG/ STEEL 19



REF. CELL WEIGHT- 9.0 kg (APPROX)
GROSS WEIGHT =25.0 kg (APPROX)

REFERENCE : ELECTRODE
INSTALLATION.

NOTE :-

1. THE DEVERALL DIMENSION ARE FOR GUIDDACE ONLY
2. ALL DIMENSION ARE IN MM.
3. REFENCE CELL SHALL BE BACK FILLED WITH BACK FILL MATERIAL SPECIFIED.
4. REFERENCE CELL SHALL BE INSTALLED APPEDXIMELY AT 500 mm (MAX) ABOVE THE TOP LEVEL OF THE PIPE LINE ALOING WITH COTTON
5. BACK FILL REFERENCE ELCTIRDDE SHALL BE SDAKED IN 20 LITERS OF CLEAN FRESH WATER FOR 24 HRS PRIIR TO INSTALLATION
6. REFERNCE CELL CABLE SHALL BE ROUTED ALOING THE TOP OF THE CARRIER PIPE LINE BY SECUIRLY STRAPPING IT WITH ADHESIVE TYPE AT APPROXIMATELY 3 Mt INTERVALS.
7. CALLIBRATION OF REERENCE CELL w<r<t STANDARD CUL/CUSO4 CELL TO BE MADE PRIOR TO INSTALLATION

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

SECTION : P&PD

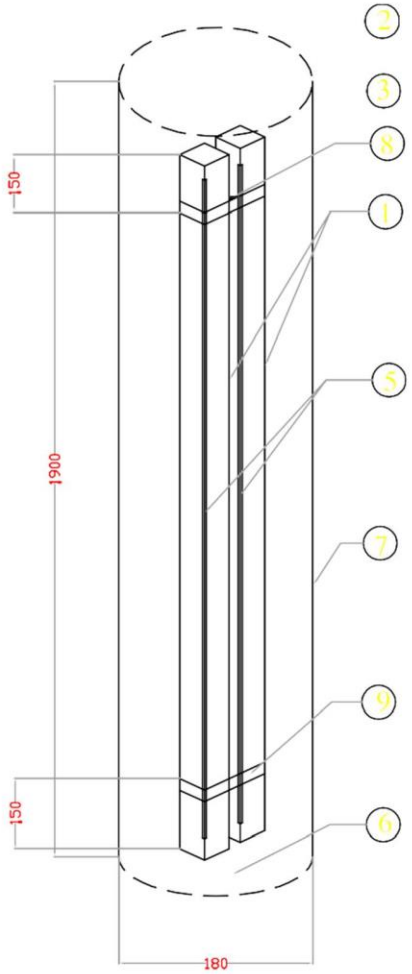
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

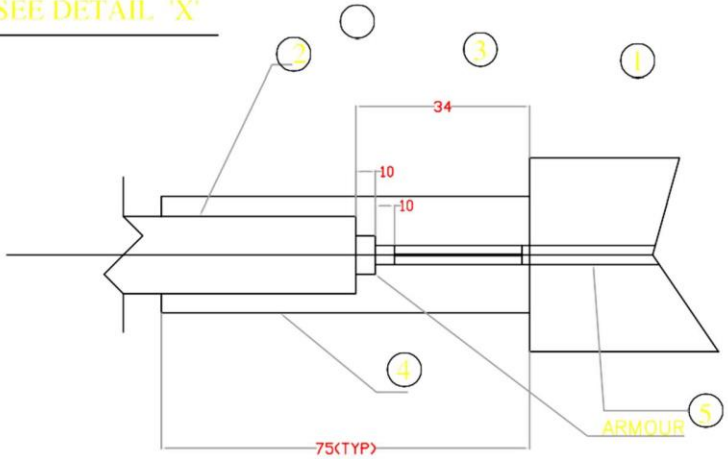
PREPACKAGED PERMAENT REF. ELECTRODE (Cu/CuSO4 TYPE) & INSTALLATION DETAILS

SCALE : N.T.S

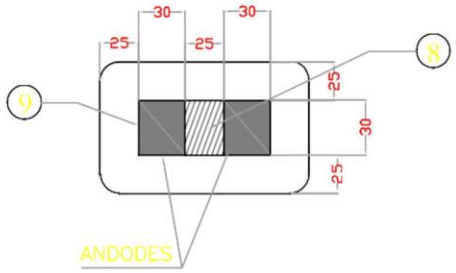
DRG NO MNGL/PLANG/ STEEL 20



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 LEADE FOR ZINC GROUNDING CELL SHALL BE AS SHORT AND DIRECT AS POSSIBLE.
4. GROUNDING CELL CABLE ARMOUR SHALL NOT HAVE ELLECT. CONNECTION TO ANODE

ZINC ANODE COMPIOSITION (% WEIGHT)

ALUMINIUM	0.005% MAX
MAGNESIUME	0.003% MAX
COPPER	0.002% MAX
IRON	0.0014% MAX
LEAD	0.003% MAX
OTHERS	–
ZINC	REMAIDER

ZINC ALLOY CONFORMING TO ASTM-B-418-G7

BACKFILL COMPOSITION

GYPUSM	75%
BENTONITE	20%
SODIUM SULPHATE	5%

ITEM NO.	DESCRIPTION	QTY.
1	TAP-, STRAP	AS REQD.
1		
1		
1	BACK FILL MAT.	AS REQD.
1		
1	HEAT SHRINK SLEEVE	
1		
1		
1	ID. MILD ARMOURED400/1000 V.	
1		

BILL OF MATERIALS

REV. NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD	REFERECES	DRW. NO.
			REVISIONS				

SECTION : P&PD

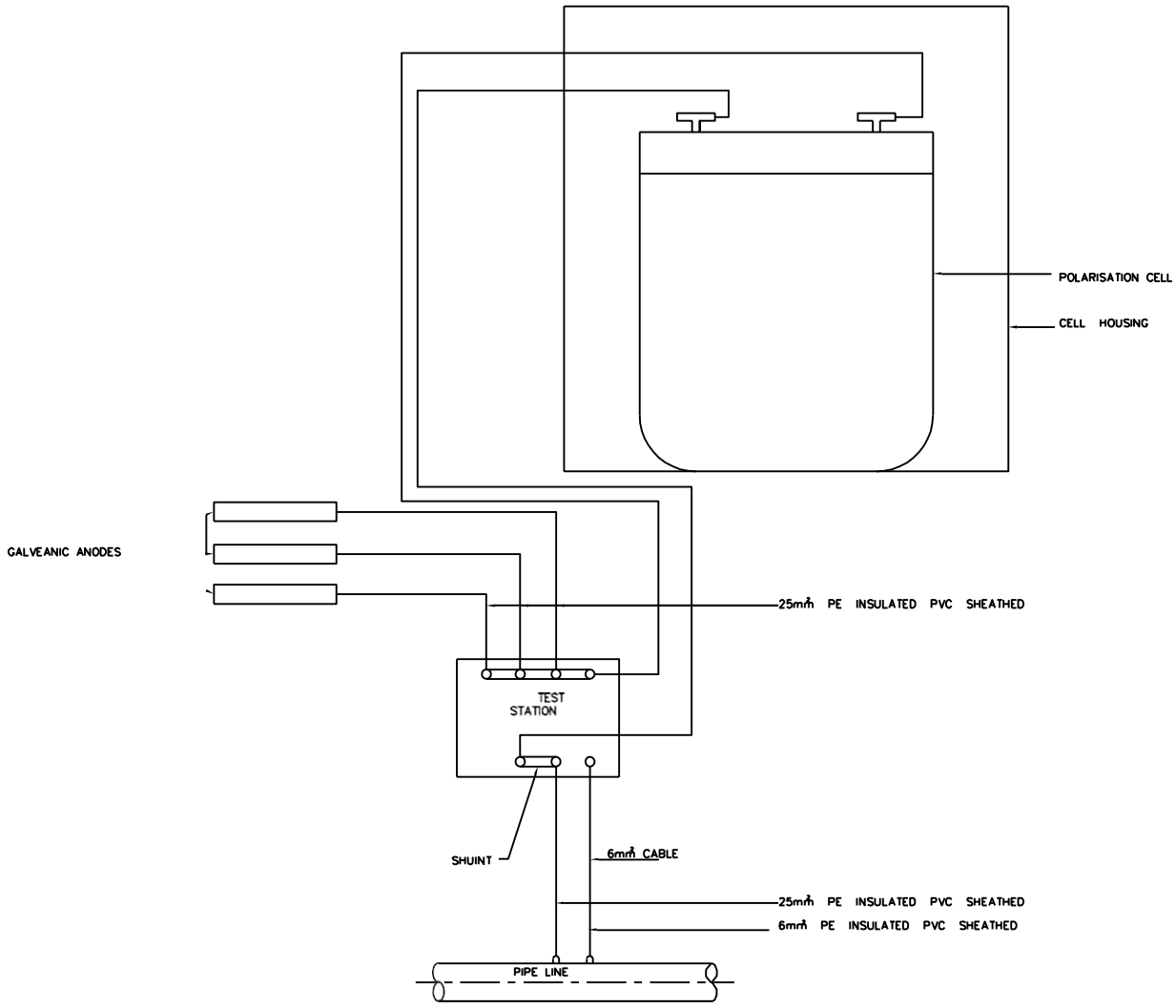
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

DETAILS OF ZINC GROUNDING CELL

SCALE : N.T.S

DRG NO : MNGL/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 AGAINEST 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

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

SECTION : P&PD

	NAME	DATE	CHKD	DATE
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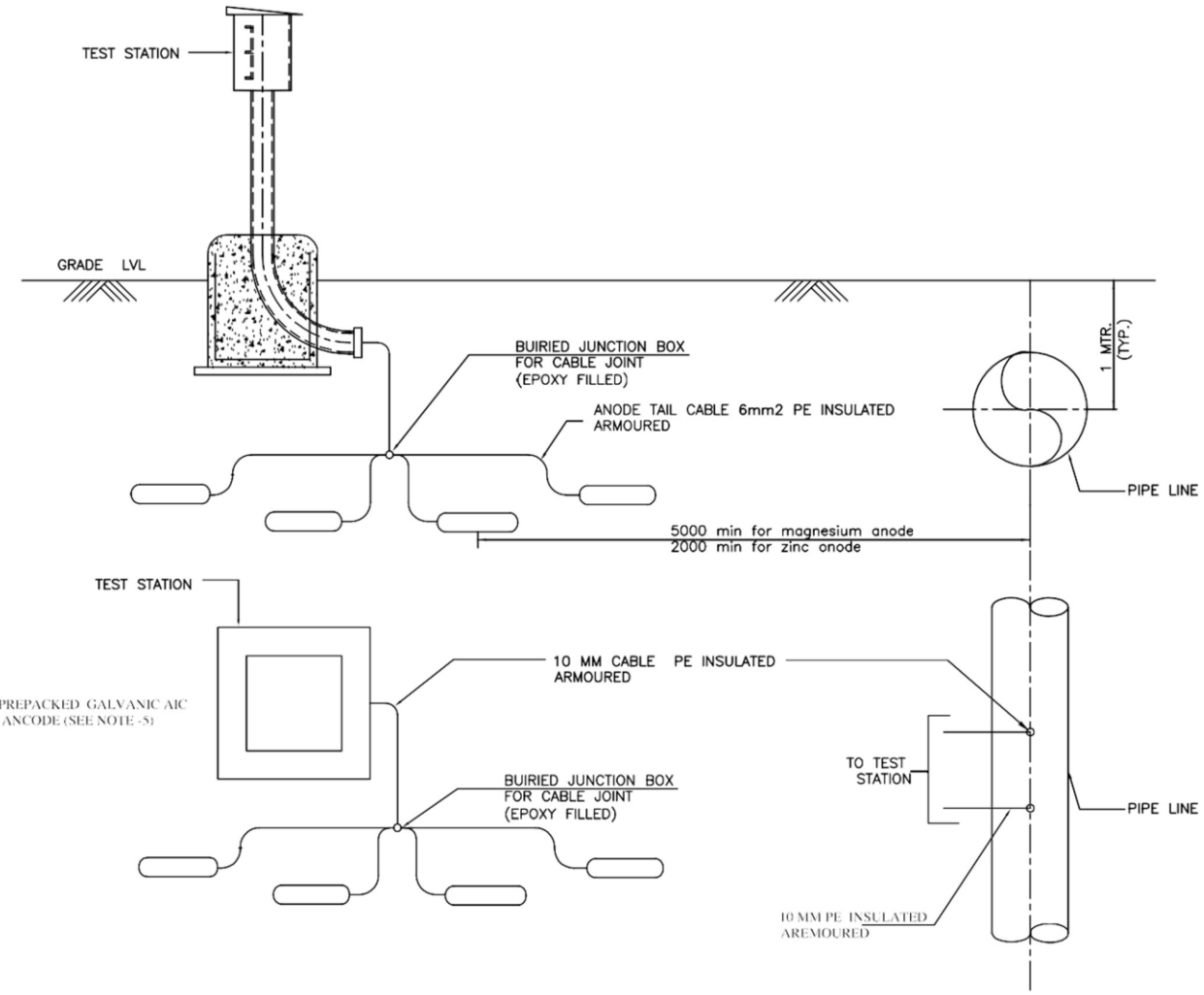
CHKD& VERIFIED				
APPROVED				

PIPELINE GROUNDING THROUGH POLARISATION CELL & GALVANIC ANODE

SCALE : N.T.S

DRG. NO. MNGL/PLANG/ STEEL 23



NOTES :–

1. THE PREACKED GLVINIC ANODE SHALL BE INDSTALLED AT MINIUM 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 ANDODES 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
DSGN				
DRWN				
CHKD& VERIFIED				
APPROVED				

GALVANIC NAODE INSTALLATION

SCALE : N.T.S

DRG. NO MNGL/PLANG/ STEEL 24

6 5 4 3 2 1

H G F E D C B A

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 COLOUIRED 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 EQIVALENT
7. THE NAME PLATE OF EACH TEST STATION SHALL CARRY THE FOLLOWING INFORMATION.
   - A) TEST STACTION CONNECTION SCHEME TYPE
   - B) RELEVANT TEST STACTION 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 UIPRIGHT POSITION.
9. TEST STACTION SHALL BE SO ERCTED AS TO SERVE ALSO AS PIPELINE MARKER. AND ANODE GRAUNDBED MARKER .THEIR SHUTTER SHALL BE TO THE LINE OF AXIS OF PIPELINE AND FACIONG IT.
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
11. HEIGHT OF THE STATION ABOVE GROUND LEVEL SHOWN IN THE DRAWING IS TYPICAL.
12. ALL CABLES COMMING TO TEST STACTION 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.
16. ALL DIMENSION ARE IN MM.
17. THE ENTRY SHALL BE SEALED WITH BITUIMEN COMPOUND AFTER CABLE LAYING TO PREVENT WATER ENTRY.

ITEM	DESCRIPTION	QTY
	BILL OF MATERIALS	
30	VARIABLE RESISTANCE 0-0.1 OHM.	01
29	100 MM ø M.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

REV NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD		
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DSGN				
DRWN				

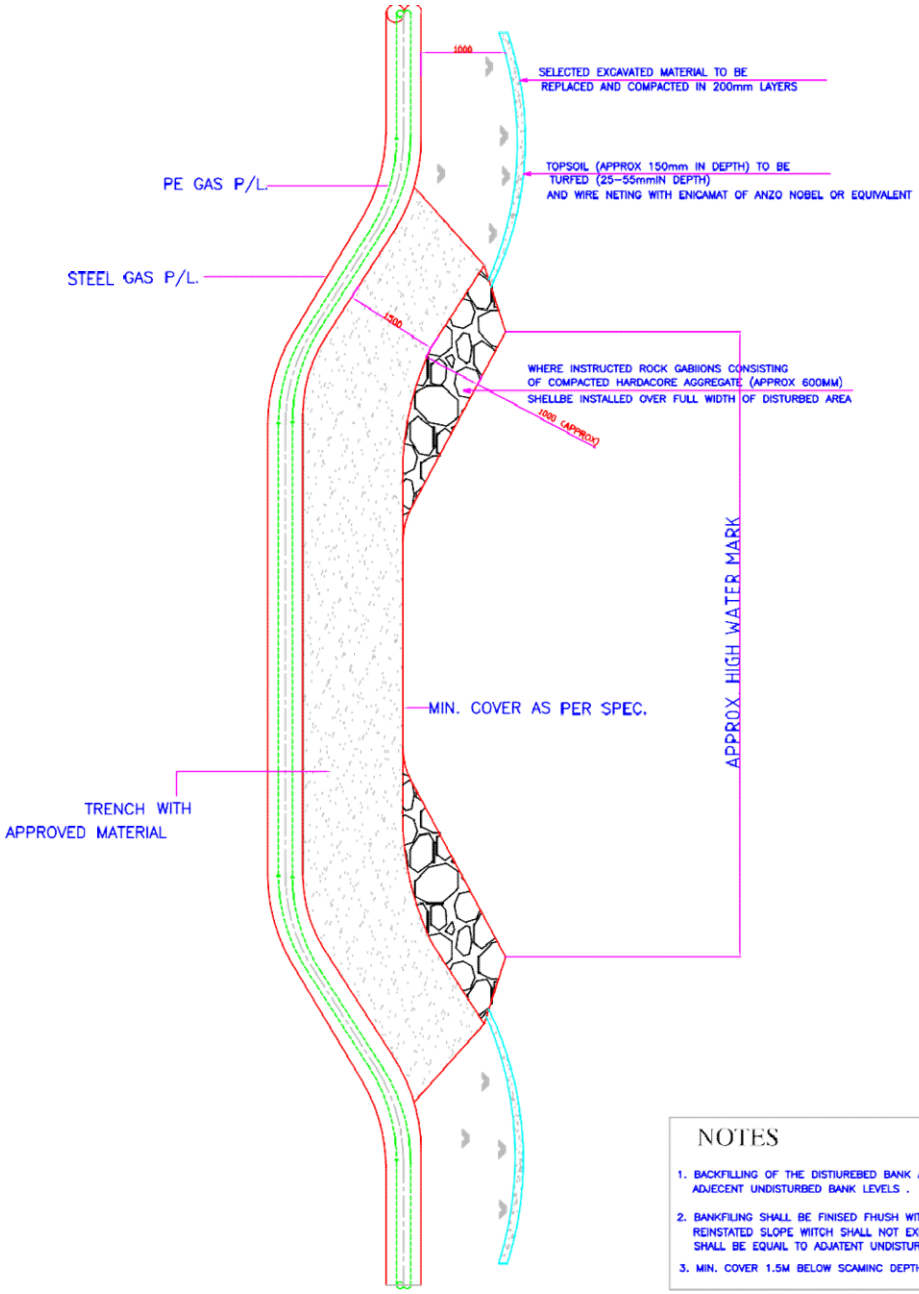
APPROVED

DETAILS OF TEST STATION

POLARISATION CELL

SCALE : N.T.S.

DRG NO : MNGL/PLANG/ STEEL/ 27



NOTES

1. BACKFILLING OF THE DISTIUREBED BANK AREA SHALL BE FINISHED OF 100mm. ABOVE THE ADJECENT UNDISTURBED BANK LEVELS .
2. BANKFILING SHALL BE FINISED FHUSH WITH INVERT AND BANK SLOPES EXCEPT REINSTATED SLOPE WITCH SHALL NOT EXCEED00 40° IN WITCH CASE THE SLOPE. SHALL BE EQUAIL TO ADJATENT UNDISTURBED BANKS
3. MIN. COVER 1.5M BELOW SCAMINC DEPTH.

FOR TENDER PURPOSE ONLY

REV. NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD
REVISIONS					REFERENCES

DRW. NO.

SECTION

	NAME	SIG.	DATE
DSGN			
DRWN			
CHEKD.&APPROVED			
APPROVED			

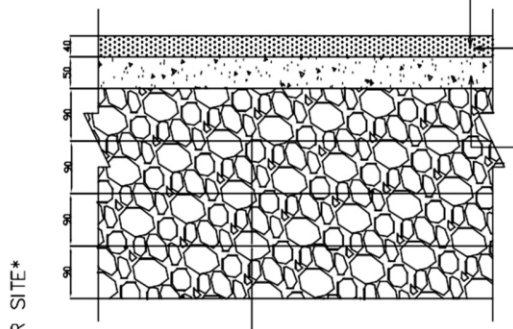
MAHARASHTRA NATURAL GAS LTD.

CNG & CITY GAS DISTIRIBUTION IN PUNE

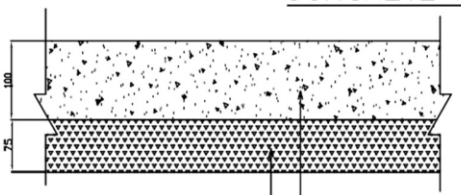
STD. DETAIL OF BACKFILL, FOR DRAIN CROSSING

SCALE :- NTS

DRG. NO. MNGL/plang/ steel 29

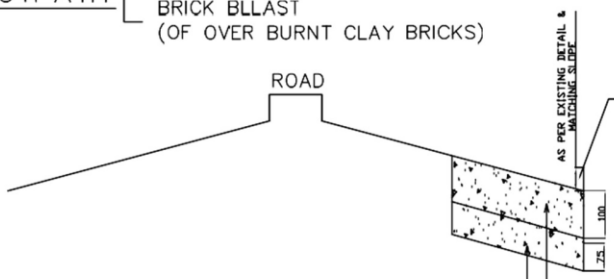


CONCRETE ROAD



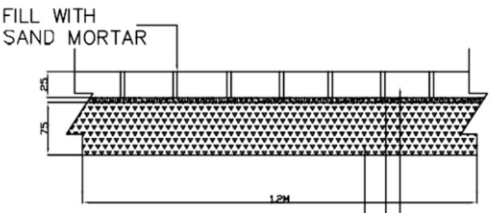
FOOTPATH

PPC 1:2:4
BRICK BLLAST
(OF OVER BURNT CLAY BRICKS)



CHANNEL ON SIDE OF ROAD

PPC 1:2:4
PPC 1:4:8
C.P.W.D. SPCN. VOL.-II 4.2.0



FOOTPATH

PRECAST APPROVED QULITY CONCRETE TILES (CPWD SPEC. VOL-III 11.13)
(SHIVA OR KK IN MATCHING SHADE & PATTERN)
CEMENT SAND MORTAR 1:5 (C.P.W.D VOL-II 3.1)
BRICK BALLAST (C,PW.D VOL.-II 6.0)

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 FLOLLOW AS PER ARE CPWD/PWD CONCERINED ATUTHOREIES REQUIREMENTS IN RESPECTIVE AREA

FOR TENDER PURPOSE ONLY

SECTION : P&PD

	NAME	SIG.	CHKD
DSGN			
DRWN			
CHKD & VENRIFIED			
APPROVED			

MAHARASTRA NATURAL GAS LTD

CNG & CITY GAS DISTRIBUTION IN PUNE

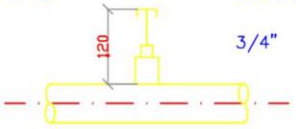
RESTORATION OF ROADS FOOTPATH CHANNEL

SCALE : 1:10

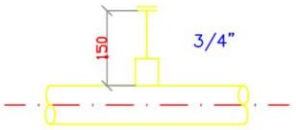
DRG NO MNGL/PLANG/ STEEL/30

TYPE VENT

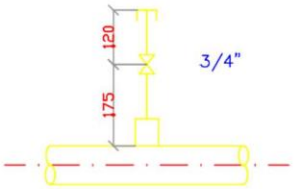
V1
V1P



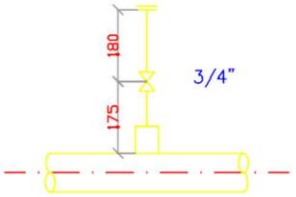
V2



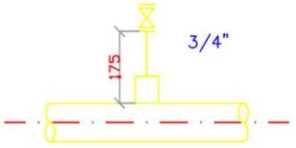
V3
V3P



V4

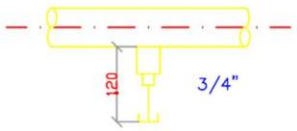


V5

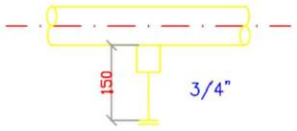


DRAIN

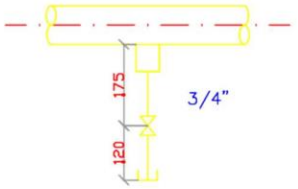
D1
D1P



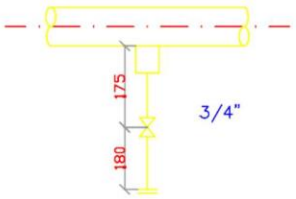
D2



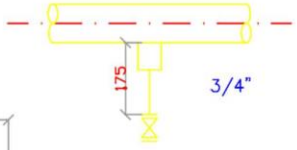
D3
D3P



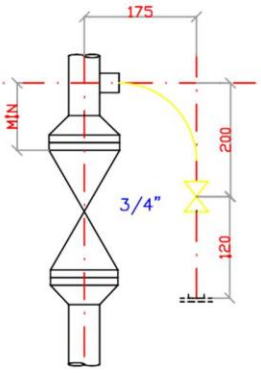
D4



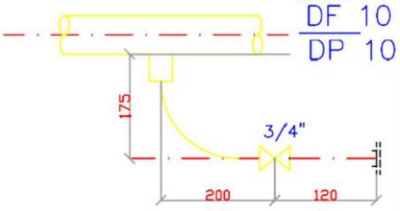
D5



DC 9
DF 9
DP 9



DC 10
DF 10
DP 10



NOTES

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

REV NO.	DATE	ZONE	DESCRIPTIONS	BY	APPRD		
REVISIONS						REFERECES	DRW. NO.

SECTION : P&PD

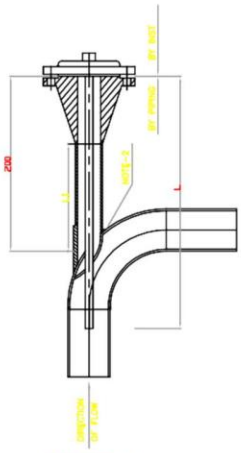
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

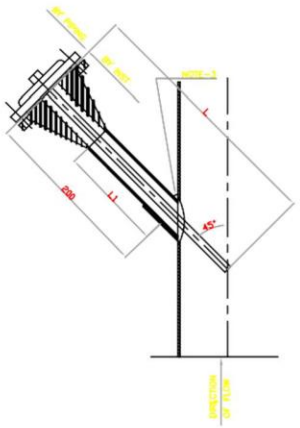
VENT & DRAIN
FOR LINE 2" & ABOVE

SCALE : N.T.S

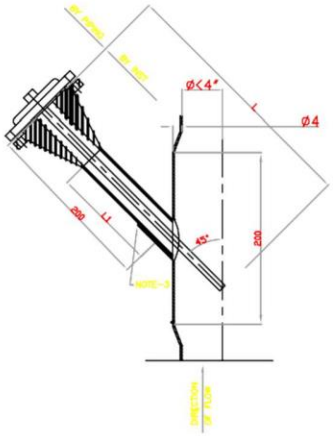
DRG NO : MNGL/PLANG/ STEEL/31



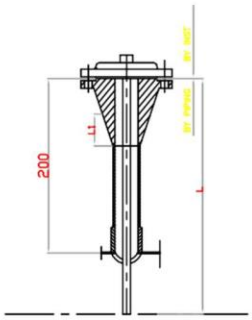
TYPE TW -6



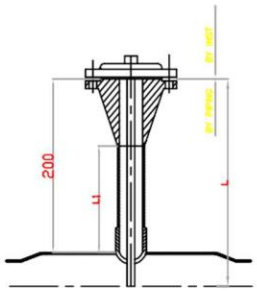
TYPE TW -7



TYPE TW -5



TYPE TW -8



TYPE TW -10

LINE DIA	L (+ FLANGE) MM
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		
REVISIONS						REFERECES	DRW. NO.

SECTION : P&PU

	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

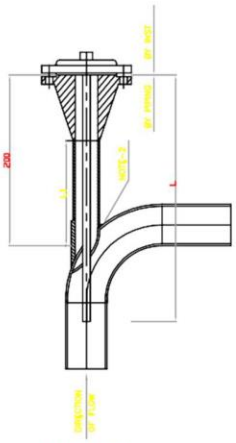
WELLS INSTALLATION

1 1/2" DIA TAPS

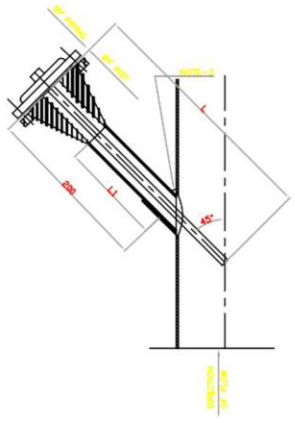
SCALE N.T.S

DRG.NO MNGL/PLANG/ STEEL 32

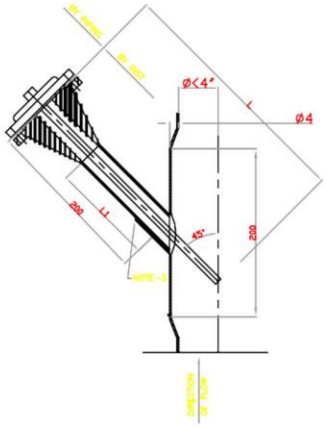
366.4000



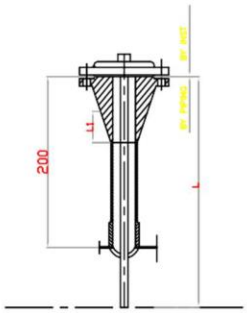
TYPE TW -6



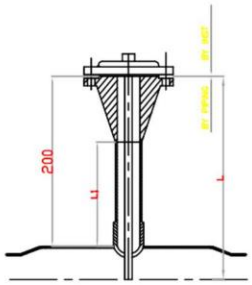
TYPE TW -7



TYPE TW -5



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	REFERECES	DRW. NO.
		REVISIONS				

SECTION : P&PD

	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

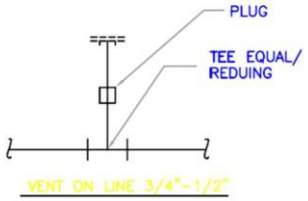
WELLS INSTALLATION

1 1/2" DIA TAPS

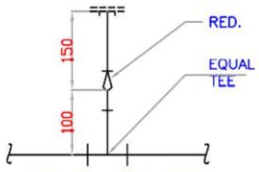
SCALE : NTS

DRG NO : MNGL/PLANG/ STEEL 32

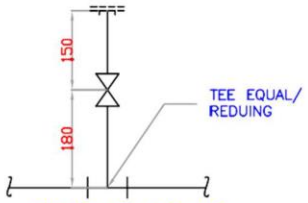
366.4000



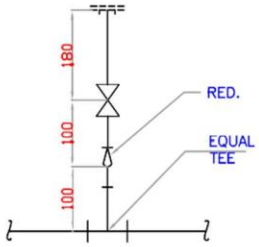
VENT ON LINE 3/4"-1/2"



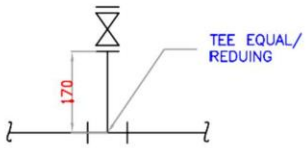
VENT ON LINE 1-1/2"



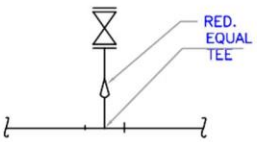
VENT ON LINE 3/4"-1/2"



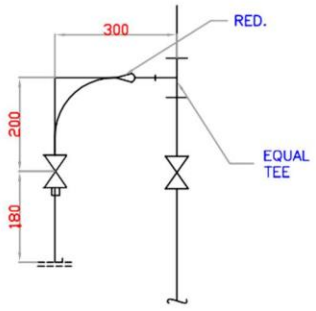
VENT ON LINE 1-1/2"



VENT ON LINE 3/4"-1/2"

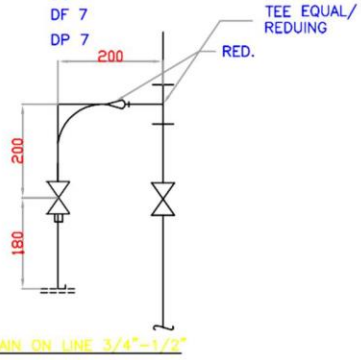


VENT ON LINE 1-1/2"



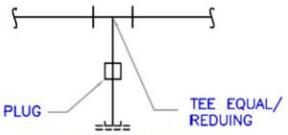
DRAIN ON LINE 1-1/2"

DC 7
DF 7
DP 7



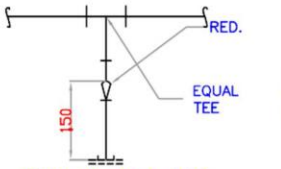
DRAIN ON LINE 3/4"-1/2"

DC 8
DF 8
DP 8



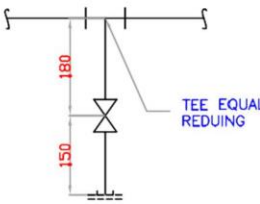
DRAIN ON LINE 3/4"-1/2"

DC 2
DF 2
DP 2



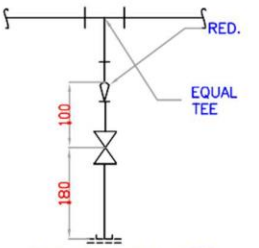
DRAIN ON LINE 1-1/2"

DC 2
DF 2
DP 2



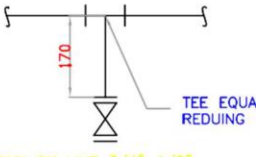
DRAIN ON LINE 3/4"-1/2"

DC 3
DF 3
DP 3



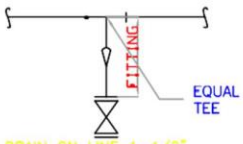
DRAIN ON LINE 1-1/2"

DC 4
DF 4
DP 4



DRAIN ON LINE 3/4"-1/2"

DC 5
DF 5



DRAIN ON LINE 1-1/2"

DC 6
DF 6

NOTES:-

1. DIMENSIONS ARE VALID FOR 50mm (MAX) THICKNESS INSULATION FOR HIGHER INULATION THICKNES INCASE 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	REFERECES	DRW. NO.
REVISIONS							

SECTION : P&PD

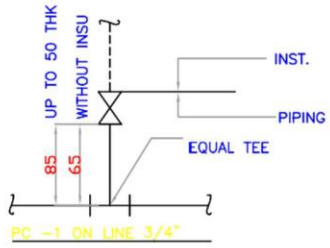
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

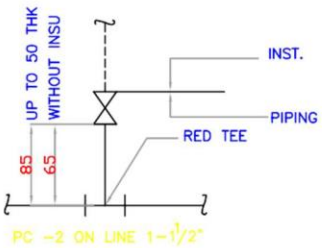
WELLS INSTALLATION ON LINES 1 1/2" DIA TAPS

SCALE : N.T.S

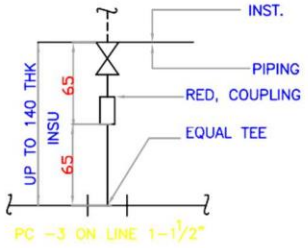
DRG.NO : MNGL/PLANG/ STEEL 33



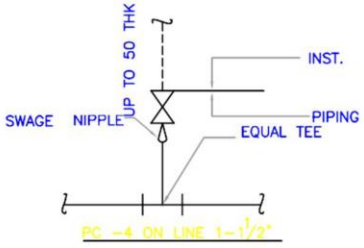
PC –1 ON LINE 3/4"



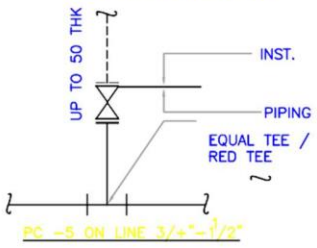
PC –2 ON LINE 1–1½"



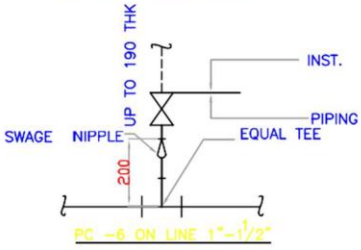
PC –3 ON LINE 1–1½"



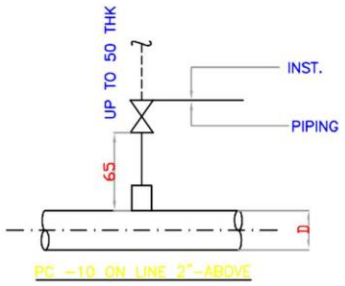
PC –4 ON LINE 1–1½"



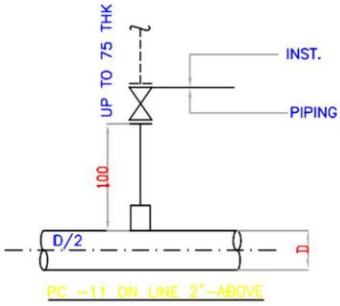
PC –5 ON LINE 3/4"–1½"



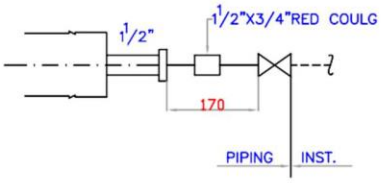
PC –6 ON LINE 1"–1½"



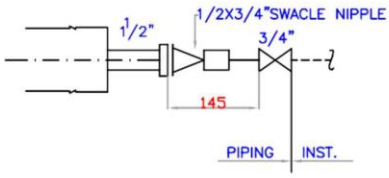
PC –10 ON LINE 2"–ABOVE



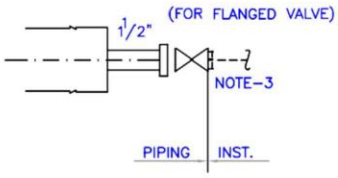
PC –11 ON LINE 2"–ABOVE



PC –12



PC –13



PC –14

PC –15 WITH 2 VALVE

ON VESSELS/COLUMNS

NOTES: –

1. THE INDICATED DIMENSIONS ARE IN MINIMUM WHICH ALSO COVER INSULATION TO THE EXTENT SHOWN ABOVE IN HIGHER THICKNESS OF INSULATION THAN INDICATED THE DIFFIENCE SHALL BE ADDED IN THE DIMENSIONS SHONWN
2. PRESSURE TAPING SHALL BE PROVIDED THE DIFFERENCE SHALL BE ADDED IN THE DIMENSION SHOWN ABOVE ACCORDINGLY TEEE,HALF COUPLING OR STUB –IN AS PER PIPENG SPECIFICATION
3. IN CASE OF FLGD VALVES BOLTING & GASKET ON BOTH SIDE OF VELVE BE IN PIPING SCOPE.
4. IN CASEOF TAPPING PROVID OTHER THAN INDICATED IN THIS STD FOR LAYOUT REASONS DETAILS DIMENSIONS WILL BE CALLED OUT.

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

SECTION : P&PD

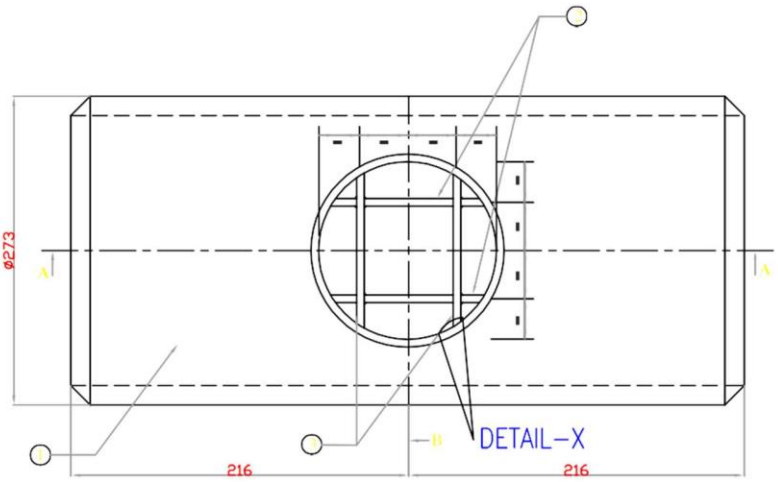
	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

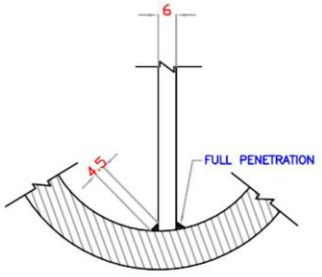
PRESSURE TAPPING

SCALE : N.T.S

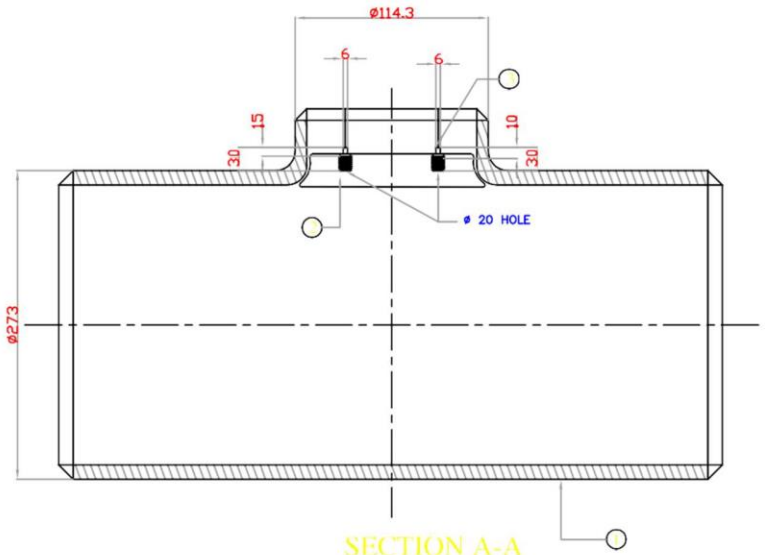
DRG NO : MNGL/PLANG/ STEEL 34



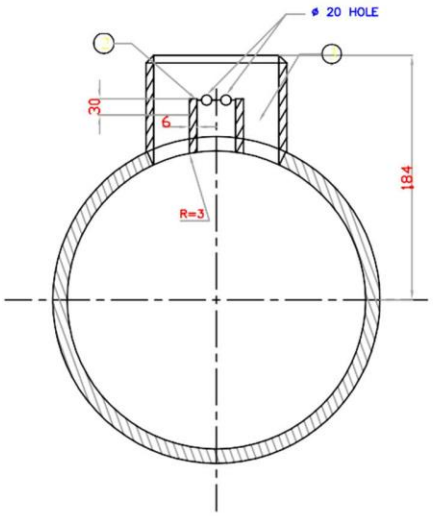
PLAN



DETAIL-X



SECTION A-A



SECTION B-B

QUANTTY – AS per SOR

NOTES :–

1. THE BARRED TEE IS INTENDED TO BE SUTABLE FOR SCRAPPER PIGS AND USE LINE IN LINE FOR BRDIRETIONAL GAS FLOW
2. THE GUEDE BARS SHALL BE EXTENDED NTC SO THAT THY GET FLUSHED WITH THE INSIDE DAMATER OF THE SAME.
3. THE CNTROUR OF THE GUADE BARS SHALL BE THAT THEY GO ANDNG THE INTERNAL SHAPE OF THE BRANCH
4. THE CONNNECTIONG PLATE SHALL BE WELDED WITH THE STAGHT OF THE BRANCH
5. RED THIS DROING TOGETHER WITH MNGL TECHNCAL SPECIFCATOIN NO. MNGL SHEET /TS/19FOR BARRED TEES
6. THE BARRED TEE IS INTENDED TO BE SUTABLE FOR UNDER INSTALLATION.
7. BUTT–WELD ENDS SHALL BE BELVELS IN ACCRDNCE WITH MSS–SP–75 / B 16.25 AND SHOLD MATCH WITH RUN AND BRANCH PIPES WILL THICNESS AS INDNNACATED PIPE DATELS

ITEM NO.	DESCRIPTION	QTY.	MATERIAL
1	RED TEE B.W. END PER ASME 16.9 SIZE 10"X10"X4"	1	A 234 WP Sch,stdXsxth thk(mm)
2	GUDE BAR	2	ASTMA–36/ ASTMA–516Gr.70
3	CONNECTING PLATE	2	ASTMA–36/ ASTMA–516Gr.70

DESIGN DA–A

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

CONNECTING PIPE DETAILS:

1. RUN PIPE	:	ø10"(273)x WT 6.4mm.
2. BRANCH PIPE	:	ø4(114.3) XWT ,6mm API 5L Gr.B

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

SECTION : P&PD

	NAME	DATE	CHKD	DATE
DSGN				
DRWN				

APPROVED

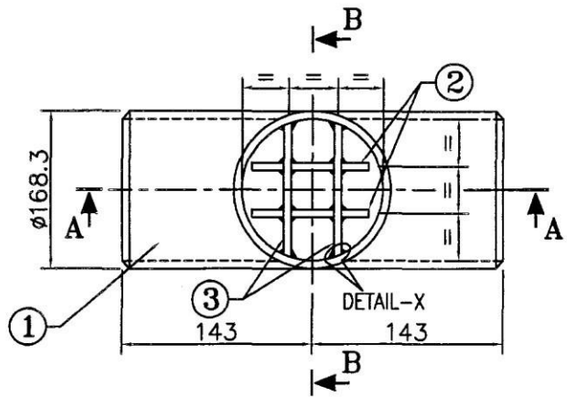
MAHARASTRA NATURAL GAS LTD

CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY

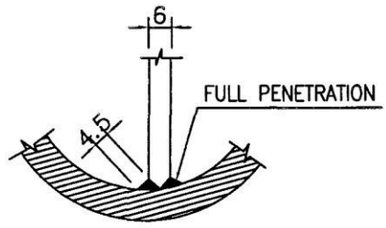
BARRAED TEES

SCALE : N.T.S.

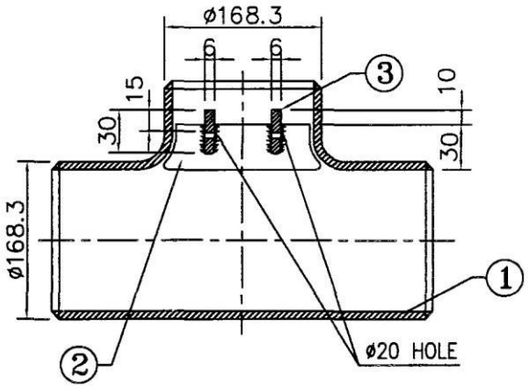
DRG NO : MNGL/PLANG/ STEEL 37



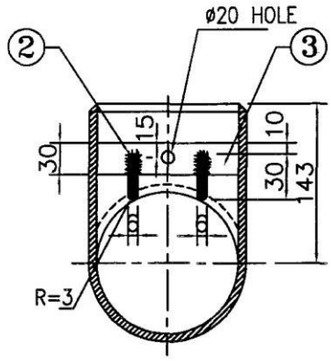
PLAN



DETAIL-X



SECTION A-A



SECTION B-B

ITEM NO.	DESCRIPTION	QTY.	MATERIAL
1	TEE B.W. END AS PER ASME16.9 SIZE 6"x6"x6"	1	A 234 WPB, SCH.STD. x SCH.STD. THK.(MIN.)
2	GUIDE BAR	2	ASTMA - 36 / ASTMA - 516 Gr. 70
3	CONNECTING PLATE	2	ASTMA - 36 / ASTMA - 516 Gr. 70

QUANTITY - As per SOR

NOTES:-

1. THE BARRED TEE IS INTENDED TO BE SUITABLE FOR SCRAPPER 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 MNGL TECHNICAL SPECIFICATION NO MNGL/Steel/TS-1/19 FOR BARRED TEES
6. THE BARRED TEE IS INTENDED TO BE SUITABLE FOR UNDER GROUND INSTALLATION.
7. BUTT-WELD ENDS SHALL BE BEVELED IN ACCORDENCE 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/cm^2
3. DESIGN TEMP.	:	0 TO 65°C
4. COEEOSION ALLOWANCE	:	0.5mm
5. HYDRO-TEST PRESSURE	:	28.5 Kg/cm^2

CONNECTING PIPE DETAILS

1. RUN PIPE	:	ø6"(168.3) x WT 6.4 mm, API 5L GR. B
2. BRANCH PIPE	:	ø6"(168.3) x WT 6.4 mm, API 5L GR. B

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

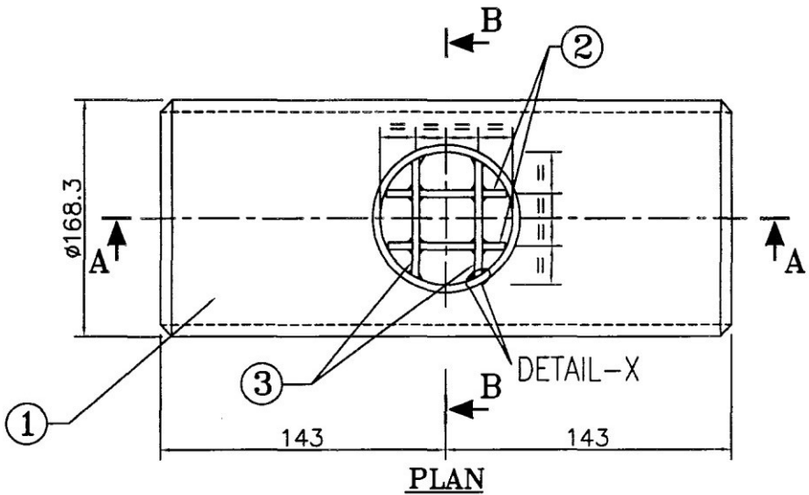
महाराष्ट्र नॅचरल गॅस लिमिटेड
MAHARASTRA NATURAL GAS LTD

CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY

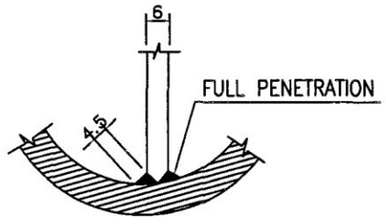
BARRED TEES

SCALE : NTS

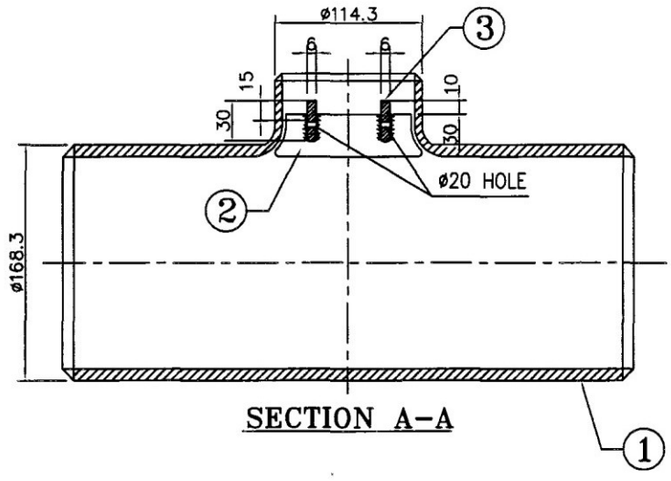
DRG.NO MNGL/Plng./Steel/38



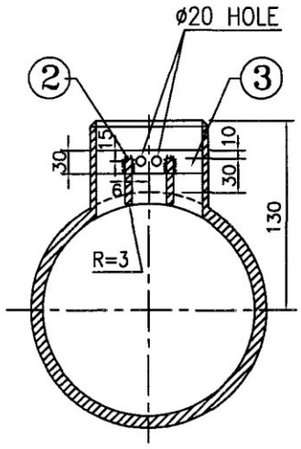
PLAN



DETAIL-X



SECTION A-A



SECTION B-B

ITEM NO.	DESCRIPTION	QTY.	MATERIAL
1	RED. TEE B.W. END AS PER ASME16.9 SIZE 6"x6"x4"	1	A 234 WPB, Sch.Std X Sch. XS Thk.(Min.)
2	GUIDE BAR	2	ASTMA – 36 / ASTMA – 516 Gr. 70
3	CONNECTING PLATE	2	ASTMA – 36 / ASTMA – 516 Gr. 70

QUANTITY – As per SOR

NOTES:–

1. THE BARRED TEE IS INTENDED TO BE SUITABLE FOR SCRAPPER 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 WELDED WITH THE STRAIGHT PORTION OF THE BRANCH.
5. READ THIS DRAWING TOGETHER WITH MNGL TECHNICAL SPECIFICATION NO MNGL/Steel/TS/19 FOR BARRED TEES
6. THE BARRED TEE IS INTENDED TO BE SUITABLE FOR UNDER GROUND INSTALLATION.
7. BUTT-WELD ENDS SHALL BE BEVELED IN ACCORDENCE 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/cm^2
3. DESIGN TEMP.	:	0 TO 65°C
4. CORROSION ALLOWANCE	:	1.5mm
5. HYDRO-TEST PRESSURE	:	28.5 Kg/cm^2

CONNECTING PIPE DETAILS

1. RUN PIPE	:	ø6"(168.3) x WT 6.4 mm. API 5L Gr. B
2. BRANCH PIPE	:	ø4"(114.3) x WT 6.4 mm. API 5L Gr. B

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

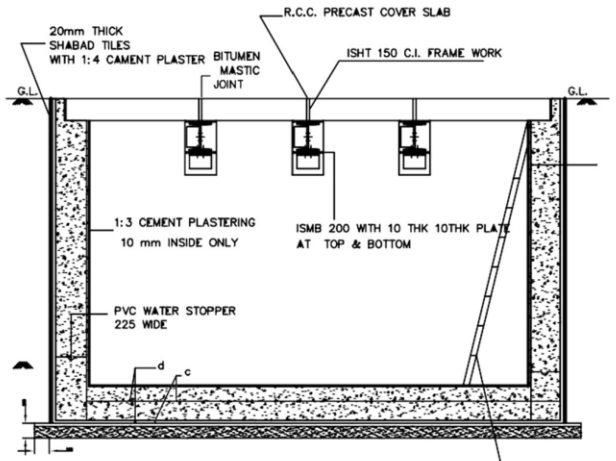
महाराष्ट्र नॅचरल गॅस लिमिटेड
MAHARASTRA NATURAL GAS LTD

CNG & CITY GAS DISTRIBUTION PROJECT FOR PUNE CITY

BARRED TEES

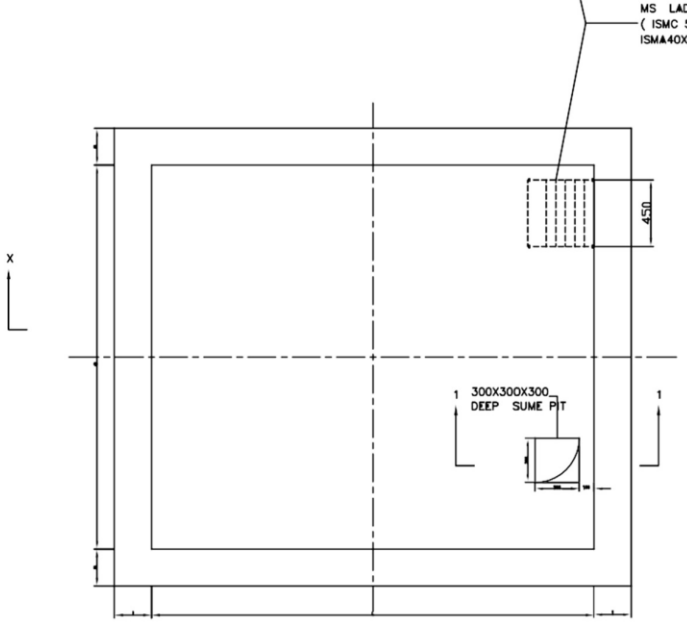
SCALE : NTS

DRG.NO MNGL/Ping/Steel/139

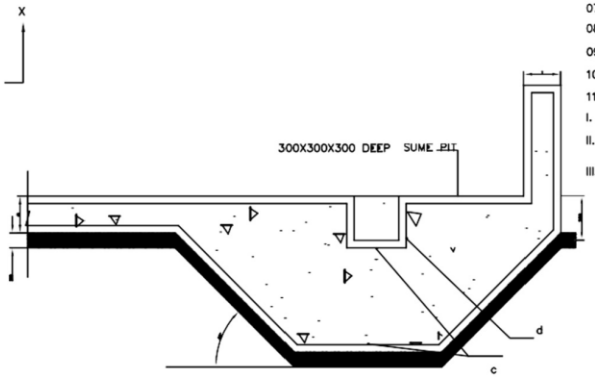


SECTION – "AA'

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



PLAN VIWE



SECTION-1

NOTES

01. ALL DIMENSIONS ARE IN MM

02. GRADE OF C ONCRETE SHALL BE M25

03. Y INDCAICATES COLD TWIST DEFORMEND RODS CONFORMING IS 1786

04. PROVIDE 25mm CLAYER COVER TO MAIN REINFORCEEDMENT UNLESS OTHRWIES SPECIFED

05. SBC OF SOIL IS ASSUMED AS 15/SQM

06. WETER 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 CHAMDER 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

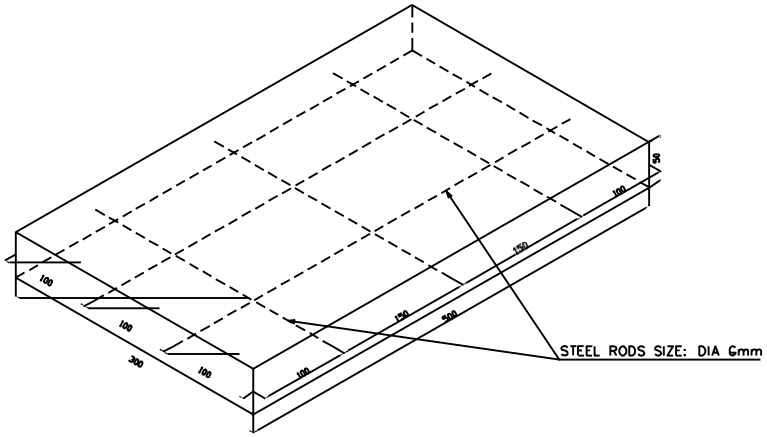
III. MANUFATURERS NAME

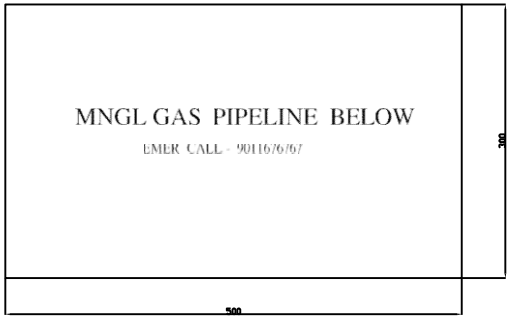
REV	DATE	DATE

MAHARASRTA NATURAL GAS LTD.

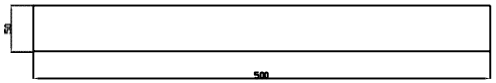
DRAWN BY PLNG	DATE 13.07.04	TITLE VALVE CHAMBER DETAIL
CHECKED BY	DATE	
APPRD BY	DATE	DRAWING NO: 50048 -12 -DG -00001

REV 1

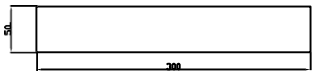




PLAN



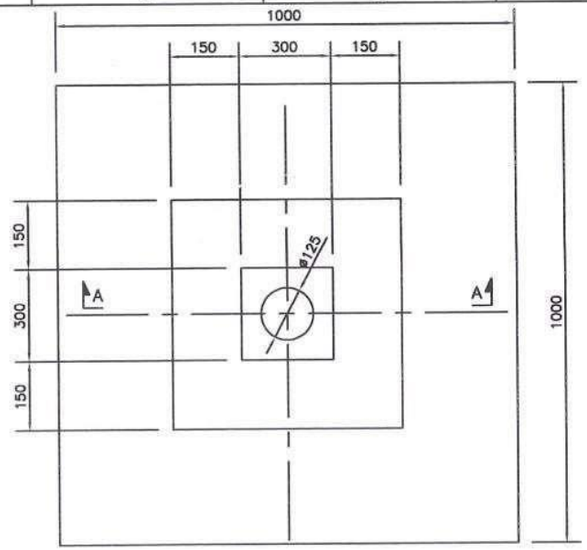
FRONT VIEW

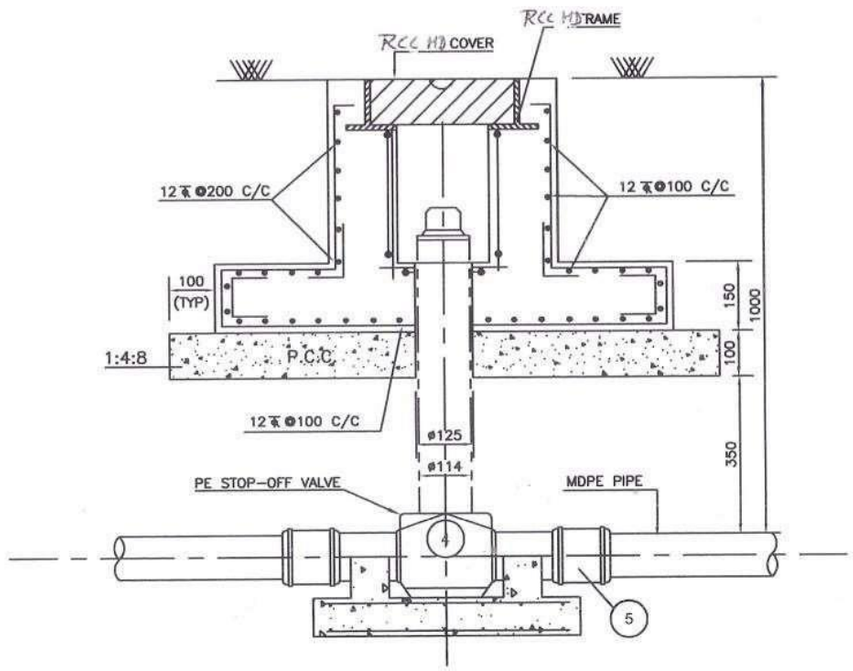


SIDE VIEW

NOTES:

1. ALL DIMENSION ARE IN MM UNLESS OTHERWISE SPECIFIER SPECIFIED.
2. CONCRETE FOR MARKER SHALL BE M-20.



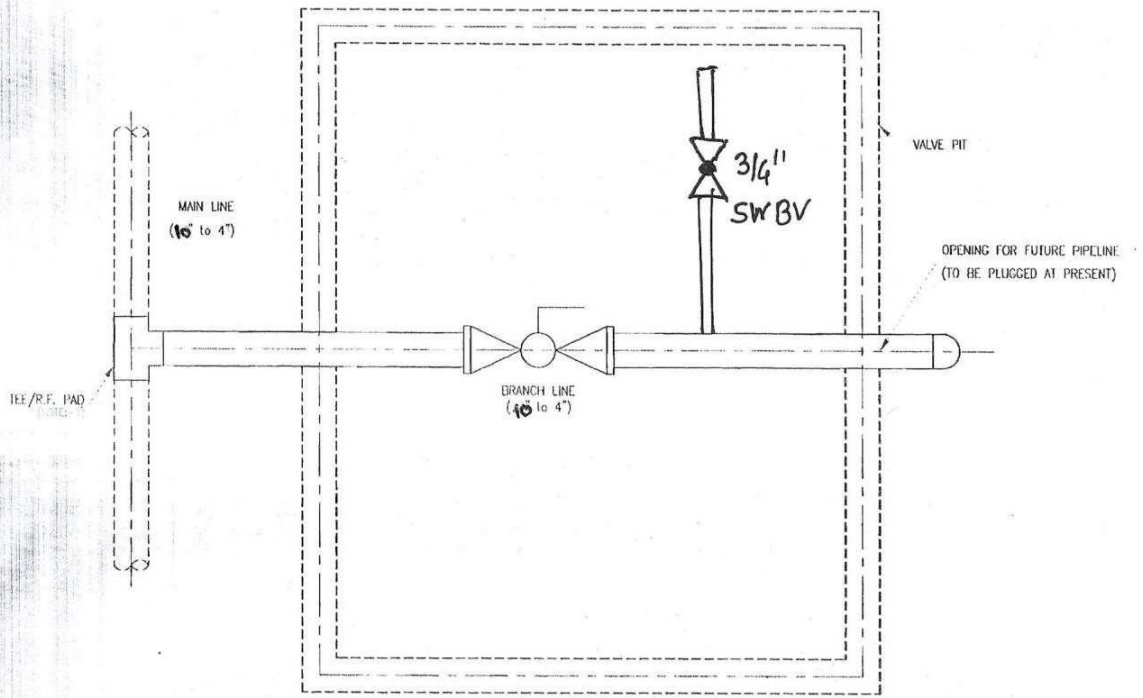


SECTION A-A

NOTES –

1. ALL DIMENSIONS ARE IN MM.
2. THE CONCRETE SHALL HAVE A CHARACTERISTIC STRENGTH OF 20 N/MM^2
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



PLAN

NOTES

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

LEGEND

BW BALL VALVE

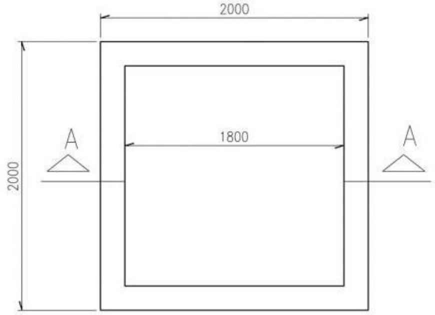
STATUS

TITLE: GENERAL ARRANGEMENT DRAWING FOR FUTURE TAP-OFF POINTS

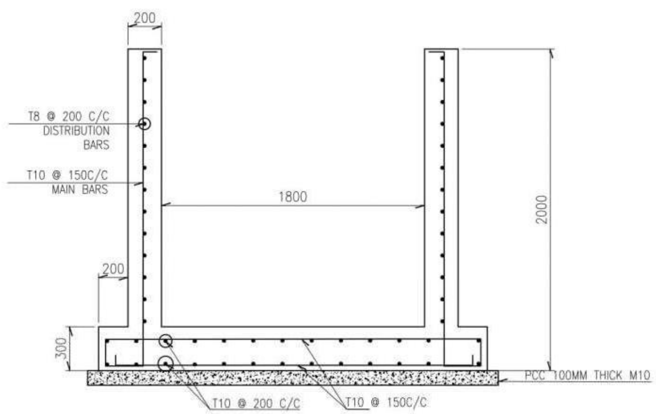
CLIENT: MNGL. PUNE

PROJECT: CGD PUNE

MNGL/Plng.1/Steel/40



TYP PLAN OF CHAMBER



SECTION A–A

LEGENDS:

℄	----	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					APPD	DATE
	CLEARED					CHEM	CIVIL	ELEC	I&C	MECH		
DEPT	SIGNATURE	DATE										
CIVIL												

FILE NAME : 33339999

"P" (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK AT THE TOP RIGHT HAND CORNER OF THE TITLE BLOCK.
CONSTRUCTION / FABRICATION WORK IS PERMITTED ON "R" (RELEASED) ISSUES ONLY.
INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION / FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION / FABRICATION WORK RELATED TO 'HOLDS'.

MAHARASHTRA NATURAL GAS LTD.

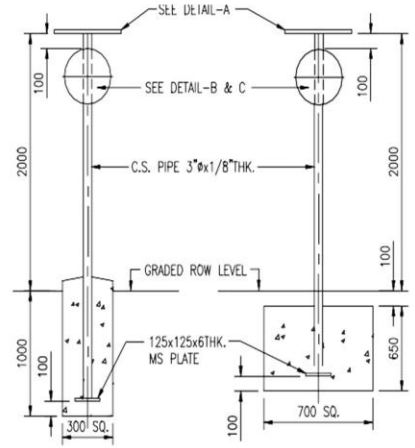
CONSULTANT :

PROJECT :

CHAMBER RC DETAILS

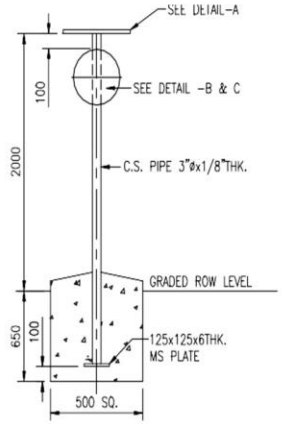
SCALE: NTS	APPROVED PVP	DATE (RO ISSUE)
OFFICE-DISC:		DATE (CURRENT ISSUE)
DRN: SKL		
CHD: AM	DWG NO ECS-2019-MNGL-DK-02-RC-07	ISSUE R0

Steel Markers Drawing

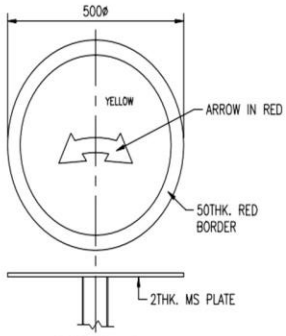


TYPE-I
FOR NORMAL SOIL

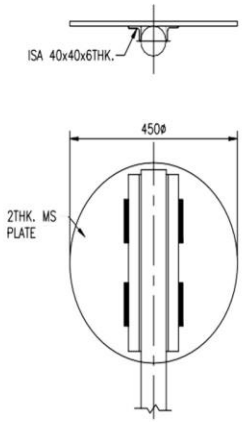
TYPE-II
FOR DRIFTING SAND SOIL



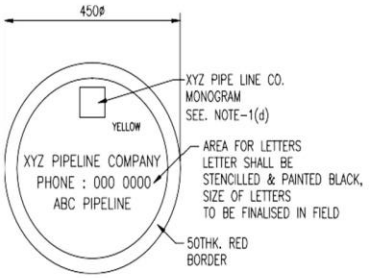
TYPE-III
FOR ROCKY AREAS



DETAIL-A



DETAIL-B



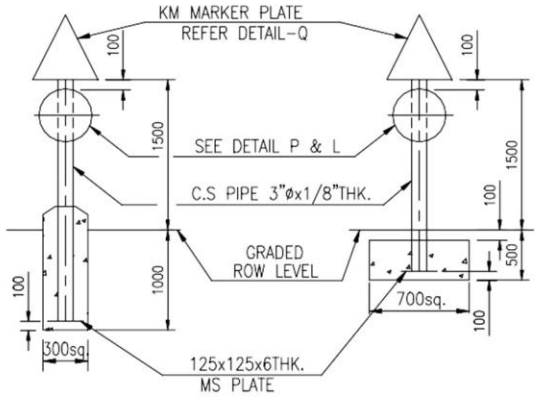
DETAIL-C

NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. SCHEME OF PAINTING & COLOURING.
   (a) UNDERGROUND STEEL STRUCTURE (EXCEPT THAT EMBEDDED IN CONCRETE) COAL 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.
   (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 CHAINAGE IN DIRECTION ON EITHER SIDE.
   (c) OWNER NAME PLATE SHALL FACE THE PIPELINE.
   (d) DIRECTION MARKER SHALL BE INSTALLED 1000MM TO LEFT OF THE PIPE CENTER LINE/VIEWING TOWARDS THE DIRECTION OF FLOW AND AS INDICATED IN LOCATION SKETCH.
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. ALL WELDS SHALL BE 4 MM.
7. IN ADDITION TO THIS, OISD AND PNGRB GUIDELINES MUST BE COMPLIED WITH.

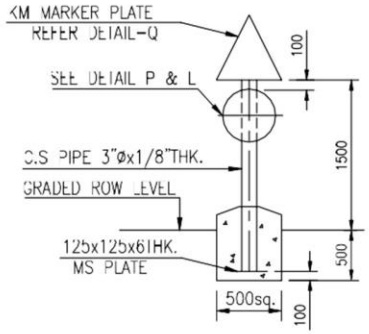
SUBJECT

TYPICAL DIRECTION MARKER DETAILS

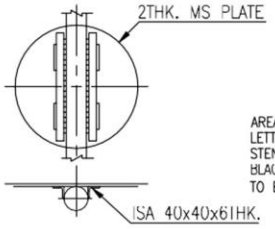


TYPE-I
FOR NORMAL SOIL

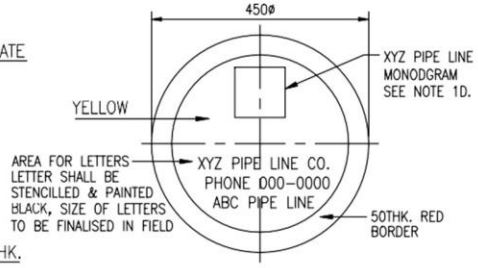
TYPE-II
FOR DRIFTING SAND SOIL



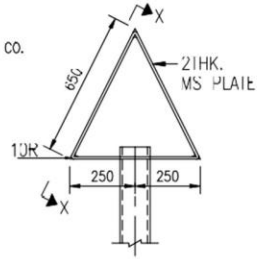
TYPE-III
FOR ROCKEY AREAS



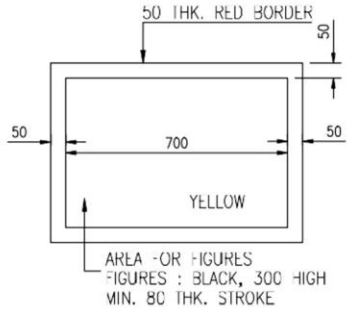
DETAIL-P



DETAIL-L



DETAIL-Q

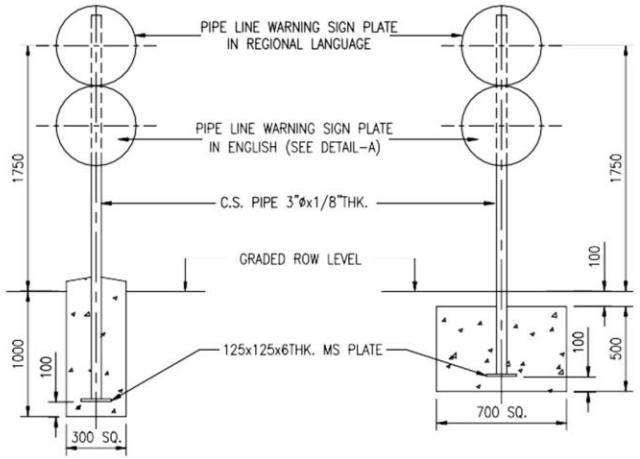


VIEW-XX

NOTES

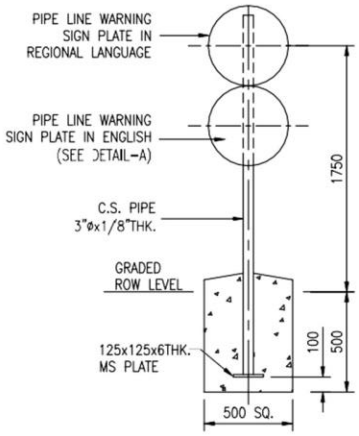
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. SCHEME OF PAINTING & COLOURING.
   (a) UNDERGROUND STEEL STRUCTURE (EXCEPT THAT EMBEDDED IN CONCRETE) COAL TAR EPOXY MIN. 300 MICRON THK.
   (b) OVERGROUND STEEL STRUCTURE : ONE COAT OF PRIMER & TWO COATS SPECIFIED COLOUR PAINT.
   (c) FIGURES SHALL 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.
   (f) ALL OTHER ABOVEGROUND STEEL SHALL BE PAINTED YELLOW.
3. LOCATION
   (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. THE HEIGHT OF THE K.M. POST MAY BE VARIED TO SUIT FIELD REQUIREMENTS.
6. IN ADDITION TO THIS, OISD AND PNGRB GUIDELINES MUST BE COMPLIED WITH.

TYPICAL K.M. POST DETAILS



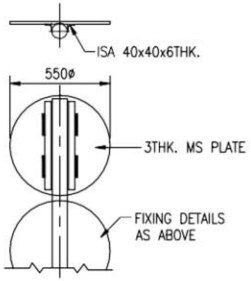
TYPE-I
FOR NORMAL SOIL

TYPE-II
FOR DRIFTING SAND SOIL



TYPE-III
FOR ROCKY AREAS

DETAIL-A



WARNING SIGN PLATE
FIXING 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) COAL 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.
   (f) ALL OTHER ABOVEGROUND STEEL SHALL BE PAINTED YELLOW.
3. LOCATION
   (a) 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.
   (b) 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 CONRACTOR ON SIMILAR LINES AND APPROVED BY THE OWNER.
6. IN ADDITION TO THIS, OISD AND PNGRB GUIDELINES MUST BE COMPLIED WITH.

SUBJECT

TYPICAL PIPE LINE WARNING SIGN DETAILS