मंगलूर रिफाइनरी एण्ड पेट्रोकेमिकल्स लिमिटेड
MANGALORE REFINERY AND PETROCHEMICALS LIMITED
अनुसूची 'अ' के अंतर्गत भारत सरकार का उद्यम, SCHEDULE 'A' GOVT. OF INDIA ENTERPRISE.
(ऑयल एण्ड नेचुरल गैस कॉरपोरेशन लिमिटेड की सहायक कंपनी, A SUBSIDIARY OF OIL AND NATURAL GAS CORPORATION LIMITED)
आई.एस.ओ. 9001, 14001 एवं 50001 प्रमाणित कंपनी, AN ISO 9001, 14001 AND 50001 CERTIFIED COMPANY.
सीआईएन/CIN : L23209KA1988GOI008959 / वेबसाइट Website : www.mrpl.co.in

Ref No: MRPL/PROJECT/FO/2025/PNGRB-1 **Date: 26.12.2025**

To

The Secretary
Petroleum and Natural Gas regulatory Board,
1st Floor, World Trade Centre, Babar Road,
New Delhi-110001

Respected Sir,

Subject: **Intimation regarding Laying of Dedicated 20 Inch aboveground Pipeline for replacement of existing pipeline for Fuel oil Import/Export from MRPL Refinery to MRPL Coastal terminal IN New Mangalore Port Authority(NMPA) under regulation 19(2) of the PNGRB (Authorising entities to lay, build, operate or expend petroleum and petroleum product pipelines) regulations, 2010.**

Mangalore Refinery & Petrochemicals Limited (MRPL) a Government of India Schedule-A CPSE and a subsidiary of Oil and Natural Gas Corporation Limited (ONGC) is a State-of-Art Grass Root Petroleum Refinery located, north of Mangalore city, in Dakshina Kannada region, Karnataka state. MRPL is operating a 15.25 MMTPA refinery which is integrated to an Aromatic Complex and designed to produce 900,000 TPA of Para xylene. The Refinery has got a versatile design with high flexibility to process crudes of various API and with high degree of Automation. MRPL has high standards in refining, Safety and environment protection.

MRPL's Refinery is capable of producing a full range of petroleum products like Naphtha, LPG, Motor Spirit, High-Speed Diesel, Kerosene, Aviation Turbine Fuel, Sulphur, Xylene, Bitumen along with Pet Coke and Polypropylene. MRPL operates an Aromatic Complex, a petrochemical unit capable of producing Para Xylene and Benzene. This Aromatic Complex is situated in the Mangalore Special Economic Zone Limited (MSEZL) and is fully integrated with MRPL.

MRPL has an existing dedicated 20 inch black oil underground pipeline from Refinery to jetty in New Mangalore Port Authority(NMPA) which is used to export fuel oil (FO) and import Low Sulphur Fuel Oil (Class C- Petroleum Product). This line is connected with dedicated loading arm (Jetty no 10 and 11) to handle oil material (FO & LSHS). This line of about 11 KM length was laid along with Phase 1 product lines in 1996. This existing underground pipeline is provided with electrical tracing along with PUF insulation which is further cladded with 4 mm HDPE coating.

पंजीकृत कार्यालय : कुत्तेतूर पोस्ट, वाया काटिपल्ला मंगलूरु - 575 030 (भारत).
Regd. Office : Kuthethoor P.O. Via Katipalla, MANGALURU -575 030 (India).

While carrying out periodic inspection of this line, it has been recommended that this line needs to be replaced with an aboveground line for avoiding corrosion failures and for allowing periodic inspection. Therefore it is proposed to lay a new dedicated aboveground line of 20 inch size (Heat traced and Insulated) from Refinery terminal to Coastal terminal at NMPA. The proposed above ground dedicated line will be tapped off from the discharge line of existing dispatch pump GA 9524 A/B/C at Refinery terminal and will run through existing refinery complex piperack/sleeper (about 2 km), Mangalore Special Economic Zone Limited (MSEZL) corridor piperack/sleepers (about 8 KM) and in NMPA's corridor piperack/sleepers(1.5 KM). The line will be hooked up to existing Jetty line at Coastal terminal (Receipt terminal at NMPA). The proposed line will be piggable with long radius bends (3D). The Pig Launcher will be located in Refinery terminal (Dispatch terminal) and Pig receiver will be located in Coastal terminal (Receipt terminal).

M/s Engineers India Limited (EIL) is our Consultant (PMC) for the above Project and the works are being carried out in EPCM mode of execution. M/s EIL has carried out the entire Design and Engineering of the proposed cross country line from MRPL to Coastal terminal at NMPA.

The brief details of the proposed dedicated pipeline are given below :

Pipeline length	: 11.5 Kms (Approx).
Pipeline Diameter	: 20 Inch
Pipeline Route	: MRPL Refinery to New Mangalore Port
Design Throughput	: 0.75 MMTPA
Design Pressure	: 49 Kg/cm^2 (g)
Product to be transported	: Fuel Oil

The proposed dedicated pipeline shall be laid along the existing MSEZL pipeline corridor connecting MRPL and New Mangalore Port, for which the Right of Way (RoW) has already been obtained from M/s MSEZL and M/s NMPA. In compliance with regulation 19(2) of the PNGRB (Authorising Entities to Lay, build, Operate or expend petroleum and petroleum product pipelines) regulations, 2010, we hereby submit the following documents for your kind consideration:

Project Brief	:	Annexure – I
Pipeline route map	:	Annexure – II
Process Diagram	:	Annexure -III
Pipeline schematic	:	Annexure – IV

We request you to kindly take the above submission on record as an intimation under the said regulation.

Yours Sincerely,

के.वी. बालु K.V. BALU
समूह महा प्रबंधक (परियोजना)
Group General Manager (Projects)
मंगलूर रिफाइनरी एण्ड पेट्रोकेमिकल्स लिमिटेड
Mangalore Refinery & Petrochemicals Ltd.
मंगलूर Mangalore - 575 030

K.V. Balu
Group General Manager (Projects)
MRPL

Enclosures: Annexure I, Annexure II, Annexure III and Annexure IV

ANNEXURE-I

PROJECT BRIEF

Dedicated 20 Inch aboveground Pipeline for replacement of existing pipeline for Fuel oil Import/Export from MRPL Refinery to MRPL Coastal terminal

Mangalore Refinery and Petrochemicals Limited,

Kuthethoor, Mangaluru, Karnataka

26-12-2025

Contents

Dedicated 20 Inch aboveground Pipeline for replacement of existing pipeline for Fuel oil Import/Export from MRPL Refinery to MRPL Coastal terminal

1. Introduction:

1.1 Mangalore Refinery & Petrochemicals Limited (MRPL) a Government of India Schedule-A CPSE and a subsidiary of Oil and Natural Gas Corporation Limited (ONGC) is a State-of-Art Grass Root Petroleum Refinery located in a beautiful hilly terrain, north of Mangalore city, in Dakshina Kannada region, Karnataka state. MRPL is operating a 15.25 MMTPA refinery which is integrated to an Aromatic Complex and designed to produce 900,000 TPA of Para xylene. The Refinery has got a versatile design with high flexibility to process crudes of various API and with high degree of Automation. MRPL has high standards in refining and environment protection matched by its commitments to society. MRPL has also developed a Green Belt around the entire Refinery with plant species specially selected to blend with the local flora.

1.2 MRPL's Refinery is capable of producing almost a full range of petroleum products like Naphtha, LPG, Motor Spirit, High-Speed Diesel, Kerosene, Aviation Turbine Fuel, Sulphur, Xylene, Fuel oil, Bitumen along with Pet Coke and Polypropylene. MRPL operates an Aromatic Complex, a petrochemical unit capable of producing 0.905 MMTPA of Para Xylene and 0.273 MMTPA of Benzene. This Aromatic Complex is situated in the Mangalore Special Economic Zone Limited (MSEZL) and is fully integrated with MRPL

1.3 MRPL has an existing dedicated 20 inch black oil underground pipeline from refinery to jetty which is used to export fuel oil (FO) and import Low Sulphur Fuel Oil (Class C- Petroleum Product). This line is connected with dedicated loading arm (Jetty no 10 and 11) to handle oil material (FO & LSHS). This line of about 11 KM length was laid along with Phase 1 product lines in 1996. This existing underground pipeline is provided with electrical tracing along with PUF insulation which is further cladded with 4 mm HDPE coating.

1.4 While carrying out periodic inspection of this line, it has been recommended that this line **needs to be replaced** with an aboveground line for avoiding corrosion failures and for allowing periodic inspection. Therefore, it is proposed to lay a new dedicated **aboveground** line of 20 inch size (Heat traced and insulated) from Refinery terminal to Coastal terminal at New Mangalore Port Authority (NMPA). The proposed above ground line will be tapped off from the discharge line of existing dispatch pump GA 9524 A/B/C at Refinery terminal and will run through existing refinery complex piperack/sleeper (about 2.1 km), Mangalore Special Economic Zone Limited (MSEZL) corridor piperack/sleepers (about 8 KM) and in NMPA corridor piperack/sleepers(1.4 KM). The line will be hooked up to existing Jetty line at Coastal terminal (Receipt terminal at NMPA). The proposed line will be piggable with long radius bends (3D). The Pig Launcher will be located in Refinery terminal (Dispatch terminal) and Pig receiver will be located in Coastal terminal (Receipt terminal).

1.5 M/s Engineers India Limited (EIL) is our Consultant (PMC) for the above project and the works are being carried out in EPCM mode of execution. M/s EIL has carried out the entire Design and Engineering of the proposed cross-country line from MRPL to coastal terminal at NMPA.

2.0 Project battery limits

The Battery Limits for facilities of the Project shall be as under:

1) Refinery Fuel Oil dispatch hook up Pipeline Inlet till hook-up point on Coastal Terminal (as depicted in attached P&Ids)
2) Drain line Hook-up point with Existing Drain manifold in Coastal Terminal

3.0 List of Facilities:

i. Pig launcher at Refinery Terminal
ii. Above ground Pipeline of 11.5 km (2.1 km inside refinery + 8.0 Km in MSEZ corridor+ 1.4 Km in NMPA area. The pipeline will be electrically traced and provided with Heat insulation.
iii. Pig receiver at Receipt terminal (Costal terminal in New Mangalore Port Authority (NMPA))

4.0 Pipeline Overview

4.1 The length of the proposed new Fuel Oil Pipeline line (20 inch) shall be permanently piggable, approximately 11.5 kM which will be laid from the pumping / dispatch terminal (refinery) upto MRPL's existing Coastal terminal at NMPA. This pipeline shall be above ground, suitably insulated &cladded and will be maintained with help of Skin Effect Heating System (SEHS). The coastal terminalis already connected to Marine Loading Arms at Jetty 10 & Jetty 11 through two number of existing pipelines. There shall not be flow bifurcation of a product between Jetty 10 and Jetty 11. This newFuel Oil Pipeline shall be used for transfer of Fuel Oil or Marine Fuel Oil between Refinery and Jetty10/ Jetty 11 via coastal terminal.

- Export of Fuel Oil from Refinery to Jetty 10 or Jetty 11
- Export of Marine Fuel Oil from Refinery to Jetty 10 or Jetty 11
- Import of Fuel Oil from ships berthed at either Jetty 10 or Jetty 11 to Refinery
- Import of Fuel Oil from ships berthed at either Jetty 10 or Jetty 11 to Refinery

4.2 The pipeline is designed in accordance with the latest editions of the following codes and standards:

- -ASME B31.4 –Pipeline Transportation Systems for Liquid Hydrocarbon and other Liquids.
- API 5L- Specification for Line pipe.
- OISD-STD-141- Cross Country Liquid Hydrocarbon Pipeline
- PNGRB Guidelines as applicable.

4.3 Specification of Line pipe:

Parameter	Details
Product	Fuel Oil (Class-C Petroleum Product)
Pipeline Diameter	20 Inch
Pipeline length	Approx 11.5 KM
Pipeline type	Above ground cross-country line
Pipe Specification	API 5L Gr. X-52 PSL2 ; 7.11 mm thick
Design Pressure	49 kg/cm2
Design Throughput	0.75 MMTPA
Type of External Coating	3 Coats of Two component Epoxy phenolic coating cured with Polyamine adduct hardener
Route	From MRPL Refinery to New Mangalore Port

5.0 PIPELINE DESIGN PARAMETERS: Fuel Oil Pipeline

Sr.No.	Description	Parameters
1.	Pipeline operating life	25 Years
2.	Pipeline Flow Rate	2000 m3/hr @ density of 920-970 kg/m3 , viscosity of 200 cst @ 75 Deg C
3.	Pipeline Maintenance Temperature	75 Deg C
4.	Pipeline Length	11.5 KM (approx.)
5.	Basis for hydraulic Calculation	Pipeline hydraulics shall be carried out based on FO & MFO properties at 75 Deg C
6.	Main Pipeline Diameter	20 inches
7.	Pipeline roughness	45 micron
8.	Material of Construction for Pipeline	CS
9.	Pipeline Corrosion Allowance	1.5 mm
10.	Pigging Facilities	Permanent pigging facilities shall be provided.

Sr.No.	Description	Parameters
11.	Subsoil temperature	25 Deg C
12.	Design temperature	100 Deg C
13.	Design Pressure	49 kg/cm2
14.	Surge control	Surge analysis has been done
15.	Pipeline laying	Above Ground
16.	Pipeline corrosion protection system	Internal protection – NIL. Pipeline external protection – 3 Coats of Two component Epoxy phenolic coating cured with Polyamine adduct hardener
17.	Corrosion Monitoring System	Corrosion Probe and Corrosion Coupons shall be provided
18.	Pipeline Elevation profile	As per Pipeline Engineering documents
19.	Sectionalizing valves	Not required as the length is 11.5 KM in continuous stretch without branches
20.	Design margin (for pipeline)	On flow : NIL On length : - 3% -
21.	Maintenance Temperature	Suitable Electrical Heat Tracing Suitable Pipeline Insulation
22.	Insulation Material(s), Insulation(s) Thickness(es), Cladding	• Insulation material : PUF or PIR. • Insulation thickness : 75 mm • Cladding: HDPE: 5mm
23.	Design codes/statuary authorities	Latest Edition of ASME B31.4 and OISD-141, PNGRB Guidelines will be followed as applicable. However, in case of contradictory stipulations, the stringent conditions will prevail.
24.	Leak Detection System	Not envisaged
25.	Flow meters	Not envisaged
26.	Filters	Not envisaged

6.0 DISPATCH TERMINAL PARAMETERS

As per Table-I below

7.0 RECEIPT STATION PARAMETERS

As per Table-I

Table - I

(A) Source	(B) Destination	Fluid through Pipeline Utilised	Pipeline Size (Inch)	Design Pressure (kg/cm2g) & Design Temperature (Deg C)	Thickness (mm) & MOC	Pipeline Operating Temperature (deg C) / Maintenance Temperature in case of FO & MFO	Density (kg/m3) at Pipeline Operating or Maintenance Temperature	Viscosity (cst) at Pipeline Operating or Maintenance Temperature	Pipeline Design Flow (m3/hr)
Refinery FO Pumps	Jetty 10 or 11 Ship manifold	FO/MFO through FO Pipeline	20	47/FV kg/cm2g (Refinery to Coastal Terminal) & 100 deg C	7.1 mm (Refinery to Coastal Terminal), MOC: API 5L grade x52 PSL2	75	920-970	110	1200 using 2 pumps running each at 600m3/hr
Ship berthed at Jetty 10 or 11	FO/MFO Tanks (Refinery)	FO/MFO through FO Pipeline	20	47/FV kg/cm2g (Refinery to Coastal Terminal), & 100 deg C	7.1 mm (Refinery to Coastal Terminal) , MOC: API 5L grade x52 PSL2	75	920-970	110	900

8.0 SECTIONISING VALVE STATIONS

Not envisaged under this project as the length of line is 11.5 KM

9.0 Right of Way (ROW details)

9.1 MRPL has secured the right of way (RoW) from Mangalore Special Economic Zone Limited (MSEZL) for the complete pipeline stretch. The route is entirely within the pipeline corridor maintained by MSEZL. The Pipeline Corridor consists of following sections:

- Multitier concrete piperacks (height varies from 4 meter to 20 m elevation)
- RCC Box culverts Railway track and Road crossing
- Structural steel bridge over National Highways
- Above ground RCC sleepers and framed structures across canals & rivers.

9.2 Dedicated ROW allocation to MRPL:

9.2.1 MRPL has been allocated a ROW of 3.65 Meters width in the MSEZL pipeline corridor of which 0.85 M width will be used for laying of the proposed Fuel Oil pipeline.

9.2.2 MRPL has been allocated a ROW of 0.85 M within NMPA for laying of the proposed Fuel Oil Pipeline

9.3 Summary of the pipeline route/terrain:

Description	Approximate Length (m)
Insider refinery Piperack	2100
Above ground sleepers	4285
Road/Culverts/Nala/River crossings	248
Railway underpass (RCC Box)	50
Elevated concrete piperack	3417
Inside NMPA Sleeper/Piperack	1400
Total length 11,500 meters	

9.4 The RoW is fully licensed and available for the limited purpose of laying and operating this dedicated Fuel Oil line between MRPL and Coastal terminal.

10.0 Project Execution methodology

10.1 MRPL has appointed M/s Engineer India Limited (EIL) as the consultant for this project. The works are ebing executed on EPCM mode. The works of pipeline laying has been awarded to M/s Bridge & Roof Co. (India) Ltd. The preparation of engineering drawing and tender specification done by EIL.

10.2 The works will be executed by M/s Bridge & Roof Co. (India) Ltd on item rate tender basis. The construction scope includes fabrication, Hot bending, welding and laying of the 20" cross country pipeline, installation of Shoe supports, providing Skin

Effect Heat tracing, hydrotesting with water, drying, and also providing Heat insulation.

10.3 All works shall be executed in compliance with PNGRB guidelines, relevant piping standards and abiding to Health Safety and Environmental (HSE) requirements.

11.0 SCADA and Telecommunication system:

11.1 SCADA is not envisaged for this proposed pipeline. However, the operation of the pumping system and line will be through existing DCS PLC system in MRPL refinery and Coastal terminal.

12.0 Metering system:

12.1 No metering system envisaged under this project.

13.0 Annexures:

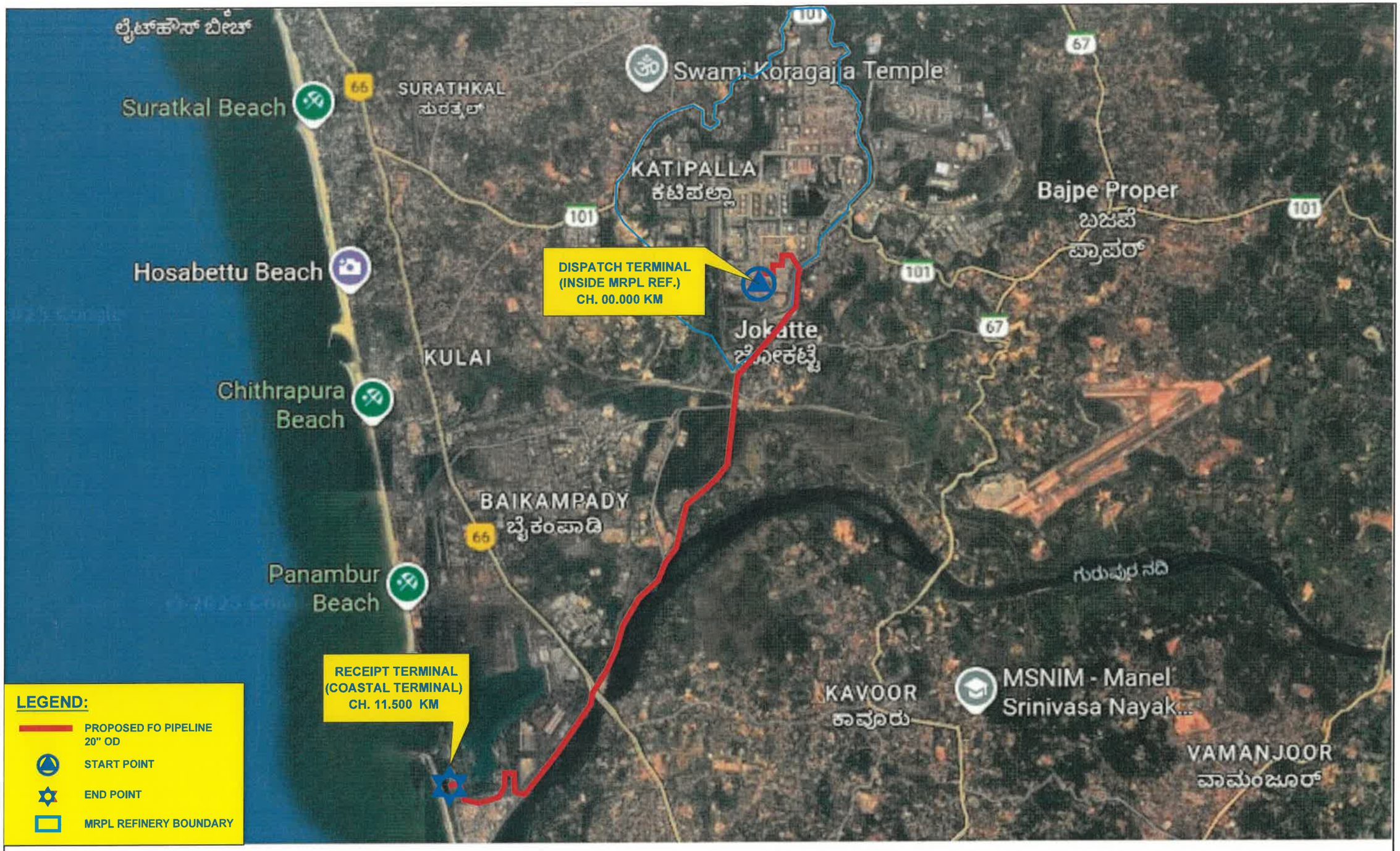
13.1 Annexure II- Overall Route Map

13.2 Annexure III- Pipeline Process and Instrumentation diagram (P&ID).

13.3 Annexure IV- Pipeline General Arrangement Drawings

This project brief is submitted as part of the intimation under Regulation 19(2) of the PNGRB (Authorizing entities to Lay, Build, Operate or Expand dedicated Petroleum and Petroleum Product Pipelines) Regulations, 2010 for the dedicated Fuel Oil Pipeline project.

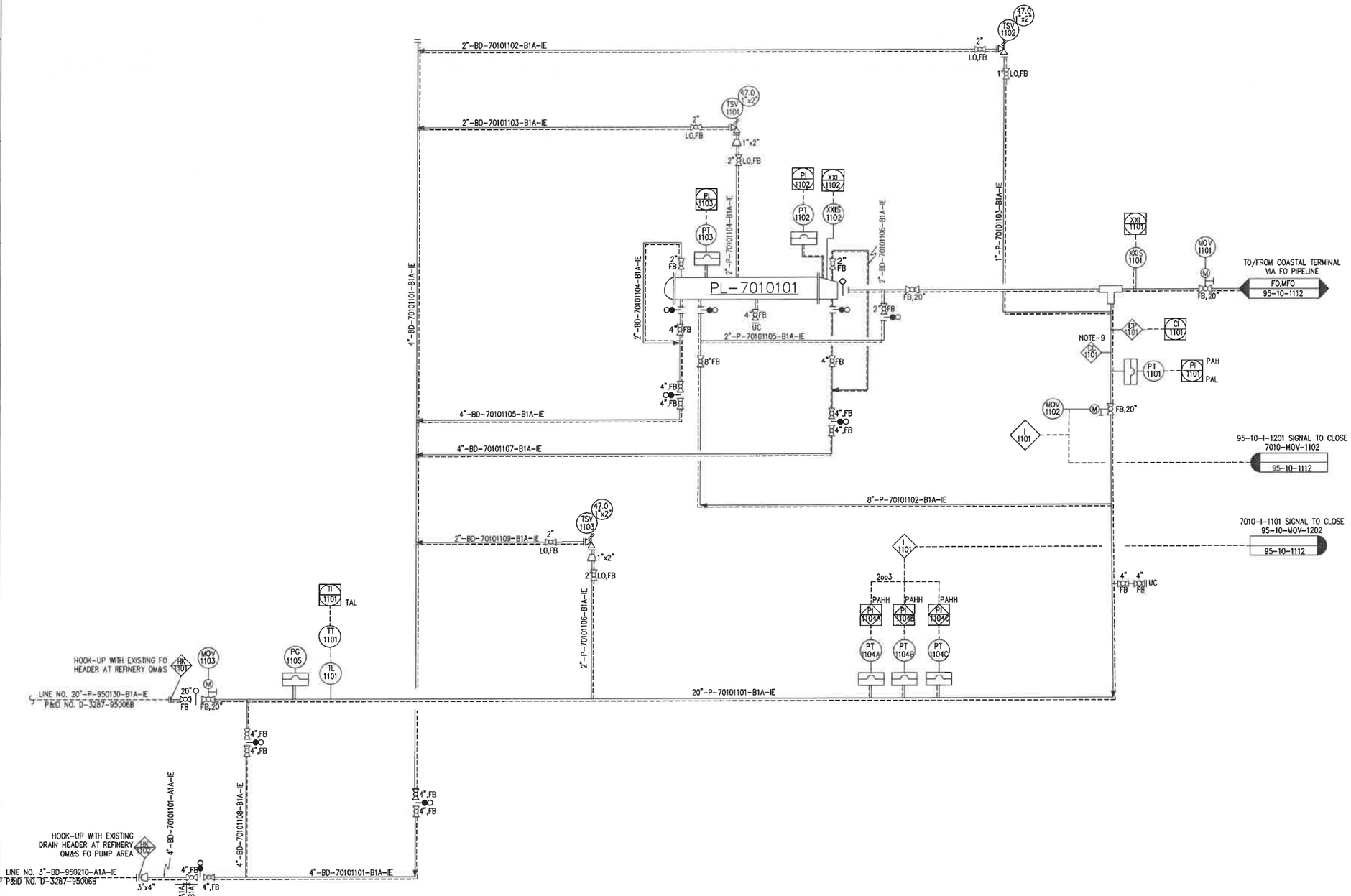
Annexure - II



ENGINEERS INDIA LIMITED NEW DELHI	PROJECT : 20" FO PIPELINE PROJECT CLIENT : M/s MRPL JOB NO : B903	A REV.	18.08.25 DATE	ISSUED FOR INFORMATION REVISION	NG BY	TLP/SD CHK	MSG APPROVED	OVERALL PIPELINE ROUTE MAP	B903-070-83-44-39112 (SHT. 1 OF 1)	REV. A

Annexure - III

PL-7010101
SCRAPER LAUNCHER



NOTES:-

1. UNIT No. '7010' TO BE ADDED AS PREFIX TO ALL INSTRUMENTS APPEARING IN THIS P&ID.
2. FOR LEGENDS, REFER TO LEGEND P&IDs-B903-02-42-70-1191,1192,1193.
3. ALL MOV'S SHOWN IN THIS P&ID SHALL HAVE PROVISION FOR HAND OPERATION.
4. ALL SIGNALS / MOV STATUS (CLOSE/OPEN) AND ALARMS SHALL BE REPEATED/MADE AVAILABLE IN COASTAL TERMINAL CONTROL ROOM AND REFINERY OM&S CONTROL ROOM.
5. ALL PIPING , VALVES, INSTRUMENTS SHALL BE ELECTRICALLY TRACED AND INSULATED TO MAINTAIN TEMPERATURE OF 75°C.
6. ALL BALL VALVES SHALL BE FULL BORE VALVES.
7. SCRAPER TRAP SHALL BE INSULATED TO MAINTAIN 75°C.
8. ALL MANUAL BALL VALVES OF SIZE 6" AND ABOVE SHALL BE GEAR OPERATED AS PER EIL STD. FOR BALL VALVES.
9. CMS SHALL BE INSTALLED AS PER EIL (SMMS) TECH. SPECIFICATION.
10. FOR MOV-1101 AND 1103, REFER DETAIL 10 OF P&ID B903-02-42-70-1192.
11. FOR MOV-1102, REFER DETAIL 6 OF P&ID B903-02-42-70-1192.

INTERLOCK LOGIC :-

INTERLOCK	ACTUATED BY	ACTION
I-1101	VOTING SYSTEM OF PAHH-1104A/B/C (2oo3)	TRIP RUNNING FO PUMPS GA-9524A/B/C CLOSE MOV-1102 CLOSE 95-10-MOV-1202 AT COASTAL TERMINAL

No.	DATE	REVISIONS	DRN	BY	CHKD	APPD.
4	07.01.25	ISSUED FOR INCORPORATING HAZOP RECOMMENDATION	Varun	SD	NS	HKP
3	25.11.24	ISSUED FOR HAZOP	Varun	SD	NS	HKP
2	18.09.24	ISSUED FOR ENGG.	Varun	VSP	NS	HKP
1	03.09.24	ISSUED FOR ENGG.	Varun	VSP	NS	HKP
0	13.08.24	ISSUED FOR ENGG.	Varun	VSP	NS	HKP
A	02.08.24	ISSUED FOR COMMENTS	Varun	VSP	NS	HKP

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

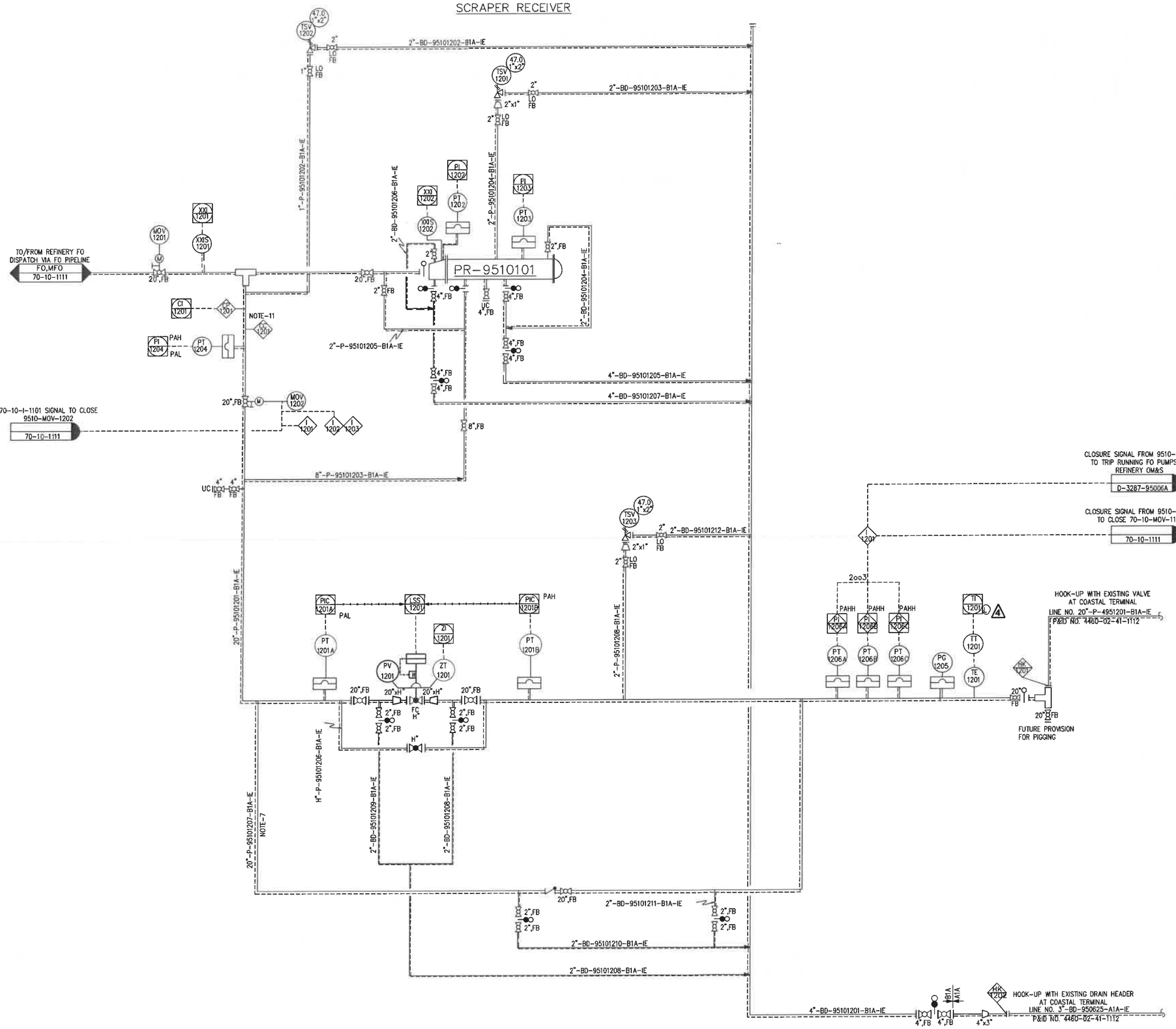
मंगलुर रिफाइनरी एण्ड पेट्रोकेमिकल्स लिमिटेड
MANGALORE REFINERY AND PETROCHEMICALS LIMITED
MRPL EPCM SERVICES FOR OFFSITE AND JETTY INFRASTRUCTURE PROJECTS

पाइपिंग एण्ड इंस्ट्रूमैन्टेशन डायाग्राम
PIPING AND INSTRUMENTATION DIAGRAM
FO PIPELINE SYSTEM-REFINERY DISPATCH

अनुमाप SCALE	कार्य संख्या JOB NO.	विभाग DEPT.	अनुभाग SECTN.	इकाई UNIT	आरेख संख्या DWG. No.	संशो. REV.
~	B903	02	42	70	1111	4

EIL-0241-502-REV-0-A

DISTRIBUTION CODE



NOTES:–

1. UNIT No. '9510' TO BE ADDED AS PREFIX TO ALL INSTRUMENTS APPEARING IN THIS P&ID
2. FOR LEGENDS, REFER TO LEGEND P&Ds–B903–02–42–95–1191,1192,1193.
3. ALL MOV'S SHOWN IN THIS P&ID SHALL HAVE PROVISION FOR HAND OPERATION.
4. ALL SIGNALS / MOV STATUS (CLOSE/OPEN) AND ALARMS SHALL BE REPEATED/MADE AVAILABLE IN COASTAL TERMINAL CONTROL ROOM AND REFINERY OM&S CONTROL ROOM.
5. ALL PIPING, VALVES, INSTRUMENTS SHALL BE ELECTRICALLY TRACED AND INSULATED TO MAINTAIN TEMPERATURE OF 75°C.
6. ALL ESD SYSTEM ON THE LOADING LINE SHALL BE INTERLINKED WITH PUMPS IN DISPATCH TERMINAL IN REFINERY. TO REDUCE THE SURGE PRESSURE, ESD SYSTEM SHOULD STOP RUNNING PUMPS FIRST BEFORE THE 9510–MOV–1202 COMPLETE CLOSURE.
7. THIS LINE SHALL BE USED FOR IMPORT OF FO/MFO FROM SHIP.
8. ALL BALL VALVES SHALL BE FULL BORE VALVES.
9. SCRAPER TRAP SHALL BE INSULATED TO MAINTAIN 75°C.
10. ALL MANUAL BALL VALVES OF SIZE 6" AND ABOVE SHALL BE GEAR OPERATED AS PER EIL STD. FOR BALL VALVES.
11. CMS SHALL BE INSTALLED AS PER EIL (SMMS) TECH. SPECIFICATION. THE TAG NO'S OF CORROSION PROBE & COUPON ARE 9510–CP–1201 & 9510–CC–1201 RESPECTIVELY.
12. FOR MOV–1201, REFER DETAIL 10 OF P&ID B903–02–42–95–1192.
13. FOR MOV–1202, REFER DETAIL 6 OF P&ID B903–02–42–95–1192.
14. PV–1201 SHALL BE ELECTRO HYDRAULIC VALVE.

INTERLOCK LOGIC :–

INTERLOCK	ACTUATED BY	ACTION
I–1201	PAHH–1206 A/B/C (2oo3) VOTING LOGIC	CLOSE 70–10–MOV–1102 CLOSE MOV–1202 STOP RUNNING REFINERY FO PUMPS GA–9524A/B/C
I–1202	ESD–1 ON MLA	CLOSE MOV–1202
I–1203	ESD–2 ON MLA	CLOSE MOV–1202

No.	DATE	REVISIONS	DRN	BY	CHKD	APPD.
4	07.01.25	ISSUED FOR INCORPORATING HAZOP RECOMMENDATION	Varun	SD	NS	HKP
3	25.11.24	ISSUED FOR HAZOP	Varun	SD	NS	HKP
2	18.09.24	ISSUED FOR ENGG.	Varun	VSP	NS	HKP
1	03.09.24	ISSUED FOR ENGG.	Varun	VSP	NS	HKP
0	13.08.24	ISSUED FOR ENGG.	Varun	VSP	NS	HKP
A	02.08.24	ISSUED FOR COMMENTS	Varun	VSP	NS	HKP

ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED
MRPL EPCM SERVICES FOR OFFSITE AND JETTY INFRASTRUCTURE PROJECTS

PIPING AND INSTRUMENTATION DIAGRAM

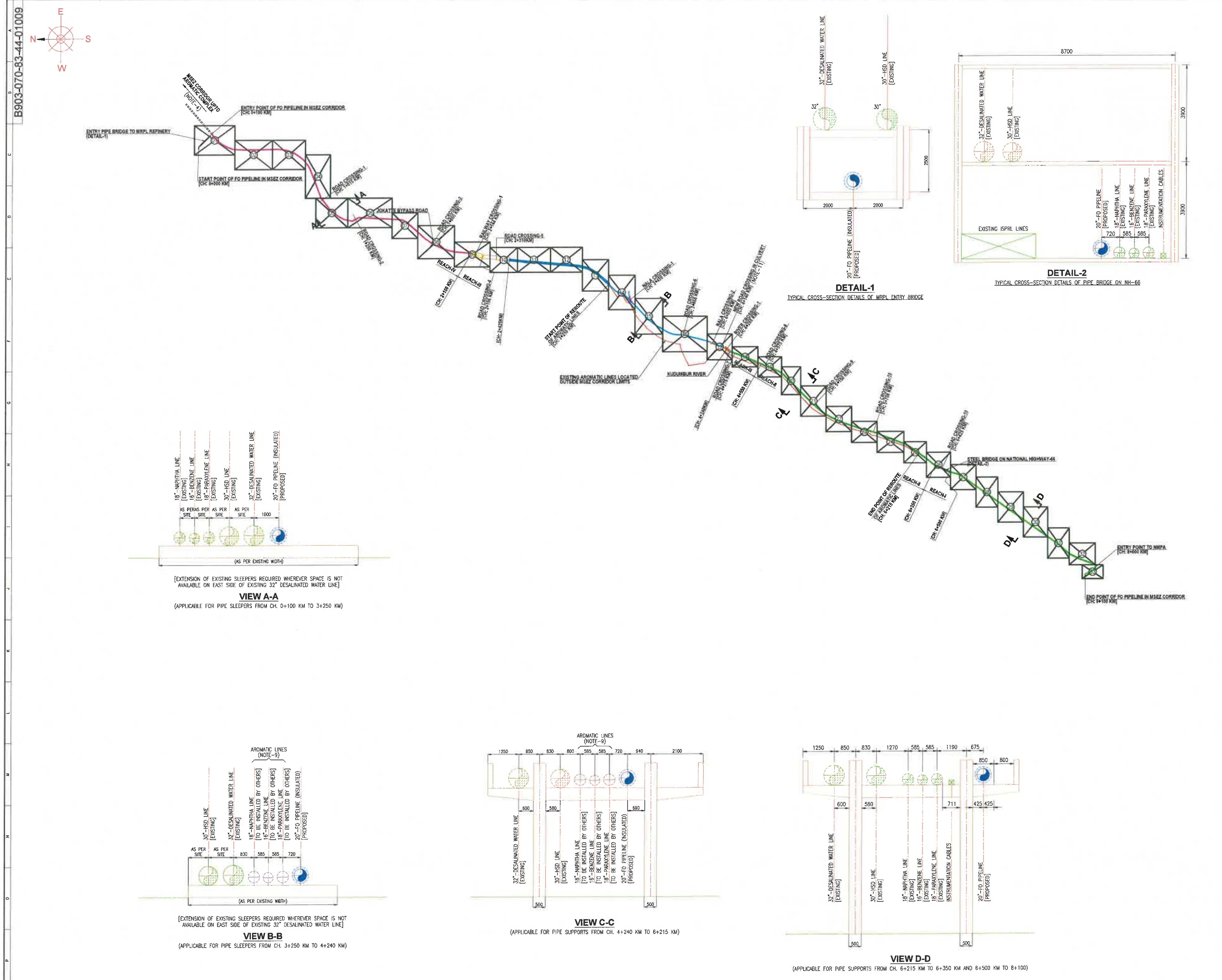
FO PIPELINE SYSTEM-COASTAL TERMINAL

SCALE	JOB NO.	DEPT.	SECTN.	UNIT	DWG. No.	REV.
NTS	B903	02	42	95	1112	4

EIL–0241–502–REV–0–A

DISTRIBUTION CODE

Annexure - IV



REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	PIPELINE CORRIDOR LAYOUT MSEZ CORRIDOR
B903-070-83-44-16011 TO 16331	PIPING GENERAL ARRANGEMENT DRAWINGS - AREAS 1 TO 33

NOTES:

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ALL CHAINAGES ARE IN KILOMETERS. ALL DIMENSIONS ARE IN MM.
3. THIS DRAWING HAS BEEN PREPARED FROM AS-BUILT OVERALL ROUTING LAYOUT OF 30" HSD PIPELINE.
4. FOR PIPING GADs IN AREA NOS. 1 TO 33, REFER DWG. NOs. B903-070-83-44-16011 TO 16331.

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	26.06.21	ISSUED FOR ENGINEERING	NG	TLP/SD	MSG	

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

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

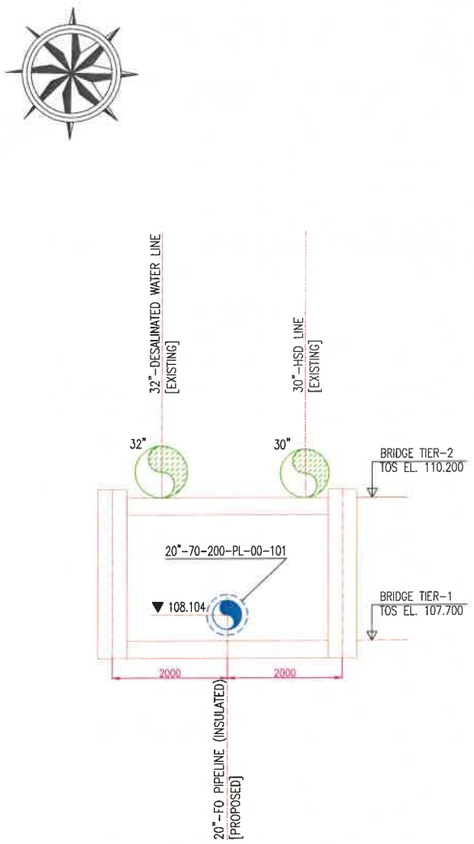
20" FUEL OIL PIPELINE PROJECT

KEY PLAN FOR PIPING GADs MSEZ CORRIDOR

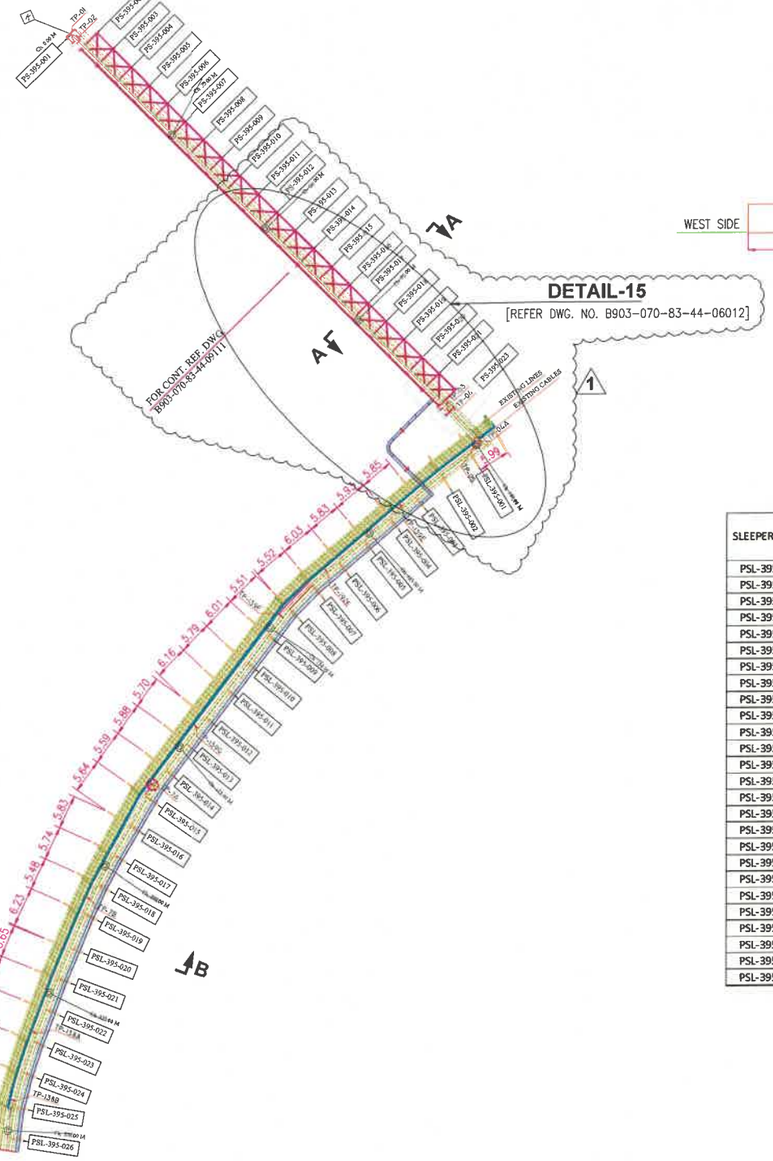
SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:8000	B 9 0 3	0 7 0	8 3	4 4	0 1 0 0 9	0

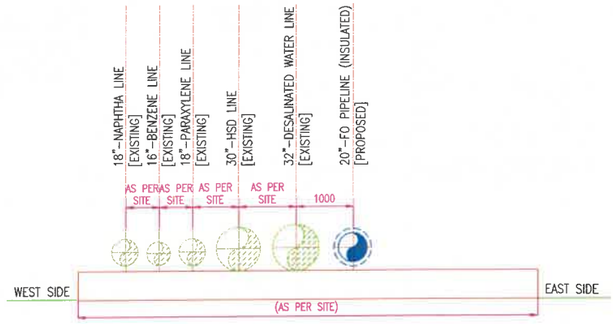
3-1641-0500 REV.2 A0-1189 x 841

B903-070-83-44-16011



VIEW A-A





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW B-B

SLEEPER NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-001	2384.324	4168.989	2378.537	4172.84	100.200	99.766	103.72
PSL-395-002	2380.755	4164.055	2375.147	4168.162	100.116	99.776	109.5
PSL-395-003	2377.017	4159.183	2371.806	4163.783	100.045	99.562	115.01
PSL-395-004	2373.334	4154.729	2368.077	4159.278	99.962	99.548	120.86
PSL-395-005	2369.404	4150.06	2364.26	4154.735	99.887	99.447	126.79
PSL-395-006	2365.553	4145.663	2360.422	4150.352	99.796	99.296	132.62
PSL-395-007	2361.432	4141.254	2356.301	4145.943	99.721	99.273	138.65
PSL-395-008	2357.178	4136.976	2352.41	4142.034	99.652	99.231	145.17
PSL-395-009	2352.652	4132.625	2348.473	4138.18	99.550	99.010	150.68
PSL-395-010	2348.045	4128.763	2343.866	4134.318	99.501	98.917	156.69
PSL-395-011	2343.454	4125.241	2339.275	4130.796	99.398	98.931	162.48
PSL-395-012	2338.616	4121.431	2334.437	4126.986	99.330	98.830	168.64
PSL-395-013	2333.969	4118.125	2329.79	4123.68	99.244	98.764	174.34
PSL-395-014	2329.106	4114.828	2324.928	4120.382	99.182	98.622	180.22
PSL-395-015	2323.711	4111.664	2320.086	4117.596	99.091	98.591	185.81
PSL-395-016	2318.723	4108.358	2315.4	4114.463	99.043	98.543	191.45
PSL-395-017	2313.358	4105.926	2310.078	4112.058	98.921	98.421	197.28
PSL-395-018	2307.863	4102.984	2305.033	4109.333	98.891	98.216	203.02
PSL-395-019	2302.675	4100.599	2300.055	4107.037	98.795	98.295	208.5
PSL-395-020	2296.921	4098.22	2294.301	4104.658	98.713	98.208	214.73
PSL-395-021	2291.691	4096.068	2289.272	4102.507	98.643	98.117	220.38
PSL-395-022	2285.843	4094.023	2283.455	4100.551	98.551	98.015	226.33
PSL-395-023	2280.29	4091.893	2277.907	4098.423	98.489	97.905	232.27
PSL-395-024	2274.664	4090.026	2272.564	4096.652	98.382	97.806	237.9
PSL-395-025	2268.998	4088.552	2267.008	4095.212	98.333	97.679	243.64
PSL-395-026	2262.479	4087.49	2261.616	4094.387	98.255	97.691	249.09

STRUCTURE NAME	CO-ORDINATES				ELEVATION	
	MRPL SIDE		ROAD SIDE			
	NORTH	EAST	NORTH	EAST	TOG	TOS
PS-395-001	2453.441	4101.718	2454.946	4103.224	101.436	109.208
PS-395-002	2452.525	4103.257	2455.607	4106.339	101.436	107.7
PS-395-003	2449.432	4106.35	2452.514	4109.432	99.912	107.7
PS-395-004	2445.98	4109.802	2449.062	4112.884	99.912	107.7
PS-395-005	2442.517	4113.276	2445.594	4116.352	99.912	107.7
PS-395-006	2439.076	4116.712	2442.103	4119.843	99.912	107.7
PS-395-007	2435.591	4120.202	2438.7	4123.415	99.912	107.7
PS-395-008	2432.128	4123.665	2435.199	4126.747	99.912	107.7
PS-395-009	2428.654	4127.128	2431.709	4130.237	99.912	107.7
PS-395-010	2425.191	4130.591	2428.262	4133.684	99.912	107.7
PS-395-011	2421.706	4134.054	2424.811	4137.135	99.912	107.7
PS-395-012	2418.265	4137.528	2421.336	4140.61	99.912	107.7
PS-395-013	2414.791	4141.002	2417.873	4144.073	99.912	107.7
PS-395-014	2411.317	4144.465	2414.399	4147.547	99.912	107.7
PS-395-015	2407.838	4147.95	2410.936	4151.01	99.912	107.7
PS-395-016	2404.402	4151.38	2407.528	4154.418	99.912	107.7
PS-395-017	2400.928	4154.854	2404.01	4157.936	99.912	107.7
PS-395-018	2397.465	4158.317	2400.547	4161.399	98.517	107.7
PS-395-019	2394.002	4161.791	2397.079	4164.867	98.517	107.7
PS-395-020	2390.539	4165.243	2393.621	4168.325	98.517	107.7
PS-395-021	2387.457	4168.347	2390.528	4171.418	98.517	107.7
PS-395-022	2385.993	4168.745	2387.548	4170.716	98.517	103.517
PS-395-023	2384.118	4167.283	2386.125	4168.436	98.517	109.208

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADSs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR
B903-070-83-44-06012	DETAIL-15, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

- ABOVE GROUND PIPING
- BURIED/ HIDDEN PIPING
- EXISTING PIPING
- BOTTOM LEVEL OF PIPE
- CENTRELINE ELEVATION OF PIPE
- PLUG VALVE
- GATE VALVE
- CHECK VALVE
- BALL VALVE
- GLOBE VALVE
- LO/LC LOCK OPEN / LOCK CLOSE
- UC UTILITY CONNECTION
- PS PIPE SUPPORT
- FFL FINISHED FLOOR LEVEL
- BOP BOTTOM OF PIPE
- TOP TOP OF PIPE
- FSU FLAT SIDE UP
- FSD FLAT SIDE DOWN
- WP WORKING POINT OF PIPE
- IJ (INSULATING JOINT)
- PLATFORM
- ELEVATION / LEVEL
- (FGL) FINISHED GRADE LEVEL
- PAVEMENT
- TOS TOP OF STEEL
- LR LONG RADIUS
- HPP HIGHEST PAVEMENT POINT
- BOUNDARY WALL / FENCE

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
1	04.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)

ONGC MRPL MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-1

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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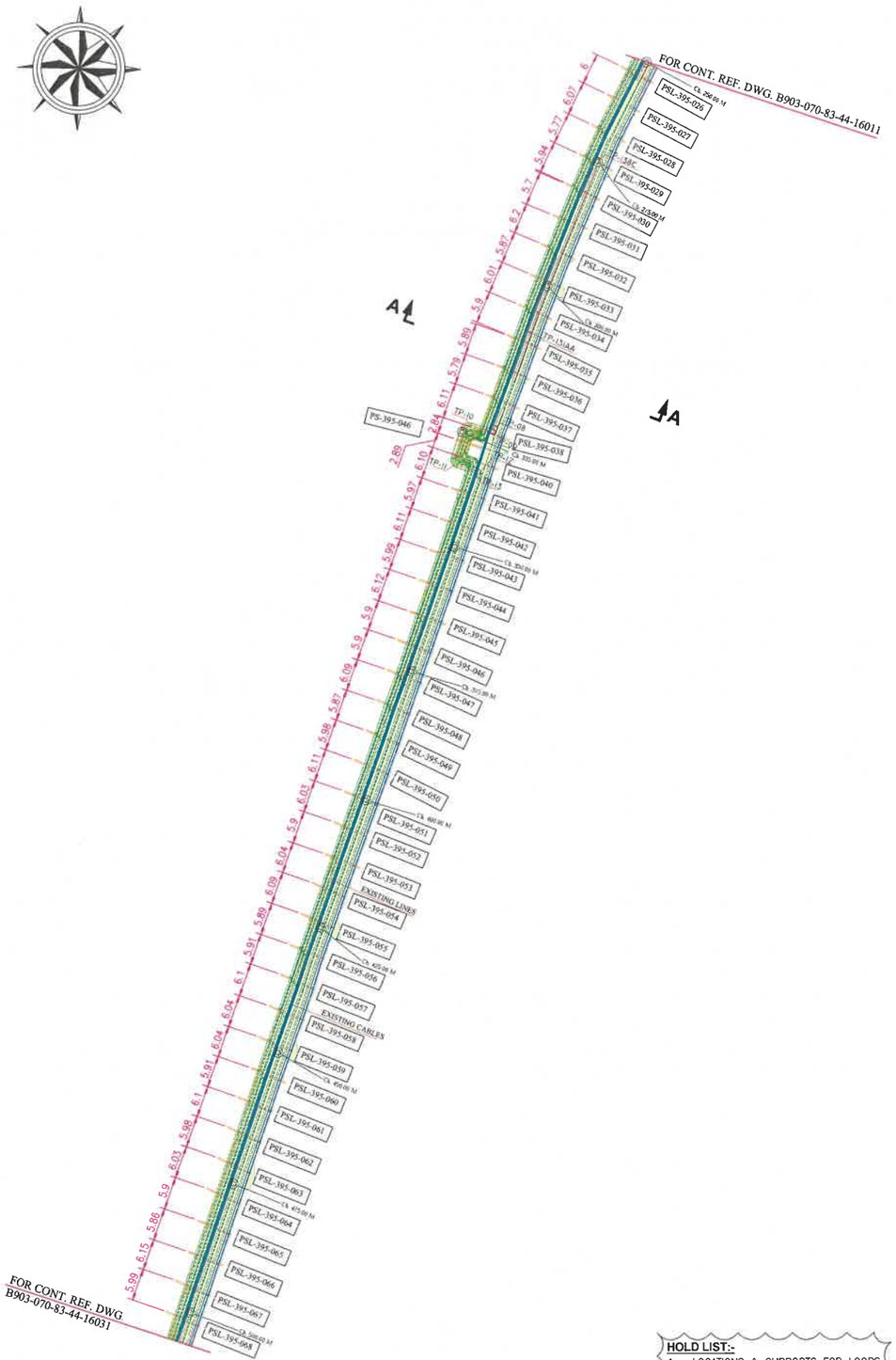
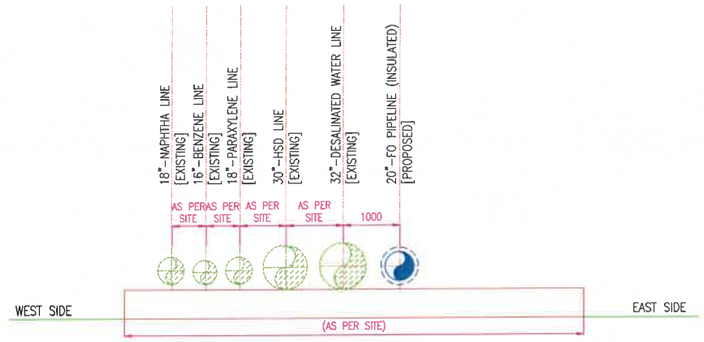
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16021





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-026	2262.479	4087.49	2261.616	4094.387	98.255	97.691	249.09
PSL-395-027	2256.388	4086.751	2255.655	4093.663	98.171	97.583	255.09
PSL-395-028	2250.554	4085.899	2249.645	4092.79	98.087	97.637	262.16
PSL-395-029	2244.556	4085.454	2243.887	4092.373	98.024	97.541	268.93
PSL-395-030	2238.529	4084.916	2237.975	4091.845	97.935	97.484	274.87
PSL-395-031	2232.277	4084.5	2232.285	4091.451	97.872	97.173	280.57
PSL-395-032	2226.563	4084.199	2226.089	4091.134	97.765	97.331	286.77
PSL-395-033	2220.535	4084.139	2220.22	4091.083	97.688	97.142	292.64
PSL-395-034	2214.568	4083.71	2214.222	4090.653	97.598	97.098	298.65
PSL-395-035	2208.551	4083.587	2208.326	4090.535	97.495	97.031	304.55
PSL-395-036	2202.61	4083.545	2202.437	4090.493	97.402	96.965	310.53
PSL-395-037	2196.822	4083.398	2196.649	4090.346	97.310	96.796	316.32
PS-395-46	2187.463	4080.761	2187.634	4087.709	97.063	96.563	325.27
PS-395-46A	2184.636	4083.308	2184.807	4090.257	97.120	96.697	328.16
PSL-395-041	2178.674	4082.817	2178.695	4089.768	97.034	96.520	334.26
PSL-395-042	2172.76	4082.734	2172.729	4089.685	96.951	96.522	340.23
PSL-395-043	2166.655	4082.77	2166.621	4089.721	96.840	96.262	346.34
PSL-395-044	2160.701	4082.683	2160.628	4089.634	96.737	96.237	352.33
PSL-395-045	2154.647	4083.064	2154.504	4090.014	96.654	96.034	358.45
PSL-395-046	2148.465	4082.634	2148.604	4089.584	96.574	96.074	364.35
PSL-395-047	2142.616	4082.579	2142.703	4089.53	96.475	95.975	370.25
PSL-395-048	2136.703	4082.523	2136.61	4089.473	96.384	95.975	376.15
PSL-395-049	2130.751	4082.48	2130.74	4089.43	96.291	95.783	382.24
PSL-395-050	2124.859	4082.278	2124.765	4089.228	96.207	95.584	388.11
PSL-395-051	2118.731	4082.363	2118.657	4089.313	96.117	95.501	394.09
PSL-395-052	2112.707	4082.278	2112.631	4089.229	96.005	95.408	400.2
PSL-395-053	2106.586	4082.779	2106.754	4089.728	95.884	95.262	406.23
PSL-395-054	2100.785	4082.093	2100.722	4089.044	95.791	95.334	412.13
PSL-395-055	2094.699	4082.037	2094.636	4088.988	95.702	95.262	418.17
PSL-395-056	2088.639	4081.993	2088.743	4088.943	95.594	94.987	424.26
PSL-395-057	2082.771	4082.081	2082.829	4089.032	95.515	94.987	430.15
PSL-395-058	2076.595	4081.995	2076.735	4088.944	95.411	94.766	436.06
PSL-395-059	2070.51	4081.969	2070.698	4088.918	95.323	94.764	442.16
PSL-395-060	2064.679	4082.57	2064.668	4089.521	95.220	94.591	448.2
PSL-395-061	2058.786	4081.939	2058.759	4088.89	95.155	94.572	454.24
PSL-395-062	2052.886	4081.918	2052.657	4088.865	95.014	94.392	460.15
PSL-395-063	2046.887	4081.904	2046.68	4088.852	94.950	94.369	466.25
PSL-395-064	2040.86	4081.879	2040.643	4088.826	94.858	94.330	472.23
PSL-395-065	2034.781	4082.076	2034.749	4089.027	94.752	94.752	478.26
PSL-395-066	2028.665	4082.449	2028.901	4089.369	94.643	94.050	484.16
PSL-395-067	2022.845	4081.95	2022.756	4088.9	94.553	94.068	490.02
PSL-395-068	2016.855	4082.094	2016.766	4089.044	94.468	93.908	496.17

HOLD LIST:-

1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSC	

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

ONGC MRPL MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

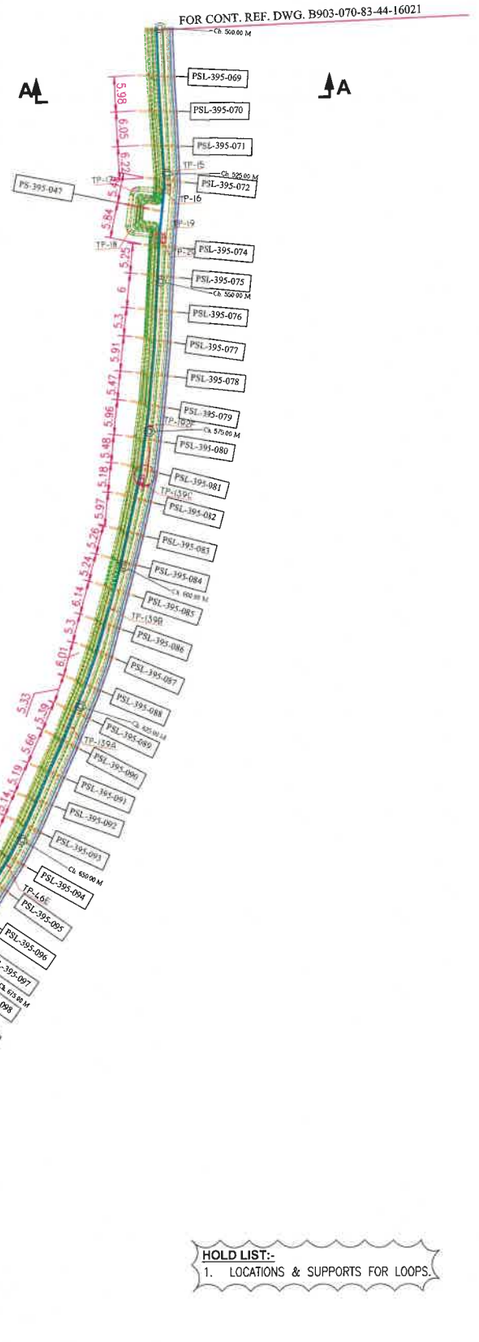
20" FUEL OIL PIPELINE PROJECT

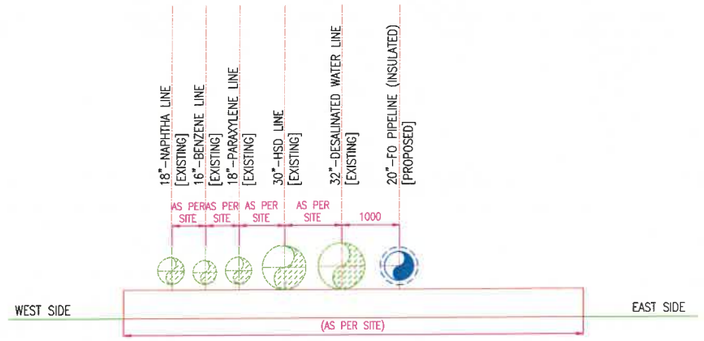
20" फ्यूअल ऑइल पाइपलाईन परियोजना

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-02

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 2 1	0

B903-070-83-44-16031





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-069	2010.788	4082.146	2010.837	4089.097	94.386	93.806	502.16
PSL-395-070	2004.631	4082.226	2004.855	4089.174	94.322	93.667	508.09
PSL-395-071	1998.677	4082.384	1998.806	4089.334	94.183	93.693	514.07
PSL-395-072	1993.028	4082.971	1992.523	4089.903	94.099	93.515	520.12
PS-395-047	1988.626	4078.968	1987.585	4085.839	93.954	93.365	523.34
PS-395-47A	1988.626	4078.968	1987.585	4085.839	93.954	93.365	527.34
PSL-395-074	1981.59	4082.054	1981.121	4088.996	93.786	93.392	531.82
PSL-395-075	1976.657	4081.361	1976.027	4088.283	93.819	93.387	537.67
PSL-395-076	1970.67	4080.554	1970.071	4087.48	93.704	93.295	542.92
PSL-395-077	1965.717	4071.874	1964.809	4086.765	93.634	93.083	548.92
PSL-395-078	1959.632	4079.76	1958.897	4086.672	93.509	93.031	554.22
PSL-395-079	1954.746	4078.497	1953.542	4085.343	93.462	92.833	560.13
PSL-395-080	1948.731	4077.524	1947.654	4084.391	93.335	92.809	565.6
PSL-395-081	1944.017	4076.487	1942.298	4083.222	93.245	92.726	570.56
PSL-395-082	1938.912	4075.398	1937.228	4082.142	93.136	92.710	576.04
PSL-395-083	1933.115	4073.957	1931.432	4080.710	93.063	92.455	581.22
PSL-395-084	1928.228	4072.413	1926.411	4079.123	92.955	92.485	587.19
PSL-395-085	1923.49	4071.181	1921.34	4077.792	92.886	92.338	592.45
PSL-395-086	1917.748	4069.274	1915.518	4075.858	92.780	82.268	597.69
PSL-395-087	1912.932	4068.077	1910.373	4074.54	92.619	92.262	603.83
PSL-395-088	1907.515	4065.355	1904.955	4071.818	92.583	92.044	609.13
PSL-395-089	1902.875	4063.534	1899.995	4069.86	92.434	91.947	615.14
PSL-395-090	1898.201	4061.353	1895.111	4067.579	92.339	91.874	620.47
PSL-395-091	1892.608	4058.62	1890.034	4065.076	92.25	91.745	625.86
PSL-395-092	1887.644	4056.239	1885.367	4062.806	92.174	91.701	631.52
PSL-395-093	1883.758	4054.088	1880.831	4060.392	92.032	91.642	636.71
PSL-395-094	1878.403	4051.629	1874.996	4057.688	91.699	91.573	641.85
PSL-395-095	1874.549	4048.611	1870.625	4054.349	91.912	91.482	648.28
PSL-395-096	1869.427	4045.455	1865.627	4051.275	91.822	91.341	653.78
PSL-395-097	1865.169	4042.391	1861.287	4048.157	91.779	91.281	659.65
PSL-395-098	1861.065	4039.405	1857.016	4045.056	91.724	91.279	664.99
PSL-395-099	1856.288	4035.75	1852.306	4041.447	91.693	91.277	670.27
PSL-395-100	1852.169	4032.78	1848.05	4038.379	91.647	91.219	677.2
PSL-395-101	1847.882	4029.412	1843.873	4035.091	91.583	91.127	682.46
PSL-395-102	1843.501	4026.445	1839.238	4031.935	91.538	91.318	687.78
PS-395-048	1842.156	4019.981	1837.555	4025.19	91.509	91.072	693.39
PS-395-48A	1842.156	4019.981	1837.555	4025.19	91.509	91.072	698.39
PSL-395-104	1835.185	4019.367	1830.583	4024.576	91.488	91.175	700.1
PSL-395-105	1830.896	4015.619	1826.416	4020.933	91.467	91.095	705.75
PSL-395-106	1826.71	4011.722	1821.669	4016.509	91.479	91.171	711.29
PSL-395-107	1823.393	4007.591	1818.352	4012.377	91.458	91.08	717.78
PSL-395-108	1820.217	4003.815	1814.966	4008.37	91.402	90.993	724.08
PSL-395-109	1816.711	3999.837	1811.321	4004.225	91.372	91.101	729.33
PSL-395-110	1813.022	3995.176	1807.444	3999.323	91.363	91.044	734.85

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

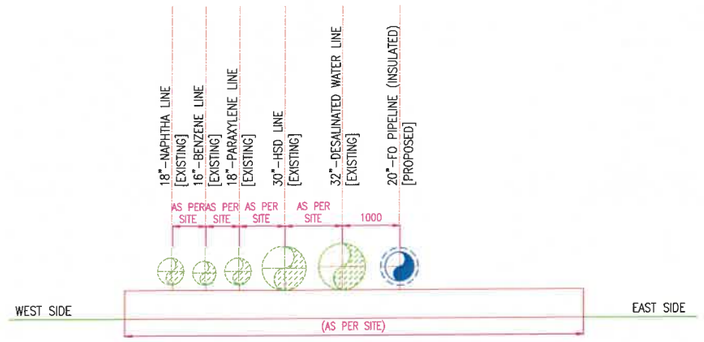
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-3

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 3 1	0

3-1641-0501 REV.2 A1-841x594

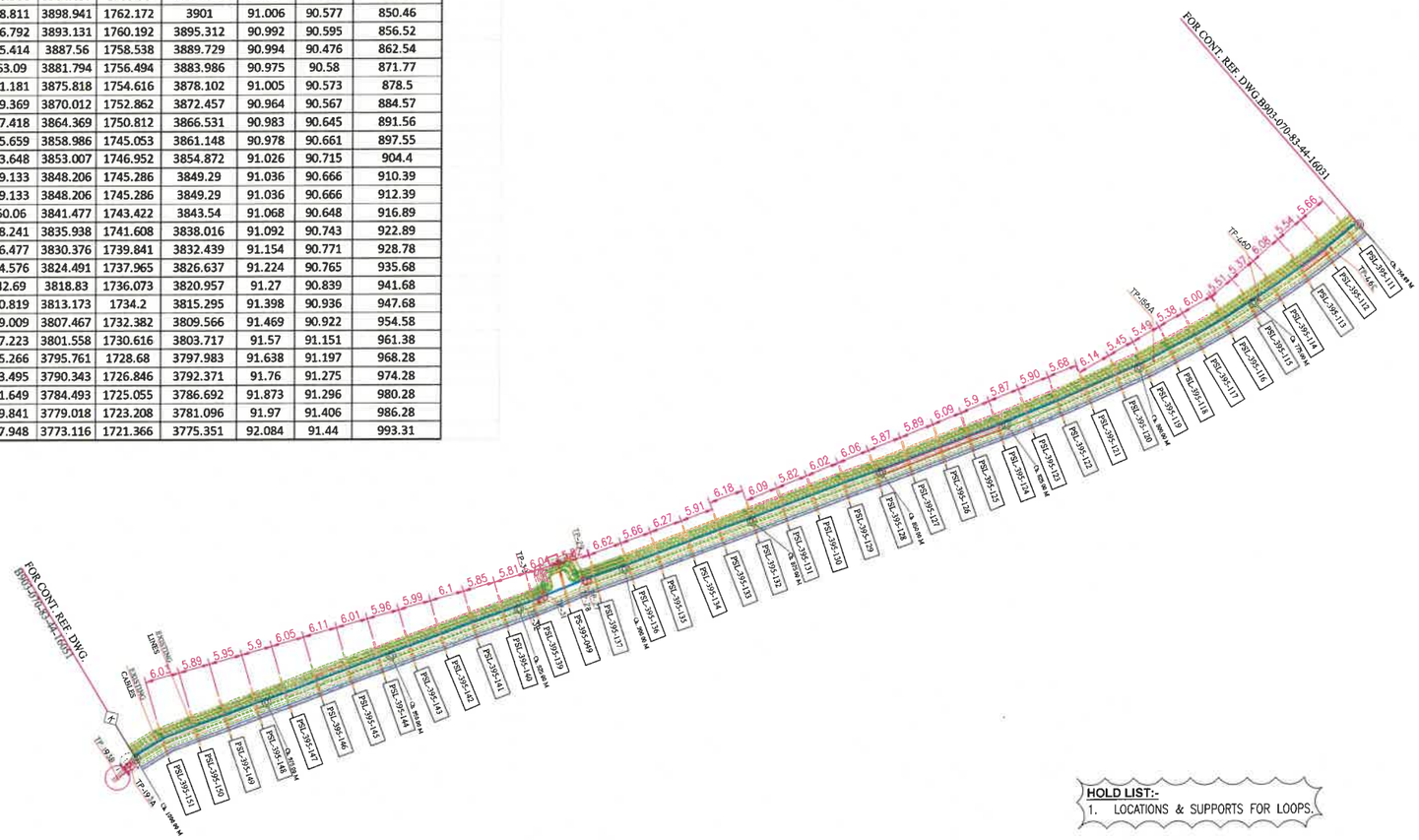
B903-070-83-44-16041

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-111	1809.712	3991.192	1804.137	3995.344	91.333	90.838	740.47
PSL-395-112	1806.569	3986.929	1800.787	3990.787	91.364	90.936	746.64
PSL-395-113	1803.439	3982.429	1797.623	3986.236	91.393	90.95	752.3
PSL-395-114	1800.205	3977.375	1794.344	3981.113	91.366	90.983	757.84
PSL-395-115	1797.511	3973.03	1791.518	3976.551	91.39	91.073	763.92
PSL-395-116	1794.972	3968.53	1788.813	3971.753	91.372	90.913	769.29
PSL-395-117	1792.171	3963.154	1786.04	3966.429	91.295	90.887	775.8
PSL-395-118	1790.16	3958.564	1783.864	3961.511	91.228	90.822	781.8
PSL-395-119	1787.821	3953.708	1781.483	3956.562	91.239	90.925	788.18
PSL-395-120	1785.875	3948.985	1779.403	3951.522	91.22	90.963	794.67
PSL-395-121	1783.541	3943.305	1777.069	3945.842	91.228	90.881	801.12
PSL-395-122	1781.695	3938.113	1775.163	3940.491	91.177	90.795	807.26
PSL-395-123	1779.705	3932.574	1773.168	3934.939	91.13	90.806	813.94
PSL-395-124	1777.805	3927.068	1771.254	3929.391	91.144	90.764	820.84
PSL-395-125	1775.982	39251.57	1769.397	3923.796	91.127	90.75	826.71
PSL-395-126	1774.131	3915.706	1767.567	3917.992	91.077	90.761	832.61
PSL-395-127	1772.386	3910.311	1765.751	3912.384	91.017	90.58	838.78
PSL-395-128	1770.568	3904.637	1763.96	3906.795	91.014	90.651	844.59
PSL-395-129	1768.811	3898.941	1762.172	3901	91.006	90.577	850.46
PSL-395-130	1766.792	3893.131	1760.192	3895.312	90.992	90.595	856.52
PSL-395-131	1765.414	3887.56	1758.538	3889.729	90.994	90.476	862.54
PSL-395-132	1763.09	3881.794	1756.494	3883.986	90.975	90.58	871.77
PSL-395-133	1761.181	3875.818	1754.616	3878.102	91.005	90.573	878.5
PSL-395-134	1759.369	3870.012	1752.862	3872.457	90.964	90.567	884.57
PSL-395-135	1757.418	3864.369	1750.812	3866.531	90.983	90.645	891.56
PSL-395-136	1755.659	3858.986	1745.053	3861.148	90.978	90.661	897.55
PSL-395-137	1753.648	3853.007	1746.952	3854.872	91.026	90.715	904.4
PS-395-049	1749.133	3848.206	1745.286	3849.29	91.036	90.666	910.39
PS-395-049A	1749.133	3848.206	1745.286	3849.29	91.036	90.666	912.39
PSL-395-139	1750.06	3841.477	1743.422	3843.54	91.068	90.648	916.89
PSL-395-140	1748.241	3835.938	1741.608	3838.016	91.092	90.743	922.89
PSL-395-141	1746.477	3830.376	1739.841	3832.439	91.154	90.771	928.78
PSL-395-142	1744.576	3824.491	1737.965	3826.637	91.224	90.765	935.68
PSL-395-143	1742.69	3818.83	1736.073	3820.957	91.27	90.839	941.68
PSL-395-144	1740.819	3813.173	1734.2	3815.295	91.398	90.936	947.68
PSL-395-145	1739.009	3807.467	1732.382	3809.566	91.469	90.922	954.58
PSL-395-146	1737.223	3801.558	1730.616	3803.717	91.57	91.151	961.38
PSL-395-147	1735.266	3795.761	1728.68	3797.983	91.638	91.197	968.28
PSL-395-148	1733.495	3790.343	1726.846	3792.371	91.76	91.275	974.28
PSL-395-149	1731.649	3784.493	1725.055	3786.692	91.873	91.296	980.28
PSL-395-150	1729.841	3779.018	1723.208	3781.096	91.97	91.406	986.28
PSL-395-151	1727.948	3773.116	1721.366	3775.351	92.084	91.44	993.31



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A



HOLD LIST:-

1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	20.05.2025	ISSUED FOR CONSTRUCTION	BH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)

ONGC MRPL MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

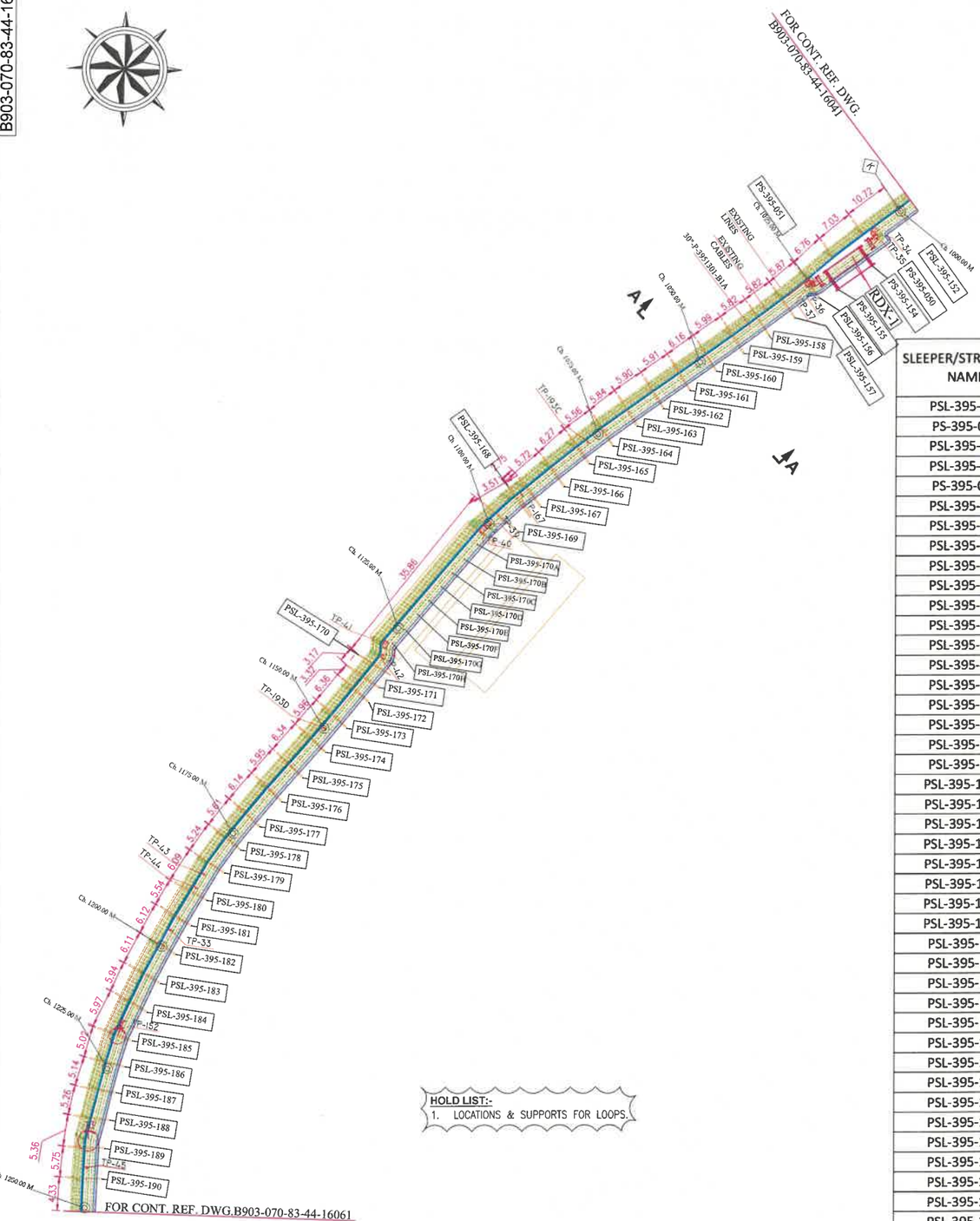
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-4

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 4 1	0

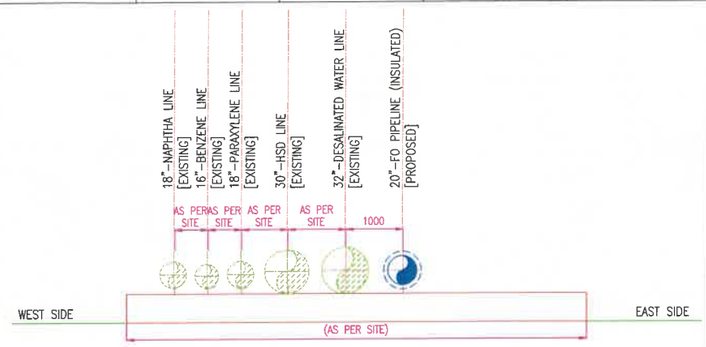
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16051



HOLD LIST:-

1. LOCATIONS & SUPPORTS FOR LOOPS.



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-152	1725.659	3767.531	1718.6	3769.987	92.12	91.205	999.01
PS-395-050	1721.759	3757.554	1718.419	3758.514	92.321	90.086	1011.23
PSL-395-154	1720.295	3744.902	1720.804	3744.808	92.457	91.651	1012.71
PSL-395-155	1718.205	3750.105	1719.11	3750.57	92.457	91.651	1017.71
PS-395-051	1719.186	3751.011	1715.846	3751.972	92.446	90.053	1018.26
PSL-395-156	1716.295	3744.902	1709.804	3747.388	92.457	91.651	1024.71
PSL-395-157	1714.153	3739.421	1707.661	3741.907	92.516	91.75	1030.58
PSL-395-158	1712.426	3734.121	1705.855	3736.386	92.617	92.114	1036.4
PSL-395-159	1710.691	3728.622	1704.102	3730.834	92.769	92.175	1042.22
PSL-395-160	1708.888	3722.967	1702.273	3725.102	92.888	92.431	1048.21
PSL-395-161	1706.975	3717.176	1700.35	3719.28	93.008	92.522	1054.37
PSL-395-162	1705.207	3711.506	1698.592	3713.641	93.113	92.756	1060.28
PSL-395-163	1703.489	3705.868	1696.872	3707.996	93.201	92.551	1066.18
PSL-395-164	1701.362	3700.377	1694.756	3702.54	93.235	92.615	1072.02
PSL-395-165	1699.425	3694.918	1692.895	3697.298	93.254	92.708	1077.58
PSL-395-166	1696.718	3689.129	1690.23	3691.622	93.242	92.549	1083.85
PSL-395-167	1694.298	3683.765	1687.872	3686.415	93.284	92.547	1089.57
PSL-395-168	1693.164	3681.481	1686.671	3683.961	93.292	92.475	1092.3
PSL-395-169	1691.775	3675.983	1684.859	3680.95	93.265	92.555	1095.81
PSL-395-170A	1693.164	3681.481	1686.671	3683.961	93.292	92.475	1100.6
PSL-395-170B	1691.775	3675.983	1684.859	3680.95	93.265	92.555	1105.39
PSL-395-170C	1694.298	3683.765	1687.872	3686.415	93.284	92.547	1110.18
PSL-395-170D	1693.164	3681.481	1686.671	3683.961	93.292	92.475	1114.97
PSL-395-170E	1691.775	3675.983	1684.859	3680.95	93.265	92.555	1119.76
PSL-395-170F	1665.135	3635.796	1659.278	3639.539	92.931	92.544	1124.55
PSL-395-170G	1661.992	3630.737	1656.135	3634.48	92.709	92.381	1129.34
PSL-395-170H	1674.478	3648.704	1668.564	3652.472	92.709	92.381	1131.97
PSL-395-170	1671.47	3645.403	1666.432	3650.191	93.675	92.836	1133.96
PSL-395-171	1670.043	3642.903	1664.802	3647.469	93.406	92.805	1137.13
PSL-395-172	1668.487	3641.045	1662.703	3644.9	93.21	92.811	1140.45
PSL-395-173	1665.135	3635.796	1659.278	3639.539	92.931	92.544	1146.81
PSL-395-174	1661.992	3630.737	1656.135	3634.48	92.709	92.381	1152.77
PSL-395-175	1658.751	3625.445	1652.842	3629.076	92.411	92.016	1159.11
PSL-395-176	1655.663	3620.378	1649.727	3623.994	92.199	91.77	1165.06
PSL-395-177	1652.349	3614.993	1646.509	3618.762	91.872	91.442	1171.2
PSL-395-178	1648.911	3609.906	1643.374	3614.107	91.634	91.276	1176.81
PSL-395-179	1645.287	3605.159	1640.224	3609.921	91.499	90.949	1182.03
PSL-395-180	1641.519	3600.601	1636.334	3605.231	91.155	90.738	1188.12
PSL-395-181	1637.326	3596.036	1632.605	3601.138	90.889	90.42	1193.65
PSL-395-182	1633.407	3591.906	1628.384	3596.71	90.57	90.122	1199.75
PSL-395-183	1629.073	3587.675	1624.013	3592.441	90.409	89.855	1205.83
PSL-395-184	1624.585	3583.542	1619.639	3588.426	90.101	89.687	1211.71
PSL-395-185	1620.358	3579.424	1615.37	3584.266	90.021	89.524	1217.67
PSL-395-186	1615.085	3575.806	1611.159	3581.542	89.843	89.29	1222.59
PSL-395-187	1610.244	3572.398	1606.984	3578.537	89.637	89.086	1227.73
PSL-395-188	1605.261	3569.552	1602.429	3575.9	89.533	89.199	1232.99
PSL-395-189	1600.251	3566.967	1597.67	3573.424	89.33	88.943	1238.35
PSL-395-190	1594.422	3564.518	1592.389	3571.165	8.068	88.787	1244.05

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/IID	MSG	

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

ONGC MRPL — MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

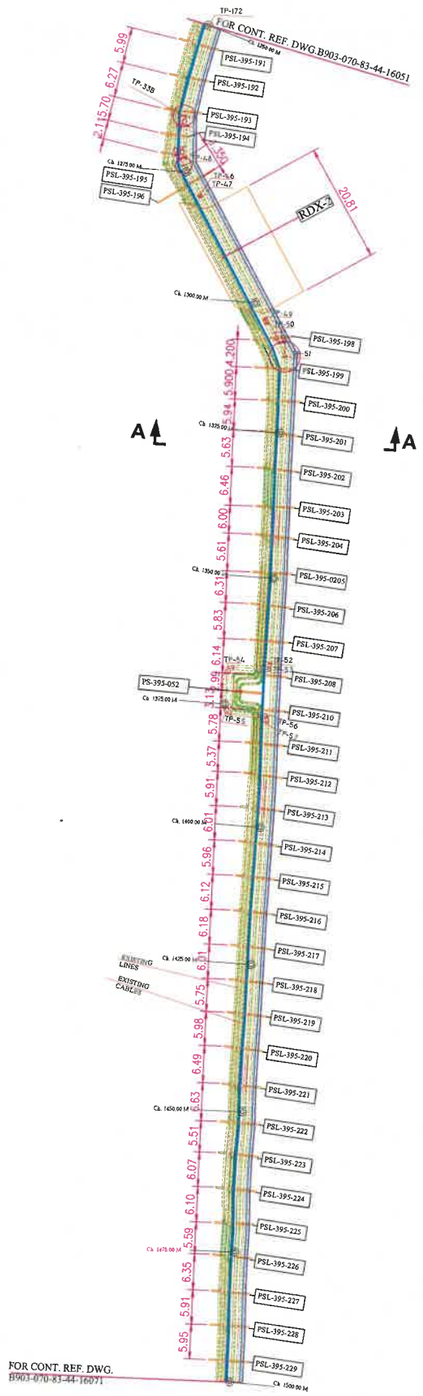
20" FUEL OIL PIPELINE PROJECT

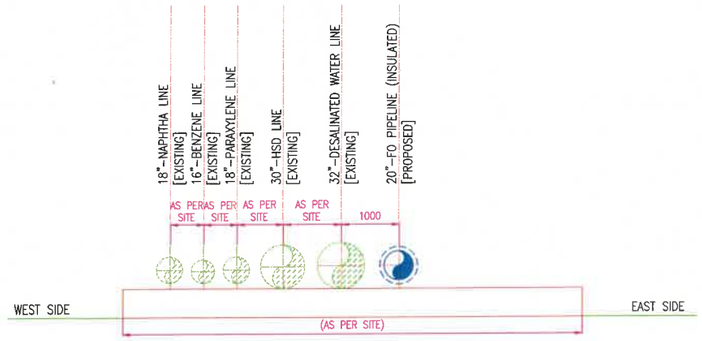
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-5

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 5 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16061





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-191	1588.864	3562.473	1586.862	3569.13	88.993	88.707	1249.94
PSL-395-192	1583.125	3560.746	1581.389	3567.477	88.877	88.599	1256.66
PSL-395-193	1577.027	3559.298	1575.876	3566.153	88.827	88.544	1262.33
PSL-395-194	1571.793	3561.513	1569.817	3566.217	88.69	88.515	1268.39
PSL-395-195	1571.386	3558.478	1571.037	3561.521	88.702	88.427	1269.39
PSL-395-196	1561.775	3556.861	1567.753	3566.642	88.798	88.291	1276.85
PSL-395-198	1534.511	3572.401	1536.274	3580.127	88.84	88.186	1308.19
PSL-395-199	1530.998	3574.842	1536.274	3581.765	88.837	88.394	1313.02
PSL-395-200	1525.091	3574.288	1524.757	3581.171	88.831	88.413	1320.02
PSL-395-201	1519.175	3573.673	1518.784	3580.613	88.817	88.273	1326.02
PSL-395-202	1513.579	3573.032	1512.648	3579.921	88.718	88.246	1332.19
PSL-395-203	1507.139	3572.523	1506.386	3579.433	88.69	87.977	1338.47
PSL-395-204	1501.157	3572.1	1500.889	3579.046	88.504	87.804	1343.98
PSL-395-205	1495.58	3571.535	1494.797	3578.442	88.545	87.667	1350.1
PSL-395-206	1489.298	3570.915	1488.923	3577.856	88.463	87.864	1356
PSL-395-207	1483.485	3570.427	1482.97	3577.344	88.272	87.736	1362.14
PS-395-052	1474.635	3567.042	1474.184	3572.584	87.934	87.557	1371.14
PS-395-052A	1477.369	3569.863	1476.838	3576.794	88.037	87.57	1368.13
PSL-395-211	1465.507	3568.919	1464.884	3575.842	87.514	87.017	1380.13
PSL-395-212	1460.158	3568.42	1459.257	3575.312	87.359	86.88	1385.78
PSL-395-213	1454.284	3567.742	1453.559	3574.655	87.188	86.754	1391.51
PSL-395-214	1448.312	3567.034	1447.497	3573.937	87.009	86.591	1397.61
PSL-395-215	1442.384	3566.378	1441.616	3573.286	86.778	86.492	1403.52
PSL-395-216	1436.297	3565.689	1435.557	3572.601	86.626	86.186	1409.62
PSL-395-217	1430.148	3565.655	1429.495	3571.975	86.463	85.924	1415.71
PSL-395-218	1424.17	3564.429	1423.494	3571.347	86.294	85.747	1421.74
PSL-395-219	1418.451	3563.793	1417.765	3570.71	86.098	85.697	1427.64
PSL-395-220	1412.501	3563.178	1411.716	3570.085	85.957	85.633	1433.72
PSL-395-221	1406.046	3562.55	1405.354	3569.467	85.803	85.519	1440.11
PSL-395-222	1399.445	3561.955	1398.957	3568.889	85.649	85.351	1446.53
PSL-395-223	1393.953	3561.522	1393.289	3568.441	85.482	85.118	1453.22
PSL-395-224	1387.912	3560.902	1387.248	3567.821	85.331	84.986	1460.02
PSL-395-225	1381.847	3560.266	1381.477	3567.207	85.206	84.791	1466.02
PSL-395-226	1376.293	3559.646	1375.552	3566.557	85.006	84.634	1473.56
PSL-395-227	1369.945	3559.299	1369.351	3566.224	84.824	84.419	1479.27
PSL-395-228	1364.058	3558.753	1363.659	3565.692	84.642	84.173	1485.17
PSL-395-229	1358.125	3558.295	1357.547	3565.222	84.438	83.969	1492.3

HOLD LIST:-

1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	20.05.2025	ISSUED FOR CONSTRUCTION	RSH	TVP/SKD	MSG	

ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-6

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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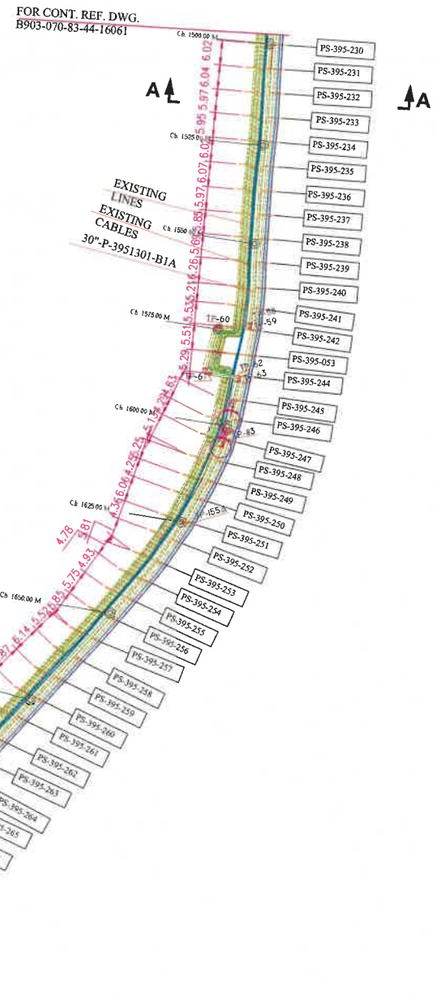
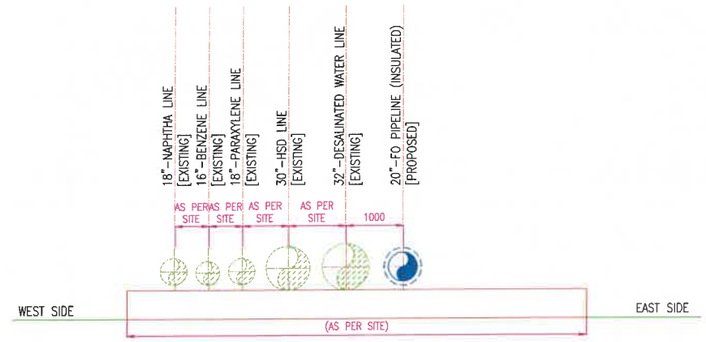
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16071





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-230	1352.134	3557.795	1351.485	3564.716	84.294	83.563	1498.38
PSL-395-231	1346.147	3557.171	1345.498	3564.091	84.155	83.402	1504.47
PSL-395-232	1340.11	3556.805	1339.537	3563.732	83.989	83.119	1510.46
PSL-395-233	1334.181	3556.117	1333.595	3563.043	83.843	83.015	1516.46
PSL-395-234	1328.261	3555.554	1327.588	3562.473	83.679	82.764	1523.36
PSL-395-235	1322.263	3555.061	1321.574	3561.978	83.534	82.889	1529.39
PSL-395-236	1316.218	3554.528	1315.513	3561.444	83.374	82.67	1536.29
PSL-395-237	1310.282	3553.904	1309.653	3560.827	83.2	82.691	1542.29
PSL-395-238	1304.448	3553.429	1303.744	3560.344	83.033	82.49	1548.3
PSL-395-239	1298.784	3552.891	1297.928	3559.789	82.897	82.279	1554.3
PSL-395-240	1292.543	3552.38	1291.75	3559.286	82.897	82.279	1560.3
PSL-395-241	1287.388	3551.599	1286.583	3558.504	82.547	82.006	1566.29
PS-395-053	1276.457	3550.025	1272.14	3556.85	82.231	81.948	1578.51
PS-395-053A	1281.897	3550.97	1281.183	3557.885	82.391	81.9	1572.29
PSL-395-245	1264.838	3550.638	1264.017	3554.55	81.938	81.654	1590.7
PSL-395-246	1260.587	3546.774	1259.23	3553.592	81.814	81.544	1596.2
PSL-395-247	1256.402	3545.571	1254.054	3552.113	81.743	81.448	1602.1
PSL-395-248	1251.453	3543.584	1249.105	3550.126	81.743	81.236	1608.1
PSL-395-249	1246.445	3542.014	1244.082	3548.551	81.665	81.151	1614.1
PSL-395-250	1242.538	3540.255	1239.675	3546.589	81.663	81.28	1619.5
PSL-395-251	1236.921	3537.903	1234.058	3544.237	81.603	81.354	1626.9
PSL-395-252	1233.037	3535.728	1229.559	3541.746	81.615	81.372	1632.5
PSL-395-253	1227.961	3532.506	1224.484	3538.525	81.67	81.346	1638.5
PSL-395-254	1223.72	3530.062	1220.002	3535.936	81.638	81.476	1643.67
PSL-395-255	1219.423	3527.29	1215.537	3533.053	81.644	81.432	1649.67
PSL-395-256	1214.646	3528.12	1210.806	3529.914	81.583	81.328	1655.57
PSL-395-257	1209.835	3520.797	1205.866	3526.503	81.604	81.325	1661.54
PSL-395-258	1205.305	3517.631	1201.208	3523.247	81.605	81.299	1667.54
PSL-395-259	1200.408	3514.12	1196.437	3519.826	111.436	81.364	1673.37
PSL-395-260	1195.552	3510.613	1191.512	3516.68	81.622	81.292	1679.4
PSL-395-261	1191.029	3507.207	1186.958	3512.841	81.639	81.262	1685.04
PSL-395-262	1185.796	3503.529	1181.81	3509.227	81.618	81.464	1691.29
PSL-395-263	1181.184	3500.18	1177.075	3505.786	81.605	81.401	1697.19
PSL-395-264	1176.093	3496.6	1177.97	3502.217	81.585	81.33	1703.19
PSL-395-265	1171.538	3493.078	1167.396	3498.66	81.604	81.213	1709.19
PSL-395-266	1166.542	3489.504	1162.534	3495.159	81.585	81.356	1715.09
PSL-395-267	1161.632	3486.007	1157.611	3491.677	81.567	81.27	1720.09
PSL-395-268	1156.809	3482.582	1152.786	3488.25	81.579	81.377	1725.99
PSL-395-269	1151.926	3479.036	1147.938	3484.729	81.621	81.446	1730.98
PSL-395-270	1147.285	3475.557	1143.225	3481.199	81.563	81.312	1736.87
PSL-395-271	1142.184	3471.841	1138.356	3477.644	81.604	81.312	1742.87
PSL-395-272	1137.254	3468.28	1133.38	3474.052	81.584	81.244	1748.81

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :
1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-
1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

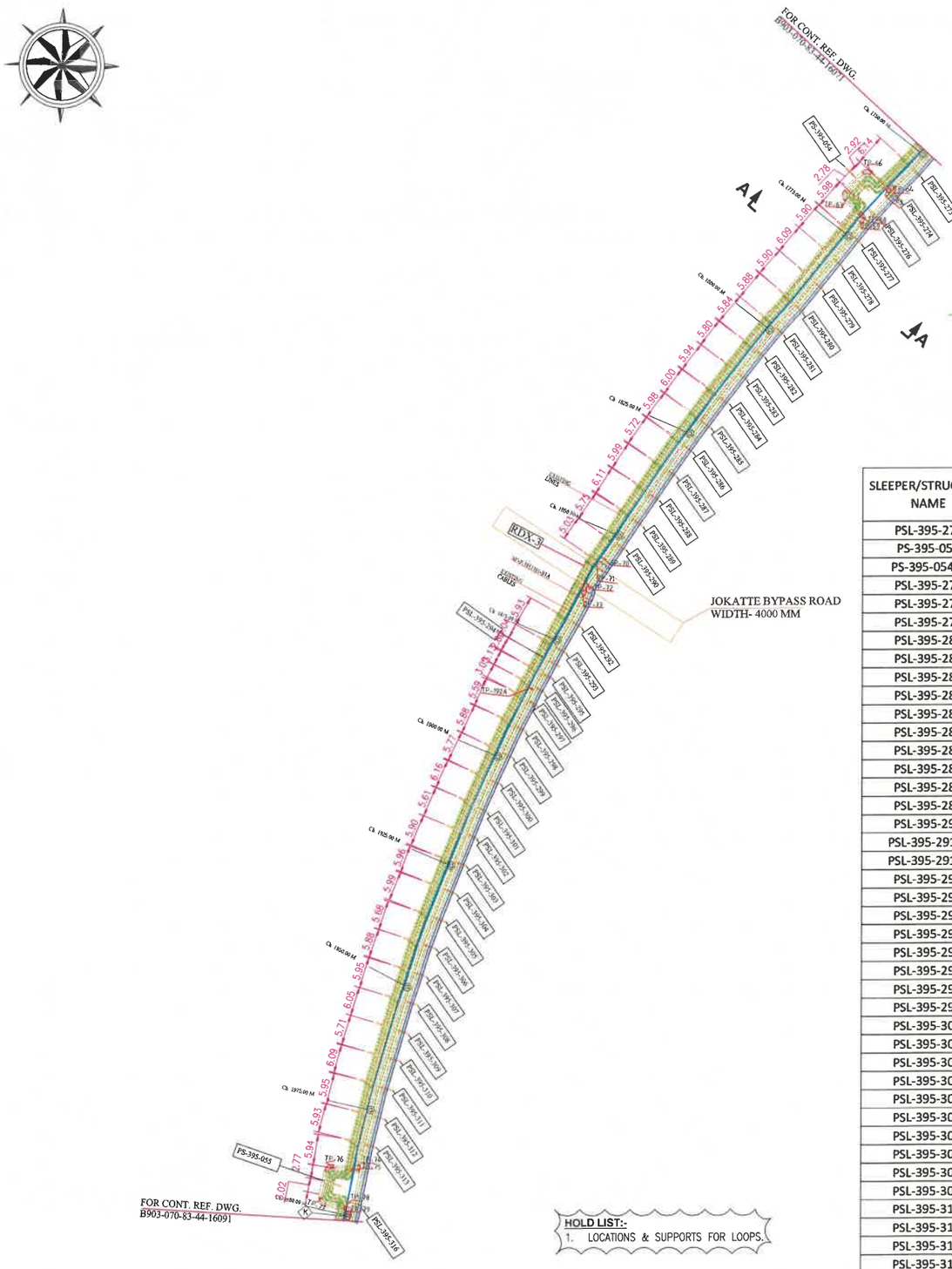
20" FUEL OIL PIPELINE PROJECT

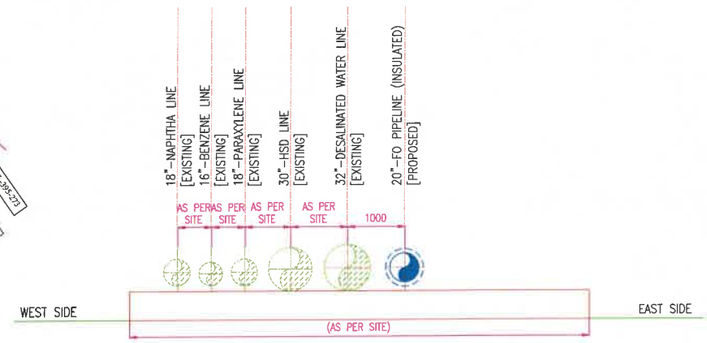
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-7

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 7 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16081





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-273	1132.609	3464.938	1128.412	3470.479	81.598	81.201	1754.87
PS-395-054	1126.86	3457.604	1124.799	3460.403	81.571	81.33	1763.5
PS-395-054 A	1122.956	3457.91	1118.834	3463.508	81.567	81.307	1766.58
PSL-395-277	1118.01	3454.303	1114.006	3459.985	81.584	81.403	1772.56
PSL-395-278	1113.209	3450.878	1109.192	3456.54	81.558	81.397	1778.46
PSL-395-279	1108.16	3447.349	1104.207	3453.067	81.604	81.216	1784.55
PSL-395-280	1103.394	3443.869	1099.442	3449.587	81.578	81.302	1790.45
PSL-395-281	1098.419	3440.42	1094.607	3446.232	81.544	81.177	1796.33
PSL-395-282	1093.28	3436.922	1089.789	3442.932	81.511	81.212	1802.17
PSL-395-283	1088.323	3433.76	1084.897	3439.809	81.489	81.207	1807.97
PSL-395-284	1083.211	3430.621	1079.834	3436.697	81.467	81.076	1813.97
PSL-395-285	1078.157	3427.598	1074.683	3433.618	81.437	81.061	1819.97
PSL-395-286	1073.076	3424.483	1069.588	3430.496	81.403	81.022	1825.97
PSL-395-287	1067.676	3421.445	1064.604	3427.68	81.369	80.961	1831.87
PSL-395-288	1062.563	3418.683	1059.334	3424.838	81.388	80.875	1837.86
PSL-395-289	1057.27	3415.982	1053.891	3422.057	81.344	80.944	1843.96
PSL-395-290	1051.907	3412.969	1048.882	3419.227	81.285	80.919	1851.76
PSL-395-291 A	1035.485	3405.343	1032.795	3411.752	81.434	81.246	1870
PSL-395-291 B	1047.498	3410.468	1044.507	3416.743	81.296	80.879	1857.56
PSL-395-292	1035.485	3405.343	1032.795	3411.752	81.434	81.246	1870
PSL-395-293	1030.001	3402.895	1027.378	3409.333	81.455	81.124	1875.92
PSL-395-294	1026.13	3404.355	1024.618	3408.055	81.43	81.278	1878.96
PSL-395-295	1024.49	3400.431	1022.051	3406.94	81.454	81.203	1881.86
PSL-395-296	1021.744	3399.307	1019.15	3405.756	81.453	81.247	1885.06
PSL-395-297	1019.045	3398.201	1016.33	3404.599	81.458	81.179	1888.11
PSL-395-298	1013.534	3396.312	1011.037	3402.803	81.451	81.172	1891.61
PSL-395-299	1007.755	3394.274	1005.489	3400.846	81.432	81.077	1899.49
PSL-395-300	1001.99	3392.19	1000.067	3398.869	81.402	81.157	1905.29
PSL-395-301	996.477	3390.286	994.238	3396.867	81.465	81.247	1911.44
PSL-395-302	990.615	3388.462	988.879	3395.192	81.411	81.29	1917.34
PSL-395-303	984.61	3386.609	983.247	3393.426	81.428	81.302	1923.24
PSL-395-304	979.084	3385.185	977.472	3391.946	81.39	81.156	1929.2
PSL-395-305	973.272	3383.45	971.729	3390.228	81.357	81.177	1935.2
PSL-395-306	967.538	3382.082	966.203	3388.904	81.326	81.145	1941.38
PSL-395-307	961.829	3380.731	960.485	3387.522	81.279	80.997	1947.38
PSL-395-308	955.775	3379.511	954.648	3386.37	81.279	80.945	1953.32
PSL-395-309	950.037	3378.32	948.728	3385.147	81.258	80.926	1959.37
PSL-395-310	944.119	3377.131	943.131	3384.012	81.341	80.972	1965.27
PSL-395-311	938.408	3376.111	937.135	3382.944	81.325	81.133	1971.36
PSL-395-312	932.232	3375.213	931.25	3382.094	81.361	81.056	1977.3
PSL-395-313	926.382	3374.263	925.4	3381.144	81.132	81.321	1983.29
PS-395-55	908.309	3372.25	907.691	3379.192	81.11	80.846	1989.1
PS-395-55A	902.506	3371.849	901.784	3378.762	81.034	80.881	1995.5

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	20.05.2025	ISSUED FOR CONSTRUCTION	RSH	TLP/SSD	MSC	

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

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

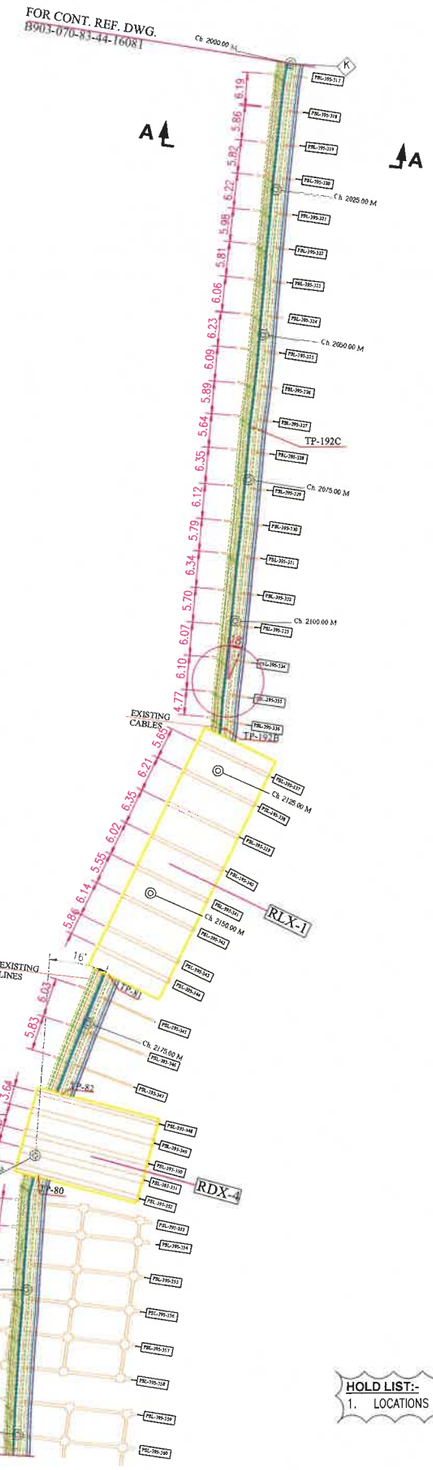
20" FUEL OIL PIPELINE PROJECT

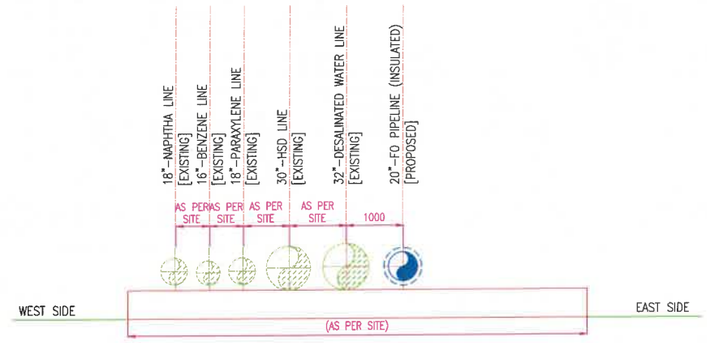
PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-8

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 8 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16091





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

Sleeper Name	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-317	908.309	3372.25	907.691	3379.192	81.11	80.846	2004.82
PSL-395-318	902.506	3371.849	901.784	3378.762	81.034	80.881	2011.07
PSL-395-319	896.478	3371.182	895.956	3378.113	81.099	80.794	2016.91
PSL-395-320	890.628	3370.578	890.165	3377.514	81.137	80.912	2022.72
PSL-395-321	884.536	3369.986	883.975	3376.915	81.274	80.947	2028.94
PSL-395-322	878.701	3369.492	878.017	3376.41	81.304	81.021	2034.92
PSL-395-323	872.661	3369.03	872.22	3375.967	81.313	81.035	2040.82
PSL-395-324	866.568	3368.398	866.195	3375.339	81.369	81.203	2046.87
PSL-395-325	860.621	3367.864	859.99	3374.787	81.337	81.121	2053.17
PSL-395-326	854.603	3367.4	853.922	3374.318	81.299	81.072	2059.26
PSL-395-327	848.939	3366.812	848.063	3373.707	81.152	80.665	2065.15
PSL-395-328	843.009	3366.248	842.445	3373.176	80.36	80.31	2070.79
PSL-395-329	836.701	3365.759	836.119	3372.686	80.431	80.044	2077.14
PSL-395-330	830.59	3365.139	83.026	3372.067	81.138	79.846	2083.26
PSL-395-331	825.006	3364.701	824.257	3371.612	79.927	79.618	2088.86
PSL-395-332	818.517	3364.14	817.923	3371.066	79.707	79.416	2095.28
PSL-395-333	812.991	3363.724	812.258	3370.636	79.525	79.212	2100.88
PSL-395-334	806.823	3363.147	806.215	3370.071	79.293	79.147	2107.45
PSL-395-335	800.876	3362.59	800.136	3369.502	79.094	78.742	2113.55
PSL-395-336	796.413	3362.245	795.379	3369.119	78.878	78.606	2118.32
PSL-395-337	792.457	3360.802	786.46	3373.107	78.835	78.662	2126.94
PSL-395-338	787.448	3358.312	781.412	3370.674	79.157	78.88	2132.57
PSL-395-339	781.834	3355.521	775.82	3367.979	79.146	78.892	2138.78
PSL-395-340	776.19	3352.716	770.103	3365.224	79.113	78.901	2145.13
PSL-395-341	770.805	3350.039	764.684	3362.612	79.091	78.947	2151.15
PSL-395-342	765.831	3347.566	759.679	3360.2	79.011	78.853	2156.7
PSL-395-343	760.358	3344.846	754.149	3357.535	78.802	78.662	2162.84
PSL-395-344	755.172	3342.267	748.945	3355.027	78.809	78.604	2168.62
PSL-395-345	749.117	3339.804	743.772	3353.409	78.831	78.526	2174.22
PSL-395-346	743.472	3337.637	737.969	3351.556	78.938	78.443	2180.24
PSL-395-347	737.86	3335.464	732.511	3349.443	78.926	78.328	2186.24
PSL-395-348	732.137	3333.095	727.65	3349.707	79.01	78.787	2190.84
PSL-395-349	728.618	3332.148	724.138	3348.758	79.02	78.722	2194.49
PSL-395-350	725.124	3331.207	720.639	3347.813	79.031	78.751	2198.15
PSL-395-351	721.675	3330.278	717.182	3346.8	79.051	78.773	2201.7
PSL-395-352	718.278	3329.363	713.781	3345.963	79.063	79.725	2205.26
PSL-395-353	711.549	3329.13	708.701	3352.989	79.161	78.437	2208.35
PSL-395-354	706.824	3328.802	705.185	3352.752	79.191	78.274	2211.87
PSL-395-355	700.84	3328.425	699.153	3352.373	79.088	78.141	2217.91
PSL-395-356	694.698	3327.964	693.188	3351.998	79.057	77.821	2223.9
PSL-395-357	688.85	3327.631	687.14	3351.5	79.046	77.651	2229.97
PSL-395-358	682.799	3327.131	681.275	3351.091	79.019	77.524	2235.85
PSL-395-359	676.915	3326.772	675.24	3350.76	78.965	77.652	2241.9
PSL-395-360	670.981	3326.359	669.32	3350.406	78.925	77.607	2247.89

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :
1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-
1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	20.05.2025	ISSUED FOR CONSTRUCTION	RSH	TUP/SBD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)

ONGC MRPL MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

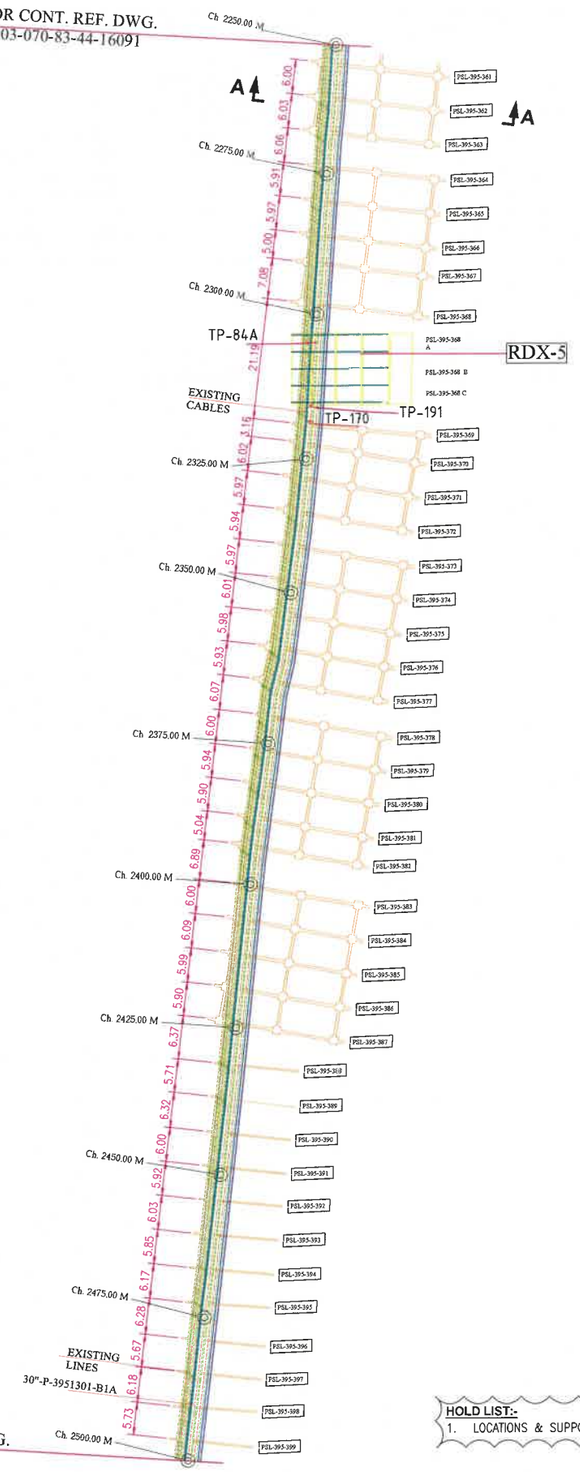
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-9

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 0 9 1	0

3-1641-0501 REV.2 A1-841x594

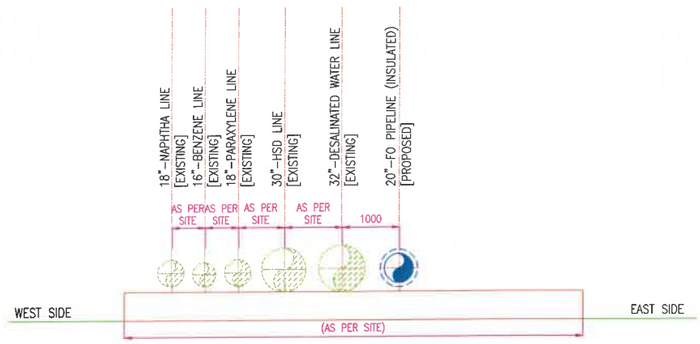
B903-070-83-44-16101

FOR CONT. REF. DWG.
B903-070-83-44-16091



FOR CONT. REF. DWG.
B903-070-83-44-16111

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

Sleeper Name	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-361	664.919	3325.991	663.218	3350.03	78.813	77.521	2254
PSL-395-362	658.929	3325.655	657.244	3349.672	78.886	77.672	2259.99
PSL-395-363	652.91	3325.234	651.328	3349.193	78.861	77.763	2265.92
PSL-395-364	646.861	3324.843	645.307	3348.848	78.882	78.504	2272.72
PSL-395-365	640.966	3324.488	639.312	3348.441	78.836	78.504	2278.83
PSL-395-366	635.008	3324.082	633.327	3348.034	78.84	78.571	2284.83
PSL-395-367	630.018	3323.76	628.439	3347.747	78.795	79.184	2289.73
PSL-395-368	622.956	3323.235	621.349	3347.29	78.769	79.184	2296.83
PSL-395-368 A	622.956	3323.235	621.349	3347.29	78.769	79.184	2297.83
PSL-395-368 B	622.956	3323.235	621.349	3347.29	78.769	79.184	2298.83
PSL-395-368 C	622.956	3323.235	621.349	3347.29	78.769	79.184	2299.83
PSL-395-369	601.788	3322.347	600.734	3346.57	79.97	77.171	2319.16
PSL-395-370	598.65	3321.904	595.645	3345.854	79.931	77.171	2322.35
PSL-395-371	592.655	3321.225	589.72	3345.102	79.9	77.171	2330.32
PSL-395-372	586.715	3320.507	583.734	3344.368	79.892	77.171	2336.35
PSL-395-373	580.805	3319.766	577.856	3343.623	79.898	77.098	2342.31
PSL-395-374	574.868	3318.924	571.879	3342.89	79.922	77.145	2348.31
PSL-395-375	568.889	3318.226	565.887	3342.137	79.95	77.228	2355.2
PSL-395-376	562.938	3317.479	559.959	3341.411	79.953	77.228	2361.17
PSL-395-377	557.042	3316.723	553.998	3340.673	79.946	77.248	2367.18
PSL-395-378	551.003	3316.013	547.875	3339.941	79.938	76.801	2373.35
PSL-395-379	545.038	3315.245	542.003	3339.223	79.931	76.815	2379.26
PSL-395-380	539.13	3314.503	536.156	3338.468	79.931	76.984	2385.06
PSL-395-381	533.262	3313.744	530.184	3337.756	79.94	77.147	2391.15
PSL-395-382	528.254	3313.021	525.242	3337.121	79.912	77.28	2396.13
PSL-395-383	521.397	3392.181	518.353	3336.126	79.939	77.061	2403.09
PSL-395-384	515.43	3311.443	512.371	3335.42	79.938	77.077	2409.11
PSL-395-385	509.369	3310.721	506.391	3334.698	79.975	77.387	2415.13
PSL-395-386	503.409	3309.96	500.428	3333.968	79.922	77.951	2421.14
PSL-395-387	497.54	3309.213	494.53	3333.27	79.907	78.214	2427.08
PSL-395-388	491.162	3309.176	489.691	3324.035	79.863	79.237	2433.88
PSL-395-389	485.476	3308.506	483.577	3323.317	79.836	79.16	2440.03
PSL-395-390	479.192	3307.719	477.691	3322.575	79.842	79.113	2445.96
PSL-395-391	473.352	3307.002	471.773	3321.85	79.874	79.269	2451.92
PSL-395-392	467.323	3306.41	466.086	3321.219	79.873	79.27	2457.82
PSL-395-393	461.325	3305.605	460.131	3320.488	79.941	79.189	2463.83
PSL-395-394	455.507	3304.885	454.14	3319.754	79.921	79.333	2469.86
PSL-395-395	449.359	3304.227	448.356	3319.125	79.952	79.338	2475.68
PSL-395-396	443.113	3303.439	441.548	3318.288	79.962	79.361	2482.54
PSL-395-397	437.469	3302.759	435.787	3317.595	79.976	79.48	2488.34
PSL-395-398	431.319	3302.052	430.167	3316.939	79.987	79.304	2494
PSL-395-399	425.612	3301.505	423.961	3316.345	79.988	79.265	2500.23

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

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2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

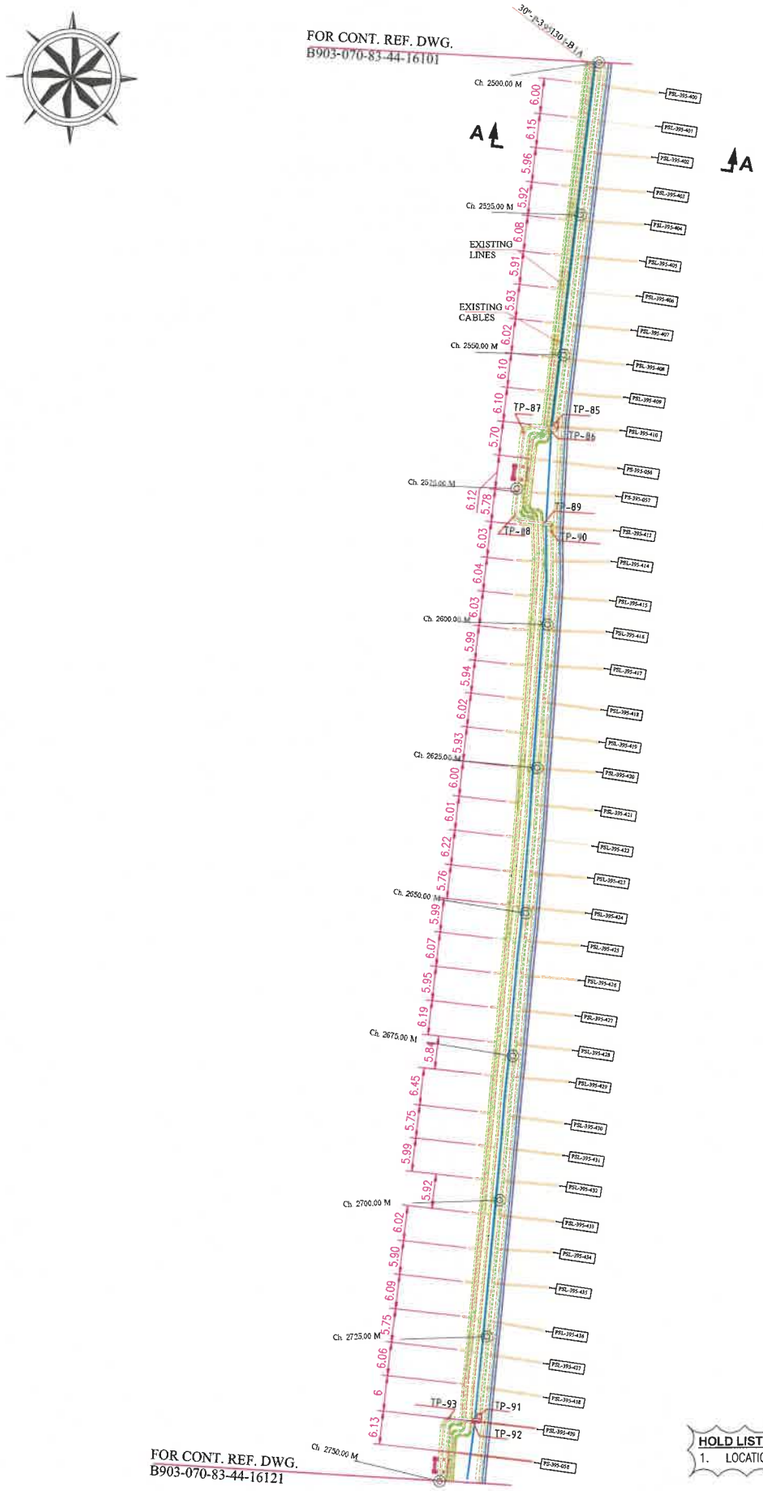
20" फ्यूअल ऑइल पाइपलाईन परियोजना

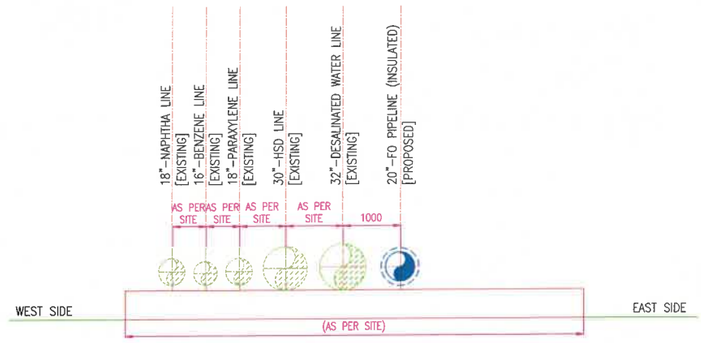
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-10

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 1 0 1	0

B903-070-83-44-16111





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-400	419.621	3300.696	417.6	3315.491	80.009	79.246	2506.65
PSL-395-401	413.663	3300.008	411.752	3314.817	79.995	79.247	2512.34
PSL-395-402	407.553	3299.282	406.364	3314.166	80.054	79.284	2517.97
PSL-395-403	401.631	3298.572	400.358	3313.45	80.016	79.287	2524.02
PSL-395-404	395.725	3298.072	394.717	3312.969	79.978	79.32	2530.02
PSL-395-405	389.702	3297.256	388.287	3312.12	80.007	79.257	2536.51
PSL-395-406	383.812	3296.742	382.186	3311.585	80.022	79.35	2542.63
PSL-395-407	377.936	3295.899	376.247	3310.734	80.16	79.292	2548.63
PSL-395-408	371.962	3295.177	370.273	3310.012	80.279	79.298	2554.65
PSL-395-409	365.895	3294.562	364.546	3309.433	80.317	79.414	2560.4
PSL-395-410	359.827	3293.948	358.775	3308.843	80.355	79.617	2566.29
PS-395-056	354.304	3292.051	352.157	3308.485	80.359	79.717	2572.94
PS-395-057	348.177	3291.741	347.301	3308.142	80.37	79.743	2577.8
PSL-395-413	342.215	3292.944	341.307	3307.839	80.337	79.801	2583.8
PSL-395-414	336.197	3292.462	335.922	3307.391	80.367	79.831	2589.2
PSL-395-415	330.146	3292.239	329.101	3307.134	80.372	79.817	2595.99
PSL-395-416	324.123	3291.703	323.64	3306.627	80.384	79.897	2601.47
PSL-395-417	318.134	3291.355	317.261	3306.261	80.355	79.888	2607.86
PSL-395-418	312.198	3290.937	310.08	3305.718	80.355	80.039	2615.06
PSL-395-419	306.172	3290.615	304.438	3305.445	80.369	80.043	2620.71
PSL-395-420	300.267	3290.084	299.22	3304.979	80.335	80.1	2625.95
PSL-395-421	294.161	3289.857	292.532	3304.699	80.335	80.295	2632.64
PSL-395-422	288.141	3289.321	286.304	3304.139	80.325	80.119	2638.89
PSL-395-423	281.961	3288.624	280.776	3303.508	80.355	80.203	2644.48
PSL-395-424	274.199	3288.299	274.621	3303.146	80.391	79.891	2650.65
PSL-395-425	270.254	2787.581	268.938	3302.454	80.381	80.191	2656.36
PSL-395-426	264.204	3287.091	262.93	3301.969	80.35	80.196	2662.39
PSL-395-427	258.275	3286.562	256.691	3301.409	80.331	80.185	2668.65
PSL-395-428	252.176	3286.071	250.699	3300.929	80.268	80.181	2674.67
PSL-395-429	246.36	3285.554	245.155	3300.437	80.363	80.141	2680.23
PSL-395-430	239.964	3284.905	237.899	3299.696	80.287	80.209	2687.49
PSL-395-431	234.209	3284.49	232.348	3299.306	80.219	80.112	2693.09
PSL-395-432	228.237	3283.97	227.029	3298.852	80.152	80.015	2698.43
PSL-395-433	222.343	3283.43	220.775	3298.279	80.109	79.175	2704.71
PSL-395-434	216.164	3282.928	215.381	3297.839	80.101	79.949	2710.12
PSL-395-435	210.299	2382.274	209.263	3297.17	80.153	80.029	2716.27
PSL-395-436	204.209	3281.882	201.655	3296.593	79.965	79.759	2723.9
PSL-395-437	198.48	3281.331	196.059	3296.065	80.162	79.845	2729.52
PSL-395-438	192.449	3280.765	191.025	3295.628	80.152	79.935	2734.57
PSL-395-439	186.467	3280.306	184.579	3295.117	80.192	79.899	2741.04
PS-395-058	180.761	3278.058	178.775	3294.663	80.144	79.916	2746.86

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
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2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
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LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE	PF	PLATFORM
	PLUG VALVE	EL	ELEVATION / LEVEL
	GATE VALVE	FGL	(FGL) FINISHED GRADE LEVEL
	CHECK VALVE	PAV	PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SBG	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

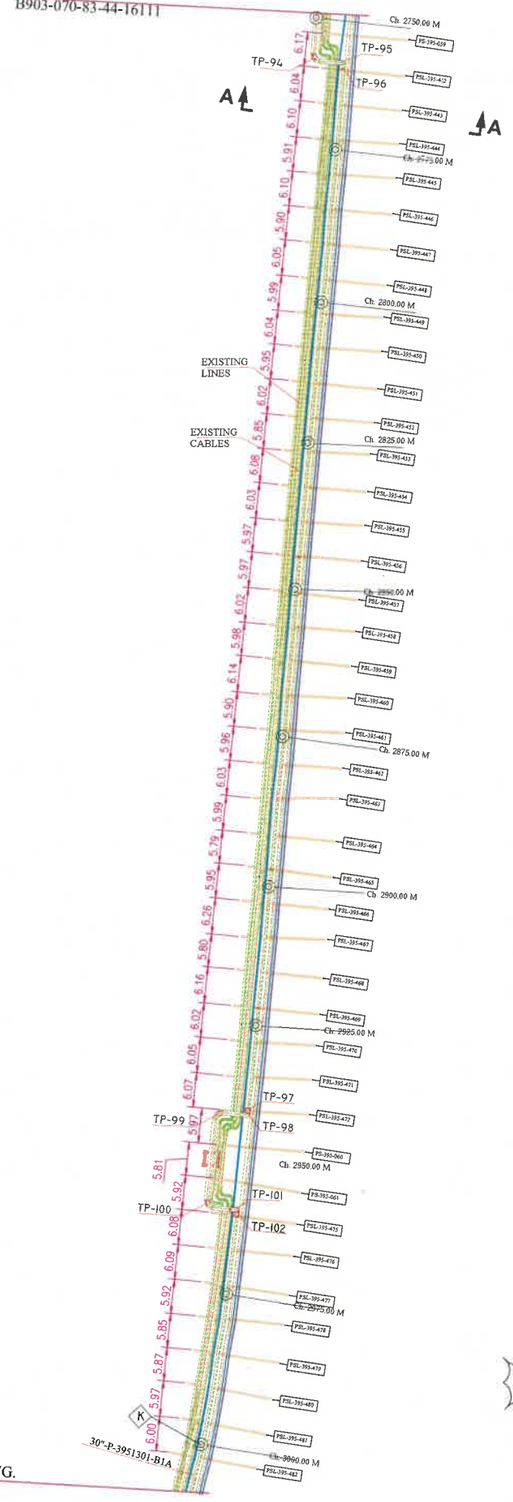
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-11

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 1 1 1	0

B903-070-83-44-16121

FOR CONT. REF. DWG.
B903-070-83-44-16111



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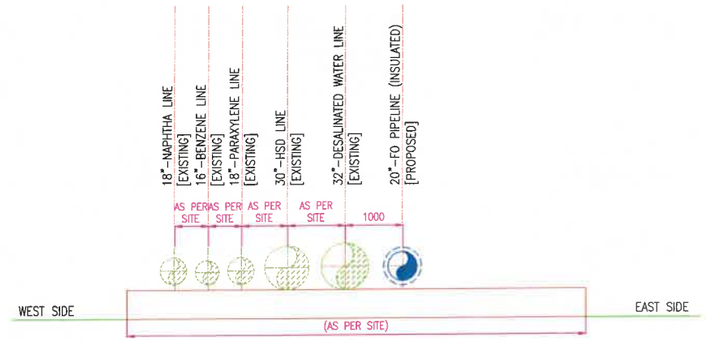


[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

HOLD LIST:-
1. LOCATIONS & SUPPORTS FOR LOOPS.

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PS-395-059	174.609	3277.481	173.255	3294.15	80.196	79.951	2752.4
PSL-395-442	168.593	3278.832	167.065	3293.685	80.179	79.904	2758.61
PSL-395-443	162.585	3278.221	161.136	3293.082	80.202	79.849	2764.57
PSL-395-444	156.503	3277.721	155.419	3292.613	80.175	79.862	2770.31
PSL-395-445	150.624	3277.149	149.542	3292.042	80.181	79.792	2776.21
PSL-395-446	144.545	3276.655	143.339	3291.538	80.14	79.733	2782.43
PSL-395-447	138.657	3276.246	137.189	3291.105	80.203	79.802	2788.59
PSL-395-448	132.638	3275.63	131.063	3290.479	80.196	79.694	2794.78
PSL-395-449	126.665	3275.079	125.565	3290.012	80.164	79.684	2800.27
PSL-395-450	120.641	3274.683	119.72	3289.587	80.129	79.768	2806.13
PSL-395-451	114.719	3274.104	113.262	3288.965	80.178	79.684	2812.62
PSL-395-452	108.729	3273.482	107.465	3288.36	80.121	79.696	2818.45
PSL-395-453	102.9	3272.812	102.059	3287.72	80.169	79.842	2823.89
PSL-395-454	96.828	3272.381	95.6	3287.262	80.14	79.735	2830.79
PSL-395-455	90.813	3271.894	89.761	3286.788	80.114	79.706	2836.79
PSL-395-456	84.866	3271.37	83.648	3268.234	80.088	79.695	2842.93
PSL-395-457	78.905	3270.981	76.978	3285.788	80.142	79.648	2849.83
PSL-395-458	72.91	3270.38	71.515	3285.25	80.122	79.671	2855.32
PSL-395-459	66.99	3269.703	65.517	3284.562	80.135	79.686	2861.36
PSL-395-460	60.88	3269.099	60.074	3284.008	80.143	79.676	2866.83
PSL-395-461	54.988	3269.756	54.105	3283.662	80.18	79.687	2872.81
PSL-395-462	49.045	3268.262	47.956	3283.153	80.149	79.674	2878.91
PSL-395-463	43.037	3267.708	42.704	3282.636	80.168	79.56	2884.71
PSL-395-464	37.069	3267.187	35.382	3282.022	80.183	79.672	2892.06
PSL-395-465	31.293	3266.781	29.186	3281.563	80.151	79.688	2898.27
PSL-395-466	25.404	3265.916	23.736	3280.754	80.209	79.715	2903.78
PSL-395-467	19.138	3265.702	18.531	3280.621	80.148	79.665	2908.99
PSL-395-468	13.374	3265.015	11.836	3279.867	80.192	79.668	2915.7
PSL-395-469	7.243	3264.461	5.617	3279.304	80.198	79.79	2921.93
PSL-395-470	1.259	3263.836	0.24	3278.733	80.228	79.772	2927.32
PSL-395-471	-4.766	3263.253	-5.659	3278.158	80.189	79.772	2933.22
PSL-395-472	-10.805	3262.663	-11.628	3277.572	80.248	79.713	2939.21
PS-395-060	-16.579	3260.441	-18.113	3276.944	80.385	79.715	2945.71
PS-395-061	-22.374	3259.956	-25.163	3276.294	80.283	79.765	2952.77
PSL-395-475	-28.412	3260.774	-30.523	3275.555	80.195	79.849	2958.15
PSL-395-476	-34.46	3260.118	-36.053	3274.965	80.285	79.468	2963.71
PSL-395-477	-40.519	3259.54	-42.796	3274.297	80.342	79.471	2970.49
PSL-395-478	-46.383	3258.658	-47.887	3273.513	80.311	79.412	2975.64
PSL-395-479	-52.198	3257.976	-54.513	3272.727	80.319	79.443	2983.31
PSL-395-480	-57.979	3256.8	-60.717	3271.478	80.323	79.461	2990.62
PSL-395-481	-63.907	3255.822	-66.805	3270.469	80.352	79.521	2997.5
PSL-395-482	-69.749	3254.138	-72.675	3268.781	80.326	79.633	3003.36

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

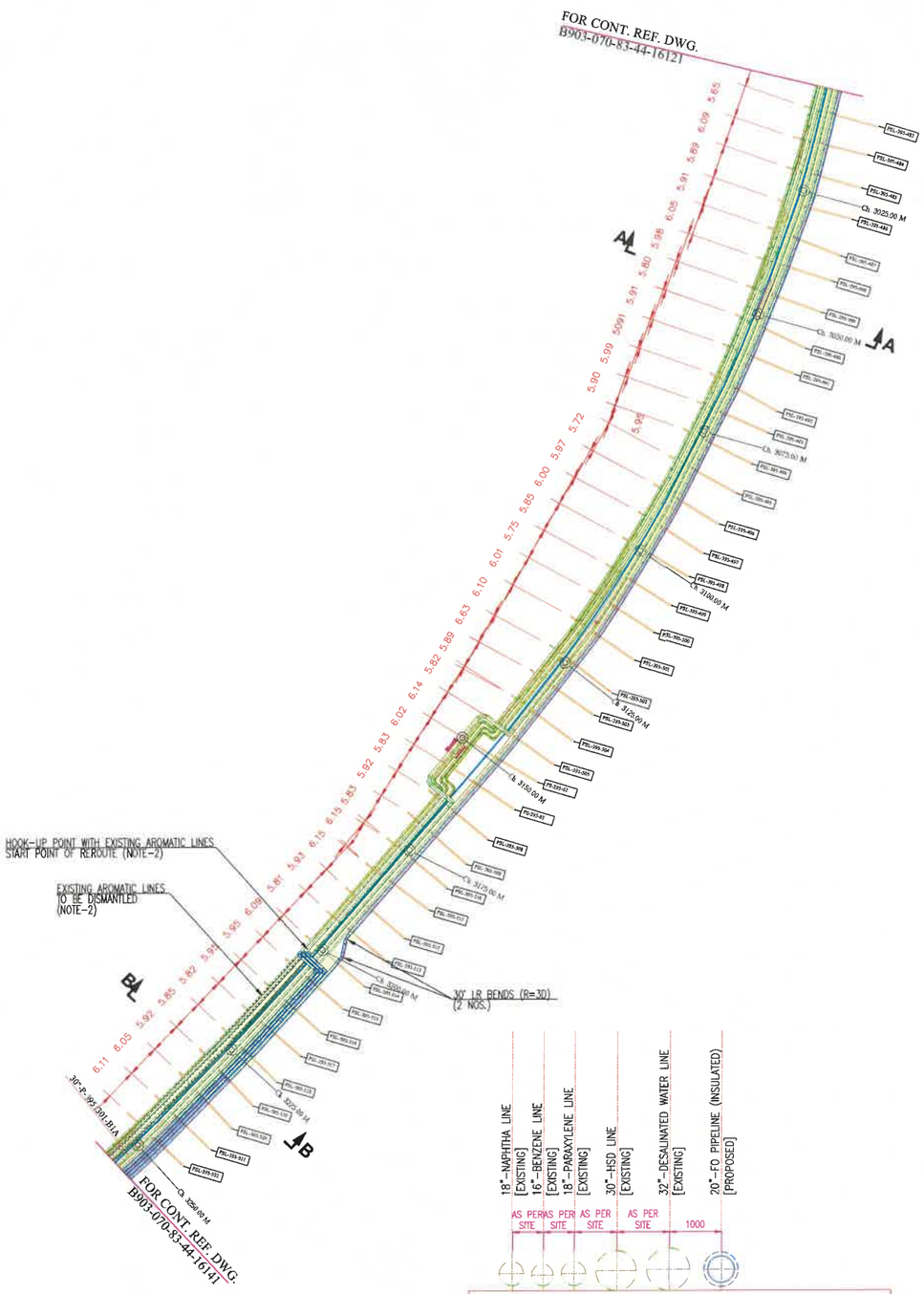
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-12

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 1 2 1	0

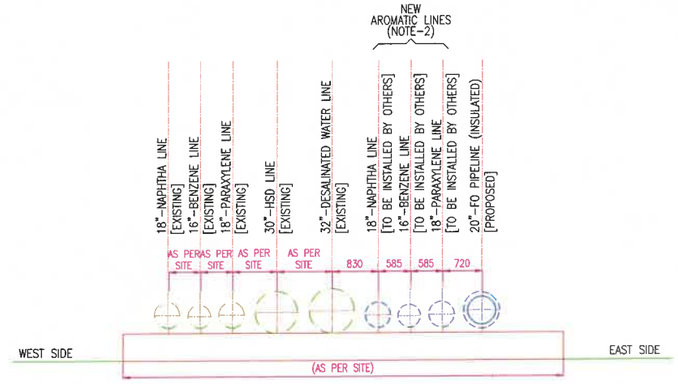
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16131



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW B-B

SLEEPER/STRUCTURE NAME	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-483	-75.335	3253.266	-79.372	3267.642	80.364	79.674	3010.18
PSL-395-484	-81.088	3251.257	-84.757	3265.731	80.329	79.785	3015.78
PSL-395-485	-86.927	3250.118	-90.976	3264.49	80.251	79.756	3022.12
PSL-395-486	-92.611	3248.456	-96.884	3262.763	80.3	79.572	3028.23
PSL-395-487	-98.349	3246.543	-103.826	3260.434	80.317	79.626	3035.46
PSL-395-488	-103.976	3244.51	-108.555	3258.722	80.31	79.574	3040.49
PSL-395-489	-109.453	3242.608	-114.468	3256.678	80.288	79.613	3046.75
PSL-395-490	-114.952	3240.417	-121.388	3253.89	80.316	79.595	3054.2
PSL-395-491	-120.412	3238.123	-126.315	3251.836	80.3	79.648	3059.53
PSL-395-492	-125.907	3235.704	-133.423	3248.606	80.332	79.698	3067.31
PSL-395-493	-131.303	3233.245	-137.46	3246.848	80.319	79.646	3071.7
PSL-395-494	-136.659	3230.547	-143.375	3243.883	80.309	79.632	3078.27
PSL-395-495	-141.791	3227.907	-148.989	3240.989	80.359	79.689	3084.56
PSL-395-496	-147.11	3225.022	-155.001	3237.698	80.352	79.742	3091.41
PSL-395-497	-152.371	3222.134	-160.521	3234.645	80.367	79.928	3097.72
PSL-395-498	-157.393	3219.101	-164.973	3231.939	80.343	79.861	3102.91
PSL-395-499	-162.265	3216.051	-170.461	3228.532	80.381	79.85	3109.36
PSL-395-500	-167.328	3212.794	-175.439	3225.331	80.341	79.854	3115.25
PSL-395-501	-172.374	3209.309	-180.833	3221.613	80.358	79.957	3121.75
PSL-395-502	-177.836	3205.49	-186.956	3217.312	80.358	79.87	3129.16
PSL-395-503	-182.557	3201.854	-191.278	3213.974	80.37	79.997	3134.8
PSL-395-504	-187.233	3198.286	-196.246	3210.191	80.351	79.965	3140.68
PSL-395-505	-193.233	3192.286	-201.246	3205.191	80.351	79.965	5500.3
PS-395-062	-195.626	3189.347	-203.999	3203.478	80.364	80.082	3150.65
PS-395-063	-200.036	3185.535	-209.204	3199.163	80.39	80.066	3157.41
PSL-395-508	-205.319	3182.643	-214.927	3194.073	80.472	80.06	3165.06
PSL-395-509	-209.579	3178.665	-219.48	3189.842	80.45	80.09	3171.27
PSL-395-510	-214.404	3174.817	-224.012	3186.247	80.449	80.048	3177.05
PSL-395-511	-219.152	3170.892	-228.178	3182.786	80.404	80.053	3182.47
PSL-395-512	-223.703	3167.076	-233.589	3178.265	80.489	79.967	3189.52
PSL-395-513	-228.206	3163.384	-237.814	3174.814	80.451	79.951	3194.98
PSL-395-514	-232.878	3159.461	-242.74	3170.672	80.443	80.005	3201.42
PSL-395-515	-237.267	3155.439	-247.055	3166.714	80.464	79.949	3207.27
PSL-395-516	-241.708	3151.47	-251.687	3162.577	80.439	79.961	3213.48
PSL-395-517	-246.124	3417.27	-255.973	3158.492	80.488	80.158	3219.39
PSL-395-518	-250.43	3143.361	-260.921	3153.986	80.452	80.188	3226.08
PSL-395-519	-254.56	3139.217	-265.433	3149.45	80.439	80.154	3232.45
PSL-395-520	-258.938	3135.232	-269.787	3145.492	80.49	80.352	3238.33
PSL-395-521	-263.231	3130.96	-273.872	3141.435	80.433	80.383	3244.06
PSL-395-522	-266.635	3125.645	-276.977	3136.415	80.478	80.248	3249.65

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING
	BURIED/ HIDDEN PIPING
	EXISTING PIPING
▽	BOTTOM LEVEL OF PIPE
▼	CENTRELINE ELEVATION OF PIPE
	PLUG VALVE
	GATE VALVE
	CHECK VALVE
	BALL VALVE
	GLOBE VALVE
LO/LC	LOCK OPEN / LOCK CLOSE
UC	UTILITY CONNECTION
PS	PIPE SUPPORT
FFL	FINISHED FLOOR LEVEL
BOP	BOTTOM OF PIPE
TOP	TOP OF PIPE
FSU	FLAT SIDE UP
FSD	FLAT SIDE DOWN
WP	WORKING POINT OF PIPE
IJ	IJ (INSULATING JOINT)
	PLATFORM
	ELEVATION / LEVEL
	(FGL) FINISHED GRADE LEVEL
	PAVEMENT
TOS	TOP OF STEEL
LR	LONG RADIUS
HPP	HIGHEST PAVEMENT POINT
	BOUNDARY WALL / FENCE

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	15.05.2025	ISSUED FOR CONSTRUCTION	RH	TLP/SD	MSG	

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

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-13

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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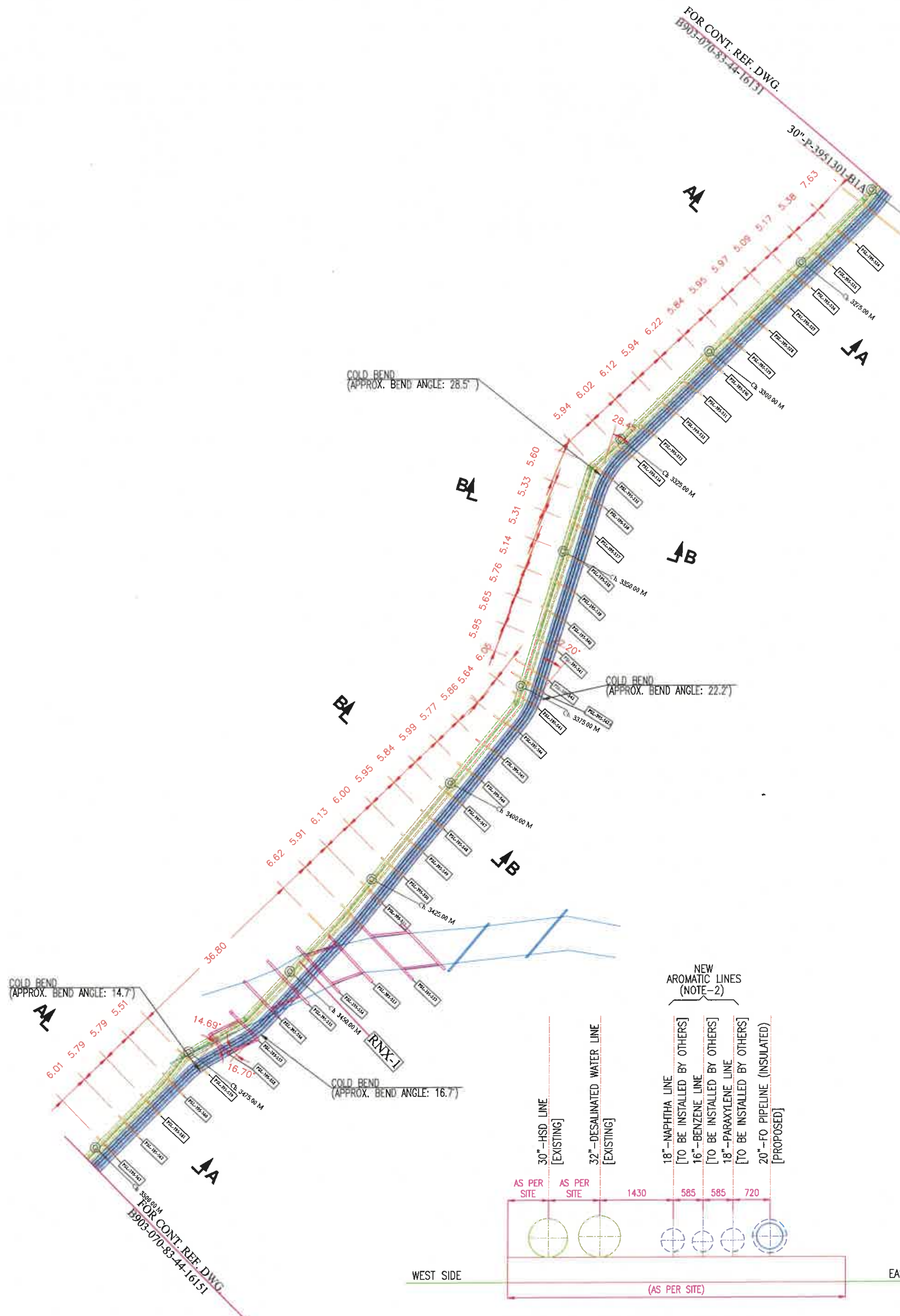
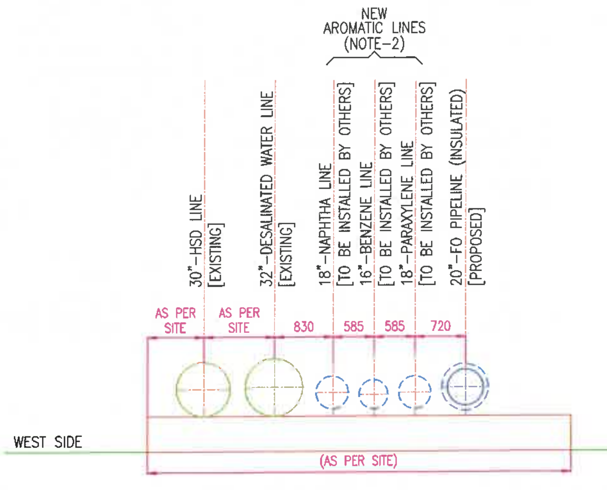
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16141





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

NEW
AROMATIC LINES
(NOTE-2)
30"-HSD LINE [EXISTING]
32"-DESALINATED WATER LINE [EXISTING]
18"-NAPHTHA LINE [TO BE INSTALLED BY OTHERS]
16"-BENZENE LINE [TO BE INSTALLED BY OTHERS]
18"-PARAXYLENE LINE [TO BE INSTALLED BY OTHERS]
20"-FO PIPELINE (INSULATED) [PROPOSED]
AS PER SITE
AS PER SITE
1430
585
585
720
WEST SIDE
EAST SIDE
(AS PER SITE)

[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW B-B

[APPLICABLE FOR SUPPORTS PSL-395-535 TO PSL-395-559]

Sleeper Name	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-523	-274.638	3119.055	-285.52	3129.279	80.343	80.176	3260.81
PSL-395-524	-281.589	3115.909	-285.981	3120.018	80.313	79.895	3267.04
PSL-395-525	-285.134	3110.696	-289.526	3114.804	80.278	79.938	3273.1
PSL-395-526	-288.638	3105.911	-293.034	3110.018	80.213	79.943	3279.03
PSL-395-527	-292.119	3101.239	-296.42	3105.441	80.296	79.996	3284.72
PSL-395-528	-295.615	3096.399	-299.911	3100.607	80.293	79.998	3290.68
PSL-395-529	-299.092	3091.573	-303.475	3095.69	80.303	79.974	3296.75
PSL-395-530	-302.381	3086.744	-306.909	3090.702	80.279	79.914	3302.8
PSL-395-531	-306.158	3081.801	-310.491	3085.971	80.18	79.879	3308.73
PSL-395-532	-309.525	3076.911	-313.936	3080.999	80.231	79.771	3314.78
PSL-395-533	-313.01	3071.881	-317.4	3075.992	80.298	79.78	3320.87
PSL-395-534	-316.55	3067.009	-320.883	3071.178	80.315	79.82	3326.81
PSL-395-535	-319.98	3062.153	-324.358	3066.276	80.314	79.78	3332.82
PSL-395-536	-325.232	3059.04	-329.141	3063.61	80.311	79.75	3338.3
PSL-395-537	-330.625	3056.358	-334.461	3060.989	80.326	79.698	3344.27
PSL-395-538	-335.93	3053.634	-339.712	3058.309	80.332	79.685	3350.11
PSL-395-539	-341.193	3051.097	-345.075	3055.69	80.31	79.704	3356.07
PSL-395-540	-346.284	3048.406	-350.243	3052.932	80.321	79.623	3361.93
PSL-395-541	-350.603	3044.49	-355.696	3050.45	80.301	79.555	3367.91
PSL-395-542	-355.859	3041.703	-360.951	3047.663	80.289	79.517	3373.86
PSL-395-542 A	-355.859	3041.703	-360.951	3047.663	80.289	79.517	3373.86
PSL-395-543	-361.947	3040.281	-365.99	3044.778	80.304	79.598	3379.66
PSL-395-544	-366.008	3035.896	-370.059	3040.341	80.355	79.614	3385.34
PSL-395-545	-370.057	3031.66	-374.177	3036.04	80.393	79.665	3391
PSL-395-546	-373.961	3027.411	-378.307	3031.567	80.384	79.701	3396.75
PSL-395-547	-378.052	3023.044	-382.453	3027.144	80.381	79.971	3402.49
PSL-395-548	-382.094	3018.83	-386.61	3022.801	80.394	79.621	3408.2
PSL-395-549	-386.06	3014.385	-390.662	3018.256	80.398	79.646	3414.29
PSL-395-550	-390.057	3009.903	-394.68	3013.748	80.426	79.548	3420.33
PSL-395-551	-394.124	3005.304	-399.069	3008.725	80.369	79.707	3427
PSL-395-552	-397.893	3000.733	-414.752	3012.243	80.386	78.657	3433.52
PSL-395-553	-398.728	2994.17	-413.985	3004.421	80.342	78.764	3441.14
PSL-395-554	-404.777	2991.043	-414.961	2997.861	80.348	78.896	3447.77
PSL-395-555	-406.624	2984.95	-416.341	2991.537	80.406	78.972	3454.23
PSL-395-556	-409.809	2979.822	-417.891	2985.33	80.436	70.014	3460.6
PSL-395-557	-415.244	2976.296	-421.763	2980.768	80.434	79.304	3465.68
PSL-395-558	-418.986	2971.654	-423.624	2974.772	80.444	79.016	3471.88
PSL-395-559	420.977	2964.862	-426.977	2970.248	80.407	79.383	3476.63
PSL-395-560	-425.201	2961.32	-430.184	2964.687	80.394	79.432	3483.01
PSL-395-561	-428.636	2956.412	-434.618	2959.779	80.371	79.501	3489
PSL-395-562	-432.071	2951.504	-437.053	2954.871	80.364	79.587	3494.99
PSL-395-563	-435.515	2946.581	-440.498	2949.949	80.34	79.7	3501

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

ABOVE GROUND PIPING	FSU FLAT SIDE UP
BURIED/ HIDDEN PIPING	FSD FLAT SIDE DOWN
EXISTING PIPING	WP WORKING POINT OF PIPE
BOTTOM LEVEL OF PIPE	IJ (INSULATING JOINT)
CENTRELINE ELEVATION OF PIPE	PLATFORM
PLUG VALVE	ELEVATION / LEVEL
GATE VALVE	(FGL) FINISHED GRADE LEVEL
CHECK VALVE	PAVEMENT
BALL VALVE	TOS TOP OF STEEL
GLOBE VALVE	LR LONG RADIUS
LO/LC LOCK OPEN / LOCK CLOSE	HPP HIGHEST PAVEMENT POINT
UC UTILITY CONNECTION	BOUNDARY WALL / FENCE
PS PIPE SUPPORT	
FFL FINISHED FLOOR LEVEL	
BOP BOTTOM OF PIPE	
TOP TOP OF PIPE	

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	15.05.2025	ISSUED FOR CONSTRUCTION	GH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम)
ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

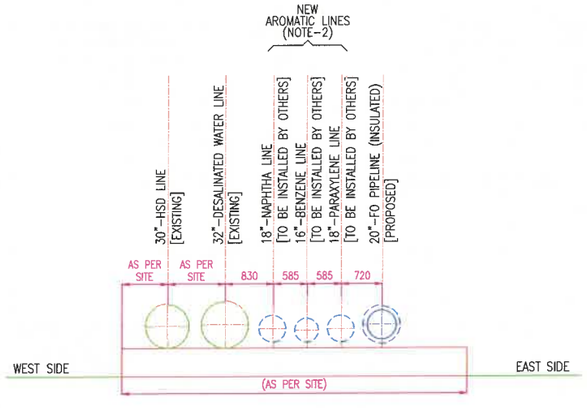
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-14

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 1 4 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16151



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

Sleeper Name	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-564	-438.974	2941.68	-443.932	2945.041	80.345	79.691	3506.99
PSL-395-565	-442.358	2936.741	-447.469	2939.897	80.351	79.687	3513.23
PSL-395-566	-445.817	2931.86	-450.812	2935.202	80.357	79.627	3518.97
PSL-395-567	-449.257	2927.004	-454.252	2930.308	80.361	79.621	3524.95
PSL-395-568	-452.616	2921.918	-457.521	2925.334	80.363	79.651	3530.89
PSL-395-569	-456.048	2917.032	-460.98	2920.398	80.364	79.663	3536.92
PSL-395-570	-459.46	2912.119	-464.42	2915.503	80.365	79.614	3542.9
PSL-395-571	-462.893	2907.2	-467.972	2910.381	80.367	79.684	3549.13
PSL-395-572	-466.334	2902.304	-471.324	2905.66	80.368	79.623	3554.92
PSL-395-573	-469.761	2897.289	-474.672	2900.728	80.361	79.629	3560.88
PSL-395-574	-473.159	2892.392	-478.139	2895.755	80.358	79.633	3566.94
PSL-395-575	-476.64	2887.44	-481.504	2890.84	80.35	79.64	3572.98
PSL-395-576	-480.007	2882.491	-484.895	2885.9	80.345	79.645	3578.88
PSL-395-577	-483.373	2877.567	-488.369	2880.965	80.34	79.652	3584.91
PSL-395-578	-486.799	2872.615	-491.783	2876.02	80.339	79.656	3590.92
PSL-395-579	-488.804	2866.774	-495.1	2871.058	80.336	79.659	3596.88
PSL-395-580	-493.469	2862.52	-498.487	2865.834	80.337	79.659	3603.09
PSL-395-581	-496.736	2857.657	-501.754	2860.971	80.339	79.755	3608.9
PSL-395-582	-500.083	2852.686	-505.021	2856.109	80.341	79.749	3614.75
PSL-395-583	-503.586	2847.86	-508.467	2851.302	80.345	79.794	3620.66
PSL-395-584	-507.155	2842.897	-511.973	2846.5	80.349	79.804	3626.61
PSL-395-585	-510.782	2838.214	-515.549	2841.787	80.351	79.811	3632.53
PSL-395-586	-514.486	2833.483	-519.17	2837.154	80.353	79.819	3638.41
PSL-395-587	-518.182	2828.809	-522.89	2832.528	80.354	79.821	3644.34
PSL-395-588	-522.055	2824.187	-526.655	2827.99	80.358	79.828	3650.232
PSL-395-589	-526.022	2819.722	-530.657	2823.554	80.36	79.839	3656.18
PSL-395-590	-529.995	2815.166	-534.491	2819.156	80.374	79.841	3662
PSL-395-591	-534.064	2810.745	-538.485	2814.786	80.387	79.845	3667.89
PSL-395-592	-538.196	2806.44	-542.585	2810.493	80.391	79.853	3673.78
PSL-395-593	-542.42	2802.1	-546.706	2806.325	80.398	79.866	3679.88
PSL-395-594	-546.593	2797.915	-550.83	2802.139	80.397	79.871	3685.4
PSL-395-595	-550.987	2793.741	-553.391	2796.322	80.394	79.901	3691.6
PSL-395-596	-555.394	2789.629	-559.435	2794.082	80.404	79.926	3697
PSL-395-597	-560.087	2785.207	-563.753	2789.974	80.381	79.958	3702.87
PSL-395-598	-564.562	2781.325	-568.228	2786.092	80.344	79.978	3708.79
PSL-395-599	-568.921	2777.794	-572.804	2782.343	80.352	79.981	3714.7
PSL-395-600	-573.501	2773.928	-577.312	2778.59	80.358	79.991	3720.56
PSL-395-601	-578.228	2770.207	-581.934	2774.94	80.364	80.004	3726.44
PSL-395-602	-582.987	2766.493	-586.658	2771.254	80.371	80.098	3732.42
PSL-395-603	-587.788	2762.97	-591.415	2767.721	80.384	80.101	3738.33
PSL-395-604	-592.706	2759.489	-596.241	2764.259	80.393	80.124	3744.24

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	15.05.2025	ISSUED FOR CONSTRUCTION	HSH	TLP/SSD	MSG	

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

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

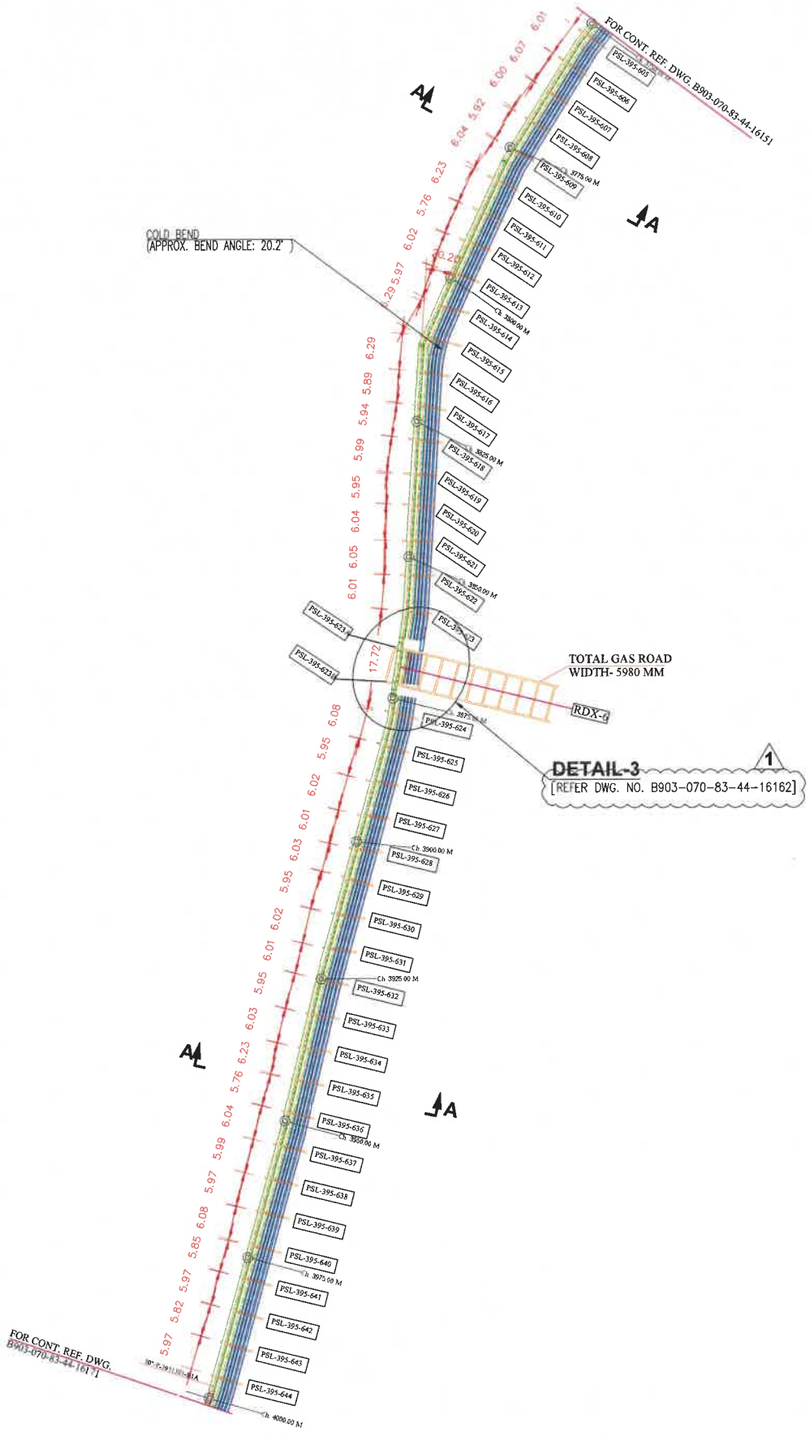
20" FUEL OIL PIPELINE PROJECT

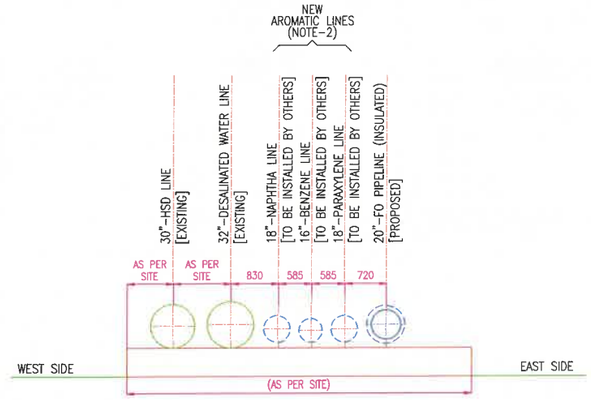
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-15

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 1 5 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16161





[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A

Sleeper Name	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-605	-597.621	2756.037	-601.195	2760.873	80.391	80.128	3750.18
PSL-395-606	-602.498	2752.533	-605.87	2757.547	80.388	80.129	3756.86
PSL-395-607	-608.154	2750.296	-60.873	2754.357	80.367	80.131	3761.82
PSL-395-608	-612.997	2746.753	-615.759	2751.172	80.345	80.132	3767.62
PSL-395-609	-618.127	2743.783	-620.729	2748.421	80.332	80.135	3773.29
PSL-395-610	-623.17	2740.453	-625.897	2745.717	80.318	80.136	3779.12
PSL-395-611	-628.799	2737.774	-631.25	2743.265	80.308	80.111	3784.67
PSL-395-612	-634.103	2735.533	-636.365	2741.103	80.314	80.098	3790.22
PSL-395-613	-639.764	2733.484	-641.835	2739.141	80.329	80.095	3796.03
PSL-395-614	-645.437	2731.636	-647.196	2737.351	80.333	80.09	3801.68
PSL-395-615	-650.953	2728.606	-652.909	2735.965	80.35	80.047	3807.33
PSL-395-616	-657.216	2728	-658.233	2733.927	80.367	80.002	3813.26
PSL-395-617	-663.092	2727.537	-664.108	2733.464	80.384	79.878	3819.15
PSL-395-618	-668.974	2726.706	-669.737	2732.642	80.352	79.854	3824.84
PSL-395-619	-674.915	2725.915	-675.455	2731.973	80.352	79.814	3830.6
PSL-395-620	-680.857	2725.647	-681.139	2731.607	80.352	79.801	3836.28
PSL-395-621	-686.911	2725.543	-686.888	2731.518	80.352	79.79	3841.03
PSL-395-622	-692.965	2725.439	-692.942	2731.414	80.352	79.791	3848.08
PSL-395-623	-698.958	2724.998	-699.623	2730.975	80.352	79.792	3854.77
PSL-395-623A	-699.623	2724.105	-707.623	2730.105	84.052	79.792	3862.77
PSL-395-623B	-707.623	2723.505	-713.623	2729.375	84.052	79.792	3868.77
PSL-395-624	-716.525	2722.697	-717.998	2728.527	80.424	79.991	3876.68
PSL-395-625	-722.43	2721.232	-723.885	2727.065	80.42	79.984	3882.75
PSL-395-626	-728.142	2719.558	-729.593	2725.431	80.418	79.98	3888.68
PSL-395-627	-733.973	2718.054	-735.442	2723.887	80.408	79.976	3894.73
PSL-395-628	-739.823	2716.69	-741.273	2722.497	80.398	79.974	3900.72
PSL-395-629	-745.685	2715.292	-747.139	2721.125	80.381	79.973	3906.74
PSL-395-630	-751.42	2713.714	-752.871	2719.587	80.373	79.972	3912.67
PSL-395-631	-757.285	2712.347	-758.754	2718.179	80.37	79.97	3918.72
PSL-395-632	-763.131	2710.956	-764.585	2716.789	80.365	79.968	3924.71
PSL-395-633	-768.866	2709.379	-770.317	2715.251	80.362	79.965	3930.64
PSL-395-634	-774.734	2708.007	-776.2	2713.844	80.357	79.963	3936.69
PSL-395-635	-780.827	2706.71	-782.059	2712.596	80.35	79.96	3942.68
PSL-395-636	-786.377	2705.169	-787.801	2710.927	80.35	79.953	3948.65
PSL-395-637	-792.254	2703.761	-793.672	2709.621	80.35	79.953	3954.66
PSL-395-638	-798.05	2702.27	-799.51	2708.141	80.35	79.949	3960.68
PSL-395-639	-803.847	2700.835	-805.3	2706.7	80.345	79.941	3966.68
PSL-395-640	-809.791	2699.536	-811.28	2705.362	80.345	79.931	3972.78
PSL-395-641	-815.418	2697.954	-817.054	2703.736	80.342	79.923	3978.77
PSL-395-642	-821.184	2696.424	-822.831	2702.186	80.34	79.92	3984.75
PSL-395-643	-826.745	2694.713	-828.578	2700.43	80.338	79.918	3990.75
PSL-395-644	-832.466	2693.009	-834.291	2698.672	80.336	79.915	3996.71

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PMPC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

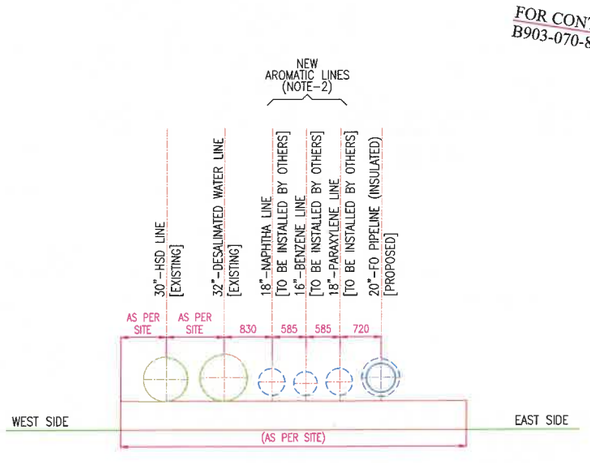
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-16

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 1 6 1	0

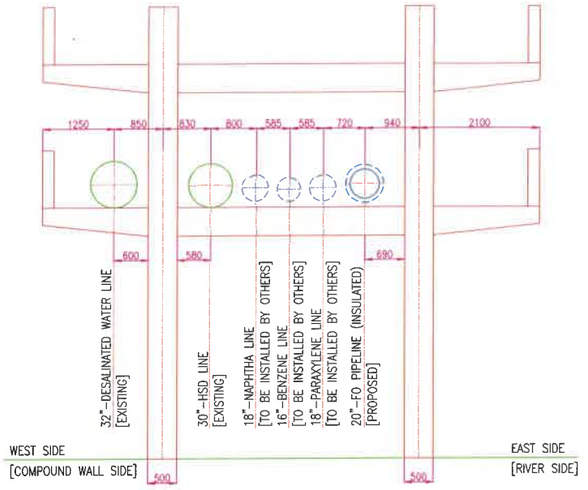
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16171



[EXTENSION OF EXISTING SLEEPERS REQUIRED WHEREVER SPACE IS NOT AVAILABLE ON EAST SIDE OF EXISTING 32" DESALINATED WATER LINE]

VIEW A-A



VIEW B-B

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-001	-1038.537	2598.179	-1048.179	2605.781	85.643	81.834	4227.26
CS-395-002	-1042.605	2595.192	-1052.275	2602.813	85.668	81.834	4232.31
CS-395-002 A	-1046.647	2592.21	-1054.107	2602.285	85.611	81.834	4237.33
CS-395-003	-1046.647	2592.21	-1054.107	2602.285	85.611	81.834	4237.33
CS-395-004	-1056.359	2591.955	-1059.621	2600.09	85.607	81.834	4247.05

Sleeper Name	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
PSL-395-645	-838.165	**2691.212**	-840.036	2696.927	80.334	79.913	4002.42
PSL-395-646	-843.323	**2687.869**	-845.799	2695.07	80.321	79.913	4008.48
PSL-395-647	-849.085	**2687.135**	-851.241	2692.771	80.355	79.965	4014.36
PSL-395-648	-854.841	**2685.254**	-856.971	2690.89	80.365	79.967	4020.41
PSL-395-649	-860.517	**2683.425**	-862.751	2689.008	80.372	79.97	4026.46
PSL-395-650	-865.16	**2679.067**	-866.735	2683.203	80.593	79.834	4032.4
PSL-395-651	-871.211	**2678.581**	-873.17	2682.93	80.618	79.834	4038.11
PSL-395-652	-873.748	**2669.268**	-879.608	2682.633	80.598	79.542	4044.28
PSL-395-653	-880.216	**2669.213**	-886.137	2682.671	80.599	79.542	4050.22
PSL-395-654	-886.561	**2669.036**	-892.671	2682.352	80.617	79.57	4056.1
PSL-395-655	-892.888	**2668.979**	-899.403	2682.149	80.583	79.57	4061.91
PSL-395-656	-904.794	2665.62	-905.847	2668.415	80.624	79.706	4074.2
PSL-395-657	-908.818	**2661.213**	-911.742	2666.468	80.608	79.802	4079.71
PSL-395-658	-914.026	**2658.227**	-916.924	2663.448	80.622	79.889	4085.75
PSL-395-659	-919.39	**2655.544**	-922.288	2660.765	80.63	80.945	4091.75
PSL-395-660	-924.918	**2653.022**	-927.612	2658.398	80.634	80.193	4097.83
PSL-395-661	-930.458	**2651.052**	-932.705	2656.578	80.629	80.201	4103.69
PSL-395-662	-935.153	**2649.335**	-936.835	2655.076	80.625	80.209	4108.67
PSL-395-663	-941.138	**2647.507**	-942.628	2653.301	80.622	80.211	4114.93
PSL-395-664	-947.509	**2645.988**	-948.421	2651.9	80.62	80.236	4121.47
PSL-395-665	-953.389	**2644.919**	-954.306	2650.845	80.619	80.244	4127.45
PSL-395-666	-958.563	**2643.843**	-960.13	2649.621	80.618	80.255	4132.73
PSL-395-667	-964.001	**2642.601**	-965.676	2648.376	80.618	80.261	4138.31
PSL-395-668	-969.44	**2640.512**	-971.115	2646.287	80.618	80.302	4144.08
PSL-395-669	-974.075	2637.82	-976.139	2643.469	80.681	80.342	4149.44
PSL-395-670	-978.424	**2634.713**	-981.368	2639.956	80.661	80.378	4154.76
PSL-395-671	-980.338	**2632.378**	-1000.203	2647.607	82.135	80.099	4157.64
PSL-395-672	-984.238	**2629.524**	-1003.796	2644.773	82.107	80.099	4162.39
PSL-395-673	-988.019	**2626.761**	-1007.708	2641.922	82.107	80.099	4167.02
PSL-395-674	-991.83	**2623.844**	-1011.421	2639.09	82.107	80.099	4171.78
PSL-395-675	-995.535	**2621.096**	-1015.309	2636.299	82.107	80.099	4176.39
PSL-395-676	-999.85	**2618.114**	-1019.499	2633.026	82.107	80.099	4181.63
PSL-395-677	-1004.088	**2614.957**	-1023.714	2630.089	82.107	80.099	4186.91
PSL-395-678	-1008.3	**2611.815**	-1027.888	2627	82.107	80.099	4192.16
PSL-395-679	-1012.443	**2608.566**	-1032.11	2623.948	82.107	80.099	4197.42
PSL-395-680	-1016.29	**2605.763**	-1035.813	2621.209	82.107	80.099	4202.18
PSL-395-681	-1020.067	**2602.947**	-1039.587	2618.391	82.107	80.099	4206.89
PSL-395-682	-1023.87	**2600.117**	-1043.378	2615.587	82.163	80.099	4211.63
PSL-395-683	-1027.622	**2597.253**	-1047.304	2612.714	82.181	80.099	4216.31

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
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3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
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NOTES:-

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3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
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LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (भारत सरकार का उद्यम) [A Govt. of India Undertaking]

ONGC MRPL MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

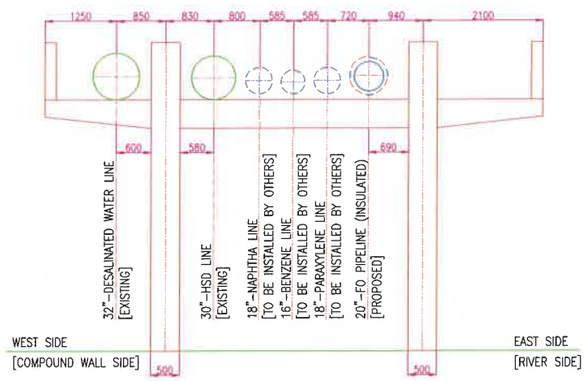
20" फ्यूअल ऑइल पाइपलाईन परियोजना | 20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-17

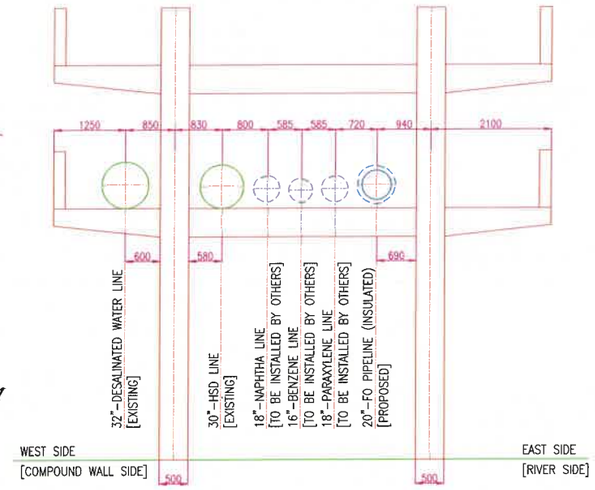
SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 1 7 1	1

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16181



VIEWs B-B, C-C & D-D
[COMMON DETAIL, ONLY T.O.S. DIFFERENCE]



VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-005	-1061.906	2589.731	-1065.21	2597.819	85.677	81.834	4253.03
CS-395-006	-1066.716	2587.812	-1069.848	2595.961	85.659	81.834	4258.21
CS-395-007	-1069.866	2586.523	-1073.133	2594.594	88.619	81.834	4261.61
CS-395-008	-1076.233	2583.956	-1079.483	2592.039	88.62	81.834	4268.48
CS-395-008A	-1076.233	2583.956	-1079.483	2592.039	88.62	81.834	4268.48
CS-395-009	-1079.264	2582.737	-1082.514	2590.821	88.599	81.806	4271.75
CS-395-010	-1085.662	2580.166	-1088.912	2588.25	88.657	81.857	4278.65
CS-395-010A	-1085.662	2580.166	-1088.912	2588.25	88.657	81.857	4278.65
CS-395-011	-1088.693	2578.948	-1091.943	2587.031	88.656	81.897	4281.92
CS-395-012	-1095.811	2578.09	-1097.607	2582.671	88.656	82.14	4288.77
CS-395-013	-1100.856	2574.07	-1104.115	2582.155	88.445	82.18	4295.02
CS-395-014	-1106.473	2571.806	-1109.732	2579.891	85.451	82.192	4301.08
CS-395-015	-1112.089	2569.542	-1115.348	2577.627	85.452	82.2	4307.14
CS-395-016	-1117.706	2567.278	-1120.965	2575.363	85.452	82.214	4313.2
CS-395-017	-1123.322	2565.013	-1126.597	2573.092	85.454	82.212	4319.26
CS-395-018	-1128.432	2562.914	-1131.692	2570.993	84.235	82.208	4324.78
CS-395-019	-1134.049	2560.65	-1137.308	2568.735	84.237	82.154	4330.84
CS-395-020	-1139.666	2558.386	-1142.925	2566.471	84.241	82.121	4336.9
CS-395-021	-1145.282	2556.122	-1148.541	2564.207	84.242	82.104	4342.96
CS-395-022	-1150.899	2553.858	-1154.158	2561.943	84.245	82.098	4349.02
CS-395-023	-1156.463	2551.586	-1161.337	2563.813	85.489	82.108	4355.01
CS-395-024	-1162.06	2549.334	-1166.958	2561.561	85.473	82.021	4361.07
CS-395-025	-1167.682	2547.082	-1172.58	2559.31	85.464	81.994	4367.13
CS-395-026	-1173.303	2544.83	-1178.201	2557.058	85.455	81.901	4373.19
CS-395-027	-1178.924	2542.573	-1183.823	2554.806	85.446	81.854	4379.25
CS-395-028	-1184.275	2540.379	-1187.508	2548.469	85.463	81.875	4385.03
CS-395-029	-1189.709	2538.197	-1192.958	2546.286	85.454	81.754	4390.89
CS-395-030	-1195.329	2535.94	-1198.578	2544.029	85.445	81.721	4396.95
CS-395-031	-1200.948	2533.683	-1204.197	2541.766	85.436	81.71	4403.01
CS-395-032	-1206.568	2531.426	-1209.817	2539.516	85.433	81.701	4409.07
CS-395-033	-1212.187	2529.169	-1215.436	2537.259	85.429	81.698	4415.13
CS-395-034	-1217.683	2527.005	-1220.932	2535.095	85.419	81.701	4421.12
CS-395-035	-1223.117	2524.823	-1226.366	2532.912	85.409	81.656	4426.98
CS-395-036	-1228.736	2522.566	-1231.985	2530.655	85.465	81.554	4433.04
CS-395-037	-1234.355	2520.309	-1237.604	2528.398	85.466	81.462	4439.1
CS-395-038	-1239.975	2518.052	-1243.224	2526.141	85.468	81.405	4445.16
CS-395-039	-1245.594	2515.795	-1248.843	2523.885	85.471	81.358	4451.22
CS-395-040	-1251.094	2513.634	-1254.343	2521.723	85.453	81.37	4457.21
CS-395-041	-1256.528	2511.451	-1259.777	2519.541	85.432	81.368	4463.07
CS-395-042	-1262.147	2509.194	-1265.396	2517.284	85.412	81.363	4469.13
CS-395-043	-1267.767	2506.937	-1271.016	2515.02	85.411	81.36	4475.19
CS-395-044	-1273.386	2504.68	-1276.635	2512.77	85.401	81.359	4481.25
CS-395-045	-1279.005	2502.423	-1282.254	2510.513	85.393	81.358	4487.31
CS-395-046	-1283.954	2498.785	-1287.187	2506.874	88.17	81.358	4493.26
CS-395-047	-1289.388	2496.602	-1292.637	2504.692	88.179	81.366	4499.12

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

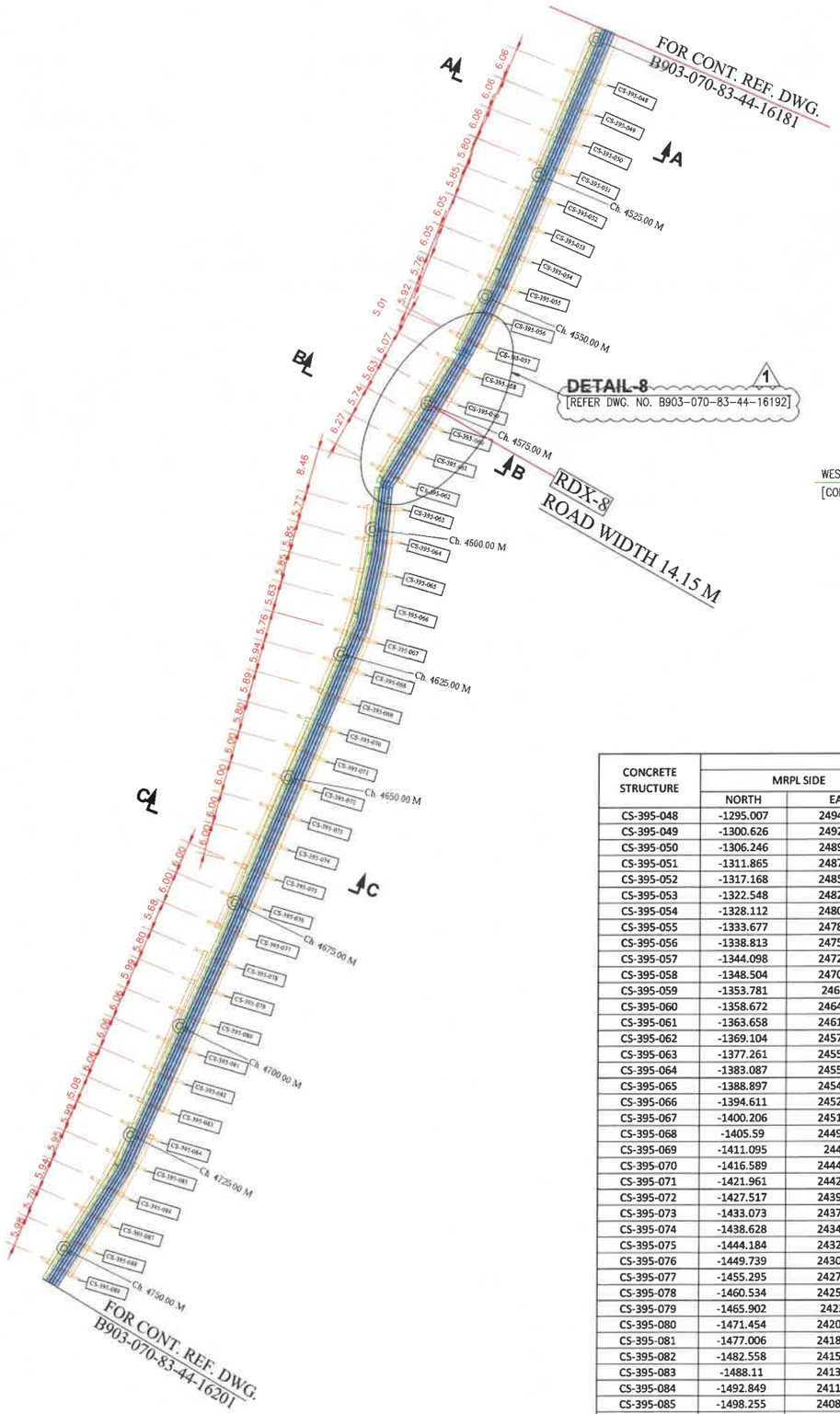
20" FUEL OIL PIPELINE PROJECT

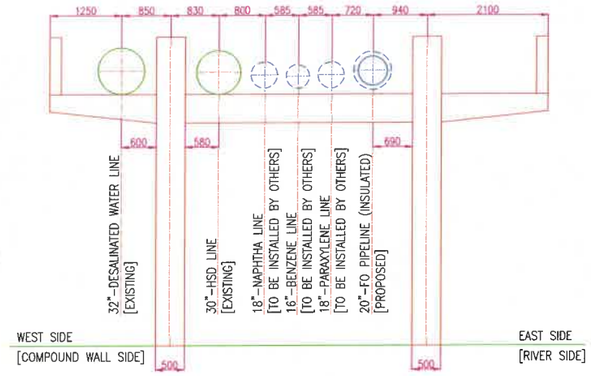
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-18

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 1 8 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16191





VIEWs A-A, B-B & C-C
[COMMON DETAIL, ONLY T.O.S. DIFFERENCE]

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-048	-1295.007	2494.345	-1298.256	2502.435	88.151	81.374	4505.18
CS-395-049	-1300.626	2492.088	-1303.875	2500.178	88.137	81.391	4511.24
CS-395-050	-1306.246	2489.831	-1309.495	2497.921	88.174	81.426	4517.3
CS-395-051	-1311.865	2487.574	-1315.114	2495.664	88.169	81.45	4523.36
CS-395-052	-1317.168	2485.225	-1320.607	2493.235	88.193	81.616	4529.16
CS-395-053	-1322.548	2482.914	-1325.988	2490.918	88.22	81.627	4535.01
CS-395-054	-1328.112	2480.525	-1331.552	2488.535	88.227	81.6412	4541.06
CS-395-055	-1333.677	2478.135	-1337.117	2486.139	88.197	81.688	4547.11
CS-395-056	-1338.813	2475.475	-1342.806	2483.224	88.208	81.714	4552.89
CS-395-057	-1344.098	2472.689	-1348.091	2480.501	88.215	81.776	4558.83
CS-395-058	-1348.504	2470.292	-1353.467	2478.602	99.424	81.916	4563.87
CS-395-059	-1353.781	2467.14	-1358.744	2475.45	99.456	81.901	4570.01
CS-395-060	-1358.672	2464.219	-1363.635	2472.529	99.443	81.981	4575.7
CS-395-061	-1363.658	2461.241	-1368.622	2469.551	99.366	82.002	4581.5
CS-395-062	-1369.104	2457.988	-1374.068	2466.298	99.326	81.976	4587.83
CS-395-063	-1377.261	2455.747	-1377.817	2464.447	86.15	81.794	4596.29
CS-395-064	-1383.087	2455.181	-1384.075	2463.842	86.145	81.547	4602.14
CS-395-065	-1388.897	2454.258	-1390.434	2462.84	86.162	82.129	4608.01
CS-395-066	-1394.611	2452.972	-1396.633	2461.452	86.15	82.11	4613.82
CS-395-067	-1400.206	2451.343	-1402.999	2459.595	86.163	82.101	4619.55
CS-395-068	-1405.59	2449.195	-1408.974	2457.229	86.173	82.099	4625.35
CS-395-069	-1411.095	2446.8	-1414.479	2454.834	86.165	82.084	4631.35
CS-395-070	-1416.589	2444.552	-1420.058	2452.55	86.185	82.044	4637.29
CS-395-071	-1421.961	2442.222	-1425.43	2450.22	86.19	82.04	4643.14
CS-395-072	-1427.517	2439.812	-1430.986	2447.803	86.19	82.038	4649.19
CS-395-073	-1433.073	2437.402	-1436.541	2445.4	86.19	82.036	4655.24
CS-395-074	-1438.628	2434.993	-1442.097	2442.99	86.19	82.035	4661.29
CS-395-075	-1444.184	2432.583	-1447.653	2440.589	86.19	82.034	4667.34
CS-395-076	-1449.739	2430.173	-1453.208	2438.171	86.19	82.033	4673.4
CS-395-077	-1455.295	2427.763	1458.748	2435.768	86.19	82.032	4679.46
CS-395-078	-1460.534	2425.399	-1464.015	2433.391	86.165	82.035	4685.21
CS-395-079	-1465.902	2423.06	-1469.383	2431.053	86.171	82.036	4691.07
CS-395-080	-1471.454	2420.642	-1474.935	2428.635	86.178	82.037	4697.13
CS-395-081	-1477.006	2418.224	-1480.487	2426.216	86.184	82.038	4703.19
CS-395-082	-1482.558	2415.806	-1486.039	2423.798	86.191	82.039	4709.25
CS-395-083	-1488.11	2413.388	-1491.591	2421.38	86.199	82.041	4715.31
CS-395-084	-1492.849	2411.541	-1497.038	2419.187	86.182	82.044	4720.39
CS-395-085	-1498.255	2408.955	-1502.547	2416.543	86.208	82.045	4726.38
CS-395-086	-1503.492	2406.084	-1507.991	2413.551	86.199	82.046	4732.34
CS-395-087	-1508.551	2402.833	-1513.033	2410.31	86.219	82.047	4738.31
CS-395-088	-1513.479	2399.652	-1517.969	2407.124	86.208	82.048	4744.14
CS-395-089	-1518.602	2396.472	-1523.08	2403.918	86.221	82.049	4750.08

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	BSH	TLP/SKD	MSD	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL — MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

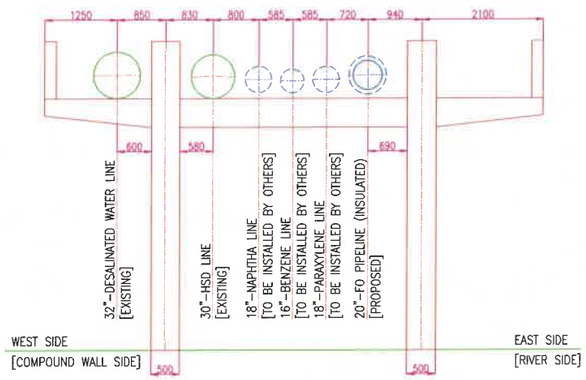
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-19

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 1 9 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16201



VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-090	-1522.926	2393.421	-1528.233	2400.327	86.21	82.05	4755.42
CS-395-091	-1527.4	2389.824	-1532.98	2396.521	86.194	82.064	4761.15
CS-395-092	-1531.972	2386.01	-1537.591	2392.674	86.227	82.099	4767.08
CS-395-093	-1536.386	2382.18	-1542.246	2388.635	86.214	82.103	4772.89
CS-395-094	-1540.694	2378.243	-1546.696	2384.565	86.181	82.133	4778.68
CS-395-095	-1544.816	2374.078	-1550.933	2380.288	86.218	82.153	4784.54
CS-395-096	-1549.115	2369.908	-1555.265	2376.087	86.189	82.153	4790.53
CS-395-097	-1553.266	2365.777	-1559.416	2371.956	86.185	82.154	4796.39
CS-395-098	-1557.558	2361.505	-1563.708	2367.684	86.182	82.155	4802.45
CS-395-099	-1561.85	2357.233	-1568	2363.412	86.178	82.156	4808.51
CS-395-100	-1566.142	2352.961	-1572.292	2359.14	86.175	82.157	4814.57
CS-395-101	-1570.434	2348.689	-1576.584	2354.868	86.171	82.159	4820.63
CS-395-102	-1574.695	2344.507	-1580.819	2350.66	86.172	82.16	4826.6
CS-395-103	-1578.827	2340.394	-1584.951	2346.546	86.172	82.172	4832.43
CS-395-104	-1583.101	2336.14	-1589.225	2342.292	86.173	82.184	4838.46
CS-395-105	-1587.375	2331.885	-1593.499	2338.038	86.173	82.194	4844.49
CS-395-106	-1591.649	2327.631	-1597.773	2333.784	86.174	82.199	4850.52
CS-395-107	-1595.923	2323.377	-1602.047	2329.53	86.174	82.202	4856.55
CS-395-108	-1600.209	2319.146	-1606.322	2325.317	86.154	82.212	4862.57
CS-395-109	-1604.354	2315.031	-1610.479	2321.202	86.162	82.19	4868.41
CS-395-110	-1608.641	2310.776	-1614.766	2316.947	86.17	82.095	4874.45
CS-395-111	-1612.928	2306.521	-1619.053	2312.692	86.191	81.984	4880.49
CS-395-112	-1617.215	2302.266	-1623.34	2308.437	86.188	81.93	4886.53
CS-395-113	-1621.502	2298.011	-1627.627	2304.182	86.187	81.8	4892.57
CS-395-114	-1624.738	2292.754	-1631.794	2299.914	86.179	81.8	4898.58
CS-395-115	-1629.012	2288.543	-1636.067	2295.702	85.998	81.941	4904.59
CS-395-116	-1633.285	2284.331	-1640.341	2291.49	86.193	82.175	4910.59
CS-395-117	-1637.559	2280.12	-1644.614	2287.279	86.193	82.176	4916.59
CS-395-118	-1642.691	2276.953	-1648.847	2283.125	86.104	82.176	4922.59
CS-395-119	-1646.979	2272.677	-1653.135	2278.849	86.087	82.181	4928.47
CS-395-120	-1651.267	2268.4	-1657.422	2274.573	86.108	82.185	4934.53
CS-395-121	-1655.554	2264.124	-1661.71	2270.271	86.087	82.189	4940.59
CS-395-122	-1659.842	2259.848	-1665.998	2266.021	86.085	82.193	4946.65
CS-395-123	-1663.989	2255.713	-1670.144	2261.886	86.083	82.198	4952.71
CS-395-124	-1668.242	2251.472	-1674.374	2257.643	86.097	82.21	4958.57
CS-395-125	-1672.529	2247.212	-1678.661	2253.383	86.095	82.208	4964.58
CS-395-126	-1676.815	2242.952	-1682.948	2249.123	86.09	82.206	4970.62
CS-395-127	-1681.09	2238.704	-1687.234	2244.863	86.086	82.201	4976.66
CS-395-128	-1685.388	2234.432	-1691.521	2240.603	86.082	82.198	4982.7
CS-395-129	-1689.533	2230.313	-1695.666	2236.484	86.08	82.194	4995.74
CS-395-130	-1693.651	2226.05	-1699.774	2232.255	86.112	82.192	5000

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	11.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	SH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)

ONGC MRPL — MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

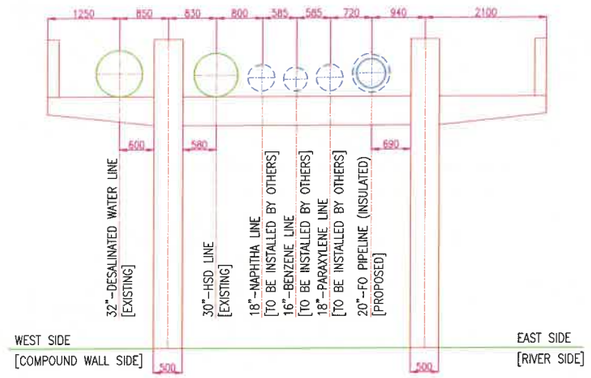
20" फ्यूअल ऑइल पाइपलाइन परियोजना | 20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-20

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 2 0 1	1

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16211



VIEWs A-A, B-B & C-C
[COMMON DETAIL, ONLY T.O.S. DIFFERENCE]

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-131	-1697.961	2221.796	-1704.084	2228.001	86.113	82.191	5002.87
CS-395-132	-1702.271	2217.543	-1708.395	2223.748	86.114	82.184	5008.92
CS-395-133	-1706.582	2213.289	-1712.701	2219.494	86.118	82.174	5014.98
CS-395-134	-1710.892	2209.035	-1717.015	2215.24	86.12	82.16	5021.04
CS-395-135	-1715.06	2204.922	-1721.183	2211.127	86.125	82.158	5026.9
CS-395-136	-1719.201	2200.824	-1725.365	2206.988	86.127	82.158	5032.78
CS-395-137	-1723.483	2196.542	-1729.647	2202.706	86.133	82.175	5038.84
CS-395-138	-1727.765	2192.259	-1733.929	2198.424	86.145	82.183	5044.9
CS-395-139	-1732.047	2187.977	-1738.211	2194.141	86.154	82.195	5050.96
CS-395-140	-1736.328	2183.695	-1742.493	2189.859	86.158	82.211	5057.02
CS-395-141	-1740.469	2179.554	-1746.633	2185.718	86.161	82.224	5062.88
CS-395-142	-1744.655	2175.392	-1750.803	2181.571	86.201	82.241	5068.76
CS-395-143	-1748.968	2171.117	-1755.105	2177.308	86.202	82.264	5075
CS-395-144	-1753.269	2166.854	-1759.406	2173.045	86.203	82.294	5081.06
CS-395-145	-1757.57	2162.591	-1763.707	2168.782	86.202	82.321	5093.18
CS-395-146	-1761.859	2158.34	-1768.008	2164.52	86.201	82.342	5099.09
CS-395-147	-1766.03	2154.206	-1772.167	2160.398	86.201	82.355	5105.01
CS-395-148	-1769.257	2148.884	-1776.286	2156.068	86.044	82.347	5111.01
CS-395-149	-1773.545	2144.688	-1780.575	2151.872	86.042	82.342	5117.01
CS-395-150	-1777.833	2140.492	-1784.863	2147.676	86.035	82.339	5123.01
CS-395-151	-1782.122	2136.295	-1789.152	2143.479	86.475	82.336	5131.82
CS-395-152	-1786.378	2134.341	-1792.387	2140.596	90.733	82.335	5136.82
CS-395-153	-1791.493	2133.196	-1795.619	2137.491	90.656	82.316	5142.15
CS-395-154	-1795.164	2129.669	-1798.896	2133.65	90.955	82.295	5147.18
CS-395-155	-1798.945	2126.037	-1803.071	2130.332	90.983	82.194	5152.51
CS-395-156	-1802.657	2122.583	-1806.35	2126.489	90.961	82.173	5155.67
CS-395-157	-1806.418	2118.857	-1810.545	2123.153	90.673	82.133	5164.88
CS-395-158	-1809.88	2115.879	-1812.911	2120.533	90.683	82.131	5170.81
CS-395-159	-1813.206	2108.212	-1819.313	2114.433	86.044	82.144	5176.86
CS-395-160	-1817.77	2104.038	-1823.699	2110.429	86.043	82.141	5182.66
CS-395-161	-1822.21	2099.919	-1828.139	2106.31	86.042	82.135	5188.5
CS-395-162	-1826.382	2096.05	-1832.31	2102.441	86.041	82.131	5194.48
CS-395-163	-1830.741	2092.005	-1836.67	2098.397	86.041	82.126	5200
CS-395-164	-1835.128	2087.937	-1841.056	2094.328	86.041	82.122	5205.5
CS-395-165	-1840.327	2084.088	-1845.064	2091.406	86.097	82.122	5211.56
CS-395-166	-1845.411	2080.798	-1850.148	2088.116	86.082	82.008	5217.62
CS-395-167	-1850.495	2077.507	-1855.232	2084.826	86.083	81.914	5223.68
CS-395-168	-1855.579	2074.217	-1860.316	2081.536	86.083	81.801	5229.54
CS-395-169	-1860.663	2070.927	-1865.4	2078.246	86.067	81.775	5235.68
CS-395-170	-1865.579	2067.746	-1870.316	2075.064	85.999	81.751	5241.47
CS-395-171	-1870.62	2064.532	-1875.265	2071.908	86.021	82.145	5247.53
CS-395-172	-1875.76	2061.305	-1880.389	2068.682	86.019	82.134	5253.59
CS-395-173	-1880.869	2058.078	-1885.514	2065.455	86.018	82.122	5259.65

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

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LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE	●	(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	09.09.2025	ISSUED FOR CONSTRUCTION	RSH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

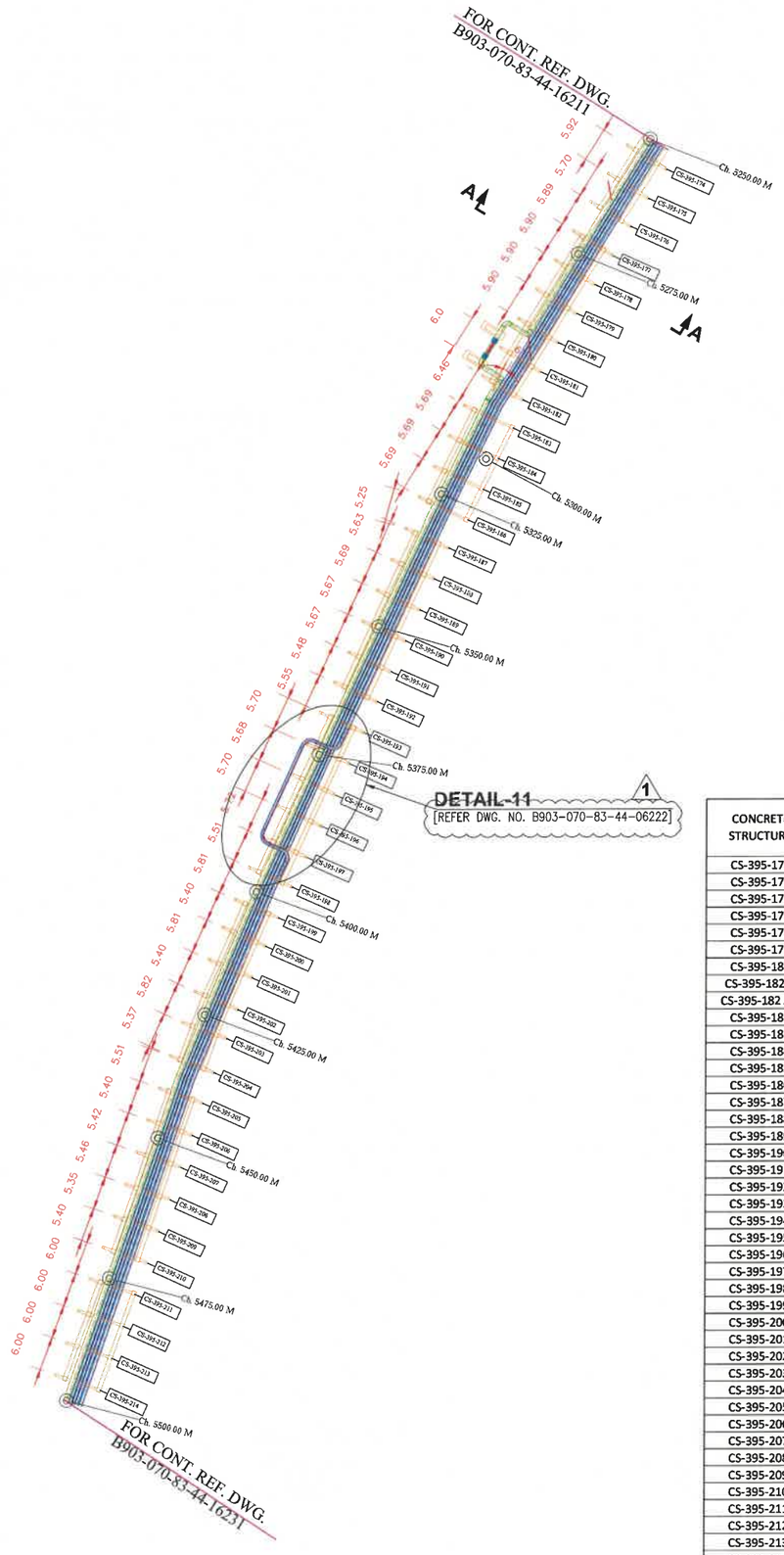
20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-21

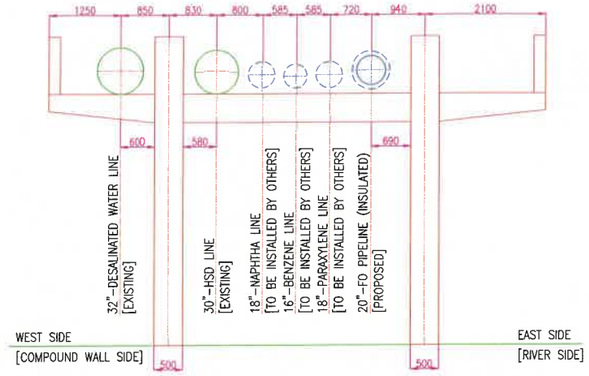
SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 2 1 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16221



DETAIL-11 1
[REFER DWG. NO. B903-070-83-44-06222]



VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-174	-1885.993	2054.851	-1890.638	2062.228	86.016	82.117	5265.51
CS-395-175	-1891.118	2051.624	-1895.763	2059.001	86.015	82.11	5271.44
CS-395-176	-1896.073	2048.504	-1900.718	2055.881	86.012	82.104	5277.48
CS-395-177	-1901.142	2045.287	-1905.72	2052.689	85.991	82.214	5283.52
CS-395-178	-1906.305	2042.108	-1910.868	2049.519	86.007	82.253	5289.56
CS-395-179	-1911.453	2038.938	-1916.017	2046.349	86.004	82.357	5295.6
CS-395-180	-1916.602	2035.768	-1921.165	2043.179	85.991	82.418	5302.44
CS-395-182 A	-1936.845	2022.507	-1941.219	2031.486	86.093	82.275	5324.73
CS-395-182 AA	-1942.248	2019.896	-1946.621	2028.947	86.15	82.289	5330.58
CS-395-182	-1926.729	2029.533	-1931.292	2036.944	86.028	82.481	5312.73
CS-395-183	-1931.443	2025.117	-1935.816	2034.168	86.153	82.541	5318.73
CS-395-184	-1936.845	2022.507	-1941.219	2031.486	86.093	82.275	5324.73
CS-395-185	-1942.248	2019.896	-1946.621	2028.947	86.15	82.289	5330.58
CS-395-186	-1947.65	2017.286	-1952.023	2026.336	86.139	82.291	5336.58
CS-395-187	-1953.819	2016.085	-1957.399	2023.979	86.417	82.293	5342.6
CS-395-188	-1959.263	2013.591	-1962.873	2021.472	86.423	82.316	5348.61
CS-395-189	-1964.737	2011.083	-1968.347	2018.964	86.42	82.324	5354.62
CS-395-190	-1970.211	2008.576	-1973.821	2016.456	86.433	82.335	5360.44
CS-395-191	-1975.685	2006.068	-1979.296	2013.948	86.448	82.361	5366.36
CS-395-192	-1980.979	2003.643	-1984.589	2011.523	86.434	82.37	5372.42
CS-395-193	-1986.369	2001.227	-1990.016	2009.152	86.405	82.508	5378.48
CS-395-194	-1991.89	1998.705	-1995.521	2006.63	86.407	82.509	5384.54
CS-395-195	-1997.38	1996.182	-2001.027	2004.108	86.409	82.511	5390.6
CS-395-196	-2002.886	1993.667	-2006.532	2001.586	86.411	82.512	5396.46
CS-395-197	-2008.407	1991.138	-2012.038	1999.063	86.412	82.513	5402.37
CS-395-198	-2013.73	1988.699	-2017.361	1996.624	86.413	82.513	5408.39
CS-395-199	-2019.437	1986.226	-2022.782	1994.277	86.417	82.523	5414.37
CS-395-200	-2024.722	1983.905	-2028.294	1991.857	86.427	83.462	5420.13
CS-395-201	-2030.621	1981.579	-2033.966	1989.629	86.416	83.404	5426.01
CS-395-202	-2035.692	1979.087	-2039.037	1987.137	86.388	83.382	5432.03
CS-395-203	-2041.625	1976.826	-2044.549	1985.038	86.438	82.364	5437.82
CS-395-204	-2047.213	1974.685	-2050.558	1982.735	86.435	82.351	5443.8
CS-395-205	-2052.831	1972.734	-2055.656	1980.981	86.449	82.412	5447.4
CS-395-206	-2058.492	1970.795	-2061.316	1979.042	86.444	82.527	5452.5
CS-395-207	-2064.173	1968.85	-2066.997	1977.097	86.421	82.568	5458.85
CS-395-208	-2069.899	1966.889	-2072.723	1975.136	86.425	82.574	5464.8
CS-395-209	-2075.51	1964.967	-2078.351	1973.209	86.421	82.596	5470.76
CS-395-210	-2081.165	1963.03	-2083.989	1971.278	86.424	82.622	5476.81
CS-395-211	-2086.373	1959.767	-2089.689	1969.256	86.306	82.633	5482.81
CS-395-212	-2092.037	1957.788	-2095.353	1969.276	86.31	82.638	5488.81
CS-395-213	-2097.701	1955.808	-2101.017	1965.297	86.318	82.64	5494.81
CS-395-214	-2103.365	1953.829	-2106.681	1963.317	86.321	82.641	5500

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

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7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	11.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	RSH	TLP/SD	MSD	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

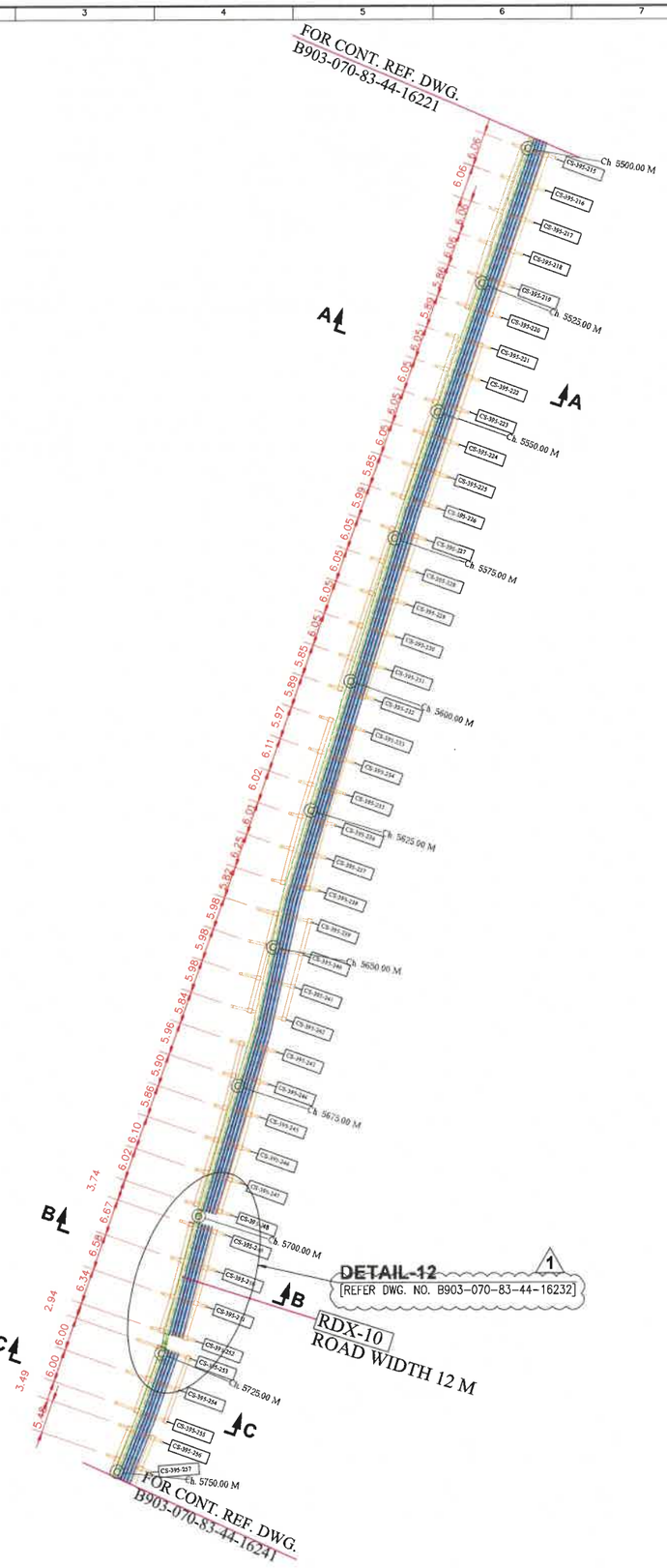
20" FUEL OIL PIPELINE PROJECT

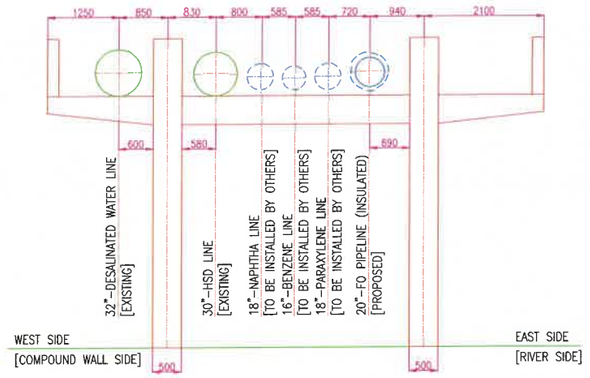
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-22

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 2 2 1	1

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16231





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-215	-2109.472	1953.185	-2112.302	1961.431	86.389	82.621	5506.06
CS-395-216	-2115.2	1951.22	-2118.029	1959.465	86.404	82.601	5512.12
CS-395-217	-2120.928	1947.254	-2123.757	1957.5	86.386	82.593	5518.18
CS-395-218	-2126.655	1947.288	-2129.485	1955.534	86.373	82.588	5524.24
CS-395-219	-2132.383	1945.323	-2135.213	1953.568	86.389	82.879	5530.1
CS-395-220	-2137.922	1943.422	-2140.752	1951.667	86.39	82.574	5535.9
CS-395-221	-2143.498	1941.518	-2146.244	1949.792	86.37	82.559	5541.95
CS-395-222	-2149.245	1939.611	-2151.991	1947.884	86.357	82.591	5548
CS-395-223	-2151.993	1937.703	-2157.739	1945.977	86.373	82.618	5554.05
CS-395-224	-2160.74	1935.796	-2163.486	1944.069	86.37	82.623	5560.1
CS-395-225	-2166.488	1933.888	-2169.234	1942.162	86.362	82.626	5565.95
CS-395-226	-2172.045	1932.044	-2174.791	1940.317	86.366	82.628	5571.85
CS-395-227	-2177.731	1930.15	-2180.386	1938.453	86.348	82.547	5577.9
CS-395-228	-2183.499	1928.306	-2186.154	1936.609	86.364	82.586	5583.96
CS-395-229	-2189.267	1926.462	-2191.922	1934.765	86.356	82.597	5590.2
CS-395-230	-2195.036	1924.618	-2197.69	1932.921	86.357	82.603	5596.03
CS-395-231	-2200.804	1922.774	-2203.458	1931.077	86.358	82.617	5661.92
CS-395-232	-2206.381	1920.99	-2209.036	1929.294	86.358	82.621	5607.65
CS-395-233	-2212.021	1919.264	-2214.688	19247.564	86.355	82.632	5613.08
CS-395-234	-2217.725	1917.478	-2220.392	1925.778	86.36	82.657	5619.72
CS-395-235	-2223.582	1915.728	-2226.033	1924.094	86.37	82.687	5625.52
CS-395-236	-2229.358	1913.994	-2231.587	1922.422	86.344	82.715	5631.53
CS-395-237	-2235.188	1912.471	-2237.411	1920.9	86.343	82.747	5637.45
CS-395-238	-2241.279	1910.959	-2243.167	1919.47	86.341	82.785	5643.43
CS-395-239	-2246.474	1908.179	-2248.945	1917.922	86.354	82.701	5649.42
CS-395-240	-2252.289	1906.703	-2254.761	1916.446	85.626	82.718	5655.41
CS-395-241	-2258.105	1905.228	-2260.577	1914.971	85.587	82.724	5661.4
CS-395-242	-2263.921	1903.752	-2266.393	1913.495	86.38	82.738	5667.33
CS-395-243	-2270.034	1903.536	-2272.137	1911.996	86.337	82.741	5673.33
CS-395-244	-2275.849	1902.107	-2278.011	1910.552	86.341	82.557	5679.38
CS-395-245	-2281.598	1900.676	-2283.866	1909.093	86.329	82.383	5685.65
CS-395-246	-2287.244	1899.072	-2289.902	1907.375	86.339	82.254	5691.68
CS-395-247	-2293.087	1897.31	-2295.676	1905.634	86.345	82.197	5697.69
CS-395-248	-2298.808	1895.479	-2301.397	1903.803	86.406	82.648	5702.41
CS-395-249	-2302.483	1894.631	-2305.039	1902.987	93.406	82.656	5709.1
CS-395-250	-2308.955	1892.947	-2311.51	1901.303	93.456	82.753	5715.71
CS-395-251	-2315.349	1891.283	-2317.904	1899.638	93.424	82.768	5722.07
CS-395-252	-2321.504	1889.68	-2324.059	1898.036	93.437	82.758	5725.28
CS-395-253	-2323.669	1886.975	-2326.781	1895.743	86.337	82.697	5731.28
CS-395-254	-2329.324	1884.968	-2332.436	1893.736	86.355	82.651	5737.28
CS-395-255	-2334.978	1882.962	-2338.09	1891.729	86.38	82.635	5741
CS-395-256	-2338.468	1882.873	-2341.76	1890.945	86.394	82.657	5746.85
CS-395-257	-2343.89	1880.662	-2347.182	1888.734	86.388	82.658	5752.9

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

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3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
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5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	BSH	TLP/SD	MSC	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

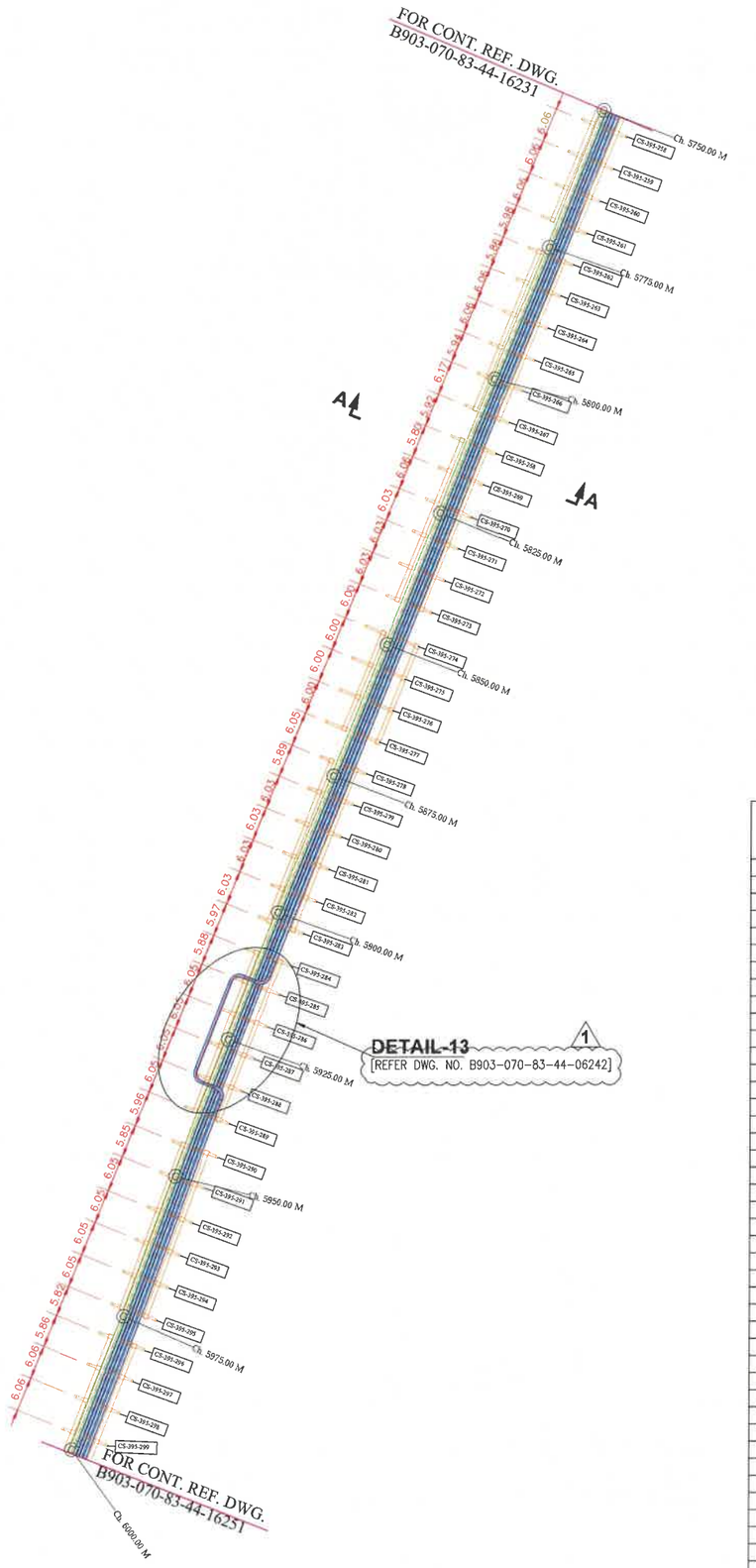
20" FUEL OIL PIPELINE PROJECT

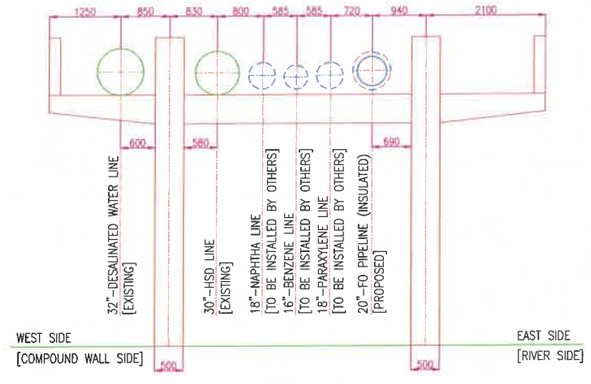
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-23

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 2 3 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16241





VIEW A-E

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-258	-2349.497	1878.375	-2352.789	1886.447	86.372	82.661	5758.945
CS-395-259	-2355.105	1876.088	-2358.397	1884.16	86.364	82.662	5771.045
CS-395-260	-2360.712	1873.802	-2364.004	1881.874	86.357	82.665	5776.985
CS-395-261	-2366.319	1871.515	-2369.611	1879.587	86.344	82.67	5787.905
CS-395-262	-2371.836	1869.199	-2375.076	1877.285	86.334	82.671	5793.935
CS-395-263	-2377.268	1867.012	-2380.524	1875.098	86.327	82.684	5800
CS-395-264	-2382.885	1864.75	-2386.157	1872.83	86.32	82.689	5806.05
CS-395-265	-2388.503	1862.487	-2391.759	1870.574	86.312	82.691	5811.935
CS-395-266	-2394.12	1860.225	-2397.376	1868.312	86.307	82.693	5817.765
CS-395-267	-2399.737	1857.963	-2402.994	1866.05	86.304	82.695	5823.765
CS-395-268	-2405.196	1855.67	-2408.429	1863.728	86.335	82.697	5829.825
CS-395-269	-2410.608	1853.498	-2413.841	1861.556	86.332	82.698	5835.855
CS-395-270	-2416.205	1851.252	-2419.439	1859.31	86.329	82.69	5841.885
CS-395-271	-2421.802	1849.006	-2425.036	1857.064	86.325	82.689	5847.865
CS-395-272	-2427.4	1846.76	-2430.633	1854.818	86.321	82.674	5853.865
CS-395-273	-2432.997	1844.514	-2436.23	1852.572	86.318	82.621	5859.865
CS-395-274	-2438.004	1840.893	-2441.746	1850.222	86.422	82.603	5865.865
CS-395-275	-2243.573	1838.66	-2447.314	1847.989	86.407	82.588	5871.785
CS-395-276	-2449.142	1836.426	-2452.883	1845.755	86.371	82.587	5877.615
CS-395-277	-2454.711	1834.193	-2458.452	1843.522	86.365	82.61	5883.645
CS-395-278	-2460.865	1833.275	-2463974	1841.381	86.328	82.614	5889.675
CS-395-279	-2466.311	1831.187	-2469.419	1839.294	86.339	82.621	5895.725
CS-395-280	-2471.942	1829.028	-2475.05	1837.135	86.321	82.627	5901.735
CS-395-281	-2477.574	1826.869	-2480.682	1834.976	86.332	82.641	5905.32
CS-395-282	-2483.205	1824.71	-2486.313	1832.81	86.366	82.687	5912.5
CS-395-283	-2488.836	1822.551	-2491.944	1830.657	86.372	82.699	5917.34
CS-395-284	-2494.402	1820.389	-2497.544	1828.527	86.411	82.683	5922.45
CS-395-285	-2499.865	1818.279	-2503.006	1826.411	86.442	82.69	5928.34
CS-395-286	-2505.514	1816.097	-2508.655	1824.229	86.391	82.689	5933.56
CS-395-287	-2511.163	1813.915	-2514.304	1822.047	86.391	82.684	5938.54
CS-395-288	-2516.812	1811.733	-2519.953	1819.865	86.391	82.622	5944.32
CS-395-289	-2522.46	1809.551	-2525.602	1817.682	86.391	82.681	5950.63
CS-395-290	-2528.062	1807.51	-2531.1	1815.681	86.443	82.679	5955.61
CS-395-291	-2533.551	1805.469	-2536.588	1813.64	86.435	82.676	5960.52
CS-395-292	-2539.227	1803.359	-2542.265	1811.53	86.432	82.673	5965.21
CS-395-293	-2544.903	1801.249	-2547.941	1809.42	86.43	82.669	5969.32
CS-395-294	-2550.579	1799.138	-2553.617	1807.309	86.425	82.662	5973.24
CS-395-295	-2556.255	1797.028	-2559.293	1805.199	86.421	82.651	5978.21
CS-395-296	-2561.713	1794.99	-2564.903	1803.102	86.441	82.641	5983.45
CS-395-297	-2567.162	1792.847	-2570.353	1800.959	86.412	82.635	5987.34
CS-395-298	-2572.798	1790.63	-2575.988	1798.743	86.394	82.641	5992.25
CS-395-299	-2578.433	1788.414	-2581.624	1796.527	86.388	82.622	5997.665

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

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	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
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▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	11.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SBJ	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

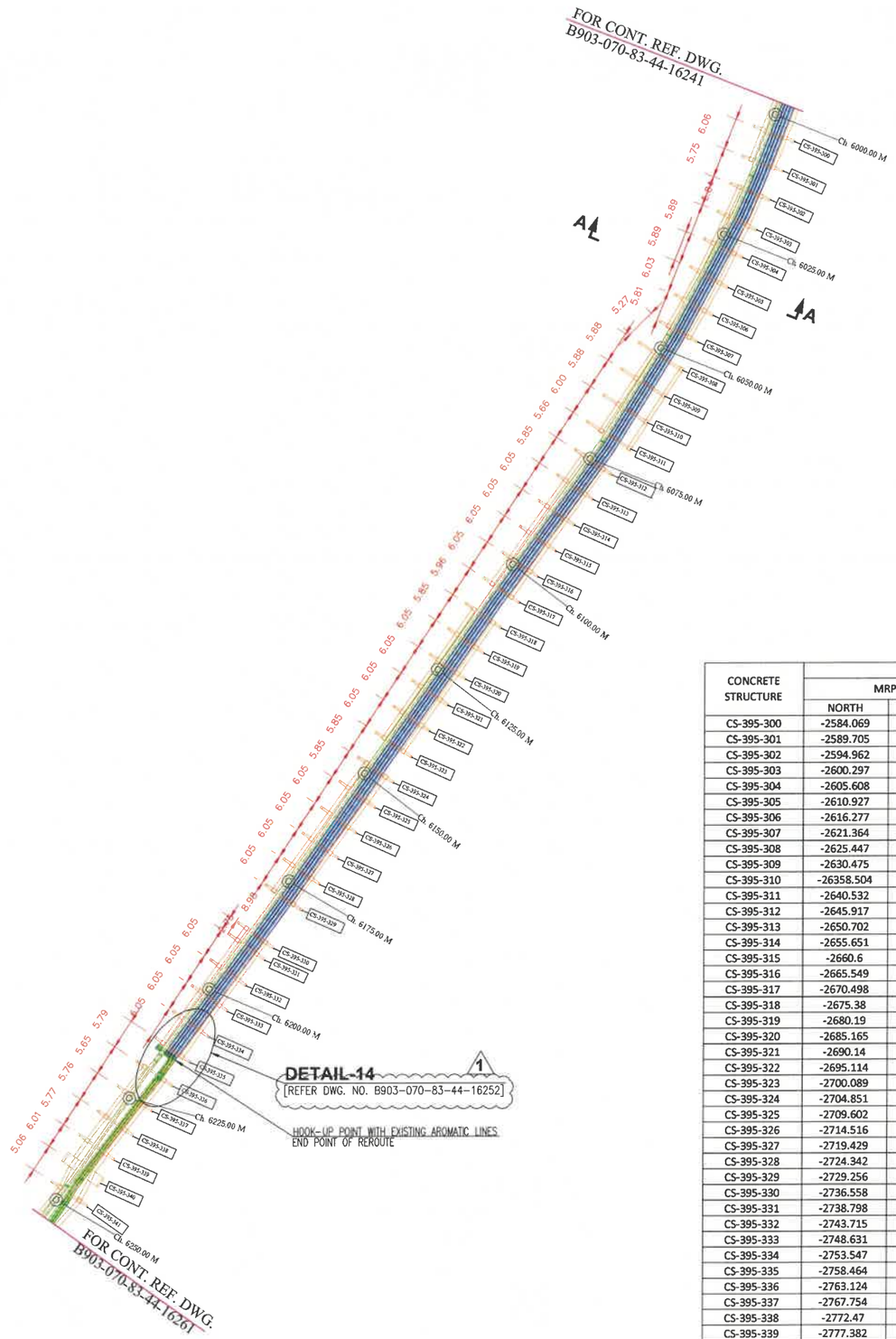
20" FUEL OIL PIPELINE PROJECT

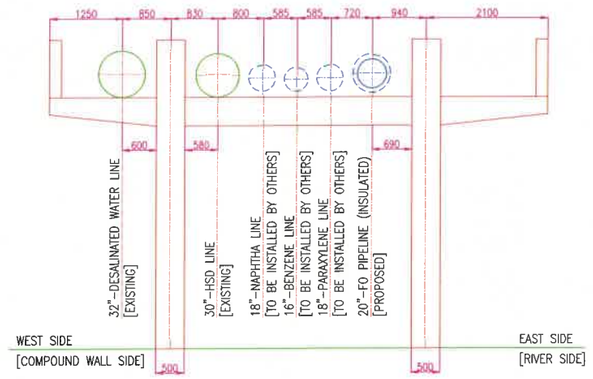
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-24

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 2 4 1	1

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16251





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-300	-2584.069	1786.198	-2587.259	1794.311	86.38	82.637	6003.725
CS-395-301	-2589.705	1783.982	-2592.895	1792.095	86.377	82.647	6009.31
CS-395-302	-2594.962	1781.628	-2598.435	1789.625	86.386	85.621	6015.37
CS-395-303	-2600.297	1779.248	-2604.054	1787.114	86.4	82.594	6021.52
CS-395-304	-2605.608	1776.659	-2609.468	1784.475	86.4	82.587	6027.53
CS-395-305	-2610.927	1774.095	-2615.134	1781.722	86.4	82.59	6033.82
CS-395-306	-2616.277	1771.21	-2620.4	1778.891	86.4	82.488	6039.74
CS-395-307	-2621.364	1768.276	-2625.577	1775.908	86.4	82.471	6045.65
CS-395-308	-2625.447	1764.271	-2630.931	1772.695	86.4	82.462	6051.81
CS-395-309	-2630.475	1760.998	-2635.959	1769.421	86.25	82.454	6057.69
CS-395-310	-26358.504	1757.724	-2640.988	1766.147	86.25	82.447	6063.57
CS-395-311	-2640.532	1754.45	-2646.016	1762.874	86.157	82.44	6069.45
CS-395-312	-2645.917	1752.342	-2650.941	1759.466	86.422	82.489	6075.28
CS-395-313	-2650.702	1748.967	-2655.727	1756.091	86.438	82.476	6080.97
CS-395-314	-2655.651	1745.477	-2660.676	1752.601	86.422	82.469	6086.86
CS-395-315	-2660.6	1741.987	-2665.624	1749.111	86.415	82.457	6092.75
CS-395-316	-2665.549	1738.496	-2670.573	1745.621	86.409	82.449	6098.64
CS-395-317	-2670.498	1735.006	-2675.522	1742.13	86.404	82.439	6104.53
CS-395-318	-2675.38	1731.584	-2680.35	1738.746	86.442	82.401	6110.26
CS-395-319	-2680.19	1728.245	-2685.161	1735.397	86.425	82.321	6116.15
CS-395-320	-2685.165	1724.792	-2690.136	1731.954	86.41	82.254	6122.19
CS-395-321	-2690.14	1721.339	-2695.11	1728.501	86.394	82.198	6128.25
CS-395-322	-2695.114	1717.886	-2700.085	1725.048	86.388	82.009	6134.31
CS-395-323	-2700.089	1714.433	-2705.06	1721.595	86.379	81.911	6140.57
CS-395-324	-2704.851	1711.032	-2709.933	1718.115	86.381	81.841	6146.38
CS-395-325	-2709.602	1707.609	-2714.698	1714.682	86.362	81.827	6152.24
CS-395-326	-2714.516	1704.096	-2719.612	1711.142	86.351	81.801	6158.3
CS-395-327	-2719.429	1700.529	-2724.525	1707.602	86.332	81.781	6164.36
CS-395-328	-2724.342	1696.989	-2729.438	1704.062	86.324	81.541	6170.42
CS-395-329	-2729.256	1693.449	-2734.352	1700.523	86.319	81.429	6176.48
CS-395-330	-2736.558	1688.211	-2741.648	1695.288	86.372	81.465	6185.46
CS-395-331	-2738.798	1686.6	-2743.888	1693.677	86.37	81.459	6188.22
CS-395-332	-2743.715	1683.064	-2748.805	1690.142	86.368	81.437	6194.28
CS-395-333	-2748.631	1679.529	-2753.721	1686.606	86.366	81.425	6200.34
CS-395-334	-2753.547	1675.993	-2758.637	1683.07	86.365	82.41	6206.4
CS-395-335	-2758.464	1672.457	-2763.567	1679.525	86.364	81.371	6212.94
CS-395-336	-2763.124	1668.996	-2768.196	1676.233	95.576	81.329	6218.15
CS-395-337	-2767.754	1665.744	2772.81	1672.957	95.686	81.312	6223.81
CS-395-338	-2772.47	1662.438	-2777.319	1669.491	95.795	81.247	6229.57
CS-395-339	-2777.382	1659.125	-2782.209	1666.275	95.905	81.145	6235.34
CS-395-340	-2782.112	1655.662	-2787.202	1662.725	96.014	82.104	6241.47
CS-395-341	-2786.227	1652.705	-2791.286	1659.822	96.124	81.011	6246.48

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	15.05.2025	ISSUED FOR CONSTRUCTION	RH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED
(भारत सरकार का उपक्रम) (A Govt. of India Undertaking)

MRPL — MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

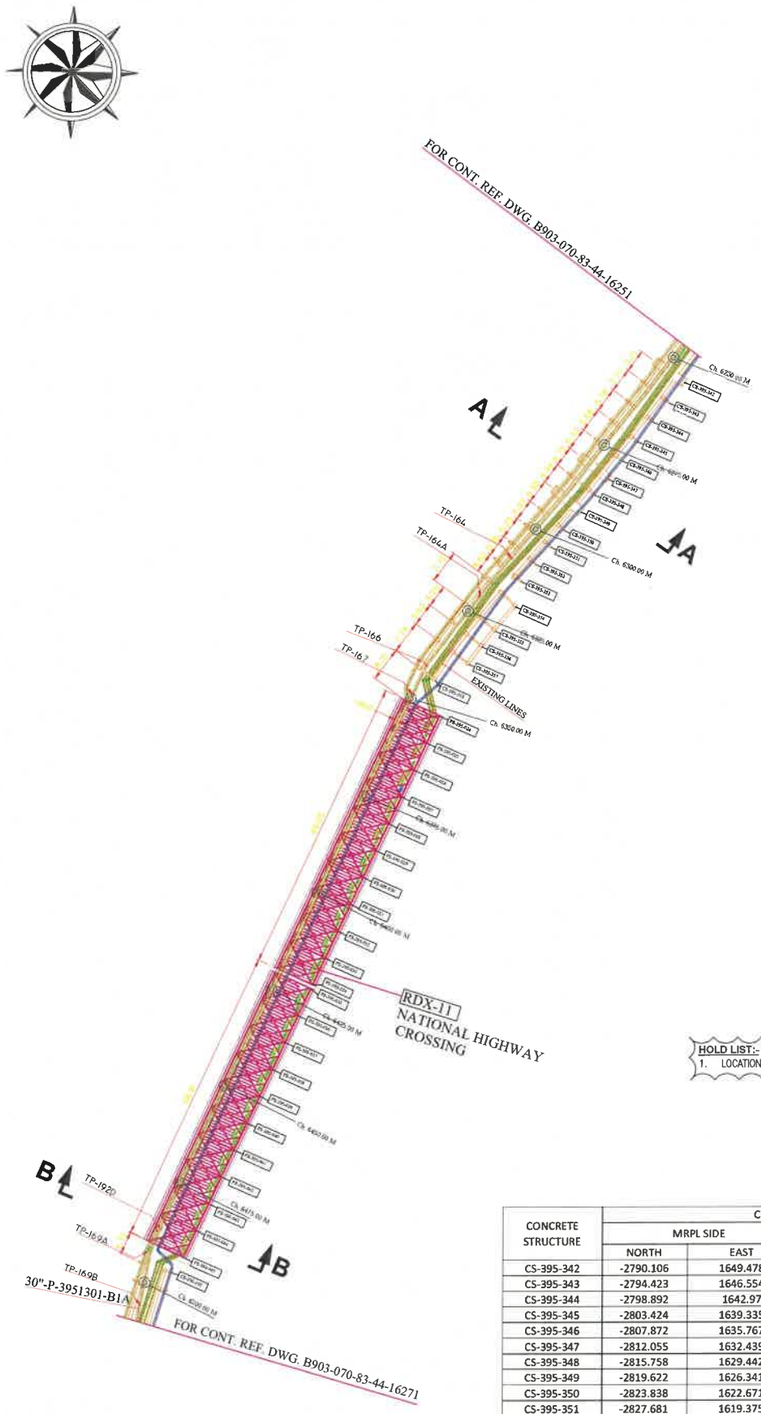
20" FUEL OIL PIPELINE PROJECT

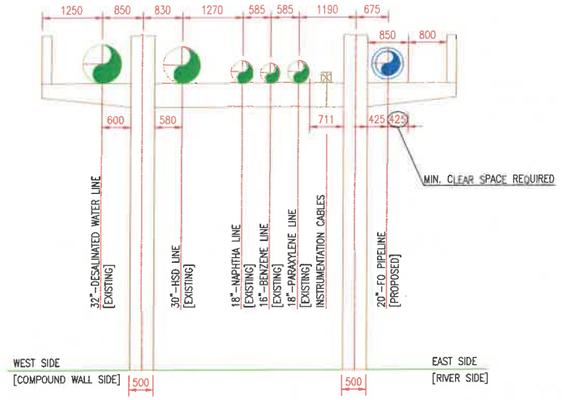
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-25

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:500	B 9 0 3	0 7 0	8 3	4 4	1 6 2 5 1	0

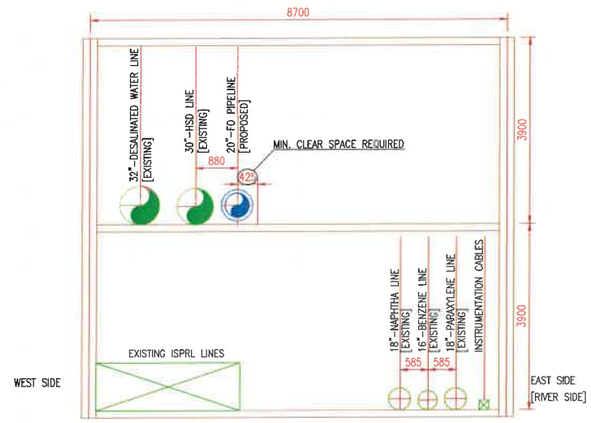
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16261





VIEW A-A



VIEW B-B

TYPICAL CROSS-SECTION DETAILS OF PIPE BRIDGE ON NH-66

HOLD LIST:-

1. LOCATIONS & SUPPORTS FOR LOOPS.

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-342	-2790.106	1649.478	-2795.2	1656.545	96.233	80.981	6251.57
CS-395-343	-2794.423	1646.554	-2799.886	1653.366	96.343	80.962	6257.23
CS-395-344	-2798.892	1642.97	-2804.355	1649.781	96.428	80.947	6262.95
CS-395-345	-2803.424	1639.335	-2808.887	1646.146	96.452	80.901	6268.75
CS-395-346	-2807.872	1635.767	-2813.335	1642.579	96.562	80.874	6275.14
CS-395-347	-2812.055	1632.439	-2817.506	1639.234	96.671	80.854	6279.85
CS-395-348	-2815.758	1629.442	-2821.221	1636.253	96.797	80.869	6284.54
CS-395-349	-2819.622	1626.341	-2825.264	1632.98	96.811	80.952	6289.14
CS-395-350	-2823.838	1622.671	-2829.521	1629.299	96.9	80.841	6295.36
CS-395-351	-2827.681	1619.375	-2833.365	1626.003	97.02	80.801	6300.15
CS-395-352	-2831.663	1615.96	-2837.347	1622.589	97.14	80.786	6305.65
CS-395-353	-2835.657	1612.536	-2841.394	1619.118	97.314	80.729	6310.96
CS-395-354	-2840.325	1610.88	-2847.307	1617.939	97.374	80.739	6316.7
CS-395-355	-2846.223	1605.895	-2852.798	1612.99	97.365	80.734	6324.69
CS-395-356	-2850.25	1602.606	-2856.47	1610.014	97.353	80.73	6328.89
CS-395-357	-2854.92	1599.405	-2860.896	1607.011	97.346	80.73	6334.11
CS-395-358	-2861.074	1595.149	-2864.114	1599.019	97.351	80.73	6341.85
CS-395-359	-2999.389	1530.784	-3002.05	1539.148	97.334	80.73	6492.72

STRUCTURE	CO-ORDINATES				ELEVATION	
	MRPL SIDE		ROAD SIDE			
	NORTH	EAST	NORTH	EAST	TOS	TOG
PS-395-024	-2867.65	1589.94	-2873.01	1601.261	99.467	80.78
PS-395-025	-2873.93	1587.28	-2878.69	1598.721	99.467	80.78
PS-395-026	-2880.21	1584.62	-2884.37	1596.181	99.467	80.78
PS-395-027	-2886.48	1581.96	-2890.05	1593.641	99.467	80.78
PS-395-028	-2892.76	1579.3	-2895.73	1591.101	99.467	80.78
PS-395-029	-2899.04	1576.64	-2901.41	1588.561	99.467	80.78
PS-395-030	-2905.31	1573.98	-2907.09	1586.021	99.467	80.78
PS-395-031	-2911.59	1571.32	-2912.77	1583.481	99.467	80.78
PS-395-032	-2917.87	1568.66	-2918.45	1580.941	99.467	80.78
PS-395-033	-2924.14	1566	-2924.13	1578.401	99.467	80.78
PS-395-034	-2930.2	1563.34	-2929.81	1575.861	99.467	80.78
PS-395-035	-2936.46	1560.68	-2935.49	1573.321	99.467	80.78
PS-395-036	-2942.72	1558.02	-2941.17	1570.781	99.467	80.78
PS-395-037	-2948.99	1555.36	-2946.85	1568.241	99.467	80.78
PS-395-038	-2954.25	1552.7	-2952.53	1565.701	99.467	80.78
PS-395-039	-2960.52	1550.04	-2958.21	1563.161	99.467	80.78
PS-395-040	-2966.78	1547.38	-2963.89	1560.621	99.467	80.78
PS-395-041	-2972	1544.72	-2969.57	1556.081	99.467	80.78
PS-395-042	-2978.31	1542.06	-2975.25	1553.541	99.467	80.78
PS-395-043	-2983.57	1539.4	-2980.93	1549.001	99.467	80.78
PS-395-044	-2988.83	1536.74	-2986.61	1546.461	99.467	80.78
PS-395-045	-2992.66	1531.41	-2997.97	1542.819	99.467	80.78

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSC	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL — MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

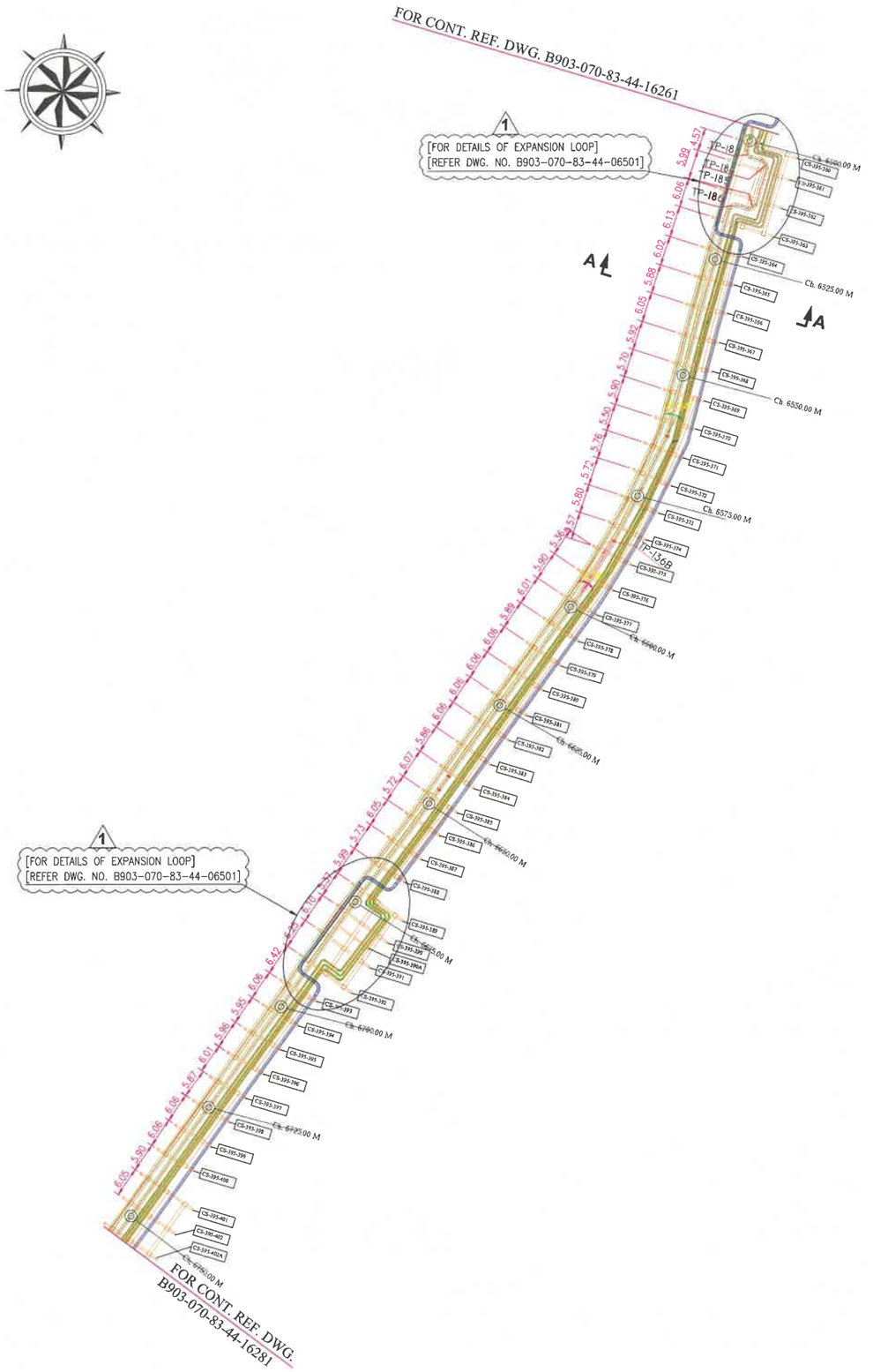
20" FUEL OIL PIPELINE PROJECT

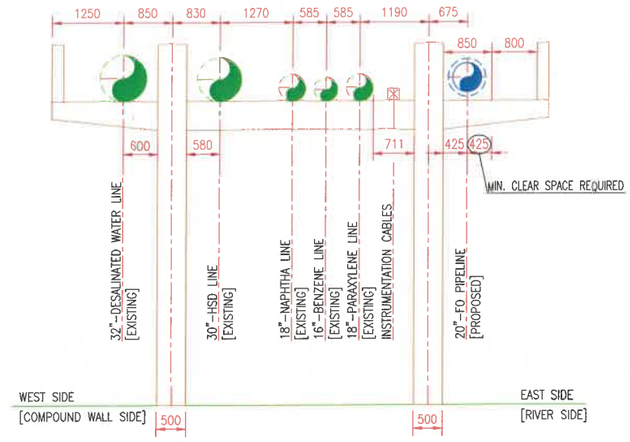
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-26

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:2000	B 9 0 3	0 7 0	8 3	4 4	1 6 2 6 1	0

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16271





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-360	-3005.08	1528.982	-3009	1541.313	95.756	82.062	6500
CS-395-361	-3009.45	1527.643	-3013.37	1539.973	95.756	82.118	6504.57
CS-395-361A	-3009.45	1527.643	-3013.37	1539.973	95.756	82.118	6504.57
CS-395-362	-3015.17	1525.888	-3019.1	1538.218	95.756	82.182	6510.56
CS-395-362 A	-3015.17	1525.888	-3019.1	1538.218	95.756	82.182	6510.56
CS-395-363	-3020.97	1524.112	-3024.89	1536.442	95.756	82.246	6516.62
CS-395-364	-3026.78	1522.145	-3028.92	1530.595	96.292	81.881	6522.19
CS-395-365	-3032.63	1520.701	-3034.7	1529.168	96.042	81.778	6528.14
CS-395-366	-3038.33	1519.219	-3040.47	1527.67	95.793	81.703	6534.09
CS-395-367	-3044.2	1517.732	-3046.34	1526.182	95.537	81.654	6540.14
CS-395-368	-3050.01	1516.479	-3052.31	1524.887	95.337	81.584	6546.25
CS-395-369	-3055.47	1514.872	-3058.11	1523.182	95.173	81.628	6552.35
CS-395-370	-3061.08	1513.022	-3063.63	1521.357	94.941	81.578	6558.08
CS-395-371	-3066.2	1510.986	-3069.44	1519.079	94.635	81.554	6564.25
CS-395-372	-3071.55	1508.777	-3075.1	1516.742	94.336	81.508	6570.54
CS-395-373	-3076.77	1506.281	-3080.62	1514.104	94.327	81.508	6576.2
CS-395-374	-3082.07	1503.77	-3085.92	1511.594	94.245	81.217	6582.4
CS-395-375	-3086.98	1500.765	-3090.83	1508.588	93.147	81.199	6588.08
CS-395-376	-3091.64	1497.684	-3096.07	1505.19	94.022	81.274	6594.15
CS-395-377	-3096.48	1494.3	-3100.96	1501.777	93.981	81.426	6599.98
CS-395-378	-3101.37	1490.822	-3106.25	1498.047	93.946	81.665	6606.45
CS-395-379	-3106.24	1487.499	-3111.23	1494.652	93.991	81.814	6612.54
CS-395-380	-3111.21	1484.038	-3116.19	1491.192	93.771	81.956	6618.15
CS-395-381	-3116.18	1480.577	-3121.16	1487.731	93.58	81.901	6624.65
CS-395-382	-3121.15	1477.117	-3126.13	1484.27	93.364	81.874	6630.66
CS-395-383	-3126.12	1473.656	-3131.1	1480.81	93.241	81.851	6636.72
CS-395-384	-3130.93	1470.309	-3135.91	1477.463	93.168	81.836	6642.56
CS-395-385	-3135.89	1466.812	-3140.79	1474.023	91.536	81.811	6648.55
CS-395-386	-3140.44	1463.348	-3145.69	1470.312	91.225	81.789	6654.6
CS-395-387	-3145.28	1459.705	-3150.53	1466.669	91.025	81.771	6660.53
CS-395-388	-3149.87	1456.265	-3155.27	1463.106	90.825	81.754	6666.58
CS-395-389	-3154.6	1452.581	-3162.19	1462.691	90.564	81.724	6671.85
CS-395-390	-3158.97	1449.461	-3166.57	1459.576	90.364	81.703	6678.95
CS-395-390A	-3161.55	1447.75	-3166.57	1458.105	90.364	81.703	6681.95
CS-395-391	-3163.93	1445.908	-3171.53	1456.026	90.151	81.687	6684.25
CS-395-392	-3169.01	1442.208	-3176.61	1452.381	89.854	81.675	6690.35
CS-395-393	-3174.1	1438.34	-3179.14	1445.448	89.653	81.624	6696.65
CS-395-394	-3179.03	1434.834	-3184.08	1441.941	89.693	81.578	6702.2
CS-395-395	-3183.88	1431.389	-3188.93	1438.496	89.393	80.584	6708.16
CS-395-396	-3188.74	1427.937	-3193.79	1435.045	88.993	80.615	6714.17
CS-395-397	-3193.6	1424.397	-3198.65	1431.504	88.783	80.638	6720.06
CS-395-398	-3198.37	1420.977	-3203.44	1428.072	88.515	80.65	6725
CS-395-399	-3203.3	1417.458	-3208.37	1424.553	88.291	80.842	6731.05
CS-395-400	-3208.23	1413.939	-3213.31	1421.024	88.064	80.834	6737.12
CS-395-401	-3213.02	1410.502	-3220.5	1421.001	87.726	80.832	6743.07
CS-395-402	-3217.96	1406.992	-3225.43	1417.491	87.853	80.829	6749.12
CS-395-402A	-3217.96	1406.992	-3225.43	1417.491	87.853	80.829	7149.12

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

- ABOVE GROUND PIPING
- BURIED/ HIDDEN PIPING
- EXISTING PIPING
- BOTTOM LEVEL OF PIPE
- CENTRELINE ELEVATION OF PIPE
- PLUG VALVE
- GATE VALVE
- CHECK VALVE
- BALL VALVE
- GLOBE VALVE
- LO/LC — LOCK OPEN / LOCK CLOSE
- UC — UTILITY CONNECTION
- PS — PIPE SUPPORT
- FFL — FINISHED FLOOR LEVEL
- BOP — BOTTOM OF PIPE
- TOP — TOP OF PIPE
- FSU — FLAT SIDE UP
- FSD — FLAT SIDE DOWN
- WP — WORKING POINT OF PIPE
- IJ (INSULATING JOINT)
- PLATFORM
- ELEVATION / LEVEL
- (FGL) FINISHED GRADE LEVEL
- PAVEMENT
- TOS — TOP OF STEEL
- LR — LONG RADIUS
- HPP — HIGHEST PAVEMENT POINT
- BOUNDARY WALL / FENCE

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	BSH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-27

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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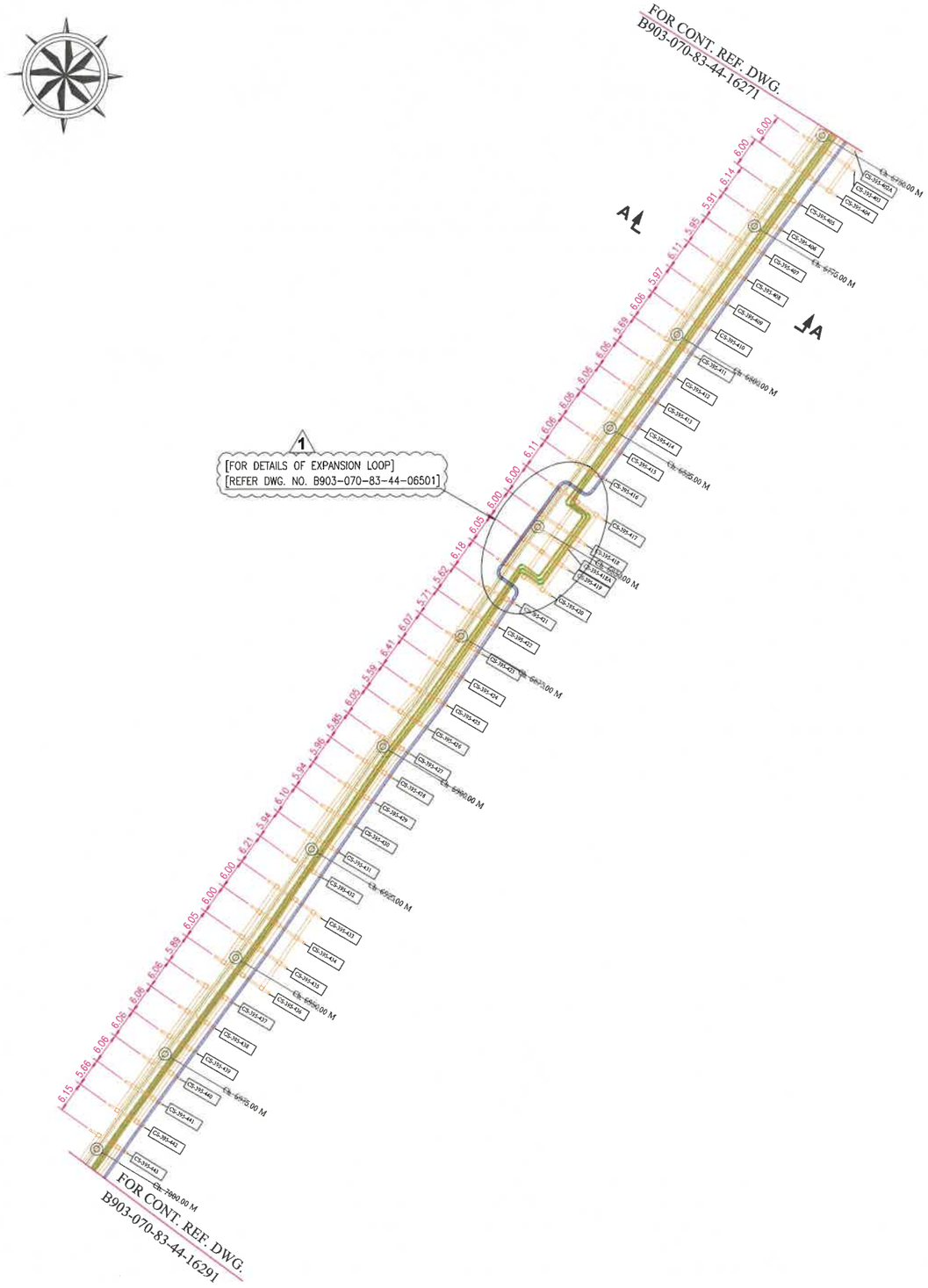
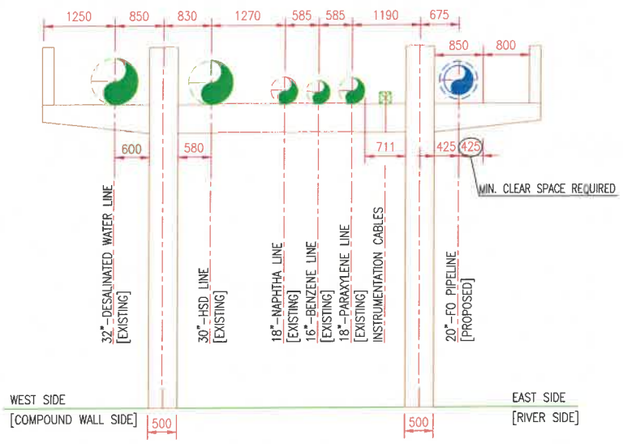
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16281





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-403	-3222.85	1403.511	-3230.32	1414.01	88.925	80.826	6755.12
CS-395-404	-3227.74	1400.03	-3235.21	1410.529	88.056	80.835	6761.12
CS-395-405	-3232.6	1396.498	-3237.66	1403.597	87.182	80.851	6767.12
CS-395-406	-3237.6	1392.934	-3242.66	1400.032	87.117	80.837	6773.26
CS-395-407	-3242.41	1389.503	-3247.47	1396.601	87.142	80.754	6779.17
CS-395-408	-3247.25	1386.05	-3252.31	1393.148	87.168	80.614	6785.12
CS-395-409	-3252.23	1382.503	-3257.29	1389.601	87.144	80.587	6791.23
CS-395-410	-3257.09	1379.04	-3262.15	1386.138	87.114	80.587	6797.2
CS-395-411	-3262.02	1375.524	-3267.08	1382.623	87.187	80.219	6803.26
CS-395-412	-3266.65	1372.221	-3271.71	1379.32	87.185	80.101	6808.96
CS-395-413	-3271.58	1368.706	-3276.64	1375.804	87.18	79.984	6815.01
CS-395-414	-3276.51	1365.19	-3281.57	1372.289	87.178	79.951	6821.07
CS-395-415	-3281.44	1361.675	-3286.5	1386.773	87.171	79.951	6827.13
CS-395-416	-3286.37	1358.159	-3291.43	1365.258	87.165	79.966	6833.19
CS-395-417	-3291.35	1354.614	-3298.79	1365.136	87.103	80.403	6839.3
CS-395-418	-3296.26	1351.148	-3303.69	1361.669	87.12	80.299	6845.3
CS-395-418A	-3296.26	1351.148	-3303.69	1361.669	87.12	80.299	6845.3
CS-395-419	-3301.16	1347.682	-3308.6	1358.203	87.161	80.457	6851.3
CS-395-420	-3306.1	1344.187	-3313.54	1354.708	87.184	80.487	6857.35
CS-395-421	-3311.07	1340.508	-3315.87	1347.784	87.034	80.528	6863.53
CS-395-422	-3315.76	1337.409	-3320.56	1344.684	87.038	80.215	6869.16
CS-395-423	-3320.53	1334.261	-3325.5	1341.187	87.044	80.436	6874.87
CS-395-424	-3325.61	1330.934	-3330.79	1337.948	87.053	80.547	6880.94
CS-395-425	-3330.95	1327.384	-3335.89	1334.57	87.071	80.784	6887.36
CS-395-426	-3335.24	1323.761	-3340.31	1330.85	87.092	80.82	6892.97
CS-395-427	-3340.17	1320.263	-3345.26	1327.34	87.008	80.812	6899.02
CS-395-428	-3344.92	1316.845	-3350.02	1323.922	87.021	80.804	6904.87
CS-395-429	-3349.77	1313.362	-3354.86	1320.439	87.041	80.784	6910.83
CS-395-430	-3354.59	1309.895	-3359.68	1316.972	87.101	80.779	6916.77
CS-395-431	-3359.54	1306.331	-3364.63	1313.408	87.148	80.774	6922.87
CS-395-432	-3364.47	1303.015	-3369.56	1310.092	87.148	80.77	6928.81
CS-395-433	-3369.59	1299.492	-3376.9	1310.102	87	80.768	6935.02
CS-395-434	-3374.53	1296.085	-3381.84	1306.696	86.999	80.765	6941.02
CS-395-434A	-3374.53	1296.085	-3381.84	1306.696	86.999	80.765	6941.02
CS-395-435	-3379.47	1292.679	-3386.79	1303.289	86.998	80.76	6947.02
CS-395-436	-3384.46	1289.243	-3391.77	1299.854	86.997	80.757	6953.07
CS-395-437	-3389.23	1285.788	-3394.27	1292.899	87.099	80.754	6958.96
CS-395-438	-3394.17	1282.285	-3399.21	1289.396	87.097	80.752	6965.02
CS-395-439	-3399.09	1278.792	-3404.15	1285.893	87.095	80.249	6971.08
CS-395-440	-3404.05	1275.279	-3409.09	1282.39	87.091	80.721	6977.14
CS-395-441	-3408.99	1271.776	-3414.03	1278.887	87.09	80.703	6983.2
CS-395-442	-3413.6	1268.504	-3418.64	1275.615	87.089	80.681	6988.86
CS-395-443	-3418.63	1264.961	-3423.67	1272.072	87.05	80.664	6995.01

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
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NOTES:-

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2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

- ABOVE GROUND PIPING
- BURIED/ HIDDEN PIPING
- EXISTING PIPING
- BOTTOM LEVEL OF PIPE
- CENTRELINE ELEVATION OF PIPE
- PLUG VALVE
- GATE VALVE
- CHECK VALVE
- BALL VALVE
- GLOBE VALVE
- LO/LC LOCK OPEN / LOCK CLOSE
- UC UTILITY CONNECTION
- PS PIPE SUPPORT
- FFL FINISHED FLOOR LEVEL
- BOP BOTTOM OF PIPE
- TOP TOP OF PIPE
- FSU FLAT SIDE UP
- FSD FLAT SIDE DOWN
- WP WORKING POINT OF PIPE
- IJ (INSULATING JOINT)
- PLATFORM
- ELEVATION / LEVEL
- (FGL) FINISHED GRADE LEVEL
- PAVEMENT
- TOS TOP OF STEEL
- LR LONG RADIUS
- HPP HIGHEST PAVEMENT POINT
- BOUNDARY WALL / FENCE

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	JSH	TLP/SD	MSG	

ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-28

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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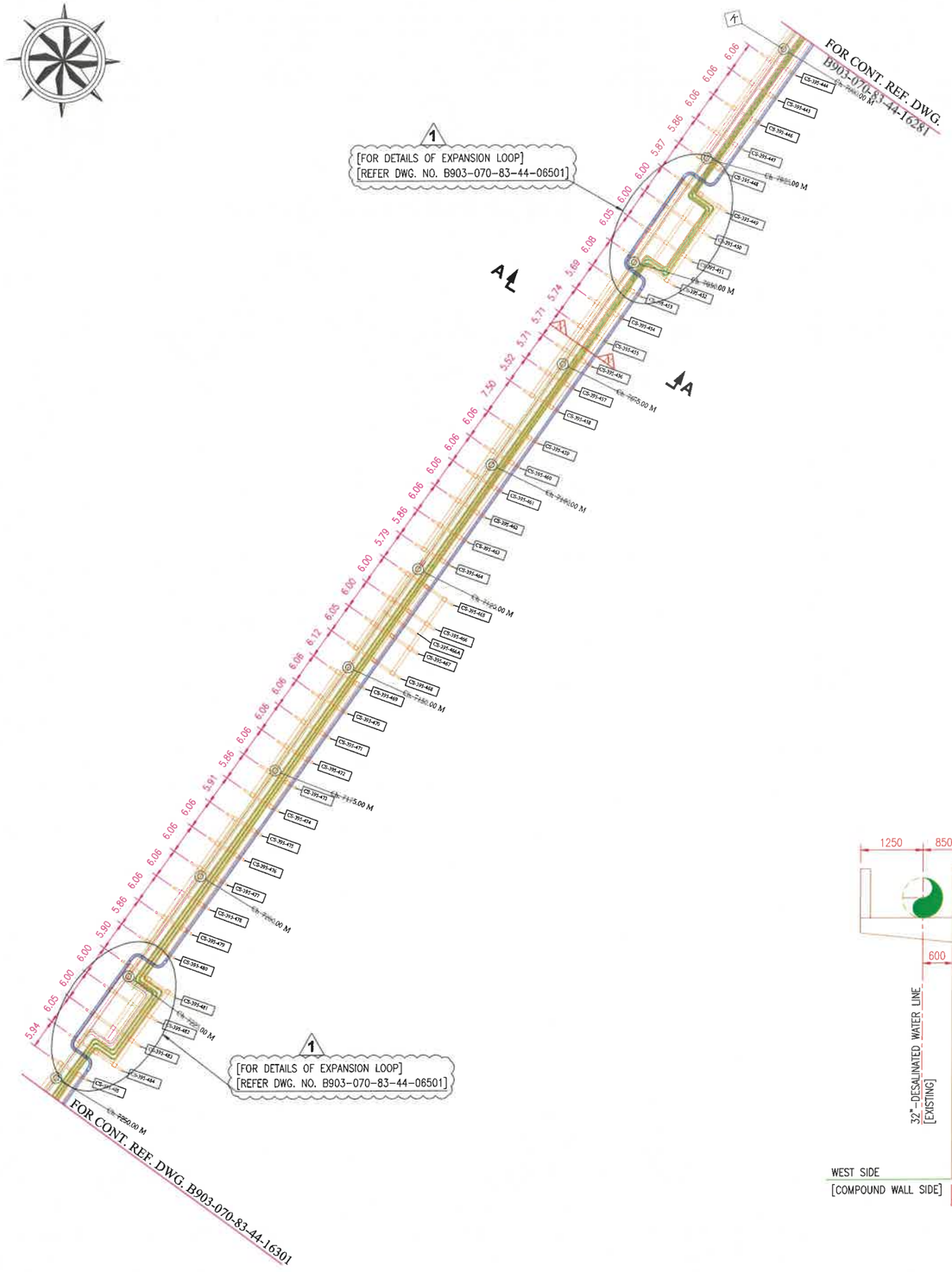
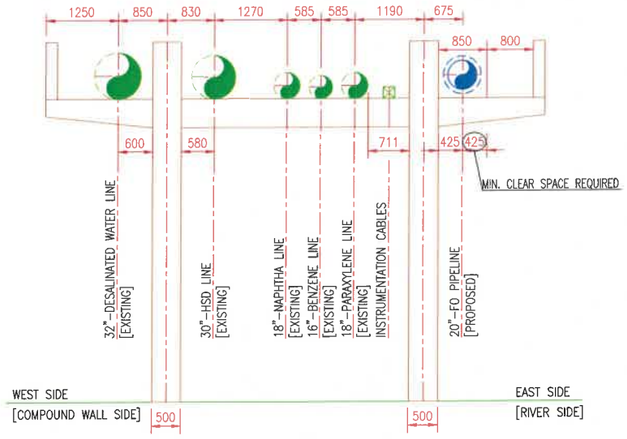
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16291



CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-444	-3408.99	1271.776	-3414.03	1278.887	87.09	80.703	6989.54
CS-395-445	-3428.51	1257.955	-3433.55	1265.066	87.073	80.623	7007.13
CS-395-446	-3433.45	1254.452	-3438.49	1261.563	87.084	80.614	7013.19
CS-395-447	-3438.39	1250.949	-3443.43	1258.06	87.095	80.597	7019.25
CS-395-448	-3443.16	1247.562	-3448.21	1254.673	87.112	80.584	7025.11
CS-395-449	-3448	1244.245	-3455.43	1254.777	87.069	80.575	7030.98
CS-395-450	-3452.91	1240.786	-3460.34	1251.317	86.971	80.363	7036.98
CS-395-450A	-3452.91	1240.786	-3460.34	1251.317	86.971	80.363	7036.98
CS-395-451	-3457.82	1237.326	-3465.24	1247.858	86.988	80.687	7042.98
CS-395-452	-3462.77	1233.838	-3470.19	1244.369	87.031	80.741	7049.03
CS-395-453	-3467.72	1230.318	-3472.71	1237.471	87.043	80.783	7055.11
CS-395-454	-3472.39	1227.066	-3477.38	1234.219	87.054	80.815	7060.8
CS-395-455	-3477.1	1223.788	-3482.08	1230.941	87.076	80.874	7066.54
CS-395-456	-3481.79	1220.522	-3486.77	1227.676	87.082	80.884	7072.25
CS-395-457	-3486.47	1217.257	-3491.46	1224.41	87.093	80.901	7077.96
CS-395-458	-3491.01	1214.1	-3495.99	1221.253	87.109	80.944	7083.48
CS-395-459	-3497.18	1209.826	-3502.16	1216.979	87.087	80.957	7090.99
CS-395-460	-3502.15	1206.364	-3507.13	1213.518	87.088	80.968	7097.05
CS-395-461	-3507.11	1202.903	-3512.1	1210.056	87.092	80.986	7103.11
CS-395-462	-3512.08	1199.442	-3517.07	1206.595	87.096	81.017	7109.17
CS-395-463	-3517.05	1195.98	-3522.04	1203.133	87.098	81.017	7115.23
CS-395-464	-3521.86	1192.633	-3526.84	1199.786	87.1	81.204	7121.09
CS-395-465	-3526.72	1189.484	-3534.12	1200.033	87.141	81.324	7126.89
CS-395-466	-3531.64	1186.036	-3539.04	1196.585	87.137	81.453	7132.89
CS-395-466A	-3531.64	1186.036	-3539.04	1196.585	87.137	81.453	7134.89
CS-395-467	-3536.55	1182.588	-3543.95	1193.137	87.123	81.494	7138.89
CS-395-468	-3541.51	1179.111	-3548.91	1189.66	87.071	81.551	7144.94
CS-395-469	-3546.48	1175.54	-3551.45	1182.693	87.171	81.598	7151.06
CS-395-470	-3551.45	1172.079	-3556.44	1179.232	87.164	81.227	7157.12
CS-395-471	-3556.42	1168.618	-3561.4	1175.771	87.161	81.702	7163.18
CS-395-472	-3561.39	1165.156	-3566.33	1172.309	87.155	81.651	7169.24
CS-395-473	-3566.36	1161.695	-3571.34	1168.848	87.153	81.623	7175.3
CS-395-474	-3571.16	1158.348	-3576.15	1165.501	87.151	81.611	7181.16
CS-395-475	-3575.94	1154.854	-3580.94	1161.995	87.143	81.589	7187.07
CS-395-476	-3580.9	1151.381	-3585.9	1158.522	87.148	81.574	7193.13
CS-395-477	-3585.84	1147.918	-3590.86	1155.049	87.151	81.475	7199.17
CS-395-478	-3590.82	1144.435	-3595.82	1151.576	87.153	81.364	7205.24
CS-395-479	-3595.78	1140.962	-3600.78	1148.103	87.157	81.241	7211.3
CS-395-480	-3600.58	1137.603	-3605.58	1144.744	87.144	81.201	7217.16
CS-395-481	-3605.41	1134.226	-3612.81	1144.775	87.143	81.184	7223.06
CS-395-481A	-3605.41	1134.226	-3612.81	1144.775	87.143	81.184	7223.06
CS-395-482	-3610.33	1130.778	-3617.73	1141.327	87.165	81.089	7229.06
CS-395-482A	-3610.33	1130.778	-3617.73	1141.327	87.165	81.089	7229.06
CS-395-483	-3615.24	1127.33	-3622.64	1137.879	87.173	81.057	7235.06
CS-395-483A	-3615.24	1127.33	-3622.64	1137.879	87.173	81.057	7236.06
CS-395-484	-3620.2	1123.853	-3627.6	1134.402	87.101	81.403	7241.11
CS-395-485	-3624.98	1120.33	-3630.03	1127.44	87.204	81.615	7247.05



VIEW A-A

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSC	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-29

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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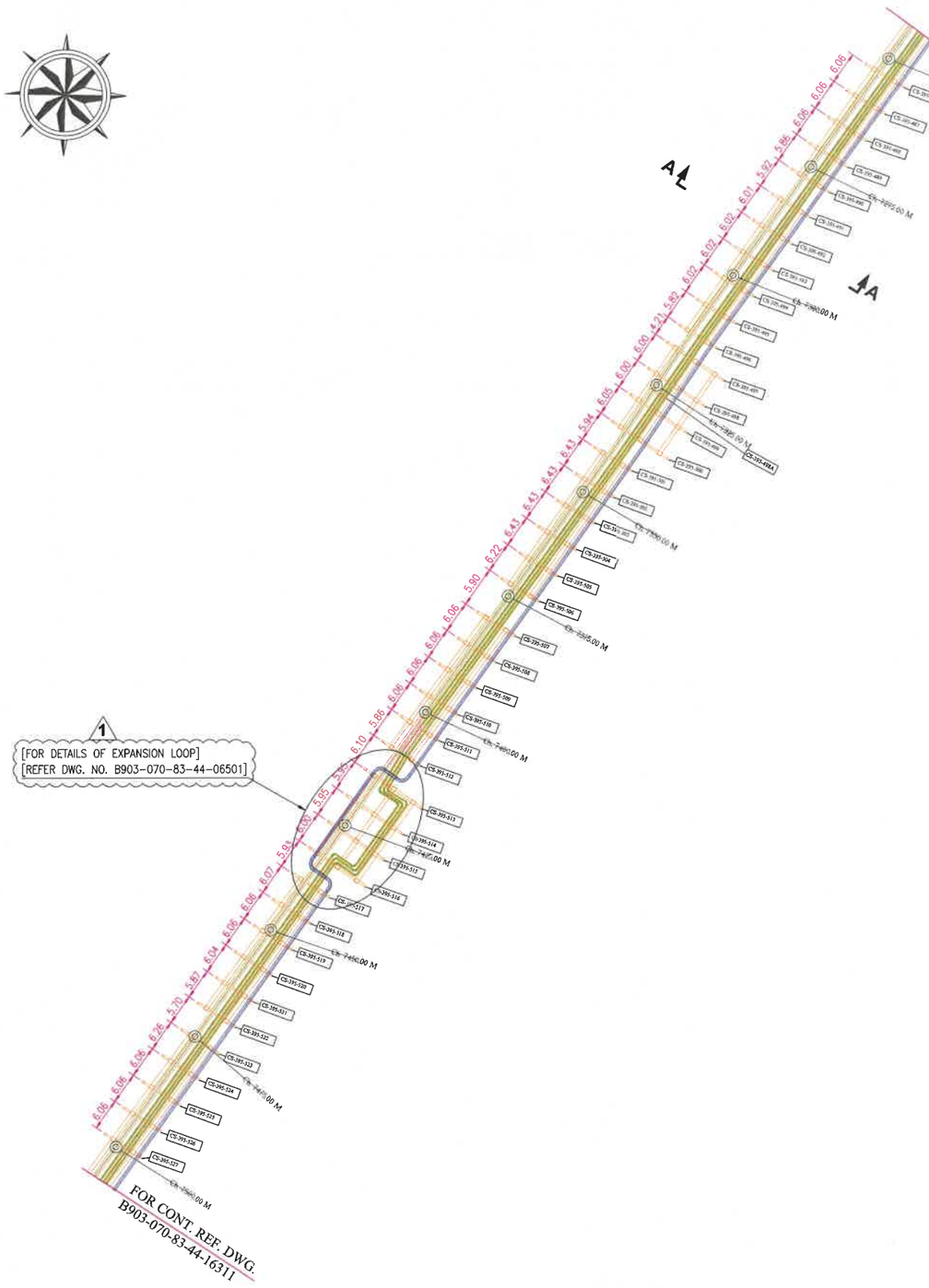
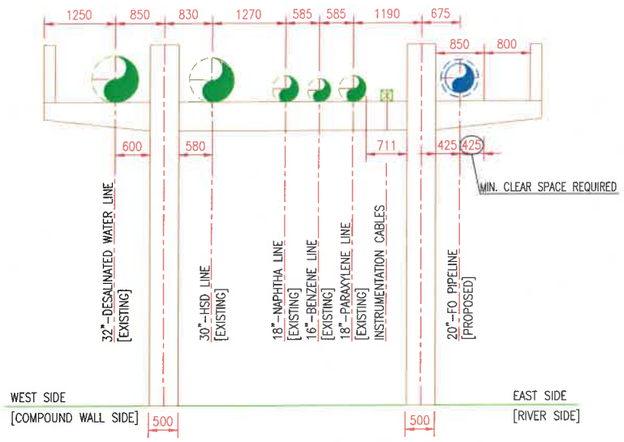
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16301





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-486	-3629.921	1116.826	-3634.965	1123.935	87.205	81.607	7253.11
CS-395-487	-3634.86	1113.321	-3639.904	1120.431	87.206	81.584	7259.17
CS-395-488	-3639.798	1109.817	-3644.843	1116.927	87.206	81.569	7265.23
CS-395-489	-3644.737	1106.313	-3649.782	1113.423	87.207	81.546	7271.29
CS-395-490	-3649.513	1102.925	-3654.558	1110.035	87.207	81.517	7277.15
CS-395-491	-3654.273	1099.407	-3659.319	1106.516	87.211	81.487	7283.07
CS-395-492	-3659.176	1095.926	-3664.222	1103.035	87.208	81.466	7289.08
CS-395-493	-3664.082	1092.444	-3669.128	1099.553	87.205	81.443	7295.1
CS-395-494	-3668.987	1088.962	-3674.033	1096.07	87.2	81.358	7301.12
CS-395-495	-3673.892	1085.48	-3678.939	1092.588	87.201	81.301	7307.14
CS-395-496	-3678.636	1082.112	-3683.682	1089.221	87.24	81.264	7312.96
CS-395-497	-3682.182	1079.832	-3689.128	1090.133	87.17	81.226	7317.18
CS-395-498	-3687.16	1076.475	-3694.106	1086.776	87.168	81.199	7323.18
CS-395-498A	-3690.16	1073.118	-3697.106	1083.419	87.168	81.199	7329.18
CS-395-499	-3692.137	1073.118	-3699.084	1083.419	87.165	81.173	7329.18
CS-395-500	-3697.157	1069.733	-3704.104	1080.034	87.162	81.158	7335.23
CS-395-501	-3701.91	1066.174	-3706.839	1073.364	87.157	81.147	7341.17
CS-395-502	-3707.213	1062.538	-3712.143	1069.728	87.154	81.139	7347.6
CS-395-503	-3712.517	1058.903	-3717.446	1066.093	87.142	81.021	7354.03
CS-395-504	-3717.82	1055.267	-3722.749	1062.457	87.141	80.951	7360.46
CS-395-505	-3723.123	1051.631	-3728.053	1058.821	87.14	80.921	7366.89
CS-395-506	-3728.252	1048.116	-3733.181	1055.306	87.139	80.892	7373.11
CS-395-507	-3732.839	1044.378	-3737.864	1051.502	87.138	80.866	7379.03
CS-395-508	-3737.788	1040.888	-3742.813	1048.012	87.135	80.466	7385.09
CS-395-509	-3742.737	1037.397	-3747.761	1044.521	87.132	80.173	7391.15
CS-395-510	-3747.686	1033.907	-3752.71	1041.031	87.13	81.179	7397.21
CS-395-511	-3752.634	1030.417	-3757.659	1037.541	87.127	81.182	7403.27
CS-395-512	-3757.42	1027.042	-3762.444	1034.166	87.125	81.187	7409.13
CS-395-513	-3762.44	1023.57	-3769.438	1033.545	87.162	81.191	7415.23
CS-395-514	-3767.313	1020.151	-3774.312	1030.125	87.122	81.943	7421.18
CS-395-514A	-3767.313	1020.151	-3774.312	1030.125	87.122	81.943	7427.13
CS-395-515	-3772.187	1016.731	-3779.185	1026.706	87.13	81.967	7427.13
CS-395-516	-3777.101	1013.283	-3784.1	1023.258	87.136	81.978	7433.13
CS-395-517	-3781.92	1090.802	-3786.937	1016.921	87.138	81.984	7439.06
CS-395-518	-3786.872	1006.307	-3791.889	1013.436	87.142	81.992	7445.13
CS-395-519	-3791.824	1002.821	-3796.842	1009.951	87.148	81.998	7451.19
CS-395-520	-3796.777	999.336	-3801.794	1006.465	87.154	81.203	7457.25
CS-395-521	-3801.715	995.861	-3806.746	1002.98	87.16	81.209	7463.29
CS-395-522	-3806.518	992.481	-3811.535	999.61	87.167	81.263	7469.16
CS-395-523	-3811.353	989.103	-3816.371	996.232	87.144	81.187	7475.07
CS-395-524	-3816.306	985.628	-3821.323	992.747	87.143	81.054	7481.13
CS-395-525	-3821.258	982.133	-3826.275	989.262	87.142	80.814	7487.19
CS-395-526	-3826.21	978.648	-3831.227	985.777	87.141	80.712	7493.25
CS-395-527	-3831.162	975.162	-3836.19	982.291	87.14	80.654	7499.31

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PSM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	IISH	TLP/TSD	MSC	

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

MRPL MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑईल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-30

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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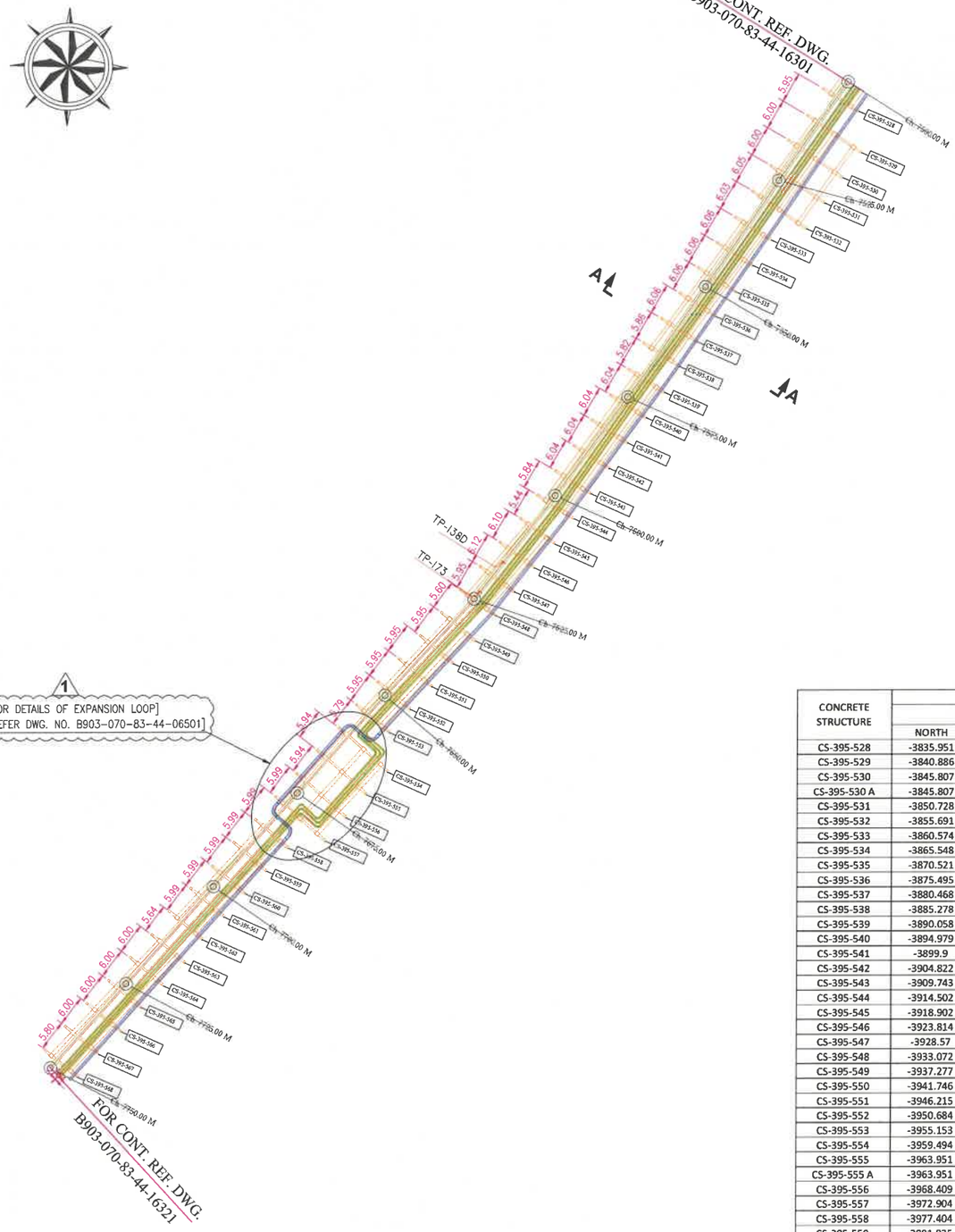
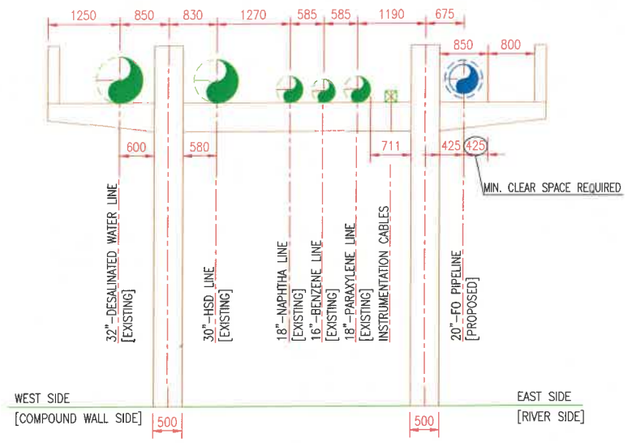
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16311





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-528	-3835.951	971.792	-3840.968	978.921	87.138	80.144	7505.17
CS-395-529	-3840.886	968.464	-3848.267	979.026	87.17	80.812	7511.12
CS-395-530	-3845.807	965.025	-3853.188	975.587	87.167	80.685	7517.12
CS-395-530 A	-3845.807	965.025	-3853.188	975.587	87.167	80.685	7523.12
CS-395-531	-3850.728	961.585	-3858.209	972.147	87.163	80.432	7523.12
CS-395-532	-3855.691	958.117	-3863.072	968.679	87.161	80.863	7529.17
CS-395-533	-3860.574	954.59	-3865.548	961.74	87.159	80.711	7535.2
CS-395-534	-3865.548	951.125	-3870.521	958.285	87.163	80.883	7541.27
CS-395-535	-3870.521	947.671	-3875.495	954.83	87.169	80.162	7547.33
CS-395-536	-3875.495	944.216	-3880.468	951.375	87.171	80.954	7553.39
CS-395-537	-3880.468	940.761	-3885.442	947.92	87.173	80.962	7559.45
CS-395-538	-3885.278	937.42	-3890.251	944.58	87.175	80.974	7565.31
CS-395-539	-3890.058	934.097	-3895.11	941.182	87.184	80.986	7571.13
CS-395-540	-3894.979	930.588	-3900.031	937.672	87.153	80.924	7577.17
CS-395-541	-3899.9	927.079	-3904.952	934.163	87.197	80.181	7583.21
CS-395-542	-3904.822	923.569	-3909.873	930.654	87.152	81.129	7589.25
CS-395-543	-3909.743	920.06	-3914.795	927.145	87.155	81.135	7595.29
CS-395-544	-3914.502	916.667	-3919.554	923.751	87.165	81.139	7601.13
CS-395-545	-3918.902	913.456	-3924.381	920.216	87.176	81.145	7606.58
CS-395-546	-3923.814	909.825	-3929.293	916.585	87.187	81.149	7612.69
CS-395-547	-3928.57	905.935	-3934.049	912.694	87.169	81.142	7618.83
CS-395-548	-3933.072	901.972	-3938.551	908.732	87.152	81.136	7624.83
CS-395-549	-3937.277	898.196	-3943.045	904.63	87.113	81.135	7630.48
CS-395-550	-3941.746	894.19	-3947.514	900.624	87.106	80.462	7636.48
CS-395-551	-3946.215	890.184	-3951.983	896.617	87.106	81.021	7642.48
CS-395-552	-3950.684	886.178	-3956.452	892.611	87.106	80.921	7648.48
CS-395-553	-3955.153	882.172	-3960.921	888.605	87.106	80.951	7654.48
CS-395-554	-3959.494	878.254	-3968.127	887.82	87.14	80.891	7660.33
CS-395-555	-3963.951	874.231	-3972.584	883.797	87.124	80.871	7666.33
CS-395-555 A	-3963.951	874.231	-3972.584	883.797	87.124	80.871	7672.33
CS-395-556	-3968.409	870.209	-3977.042	879.775	87.116	80.851	7672.33
CS-395-557	-3972.904	866.152	-3981.536	875.719	87.082	80.846	7678.38
CS-395-558	-3977.404	862.111	-3983.179	868.619	87.14	80.857	7684.43
CS-395-559	-3981.925	858.099	-3987.7	864.607	87.145	80.842	7690.47
CS-395-560	-3986.446	854.087	-3992.221	860.596	87.133	80.862	7696.51
CS-395-561	-3990.967	850.075	-3996.742	856.584	87.13	80.843	7702.55
CS-395-562	-3995.488	846.064	-4001.263	852.575	87.128	80.832	7708.59
CS-395-563	-3999.621	842.099	-4005.449	848.582	87.089	80.631	7714.32
CS-395-564	-4004.124	838.051	-4009.952	844.534	87.078	80.651	7720.38
CS-395-565	-4008.628	834.002	-4014.456	840.485	87.084	80.655	7726.44
CS-395-566	-4013.131	829.954	-4018.959	836.437	87.099	80.662	7732.5
CS-395-567	-4017.635	825.905	-4023.463	832.388	87.113	80.654	7738.56
CS-395-568	-4021.99	821.99	-4027.818	828.473	87.122	80.652	7744.42

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-44-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	ISH	TLP/SD	MSG	

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL

MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS MSEZ CORRIDOR AREA-31

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
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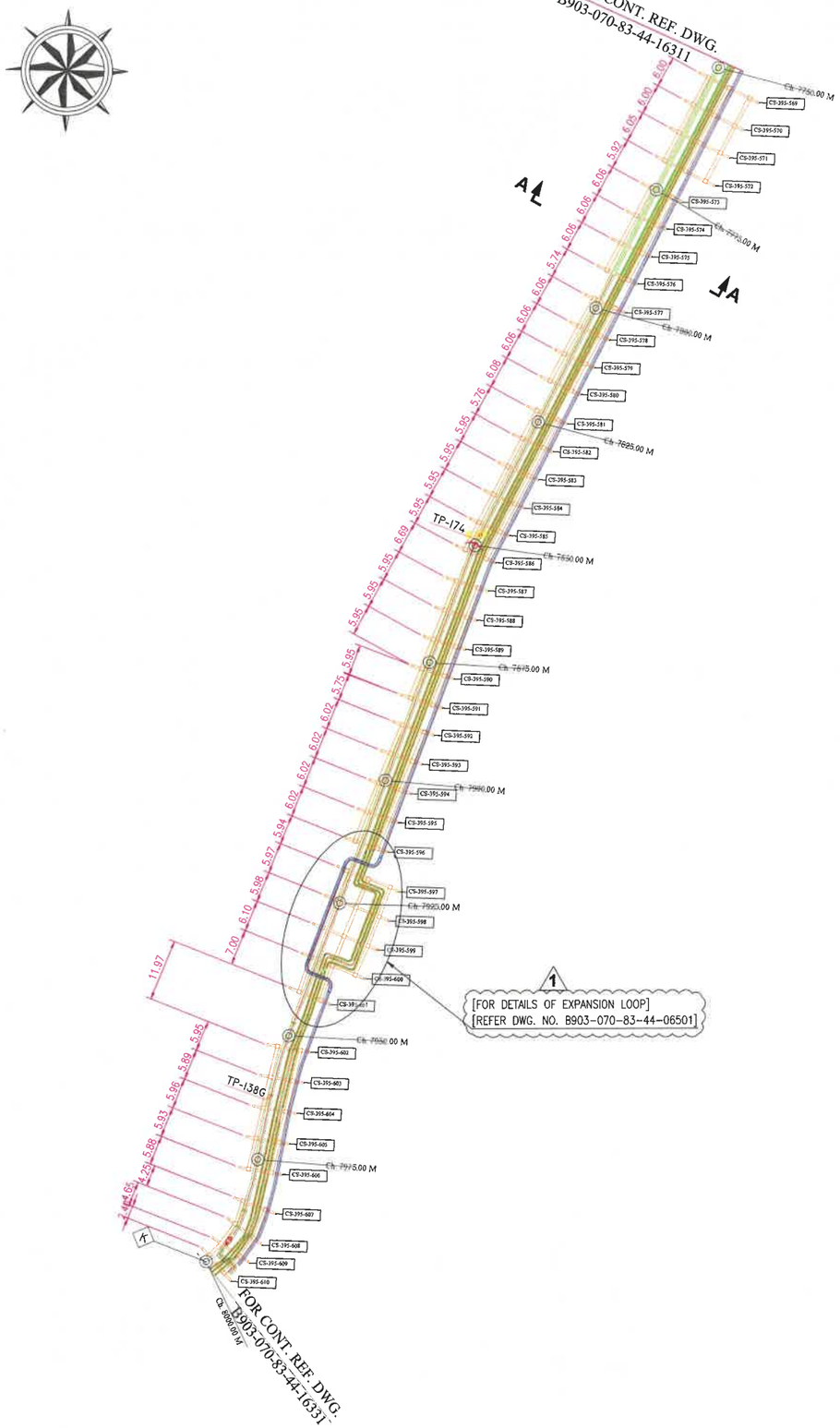
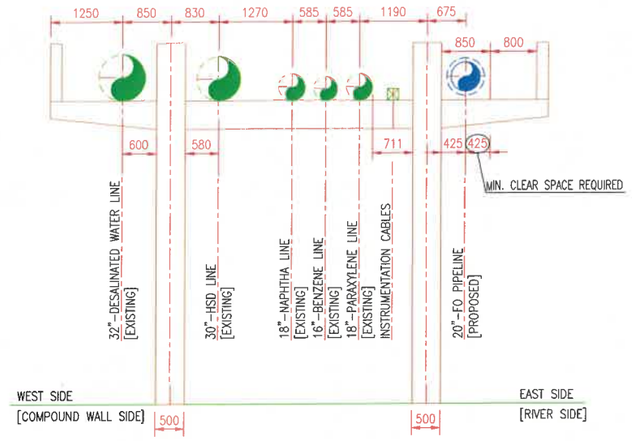
3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16321





VIEW A-A

CONCRETE STRUCTURE	CO-ORDINATES				ELEVATION		CHAINAGE
	MRPL SIDE		ROAD SIDE				
	NORTH	EAST	NORTH	EAST	TOS	TOG	
CS-395-569	-4026.467	818.111	-4035.1	827.677	87.13	80.647	7750.34
CS-395-570	-4030.924	814.088	-4039.557	823.654	87.116	80.659	7756.34
CS-395-570 A	-4030.924	814.088	-4039.557	823.654	87.116	80.659	7762.34
CS-395-571	-4035.381	810.066	-4044.014	819.632	87.084	80.641	7762.34
CS-395-572	-4039.876	806.01	-4048.509	815.576	87.066	80.645	7768.39
CS-395-573	-4044.194	801.962	-4050.022	808.445	87.131	80.657	7774.32
CS-395-574	-4048.698	797.914	-4058.526	804.397	87.127	80.652	7780.38
CS-395-575	-4053.201	793.865	-4059.029	800.348	87.119	80.648	7786.4
CS-395-576	-4057.705	789.817	-4063.533	796.3	87.116	80.621	7792.46
CS-395-577	-4062.013	786.02	-4067.836	792.508	87.08	80.684	7798.2
CS-395-578	-4066.516	781.971	-4072.345	788.454	87.068	80.721	7804.26
CS-395-579	-4071.019	777.922	-4076.848	784.405	84.034	80.781	7810.32
CS-395-580	-4075.523	773.873	-4081.351	780.356	87.003	80.792	7816.38
CS-395-581	-4080.096	769.87	-4085.67	776.385	87.081	80.811	7822.46
CS-395-582	-4084.472	766.125	-4090.047	772.641	87.08	80.865	7828.22
CS-395-583	-4088.999	762.253	-4094.573	768.769	87.078	80.898	7834.18
CS-395-584	-4093.525	758.381	-4099.099	764.897	87.076	80.929	7840.14
CS-395-585	-4098.051	754.509	-4103.626	761.024	87.074	80.962	7846.1
CS-395-586	-4102.416	750.622	-4108.083	757.247	87.073	80.994	7852.06
CS-395-587	-4108.075	746.749	-4113.036	753.8	86.969	81.014	7858.79
CS-395-588	-4112.972	743.303	-4117.934	750.353	86.965	81.054	7864.78
CS-395-589	-4117.87	739.856	-4122.832	746.907	86.959	81.067	7870.77
CS-395-590	-4122.768	736.41	-4127.729	743.461	86.958	81.082	7876.76
CS-395-591	-4127.666	732.963	-4132.627	740.014	86.957	81.094	7882.75
CS-395-592	-4132.226	729.697	-4137.379	736.729	87.05	81.106	7888.36
CS-395-593	-4137.11	726.118	-4142.263	733.149	87.052	81.114	7894.42
CS-395-594	-4141.995	722.538	-4147.148	729.57	87.06	81.12	7900.48
CS-395-595	-4146.879	718.959	-4152.032	725.99	87.066	81.124	7906.54
CS-395-596	-4151.764	715.379	-4156.917	722.41	87.072	80.83	7912.6
CS-395-597	-4156.607	711.797	-4164.251	722.238	87.052	81.014	7918.58
CS-395-598	-4161.447	708.33	-4169.128	718.673	87.037	81.335	7924.58
CS-395-598 A	-4161.447	708.33	-4169.128	718.673	87.037	81.335	7930.58
CS-395-599	-4166.205	704.748	-4173.948	715.094	87.024	80.817	7930.54
CS-395-599 A	-4166.205	704.748	-4173.948	715.094	87.024	80.817	7936.54
CS-395-600	-4171.07	701.118	-4178.713	711.558	87.012	81.145	7936.59
CS-395-600 A	-4171.07	701.118	-4178.713	711.558	87.012	81.145	7942.59
CS-395-601	-4176.782	697.005	-4182.009	704.056	87.039	81.214	7943.59
CS-395-602	-4186.443	689.931	-4190.532	697.697	87.058	81.321	7955.56
CS-395-603	-4191.847	687.231	-4195.936	694.997	87.054	81.483	7961.6
CS-395-604	-4197.169	684.523	-4201.258	692.289	87.065	81.543	7967.57
CS-395-605	-4202.613	681.866	-4206.702	689.632	87.033	81.623	7973.63
CS-395-606	-4207.97	679.141	-4212.059	686.907	87.045	81.778	7979.64
CS-395-607	-4213.282	676.434	-4217.306	684.234	87.058	81.825	7985.6
CS-395-608	-4216.791	674.038	-4222.668	680.557	87.239	81.548	7989.85
CS-395-609	-4219.799	670.283	-4226.817	675.553	87.39	81.171	7994.66

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-01003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-01009	KEY PLAN FOR PIPING GADs IN MSEZ CORRIDOR
B903-070-83-33003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
4. FOR MAJOR CHANGE IN DIRECTION, LR BENDS (R=3D) SHALL BE USED. LR BENDS (R=3D) SHALL BE MANUFACTURED BY CONTRACTOR FROM FREE ISSUE LINEPIPES OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.92 MM.
5. FOR MINOR CHANGES IN DIRECTION, COLD FIELD BENDS (MIN. RADIUS R=40D) SHALL BE UTILIZED. COLD FIELD BENDS AT REQUIRED ANGLES SHALL BE PREPARED BY CONTRACTOR AT SITE. CONTRACTOR SHALL PREPARE THESE BENDS FROM FREE-ISSUE BARE PIPES BASED ON ACTUAL REQUIREMENT AT SITE.

LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
▽	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
▼	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEM/PC
1	10.12.2025	REVISED & REISSUED FOR CONSTRUCTION	NG	TLP	SD	
0	20.05.2025	ISSUED FOR CONSTRUCTION	BSH	TLP/SBJ	MSG	

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

MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

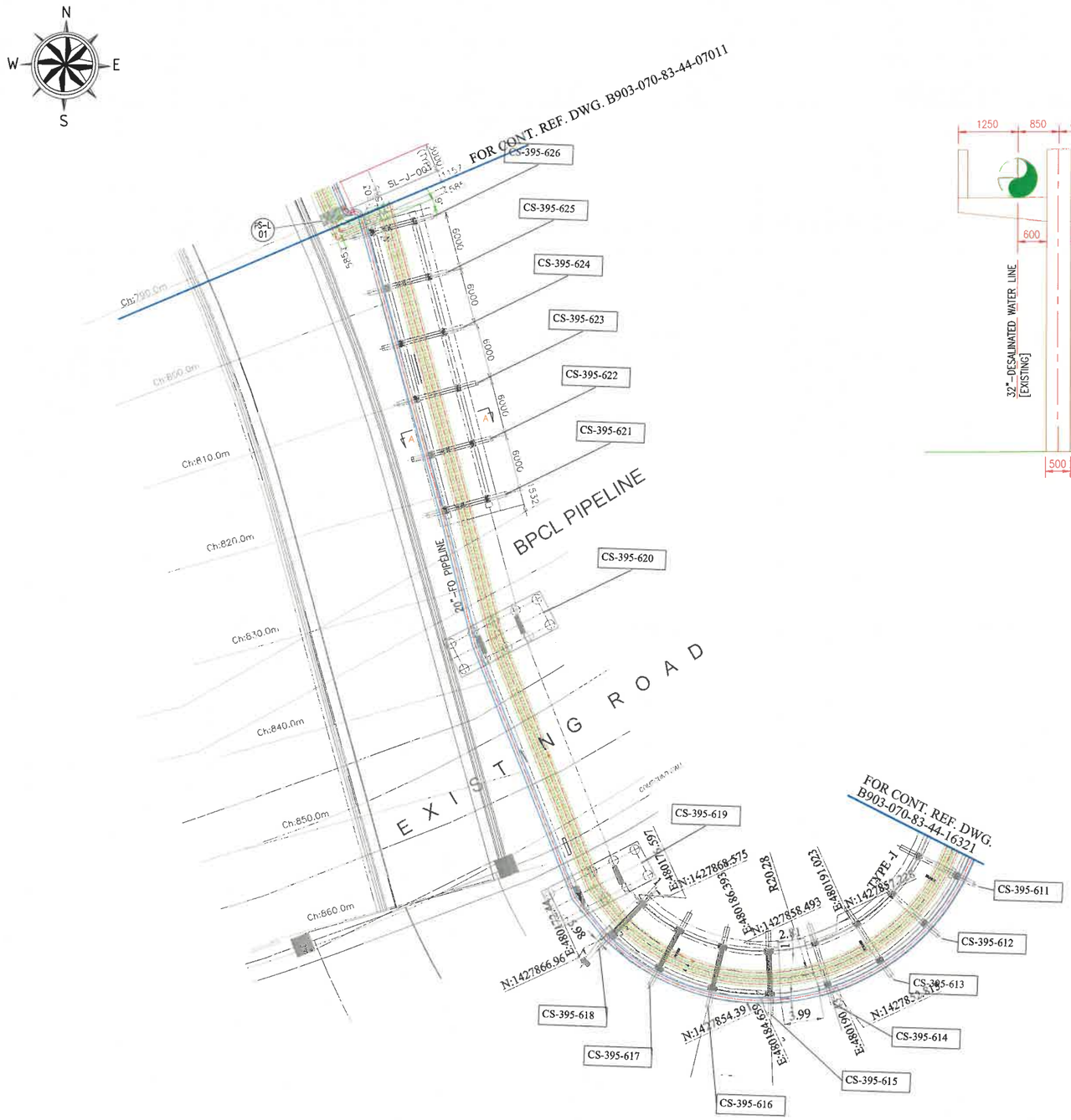
20" FUEL OIL PIPELINE PROJECT

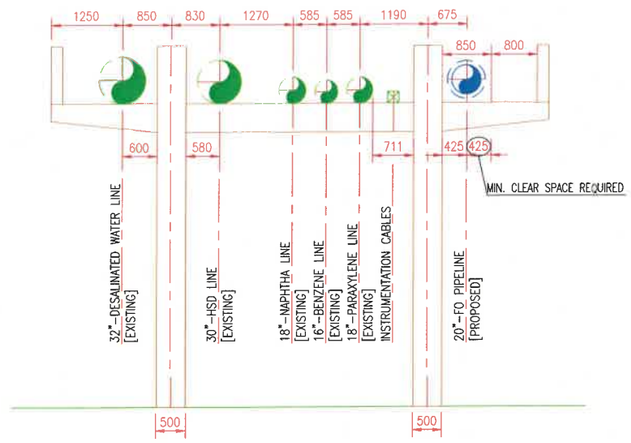
PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-32

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:50	B 9 0 3	0 7 0	8 3	4 4	1 6 3 2 1	1

3-1641-0501 REV.2 A1-841x594

B903-070-83-44-16331





VIEW A-A

REF. DWG. NO.	REFERENCE DRAWING TITLE
B903-070-83-44-10003	OVERALL LAYOUT OF FO LINE IN MSEZ CORRIDOR
B903-070-83-44-13003	SUPPORT INDEX, MSEZ CORRIDOR

GENERAL NOTES :

1. ALL DIMENSIONS ARE IN MM, EXCEPT DISTANCE BETWEEN SLEEPERS/SUPPORTS WHICH ARE INDICATED IN METERS. ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. REFERENCE LEVEL 100.000M CORRESPONDS TO 24.3M ABOVE MSL.
3. LEVELS HAVE BEEN PROVIDED AS PER EXISTING AS-BUILT DRAWINGS.
4. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
5. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
6. ALL THE DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON AS-BUILT DRAWINGS, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER-IN-CHARGE.
7. HIGH POINT VENTS AND LOW POINT DRAINS FOR HYDROSTATIC TESTING SHALL BE PROVIDED BY CONTRACTOR, LOCATION OF WHICH SHALL BE DECIDED AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE. VENT & DRAIN CONNECTIONS SHALL BE AS PER PMS.

NOTES:-

1. LOCATIONS OF EXISTING PIPELINES INDICATED IN THIS DRAWING ARE TENTATIVE ONLY. EXACT LOCATION OF EXISTING PIPELINES AND OTHER FACILITIES SHALL BE VERIFIED AT SITE BEFORE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PREVENT ANY DAMAGE TO THESE EXISTING FACILITIES DURING CONSTRUCTION.
2. 16" BENZENE LINE, 18" PARAXYLENE LINE AND 18" NAPHTHA LINES (TOGETHER REFERRED TO AS 'AROMATIC LINES') SHALL BE LAID CONCURRENTLY BY OTHERS AND IS NOT IN THE SCOPE OF MECHANICAL WORKS CONTRACTOR.
3. FOR ABOVEGROUND SECTION OF 20" FO PIPELINE, LINE NO. 20"-070-200-PL-00-101, THE PIPE TO BE USED SHALL BE LINEPIPE OF GRADE API 5L Gr. X-52 PSL2, SAWL, THK. 7.14 MM. LINE SHALL BE SKIN EFFECT HEAT TRACED LINE AND 1" HEATED TUBES SHALL BE STITCH WELDED ALL ALONG THE PIPES AND BENDS. LINE SHALL BE SUBSEQUENTLY INSULATED.
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LEGEND :

	ABOVE GROUND PIPING	FSU	FLAT SIDE UP
	BURIED/ HIDDEN PIPING	FSD	FLAT SIDE DOWN
	EXISTING PIPING	WP	WORKING POINT OF PIPE
	BOTTOM LEVEL OF PIPE	IJ	IJ (INSULATING JOINT)
	CENTRELINE ELEVATION OF PIPE		PLATFORM
	PLUG VALVE		ELEVATION / LEVEL
	GATE VALVE		(FGL) FINISHED GRADE LEVEL
	CHECK VALVE		PAVEMENT
	BALL VALVE	TOS	TOP OF STEEL
	GLOBE VALVE	LR	LONG RADIUS
LO/LC	LOCK OPEN / LOCK CLOSE	HPP	HIGHEST PAVEMENT POINT
UC	UTILITY CONNECTION		BOUNDARY WALL / FENCE
PS	PIPE SUPPORT		
FFL	FINISHED FLOOR LEVEL		
BOP	BOTTOM OF PIPE		
TOP	TOP OF PIPE		

REV.	DATE	REVISIONS	BY	CHKD	APPD	PEMPC
0	21.05.2025	ISSUED FOR CONSTRUCTION	(SH TLP/SP MSG)			

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

ONGC MRPL MANGALORE REFINERY AND PETROCHEMICALS LIMITED

20" फ्यूअल ऑइल पाइपलाईन परियोजना

20" FUEL OIL PIPELINE PROJECT

PIPING GENERAL ARRANGEMENT & SUPPORTS
MSEZ CORRIDOR
AREA-33

SCALE	JOB NO.	UNIT	DEPT.	SECT.	DWG. NO.	REV.
1:250	B 9 0 3	0 7 0	8 3	4 4	1 6 3 3 1	0

3-1641-0501 REV.2 A1-841x594

B904-495-83-44-00003

LEGEND:

PSE	PIPE SLEEPER ENTRY POINT
HKP	AROMATIC PIPELINES HOOK–UP POINT
CCS	FO AND AROMATIC PIPELINES COMMON CORRIDOR START POINT
CCE	FO AND AROMATIC PIPELINES COMMON CORRIDOR END POINT
CTE	COASTAL TERMINAL ENTRY POINT
ABP	AROMATIC PIPELINES BRANCH POINT
J10	JETTY–10 APPROACH TRESTLE PIPERACK END POINT
J11	JETTY–11 APPROACH TRESTLE PIPERACK END POINT

LEGEND:

- PIPE CORRIDOR (ONLY NEW FO PIPELINE)
- PIPE CORRIDOR (BOTH AROMATIC LINES & FO LINE)
- PIPE CORRIDOR (ONLY NEW AROMATIC LINES)
- PIPE CORRIDOR (AROMATIC LINES FROM BRANCH POINT TO JETTY–10)
- PIPE CORRIDOR (AROMATIC LINES FROM BRANCH POINT TO JETTY–11)

REF. DWG. NO.	REFERENCE DRAWING TITLE
B904-495-83-44-00006	DETAILS OF PIPE SUPPORTS IN NMPA CORRIDOR
B904-495-83-44-00007	DETAILS OF PIPE BRIDGES AND TRESTLES
GG/RP/TS25141A	TOPOGRAPHICAL SURVEY OF JETTY AREA

NOTES:

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ALL CHAINAGES ARE IN KILOMETERS.
3. THIS DRAWING HAS BEEN PREPARED FROM TOPOGRAPHICAL SURVEY DRAWING RECEIVED FROM SURVEYOR M/s GAVESHANA (DWG. NO. GG/RP/TS25141A)
4. LEVELS HAVE BEEN PROVIDED AS PER SURVEY DRAWING AND EXISTING AS–BUILT DRAWINGS.
5. UNDERLINED DIMENSIONS ARE NOT TO SCALE.
6. ALL EXISTING UNDERGROUND UTILITIES SUCH AS PIPING, PIPELINES, H/T CABLES ETC. SHALL BE IDENTIFIED AND LOCATED BY THE CONTRACTOR BEFORE START OF ANY EXCAVATION & TRENCHING WORK. CONTRACTOR SHALL CARRY OUT SUCH WORKS TAKING ADEQUATE PRECAUTIONS & ALL SAFETY MEASURES TO AVOID ANY DAMAGE TO UTILITIES.
7. ALL THE DIMENSIONS OF EXISTING FACILITIES INDICATED HERE ARE BASED ON SURVEY DRAWINGS/ AS–BUILT DRAWINGS/ MANUAL SITE MEASUREMENT BY TAPE, HENCE THE DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL CARRY OUT PRE CONSTRUCTION SURVEY BEFORE INITIATING ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES BETWEEN THIS DRAWING & SITE SHALL BE RESOLVED AT SITE WITH APPROVAL FROM ENGINEER–IN–CHARGE.
8. REFER DRAWING NOS. 00006 & 00007 FOR DETAILS OF PIPE SUPPORTS, PIPE SLEEPERS, PIPE BRIDGES AND TRESTLES.

REV.	DATE	REVISIONS	BY	CHK.	APPD	PEMPC
1	19.03.25	REVISED & REISSUED FOR ENGINEERING	ISH	TJT/SD	MSG	
0	00.02.25	ISSUED FOR ENGINEERING	ISH	TJT/SD	MSG	

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MANAGALORE REFINERY AND PETROCHEMICALS LIMITED

OFFSITE PIPELINES AND JETTY INFRASTRUCTURE PROJECT

PIPELINE CORRIDOR LAYOUT INSIDE NMPA AREA

SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:1000	B 9 0 4 4 9 5	8 3	4 4	0 0 0 0 3	1

3-1541-0500 REV 2 A0-1189 x 841