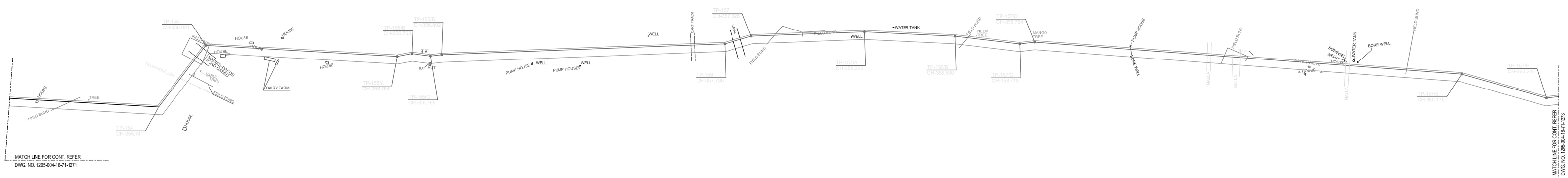
TURNING POINT (TP)	TP-154, TP-155, TP-155/A, TP-155/B, TP-155/C, TP-155/D, TP-156, TP-157, TP-157/A, TP-157/B, TP-157/C, TP-157/D, TP-157/E, TP-157/F
DEFLECTION ANGLE ("_ ' _")	56°0'00"L, 56°0'00"R, 14°00'0"L, 18°0'0"R, 14°00'0"L, 4°30'0"R, 14°00'0"L, 14°00'0"R, 5°0'0"R, 4°0'0"R, 14°00'0"L, 11°0'0"R, 11°30'0"L, 11°30'0"R
DISTANCE BETWEEN TP's (m)	491.823, 255.435, 632.955, 48.850, 62.005, 36.900, 934.115, 90.345, 373.700, 299.715, 215.175, 48.680, 1411.920, 57.872
STATE & DISTRICT	ANAND, KHEDA, GUJARAT

SURVEY DETAILS



PLANIMETRY

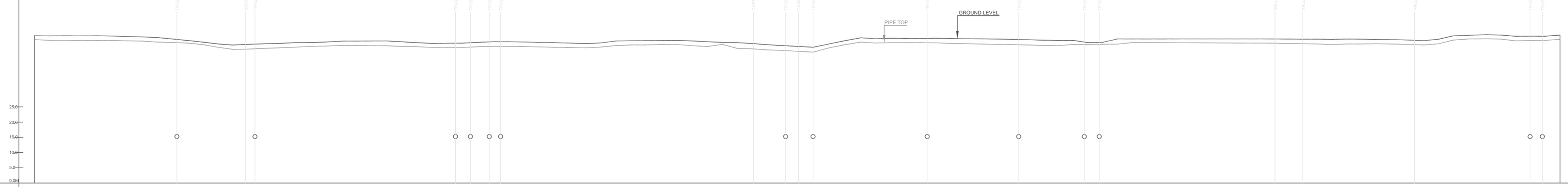
SCALE :-

ALONG LINE 1:5000
ACROSS LINE 1:5000

GROUND PROFILE

SCALE :-

HORIZONTAL 1:5000
VERTICAL 1:500



REFERENCE DATUM

GROUND LEVELS(m)	48.455, 48.340, 48.350, 48.350, 48.360, 48.290, 48.090, 48.010, 47.790, 47.300, 46.820, 46.280, 45.890, 45.330, 45.570, 45.710, 45.880, 46.101, 46.123, 46.330, 46.620, 46.620, 46.650, 46.660, 46.680, 46.420, 46.120, 45.850, 45.930, 45.940, 46.220, 46.400, 46.400, 46.320, 46.200, 46.100, 45.990, 45.810, 46.020, 46.650, 46.150, 46.740, 46.750, 46.780, 46.880, 46.660, 46.400, 46.220, 46.100, 45.850, 45.450, 45.120, 44.850, 44.600, 45.060, 45.150, 45.300, 45.350, 45.480, 45.580, 45.100, 44.850, 44.520, 44.250, 44.100, 43.750, 43.520, 43.220, 43.000, 44.600, 45.060, 45.150, 45.300, 45.350, 45.480, 45.580, 45.100, 44.850, 44.520, 44.250, 44.100, 43.750, 43.520, 43.220, 43.000, 44.330, 45.300, 45.300, 46.300, 46.300, 45.990, 46.100, 46.100, 46.000, 46.050, 45.890, 45.720, 45.660, 45.520, 45.470, 45.350, 45.230, 45.130, 45.540, 45.570, 46.130, 46.230, 47.340, 47.330, 47.332, 47.331, 47.332, 47.334, 46.000, 46.000, 46.010, 46.010, 46.010, 46.010, 45.980, 45.980, 45.940, 45.860, 45.750, 45.680, 45.460, 45.680, 45.680, 45.680, 45.740, 45.660, 45.460, 45.360, 45.360, 45.780, 46.770, 47.270, 48.330, 48.530, 48.730, 48.610, 48.210, 48.230, 48.220, 48.606
PIPE TOP LEVELS(m)	47.109, 46.860, 46.760, 46.860, 46.840, 46.880, 46.690, 46.640, 46.310, 46.150, 45.980, 45.450, 44.590, 43.920, 43.990, 44.220, 44.430, 44.590, 44.880, 45.010, 45.210, 45.180, 45.130, 45.080, 44.900, 44.790, 44.530, 44.530, 44.530, 44.750, 44.900, 44.900, 44.910, 44.710, 44.610, 44.510, 44.410, 44.660, 45.150, 45.300, 45.350, 45.480, 45.580, 45.100, 44.850, 44.520, 44.250, 44.100, 43.750, 43.520, 43.220, 43.000, 44.330, 45.300, 45.300, 46.300, 46.300, 45.990, 46.100, 46.100, 46.000, 46.050, 45.890, 45.720, 45.660, 45.520, 45.470, 45.350, 45.230, 45.130, 45.540, 45.570, 46.130, 46.230, 47.340, 47.330, 47.332, 47.331, 47.332, 47.334, 46.000, 46.000, 46.010, 46.010, 46.010, 46.010, 45.980, 45.980, 45.940, 45.860, 45.750, 45.680, 45.460, 45.680, 45.680, 45.680, 45.740, 45.660, 45.460, 45.360, 45.360, 45.780, 46.770, 47.270, 48.330, 48.530, 48.730, 47.380, 47.300, 46.890, 46.820, 46.830, 47.226
DISTANCE BETWEEN LEVEL POINTS (IN METRES)	53.0, 48.0, 47.0, 60.0, 48.0, 48.0, 49.0, 48.0, 54.0, 48.0, 50.0, 49.0, 48.0, 49.0, 48.0, 61.0, 43.0, 48.0, 61.0, 49.0, 47.0, 48.0, 49.0, 46.0, 49.0, 59.0, 48.0, 49.0, 49.0, 49.0, 50.0, 53.0, 48.0, 48.0, 49.0, 59.0, 48.0, 49.0, 49.0, 49.0, 47.0, 49.0, 59.0, 48.0, 49.0, 48.0, 47.0, 49.0, 60.0, 48.0, 46.0, 48.0, 48.0, 59.0, 48.0, 48.0, 48.0, 49.0, 49.0, 60.0, 48.0, 48.0, 48.0, 47.0, 59.0, 48.0, 48.0, 49.0, 48.0, 48.0, 61.0, 48.0, 49.0, 48.0, 49.0, 48.0, 48.0, 61.0, 50.0, 49.0, 48.0, 49.0, 46.0, 48.0, 49.0, 49.0, 61.0, 48.0, 48.0, 48.0, 48.0, 46.0, 49.0, 60.0, 49.0, 47.0, 47.0, 49.0, 50.0
SURFACE /TERRAIN DETAILS	TREE, TREE, TREE, CANAL, TREE, NALLA, NALLA, NALLA

PIPELINE DETAILS

CLASS/ZONE LOCATION	NOT APPLICABLE
DESIGN FACTOR	0.72
LINE PIPE DETAILS — MATERIAL	API 5L Gr. X-70, HSAW
LINE PIPE DETAILS — O.D.X. WALL THICKNESS	610, 7.1
CUMULATIVE CHAINAGE (KM METRES) (000 + 000)	355.274, 355.327, 355.375, 355.422, 355.482, 355.530, 355.578, 355.627, 355.675, 355.729, 355.777, 355.827, 355.876, 355.924, 355.973, 356.021, 356.082, 356.125, 356.173, 356.224, 356.283, 356.330, 356.378, 356.427, 356.473, 356.522, 356.581, 356.629, 356.678, 356.727, 356.776, 356.826, 356.879, 356.927, 356.975, 357.024, 357.083, 357.131, 357.179, 357.228, 357.277, 357.324, 357.373, 357.432, 357.480, 357.529, 357.577, 357.624, 357.673, 357.733, 357.781, 357.827, 357.875, 357.923, 357.982, 358.030, 358.078, 358.128, 358.175, 358.224, 358.273, 358.333, 358.381, 358.429, 358.477, 358.525, 358.572, 358.631, 358.679, 358.727, 358.776, 358.824, 358.872, 358.933, 358.981, 359.030, 359.078, 359.127, 359.175, 359.223, 359.284, 359.334, 359.383, 359.431, 359.480, 359.526, 359.574, 359.623, 359.672, 359.733, 359.781, 359.829, 359.877, 359.923, 359.972, 360.032, 360.081, 360.128, 360.175, 360.224, 360.274
	355.274KM, 356.000KM, 357.000KM, 358.000KM, 359.000KM, 360.000KM, 360.274KM
SPECIAL PROVISIONS	
PIPE LINE COVER MINIMUM (METRES)	1.0, 1.5, 1.0, 1.2, 1.0, 1.5, 1.0, 1.5, 1.0, 1.5, 1.0, 1.5, 1.0
CROSSINGS	INDIRA GANDHI ROAD CANAL (355.548, 355.584), CART TRACK (357.624, 357.673), CART TRACK (357.781, 357.827), CANAL (357.982, 357.923), NALLA (358.933, 358.981), NALLA (359.284, 359.334), NALLA (359.383, 359.431), NALLA (359.733, 359.781)
SPECIAL INSTALLATION FITTING/MARKERS	D, W, D, K, W, W, A, W, W, W
COATING SCHEME	LINE PIPE: THREE LAYER POLYETHYLENE COATING (3LPE) (MIN. 2.5 mm THK) AS PER SPEC. No. 6-71-0041 AND FIELD JOINT COATING HEAT SHRINK SLEEVE AS PER SPEC. NO. 6-71-0044
CATHODIC PROTECTION INSTALLATIONS	REFER GENERAL NOTE-4

SUB-SOIL DETAILS

SOIL RESISTIVITY (OHM-M)	10.370, 10.500, 11.500, 12.915, 14.330, 16.020, 18.790, 19.760, 23.380
SOIL STRATIFICATION DEPTH IN (m)	REFER GENERAL NOTE-5

TOPOGRAPHIC SYMBOLS

PROPOSED PIPE LINE
EXISTING PIPE LINE
TURNING POINT
INTERMEDIATE POINT
METALLED ROAD
UNMETALLED ROAD
RAILWAY LINE
STREAM < 5m WIDTH
STREAM <5m WIDTH (DRY)
STREAM (PERENNIAL)> 5 m
CANAL (DESCRIBED)
BRIDGE
POWER LINE
TELEPHONE LINE
FENCES
GROUND PROFILE
DAM (DESCRIBED)
WATER TANK, LAKE OR RESERVOIR
QUARRY
SWAMP OR MARSH
MUD
WELL (DESCRIBED)TUBEWELL
PLACE OF WORSHIP
MONUMENT
HUTS (TEMPORARY)
HUTS (PERMANENT)
GRAVES
TREE

PIPELINE SYMBOLS

CATHODIC PROTECTION TEST STATION
POTENTIAL GRADIENT CONTROL MAT (PGCM)
TRANSFORMER RECTIFIER
AC INTERFERANCE MITIGATION 2x RIBBON PARALLEL TO PIPE
ANODE GROUND BED
EXISTING CABLE/ PIPELINE CROSSING
HOT BEND (RHD)
CS CODUIT FOR OFC
OFC PULLING PIT
UNCASED CROSSING
CASED CROSSING
CONTINUOUS CONCRETE WEIGHTING
GEOTEXTILE BAGS
INTERMEDIATE SCRAPER STATION
INSULATING JOINT
SCRAPER TRAP
KM MARKER
PIPE LINE WARNING SIGN
AERIAL MARKER
NAVIGABLE WATER WAY PIPE LINE WARNING SIGN
DIRECTION MARKER
HDPE DUCT FOR OFC
SECTIONALISING VALVES
ZINC GROUNDING CELL
SLOPE BREAKER

SOIL SYMBOLS

GH INORGANIC CLAY WITH HIGH PLASTICITY
CI INORGANIC CLAY WITH MEDIUM PLASTICITY
SC CLAYEY SAND
SM SILTY SAND POORLY GRADED SAND IN WATCHES
CI/CL INORGANIC CLAY WITH LOW PLASTICITY
ML INORGANIC SILTY CLAY WITH MEDIUM PLASTICITY
SW WELL GRADED SAND
CH INORGANIC CLAY WITH HIGH PLASTICITY
ROCK ROCK
GW WELL GRADED GRAVELS
SP SOFT ROCK WITH KANKERS
WC/R WHITE LIME WITH KANKARS
SP POORLY GRADED SAND
CL/OH CLAY WITH KANKAR BASALT
SP POORLY GRADED GRAVELS
SM SILTY GRAVELS,POORLY GRADED
SC CLAYEY GRAVELS,POORLY GRADED
CL/OH CLAY WITH KANKAR
WR WEATHERED BASALT
CL CLAY
ML SILTY CLAY
ML SILTY SAND
SC/SM SANDY CLAY WITH KANKAR
WR POORLY WITH BOULDERS
WR WEATHERED ROCK
SP MOORUM
RC/LOW RED CLAY WITH KANKARS
SM SANDY MOORUM
BR RED ROCK
HR HARD ROCK
MR/HR MOORUM WITH GRAVELS
ER EXPOSED ROCK
GC GREYISH CLAY
BLC/CL BLACK COTTON SOIL
EHB EXPOSED WEATHERED BASALT
BLC/CL SILTY CLAY WITH MOORUM
CL/HR CLAY WITH MOORUM
BLC/CL BLACK COTTON SOIL WITH KANKAR
SC SANDY GRAVEL
BC/SM BLACK COTTON SOIL WITH KANKARS
SC/SM SILTY CLAY WITH SAND
SC SANDY CLAY
RS RED ROCK
CL/ML CLAYEY SILT
CL/ML SILTY CLAY WITH KANKARS
SM/ML SIAL WITH KANKARS
CS/ML SILTY SAND WITH KANKARS
CL/ML CLAYEY SILT WITH KANKARS
BC BLACK RS CLAY
SS SANDY SILT
S SAND
EHR EXPOSED WEATHERED ROCK
CL/HR CLAY WITH GRAVELS

GENERAL NOTES :-

1. LOCATION OF MARKERS ARE EXACT AS PER FIELD SURVEY.
2. FOR ALL CROSSINGS, THE THICKNESS OF CASING PIPE PROVIDED AS PER SPECIFIC REQUIREMENTS & THE SAME IS INSULATED IN BLOW. ALL THE CROSSINGS EXECUTED AS PER RELEVANT OB STANDARD/DRAWINGS.
3. LOCATION OF SLOPE BREAKERS ARE PROVIDED AS PER STANDARD & AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE.
4. INSULATION OF CATHODIC PROTECTION FACILITES PROVIDED AS PER DRAWINGS/ DOCUMENTS SUBMITTED BY CONTRACTOR AND APPROVED BY COMPANY.
5. FOR DETAILS REGARDING SOIL STRATIFICATION AND SOIL RESISTIVITY ALONG THE ROUTE, REFER M/S PETRO IT'S SOIL INVESTIGATION & RESISTIVITY REPORT.
6. ANTI BUOYANCY CONTROL (CONCRETE WEIGHT COATING) AND GEOTEXTILE BAGS, IF REQURE, SHALL BE DECIDED AT SITE (BESIDE THE LOCATION AS SHOWN IN ALIGNMENT SHEET) CASE TO CASE BASIS AND AS PER INSTRUCTION OF ENGINEER-IN-CHARGE.

NOTES :-

1. ALL HEATS ARE IN "METERS" AND CORRESPOND TO MEAN SEA LEVEL (MSL).
2. 0.00 CHAINAGE CORRESPONDS TO INSULATING JOINT AT VADINAR.
3. ANTI BUOYANCY MEASURES, IF REQUIRED, SHALL BE DECIDED AT SITE IN CONSULTATION WITH ENGINEER-IN-CHARGE.
4. THE EXTENT OF CASED CROSSING PROVIDED AS PER INSTRUCTION OF ENGINEER-IN-CHARGE.

BILL OF MATERIAL FOR THIS DRAWING

610	7.1	3LPE	5600	K.M. POST	1
				DIRECTION MARKER	2
				AERIAL MARKER	1
				INSULATING JOINTS	2
			5000	HOT BENDS	1
				NAVIGABLE WATERWAY WARNING MARKER	6
762	6.4	3LPE	48	OFC JOINT PIT	1
168.3	6.4	3LPE	48	CP TEST STATION	5

AS BUILT DRAWING			
DESCRIPTION	ECIL	EIL	BORL

REFERENCE DRAWINGS

TITLE		NUMBER
CROSSING	CHAINAGE(m)	
ROAD	355966	VBPL/CC/AB/SP II/30
CART TRACK	357630	
CANAL	357778	
NALLA	359340	
NALLA	359431	
NALLA	359796	

AS BUILT DRAWING

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITE (A Govt. of India Undertaking)

BHARAT OMAN REFINERIES LIMITED

ESSAR ESSAR CONSTRUCTIONS (INDIA) LIMITED

बीना रिफायनरी परियोजना (वाडीनार बीना पाइपलाइन) — BINA REFINERY PROJECT (VADINAR-BINA PIPELINE)

एलाइनमेन्ट शीट वाडीनार से बीना — ALIGNMENT SHEET VADINAR TO BINA

चेनेज 355.274 से 360.274 कि.मी. — CHAINAGE 355.274 KM TO 360.274 KM

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
AS SHOWN	1205	004	16	71	1272	0