

GENERAL:  
FOR STANDARD SYMBOLS, DETAILS AND LEGEND SHEETS  
SEE DRAWINGS PDRP4240-8110-25-600-0001 TO  
PDRP4240-8110-25-600-0008 AND PDRP4240-8110-25-600-0013  
TO PDRP4240-8110-25-600-0021.

REFER OVERALL KEYPLAN DRAWING INDICATING  
THE NODE LOCATIONS: PDRP4200-8230-02-600-0001.

NOTES:

1. DELETED.
2. DELETED.
3. JUMP OVER SECTIONS FOR STEAM ACROSS JACKETED SECTIONS.
4. VENT AND DRAIN VALVES TO BE LOCATED AT HIGH AND LOW POINT OF PIPING RESPECTIVELY. PIPING TO CONFIRM LOCATION.
5. PIPERACK STEEL TO BE DEFLECTED PRIOR TO ADDITION OF PIPEWORK. SPECIFICALLY FOR SPANS OF 12M OR GREATER.
6. SUPPLY, FABRICATION AND INSTALLATION BY UNIT CONTRACTOR.
7. PG TO BE READABLE FROM BATTERY LIMIT PLATFORM.
8. ONLY RED CLOUDED ITEMS ARE IN THE SCOPE OF SRU TRAIN 3 PROJECT
9. IN BLUE CLOUDED PORTIONS EXISTING LINES STEAM TRACING TO BE REPLACED WITH CONTRA TRACING.

THIS DRAWING HAS BEEN MARKED BY TECHNIPIFMC FOR TIE-IN IDENTIFICATION FOR SRU TRAIN 3 & INCINERATOR PROJECT, FROM DRAWING PDRP4240-275-8110-25-211-2034 REV 2.

APPROVED	
FW	IOCL

DISCIPLINE	PROC	EQUIP	INSTR	PIPING	COMM	THSE
SIGNATURE						
DATE						
ENGINEER'S APPROVAL			APPROVED FOR CONST			
REV	DATE	SIGNATURE	OE*	REV	DATE	SIGNATURE
ZX	29/09/15	AS BUILT		VM	ASR	MKV
S2	19/04/13	ISSUED AS MARKED		AK	AMY	CMR
S1	27/06/11	ISSUED FOR CONSTRUCTION		PS	AKC	AAS
S	18/02/11	ISSUED FOR CONSTRUCTION		YSK	SNL	AAS
B	03/06/10	ISSUED FOR DETAILED DESIGN		PS	AS	OP
A	05/03/10	ISSUED FOR DESIGN		PS	AS	OP
REV	DATE	DESCRIPTION	BY	CHKD	APPD	

PARADIP REFINERY PROJECT-LSTK PACKAGE-C  
Paradip, Orissa State, India

INDIAN OIL CORPORATION LIMITED

LSTK KES JSC OGCC KSS ALMATY

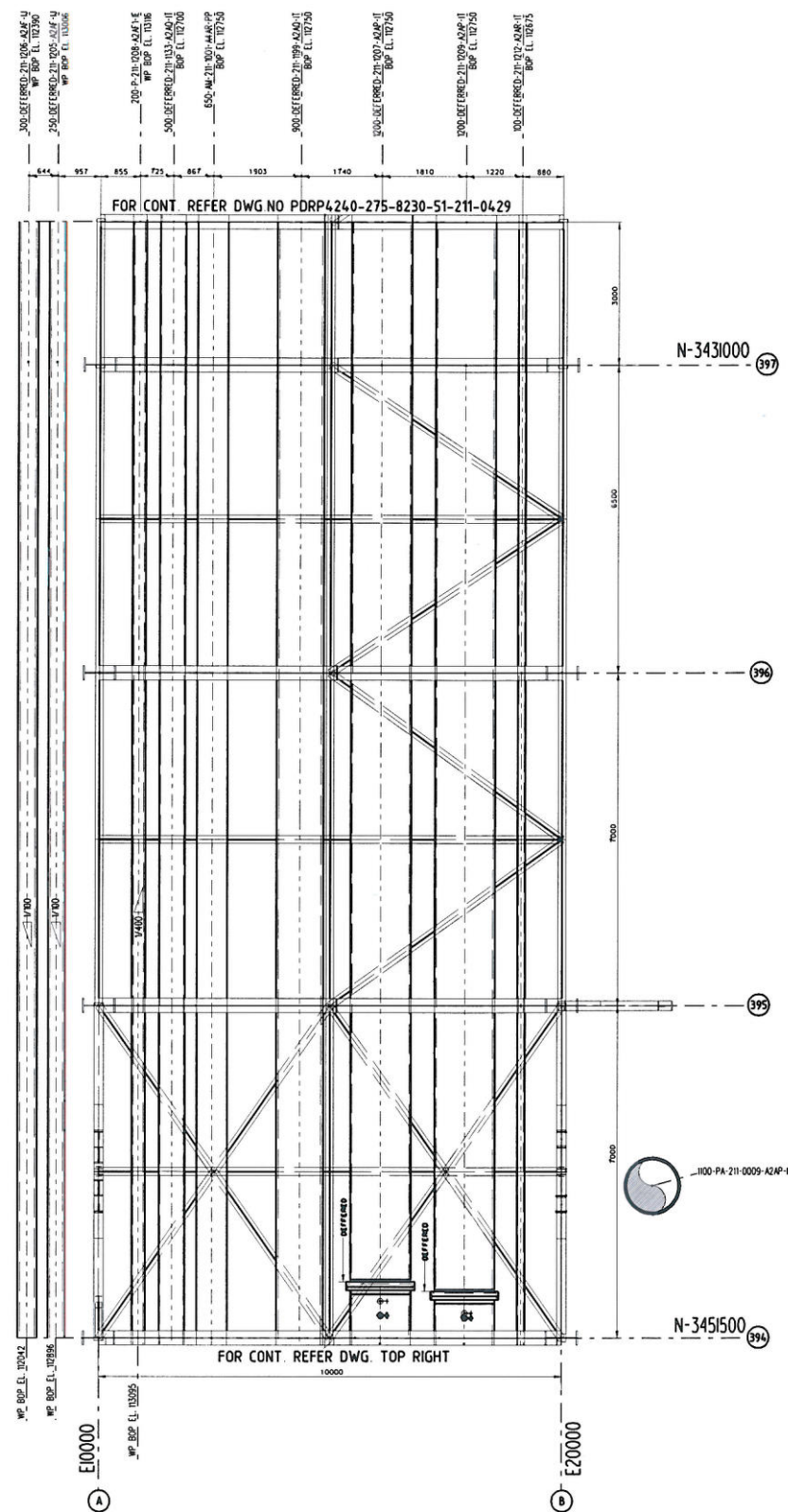
EMDEC KES KAZIROY ENGINEERING INDIA VALVE ENGINEERING & CONSTRUCTION

This Drawing is the Property of INDIAN OIL CORPORATION LTD and is lent without consideration other than the Borrower's agreement that it shall not be reproduced, copied lent or disposed of directly or indirectly, nor used for any purpose other than that for which it is specifically furnished. The apparatus shown in the drawing is covered by patents information contained in this drawing may be proprietary to Indian Oil Corporation Ltd and/or licensors, and is subject to obligations of confidentiality.

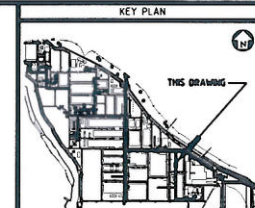
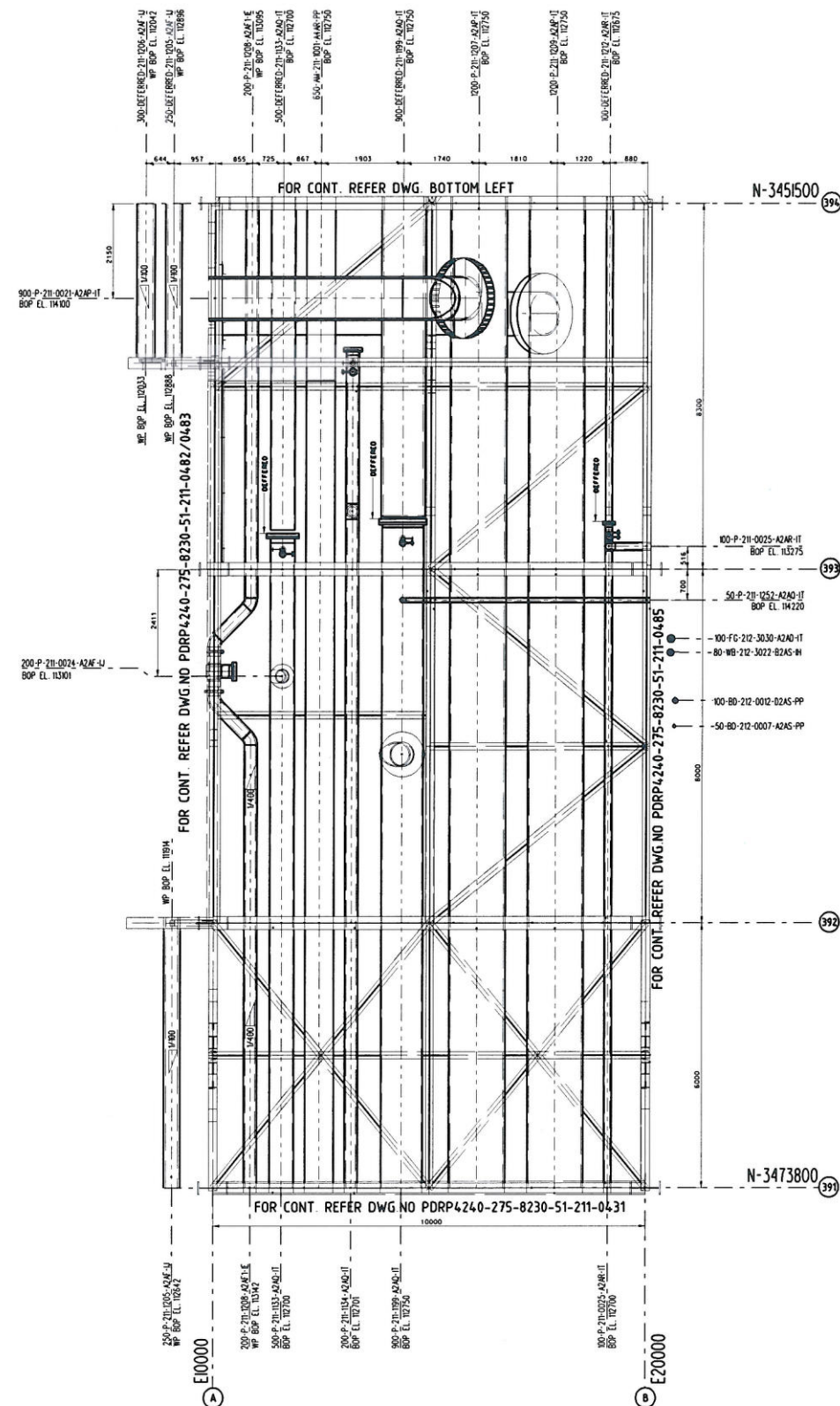
TITLE:  
PIPING AND INSTRUMENTATION DIAGRAM  
INTERCONNECTING PIPE RACK  
UNIT 211 DRAWING 1/2 - SRU  
NODE 7

SCALE:	DWG NO:	REV
NTS:	PDRP4240-275-8110-25-211-2034	ZX
CONTRACT NO:	1-14-4200/0275	CLASS
		2
		DSN
		26563



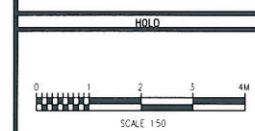


PLAN AT EL.112600



NOTES  
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE.  
2. REFER GEOMETRICS FOR PIPE SUPPORT LOCATIONS & SUPPORT TAGS.

LEGEND	
	HEAVY DUTY PAVING
	NORMAL DUTY PAVING
	LIGHT DUTY PAVING
	PLATFORM
	FUTURE REFERENCED FACILITIES
	ACCESS WAY
	WITHDRAWAL / LAYDOWN AREA
	FIRE EQUIPMENT CABINET (FEC)
	FIRE WATER NOZZLES (FWS)
	FIRE HYDRANT (FHY)
	TOP OF ROAD



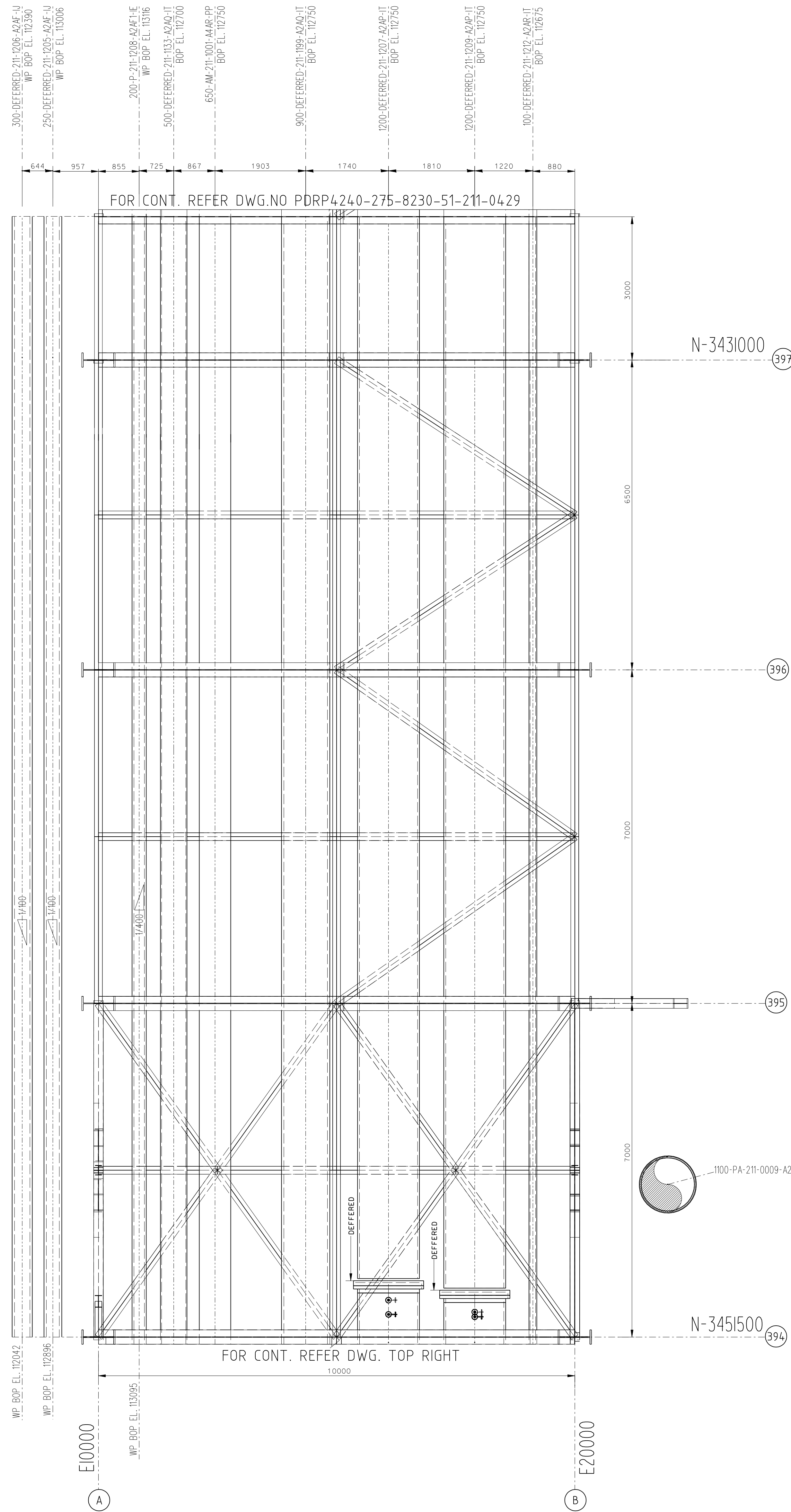
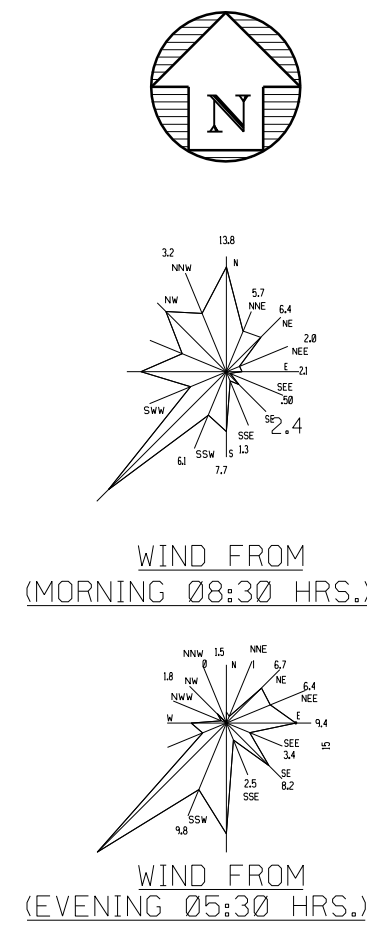
REFERENCE DRAWINGS	
DRAWING No.	TITLE
PDRP4240-275-8230-01-211-0012	BACK PLOT PLAN
PDRP4240-8230-02-600-0002	CONSTRUCTION AREA
PDRP4240-8230-01-600-0005	SOUTH-WEST SITE PLAN

ENGINEER'S APPROVAL	
REV/DATE	SIGNATURE
1/1/2011	[Signature]

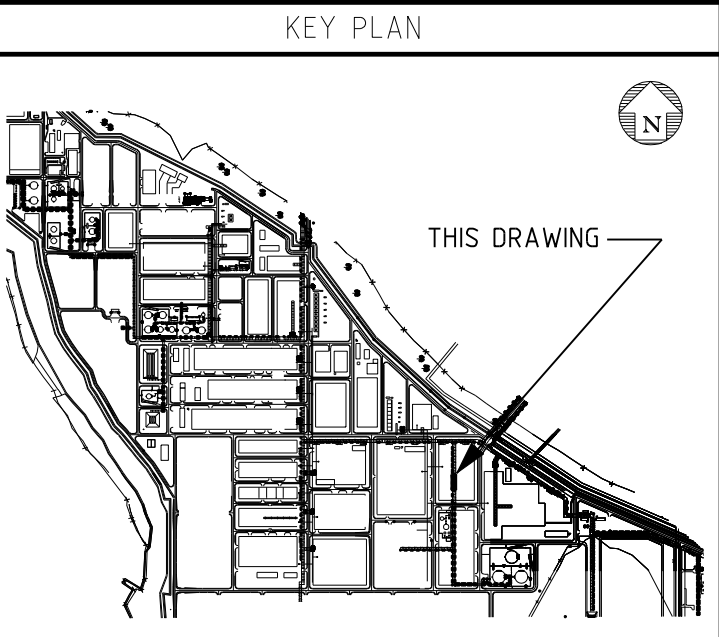
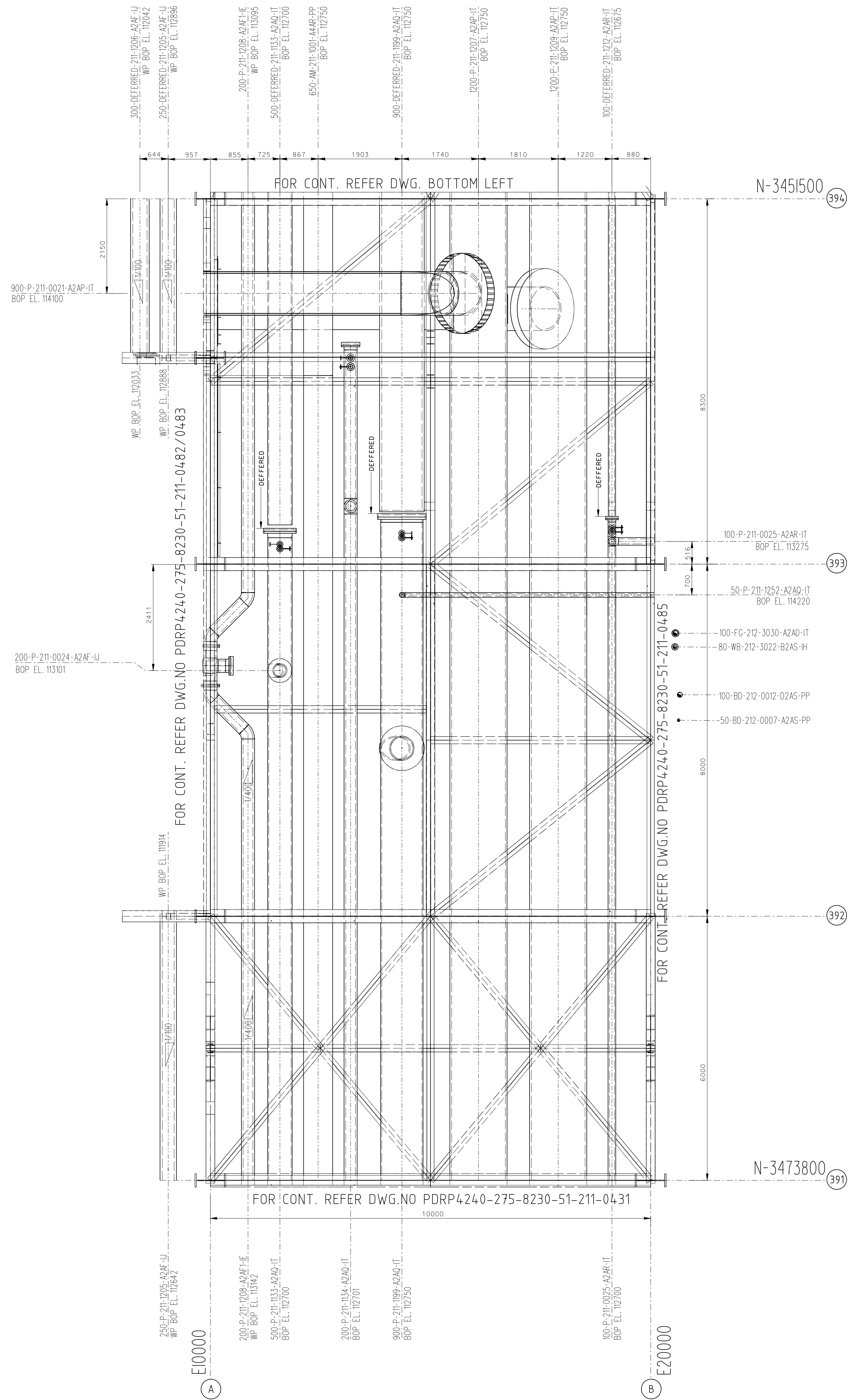
INDIAN OIL CORPORATION LIMITED
INDIAN OIL CORPORATION LIMITED
INDIAN OIL CORPORATION LIMITED

INDIAN OIL CORPORATION LTD	
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TITLE	PIPING GENERAL ARRANGEMENT DRAWING AREA RSFC PLAN AT EL.112600 (GRID-391 TO GRID-397)
SCALE	DRAWING NO. 1:50
CONTRACT NO.	1-N-4206/4391



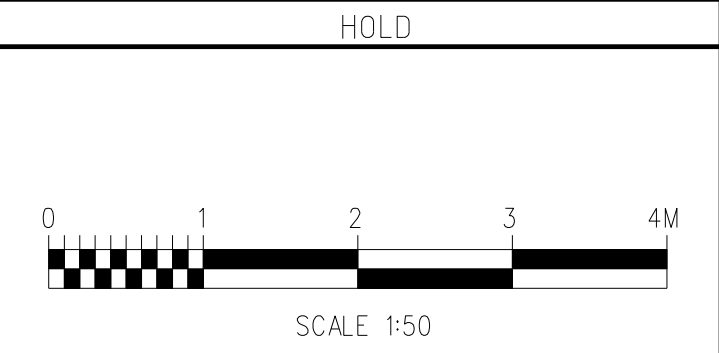


PLAN AT EL.112600



- NOTES
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE.
  2. REFER ISOMETRICS FOR PIPE SUPPORT LOCATIONS & SUPPORT TAGS.

- LEGEND
- HEAVY DUTY PAVING
  - NORMAL DUTY PAVING
  - LIGHT DUTY PAVING
  - PLATFORM
  - FUTURE REFERENCED FACILITIES
  - ACCESS WAY
  - WITHDRAWAL / LAYDOWN AREA
  - FIRE EQUIPMENT CABINET (FHB) (BY OTHERS)
  - FIRE WATER NOZZLES (BY OTHERS)
  - FIRE HYDRANT (BY OTHERS)
  - TOR
  - TOP OF ROD



REFERENCE DRAWINGS	
DRAWING No.	TITLE
PDRP4240-275-8230-01-211-0012	RACK PLOT PLAN
PDRP4240-8230-02-600-0002	CONSTRUCTION AREA KEY PLAN
PDRP4200-8230-01-600-0005	SOUTH-WEST SITE PLAN

ENGINEER'S APPROVAL		APPROVED FOR CONST.	
REV	DATE	SIGNATURE	DATE

ST	DATE	ISSUED FOR CONSTRUCTION	VN	MSR	VGP

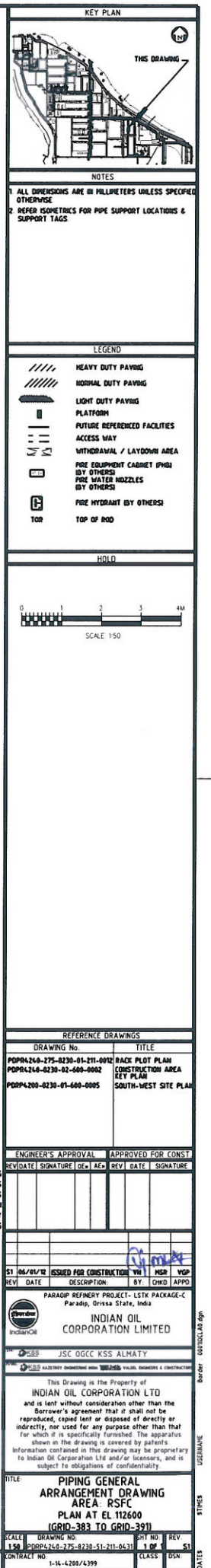
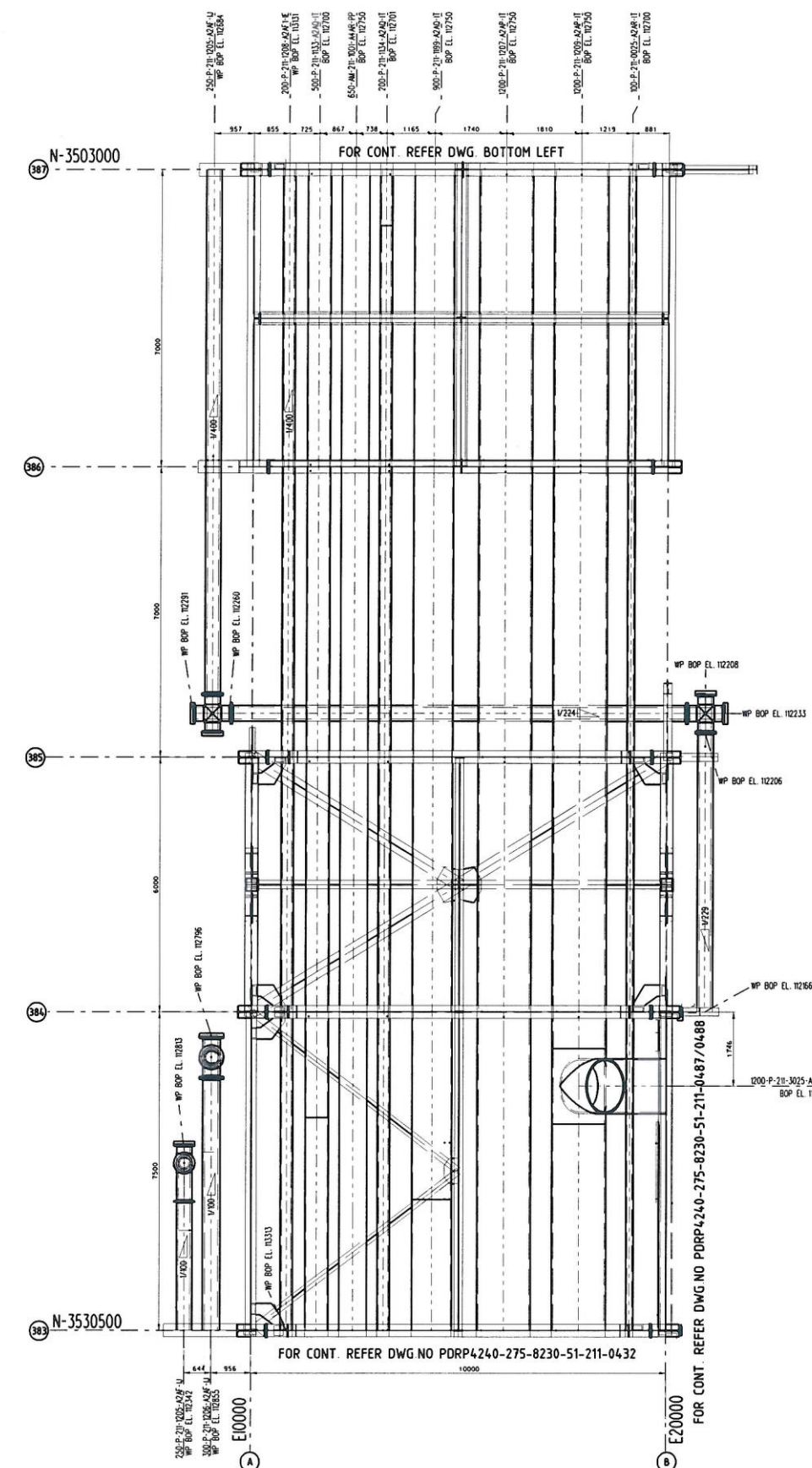
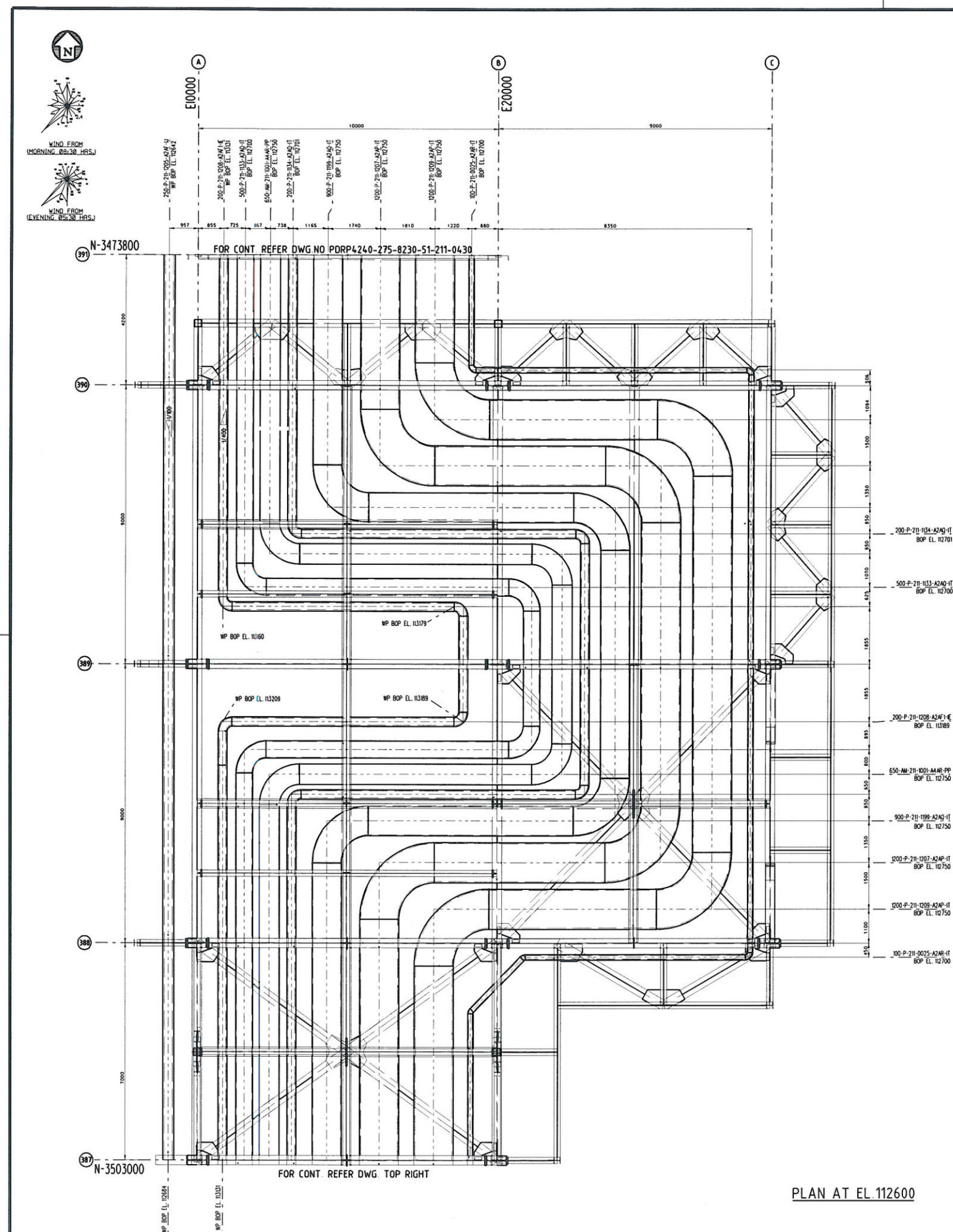


JSC DGCC KSS ALMATY

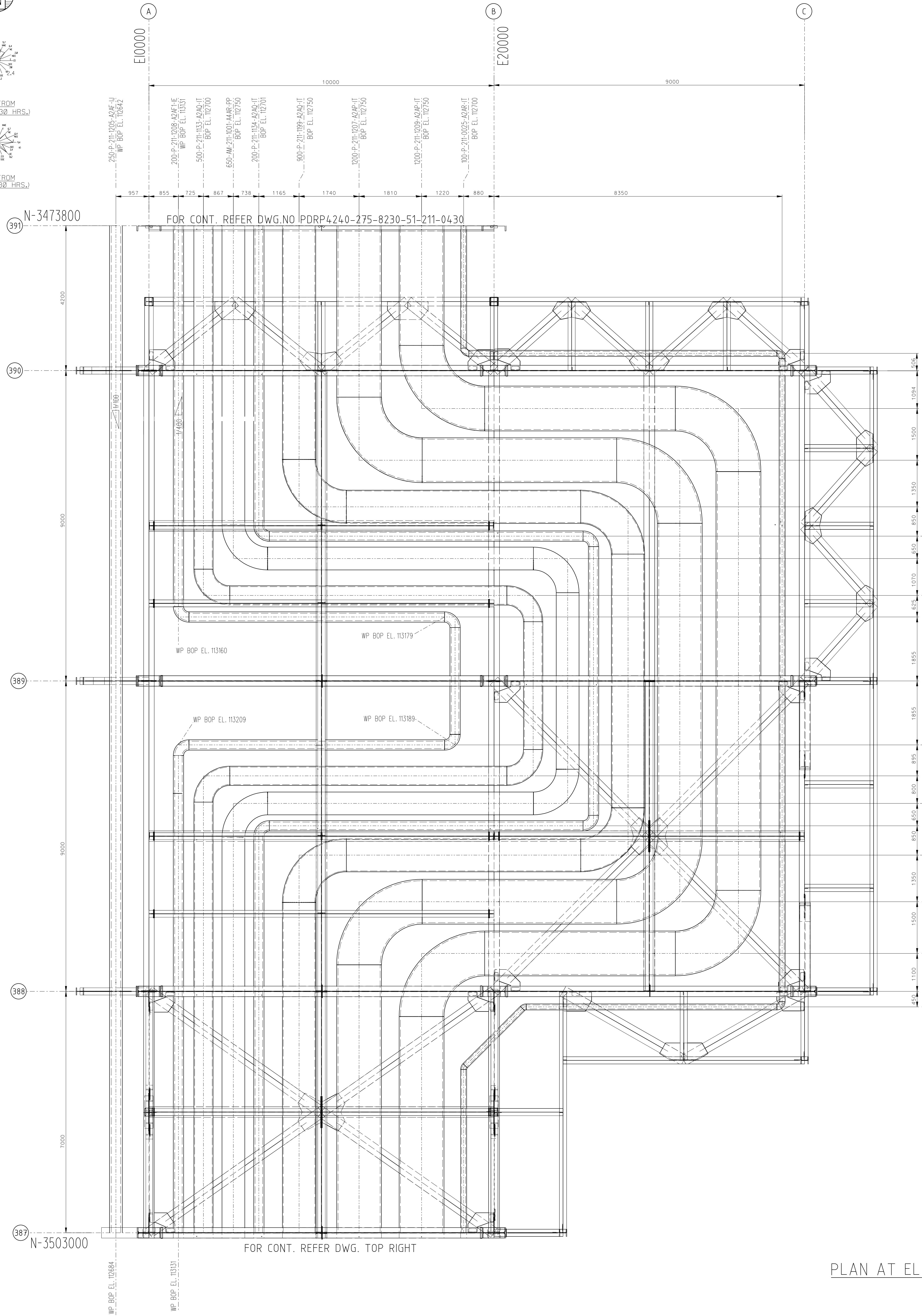
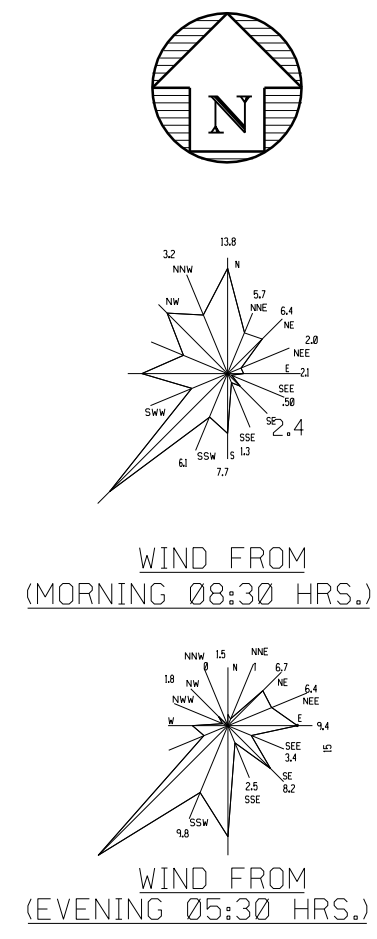
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TITLE	
PIPING GENERAL ARRANGEMENT DRAWING	
AREA: RSFC	
PLAN AT EL.112600	
(GRID-391 TO GRID-397)	
SCALE	DRAWING NO.
1:50	PDRP4240-275-8230-51-211-0430
CONTRACT NO.	CLASS
1-16-4200/4399	DSN

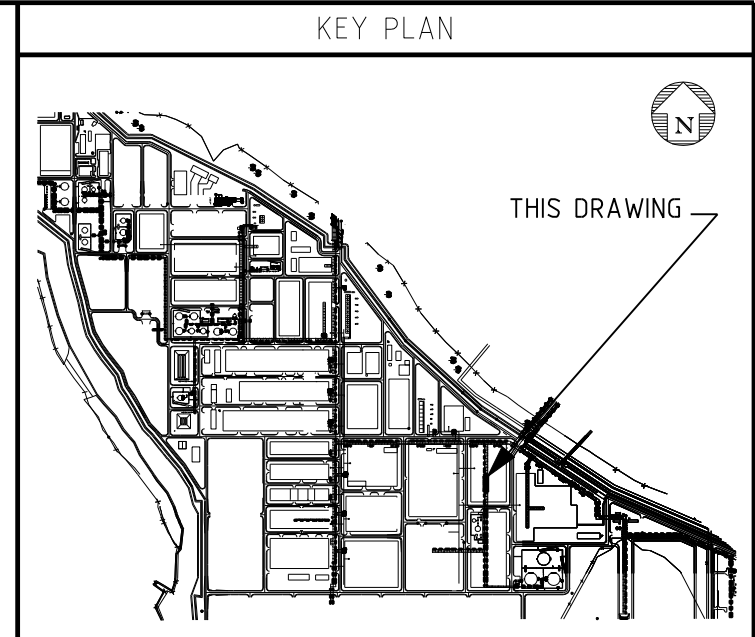
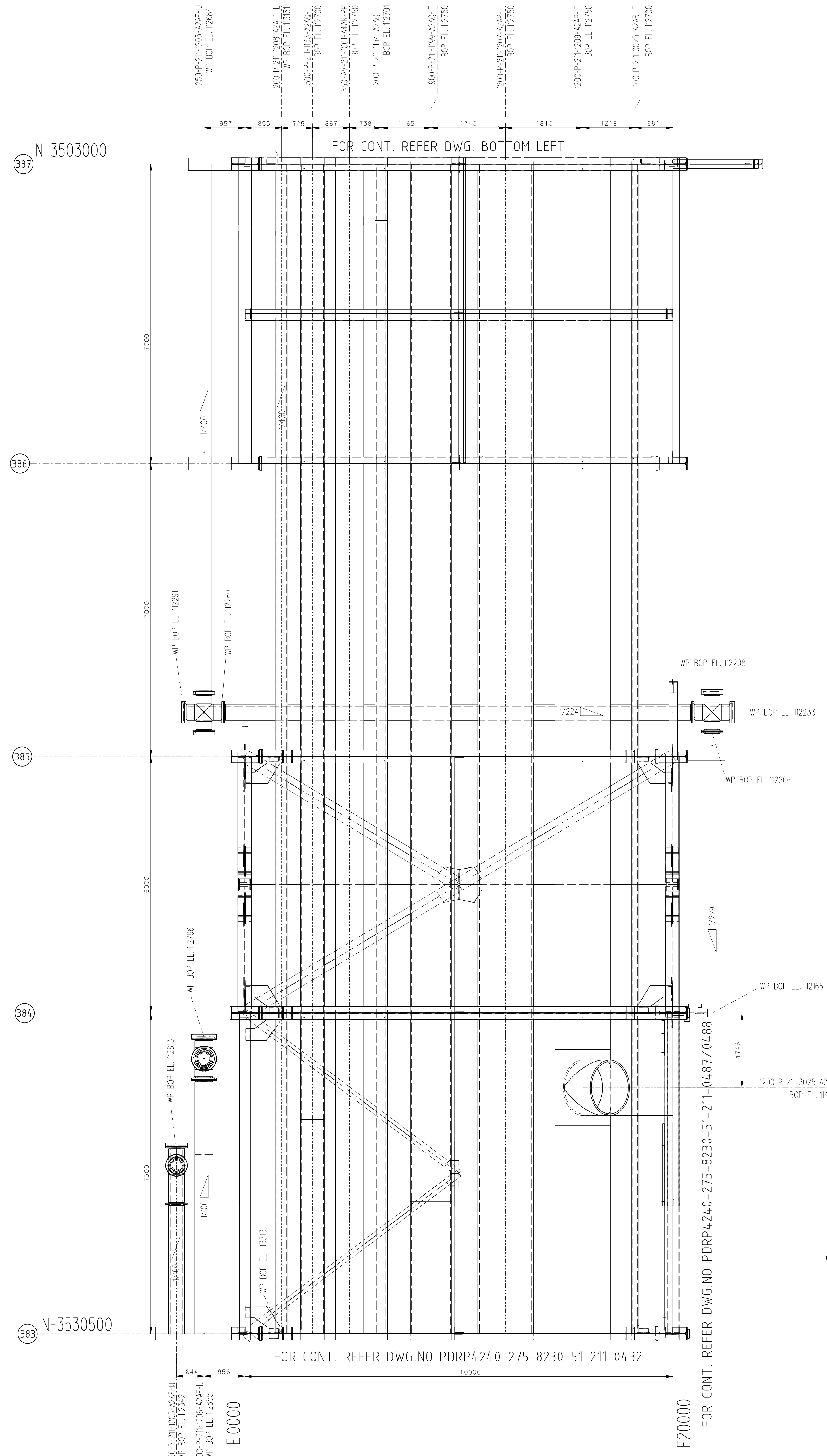






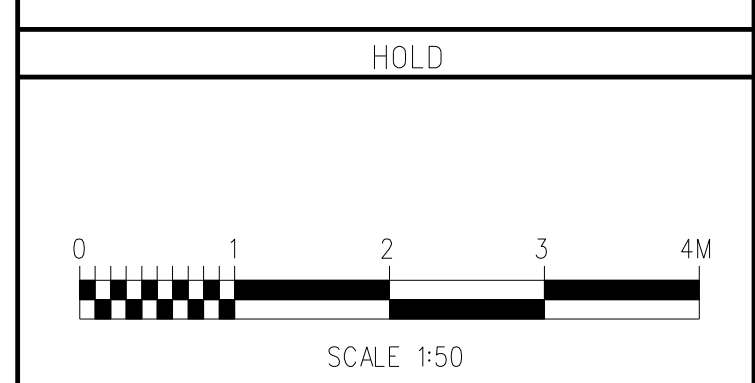


PLAN AT EL.112600



- NOTES
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
  2. REFER ISOMETRICS FOR PIPE SUPPORT LOCATIONS & SUPPORT TAGS.

- LEGEND
- HEAVY DUTY PAVING
  - NORMAL DUTY PAVING
  - LIGHT DUTY PAVING
  - PLATFORM
  - FUTURE REFERENCED FACILITIES
  - ACCESS WAY
  - WITHDRAWAL / LAYDOWN AREA
  - FIRE EQUIPMENT CABINET (FHB) (BY OTHERS)
  - FIRE WATER NOZZLES (BY OTHERS)
  - FIRE HYDRANT (BY OTHERS)
  - TOR
  - TOP OF ROD



REFERENCE DRAWINGS	
DRAWING No.	TITLE
PDRP4240-275-8230-01-211-0012	RACK PLOT PLAN
PDRP4240-8230-02-600-0002	CONSTRUCTION AREA KEY PLAN
PDRP4200-8230-01-600-0005	SOUTH-WEST SITE PLAN

ENGINEER'S APPROVAL				APPROVED FOR CONST.			
REV	DATE	SIGNATURE	OE*	AE*	REV	DATE	SIGNATURE

S1	06/01/12	ISSUED FOR CONSTRUCTION	VN	MSR	VGP
REV	DATE	DESCRIPTION	BY	CHKD	APPROV.

PARADIP REFINERY PROJECT- LSTK PACKAGE-C  
Paradip, Orissa State, India  
**INDIAN OIL CORPORATION LIMITED**

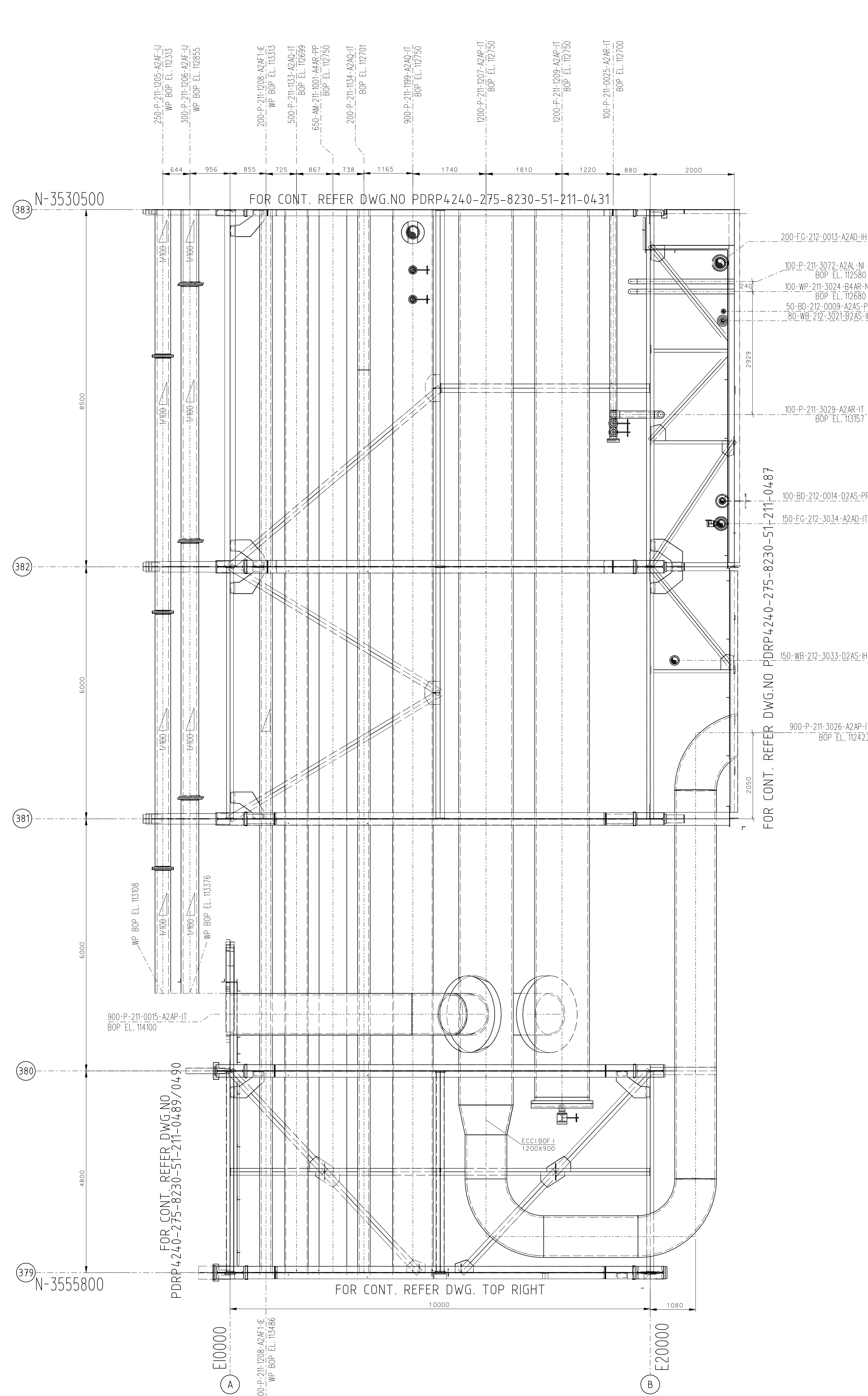
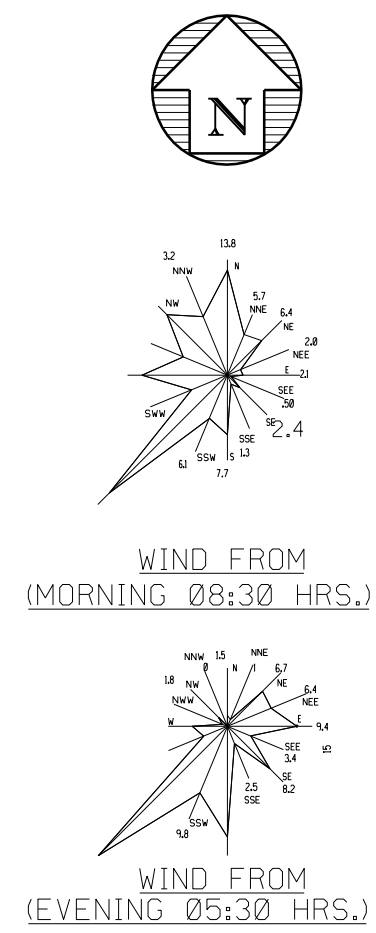
JSC OGC KSS ALMATY  
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TITLE:		PIPING GENERAL ARRANGEMENT DRAWING AREA: RSFC PLAN AT EL.112600 (GRID-383 TO GRID-391)	
SCALE:	DRAWING NO:	SHT NO:	REV.
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CONTRACT NO:		CLASS:	DSN:
1-14-4200/4399			

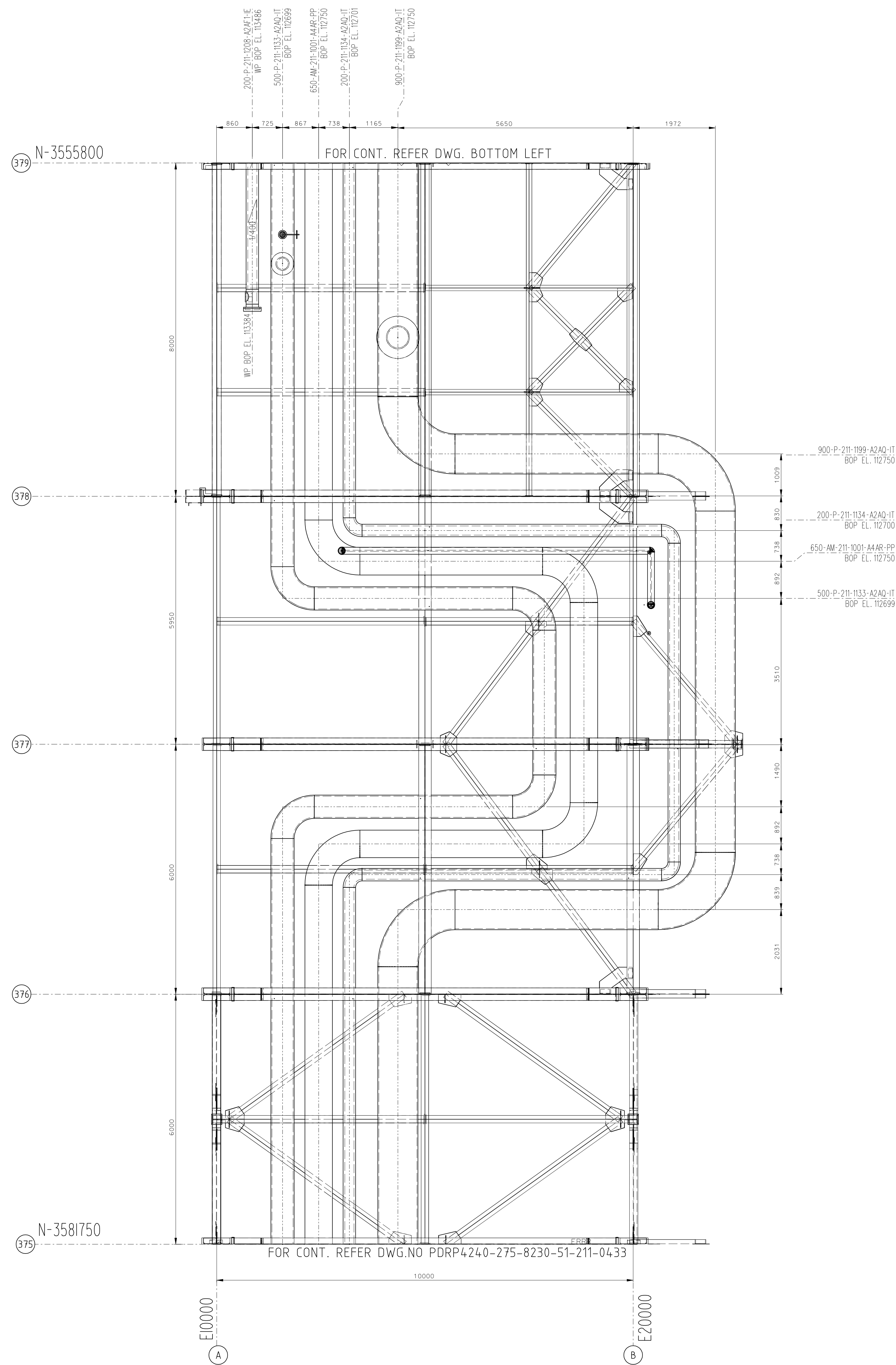


E30000	<b>KEY PLAN</b>																				
	<b>NOTES</b>																				
	1 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE 2 REFER TO SPECIFICATIONS FOR PIPE SUPPORT LOCATIONS & SUPPORT TAGS																				
	<b>LEGEND</b>																				
	<div style="display: flex; justify-content: space-between;"> <span> HEAVY DUTY PAVING</span> <span> NORMAL DUTY PAVING</span> </div> <div style="display: flex; justify-content: space-between;"> <span> LIGHT DUTY PAVING</span> <span> PLATFORM</span> </div> <div style="display: flex; justify-content: space-between;"> <span> FUTURE REFERENCED FACILITIES</span> <span> ACCESS WAY</span> </div> <div style="display: flex; justify-content: space-between;"> <span> WITHDRAWAL / LAYDOWN AREA</span> <span> FIRE EQUIPMENT CABINET (FWD)</span> </div> <div style="display: flex; justify-content: space-between;"> <span> FIRE WATER NOZZLES (BY OTHERS)</span> <span> FIRE HYDRANT (BY OTHERS)</span> </div> <div style="display: flex; justify-content: space-between;"> <span> TOP OF RIG</span> </div>																				
	<b>HOLD</b>																				
	<p>SCALE 1:50</p>																				
	<b>REFERENCE DRAWINGS</b>																				
	<table border="1" style="width: 100%;"> <thead> <tr> <th>DRAWING NO.</th> <th>TITLE</th> </tr> </thead> <tbody> <tr> <td>PDP01340-275-0230-01-211-0000</td> <td>BACK PLOT PLAN</td> </tr> <tr> <td>PDP01240-275-0230-01-211-0000</td> <td>BACK PLOT PLAN</td> </tr> <tr> <td>PDP01240-0230-01-600-0002</td> <td>CONSTRUCTION AREA SITE PLAN</td> </tr> <tr> <td>PDP01200-0230-01-600-0005</td> <td>SOUTH-WEST SITE PLAN</td> </tr> </tbody> </table>		DRAWING NO.	TITLE	PDP01340-275-0230-01-211-0000	BACK PLOT PLAN	PDP01240-275-0230-01-211-0000	BACK PLOT PLAN	PDP01240-0230-01-600-0002	CONSTRUCTION AREA SITE PLAN	PDP01200-0230-01-600-0005	SOUTH-WEST SITE PLAN									
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PDP01240-275-0230-01-211-0000	BACK PLOT PLAN																				
PDP01240-0230-01-600-0002	CONSTRUCTION AREA SITE PLAN																				
PDP01200-0230-01-600-0005	SOUTH-WEST SITE PLAN																				
<table border="1" style="width: 100%;"> <thead> <tr> <th colspan="2">ENGINEER'S APPROVAL</th> <th colspan="2">APPROVED FOR CONST.</th> </tr> <tr> <th>REV/DATE</th> <th>SIGNATURE</th> <th>REV/DATE</th> <th>SIGNATURE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		ENGINEER'S APPROVAL		APPROVED FOR CONST.		REV/DATE	SIGNATURE	REV/DATE	SIGNATURE												
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REV/DATE	SIGNATURE	REV/DATE	SIGNATURE																		
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REV	DATE	DESCRIPTION	BY	CHECKED	VUP																
1	06/09/12	ISSUED FOR CONSTRUCTION	JSC																		
 <b>INDIAN OIL CORPORATION LIMITED</b> Parade, Orissa State, India																					
 <b>JSC OGC KSA ALMATY</b>																					
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<b>TITLE</b> <b>PIPING GENERAL ARRANGEMENT DRAWING</b> <b>AREA: RSFC</b> <b>PLAN AT EL 112600</b> <b>(GRID-375 TO GRID-383)</b>																					
<table border="1" style="width: 100%;"> <thead> <tr> <th>SCALE</th> <th>DRAWING NO.</th> <th>SHEET NO.</th> <th>REV</th> </tr> </thead> <tbody> <tr> <td>1:50</td> <td>PDP01240-275-0230-01-211-0000</td> <td>1 OF 1</td> <td> </td> </tr> </tbody> </table>		SCALE	DRAWING NO.	SHEET NO.	REV	1:50	PDP01240-275-0230-01-211-0000	1 OF 1													
SCALE	DRAWING NO.	SHEET NO.	REV																		
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S-14-L200/L439																					

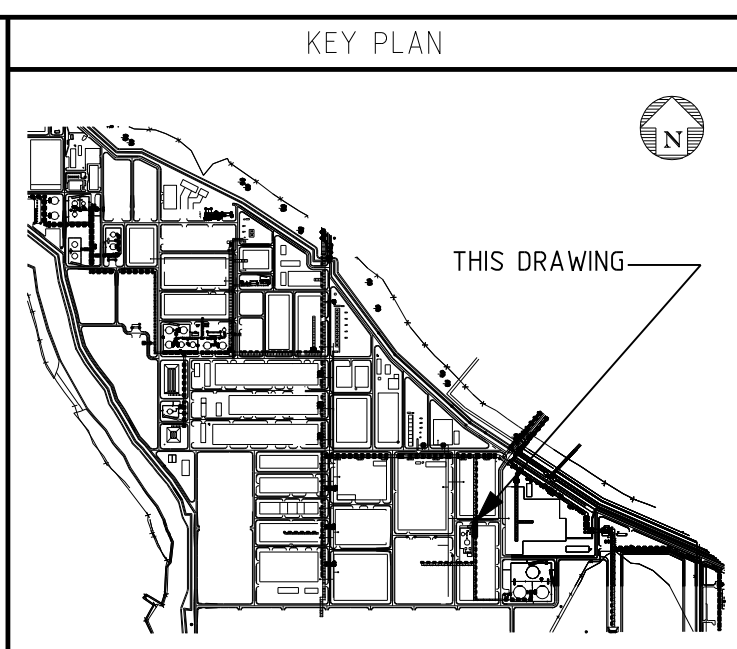




PLAN AT EL.112600



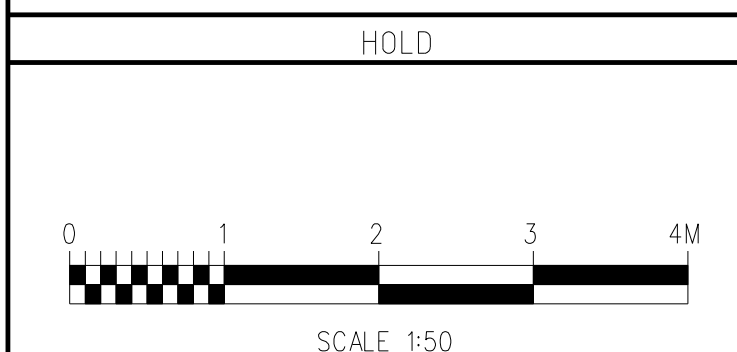
E30000



- NOTES
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
  2. REFER ISOMETRICS FOR PIPE SUPPORT LOCATIONS & SUPPORT TAGS.

LEGEND

	HEAVY DUTY PAVING
	NORMAL DUTY PAVING
	LIGHT DUTY PAVING
	PLATFORM
	FUTURE REFERENCED FACILITIES
	ACCESS WAY
	WITHDRAWAL / LAYDOWN AREA
	FIRE EQUIPMENT CABINET (FHB)
	FIRE WATER NOZZLES
	FIRE HYDRANT (BY OTHERS)
	TOP OF ROD



REFERENCE DRAWINGS

DRAWING NO.	TITLE
PDRP4240-275-8230-01-211-0012	RACK PLOT PLAN
PDRP4240-275-8230-01-211-0013	RACK PLOT PLAN
PDRP4240-8230-02-600-0002	CONSTRUCTION AREA KEY PLAN
PDRP4200-8230-01-600-0005	SOUTH-WEST SITE PLAN

ENGINEER'S APPROVAL

REV	DATE	SIGNATURE	REV	DATE	SIGNATURE

ISSUED FOR CONSTRUCTION

SY	DATE	DESCRIPTION	VN	MSR	VOP



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TITLE: PIPING GENERAL ARRANGEMENT DRAWING AREA: RSFC PLAN AT EL.112600 (GRID-375 TO GRID-383)

SCALE	DRAWING NO.	SHEET NO.	REV.
1:50	PDRP4240-275-8230-51-211-0432	1 OF 1	S1

CONTRACT NO.	CLASS	DSN.
114-4200/4399		





FIELD MATERIAL							
PART NO.	REQ ITEM NO.	QTY	SIZE	SCHED.	RATING	END COND	DESCRIPTION
18	1561RXNA00320	1	900	NREOD	CL150	RFTBE	SPACER RING CS TO ASTM A516 GR 70 S5 DIM. GENERALLY IN ACCORDANCE WITH ASME B16.48
19	1574UACB00329	2	900				SPIRAL WOUND GASKET 4.5MM THK SP WOUND GRAPHITE FILLER 316L SS WINDINGS
20	1574UACA00329	3	900				SPIRAL WOUND GASKET 4.5MM THK SP WOUND GRAPHITE FILLER 316L SS WINDINGS
21	1576GAAA00083	1	50				FLAT RING GASKET 1.5MM THK FLEXIBLE GRAPHITE LAMINATE TO ASME B16.21
22	1574SACB00079	2	40				SPIRAL WOUND GASKET 4.5MM THK SP WOUND GRAPHITE FILLER
23	1576GAAA00043	1	20				FLAT RING GASKET 1.5MM THK FLEXIBLE GRAPHITE LAMINATE TO ASME B16.21
24	1572SDDA13079	64	1.5/8				STUDBOLTS ALLOY ST. TO ASTM A193 GR B7, 395.0MM BOLT LENGTH
25	1572SDDA07043	44	7/8				STUDBOLTS ALLOY ST. TO ASTM A193 GR B7, 220.0MM BOLT LENGTH

SEE ISO SHT 2

TITLE:			
ISOMETRIC PIPING DETAIL - UNIT 086			
LINE NO. 900-P-086-2902-A2AP-IT			
DRAWING NO. PDRP0271-52-BEAD-P-086-2902			
CONTRACT NO. - LSTKB/271		SHT 1 OF 2	REV 5

CAN EXTRACTION NUMBER: 4      DATED: 01/03/12



Output File Directory: INDL\SV200108\IE\PIPE\LSTKB\CAD\ISO\_REV\S2\BEAA

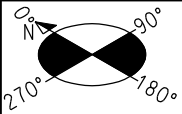
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BEADP01

Piping file:

BEAD

Exctracted from construction area:



PART NO.	REQ ITEM NO.	QTY	SIZE	SCHED.	RATING	END COND	DESCRIPTION
SHT SHT 1							
26	1572SDDA07034	44	7/8				STUDBOLTS ALLOY ST. TO ASTM A193 GR B7, 170.0MM BOLT LENGTH
27	1572SDDA06018	8	3/4				STUDBOLTS ALLOY ST. TO ASTM A193 GR B7, 90.0MM BOLT LENGTH
28	1572SDDA05017	4	5/8				STUDBOLTS ALLOY ST. TO ASTM A193 GR B7, 85.0MM BOLT LENGTH
29	1572SDDA04013	4	1/2				STUDBOLTS ALLOY ST. TO ASTM A193 GR B7, 65.0MM BOLT LENGTH
INSTRUMENTS/SP ITEMS							
30	086-HV-0205	1	900	S-20	CL300	RFFE	INSTRUMENT, REF. TO UNIT INSTRUMENT INDEX
31	086-AT-0101	1	50	NREQD	CL150	RFFE	INSTRUMENT, REF. TO UNIT INSTRUMENT INDEX
32	086-TT-0107	1	40	NREQD	CL300	RFFE	INSTRUMENT, REF. TO UNIT INSTRUMENT INDEX
33	086-TG-0188	1	40	NREQD	CL300	RFFE	INSTRUMENT, REF. TO UNIT INSTRUMENT INDEX
34	086-SP-072	1	20	NREQD	CL150	RFFE	1599VAVW286072 - SAMPLING VALVE
PIPE SUPPORTS							
35	S-16Y	5	900				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
36	AT-70D	5	900				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
37	PG-5	1	900				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
38	PG-33A	1	900				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
MISCELLANEOUS COMPONENTS							
39	1561PXNA00320	1.0	900				PADDLE BLIND CS TO ASTM A516 GR 70 S5 DIM. GENERALLY IN ACCORDANCE WITH ASME B16.48

AS-BUILT

DRAWING NO. PDRP0271-52-BEAD-P-086-2902 SHT 1

PARADIP REFINERY PROJECT  
Paradip, Orissa State, India



INDIAN OIL CORPORATION LIMITED



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TITLE:  
ISOMETRIC PIPING DETAIL - UNIT 086

LINE NO. 900-P-086-2902-A2AP-IT

DRAWING NO. PDRP0271-52-BEAD-P-086-2902

CONTRACT NO.- LSTKB/271 SHT 2 OF 2 REV S2

TRAIN NO.- 1

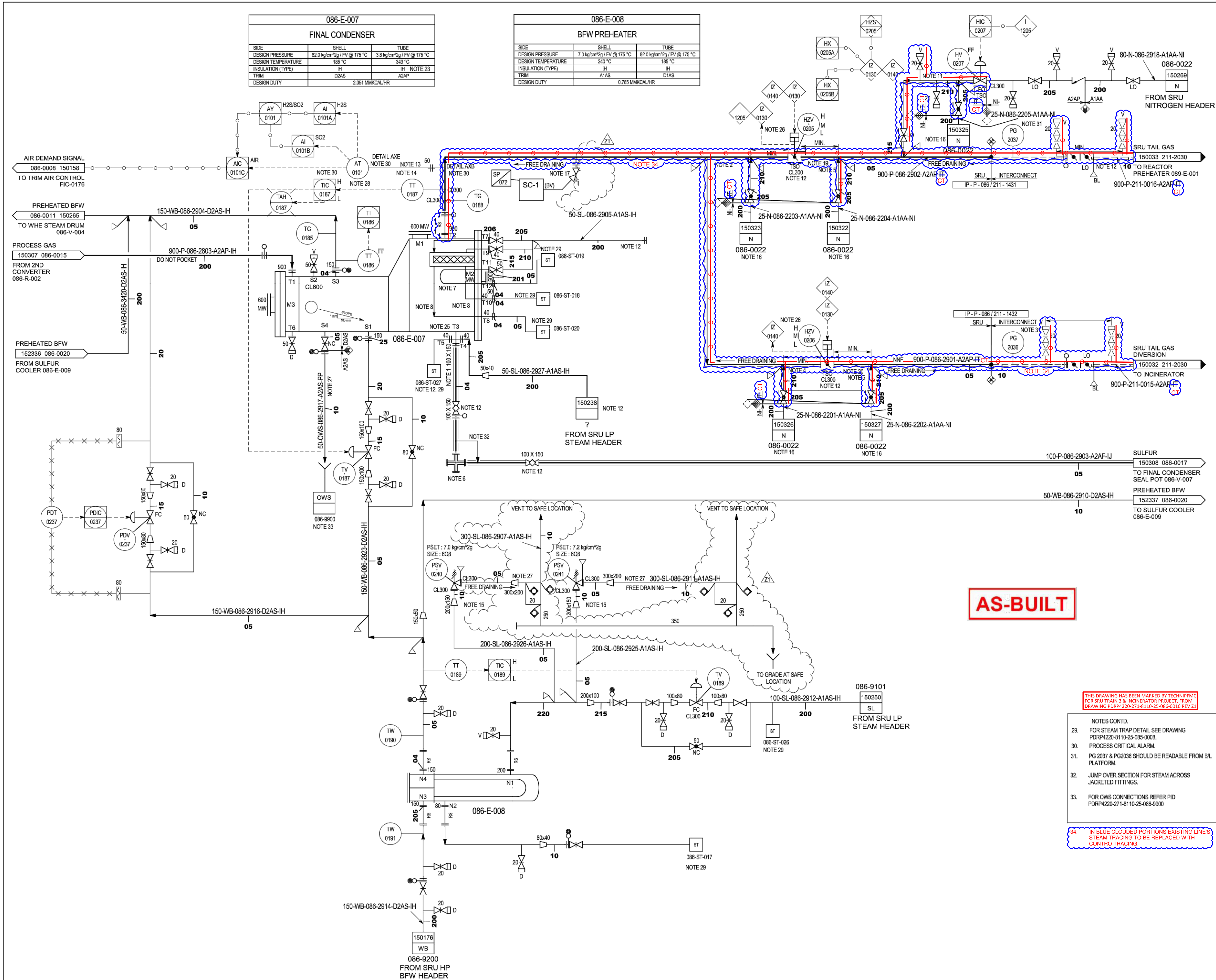
BEAD086P29021 .i02

HAND CHANGES: YES/NO

DATED: 01/03/12

CAO EXTRACTION NUMBER: 4





GENERAL :

FOR STANDARD SYMBOLS, DETAILS AND LEGEND SHEETS SEE DRAWINGS PDRP4240-8110-25-600-0001 THROUGH PDRP4240-8110-25-600-0008 AND PDRP4240-8110-25-600-0013.

FOR SAMPLE STATION DETAILS SEE DRAWING PDRP4220-271-8110-25-085-0001.

ALL INSTRUMENTS TO BE PREFIXED BY THE UNIT NUMBER.

THIS DRAWING HAS BEEN DEVELOPED BASED ON LICENSOR P&ID DRG NUMBER D01-1629.

NOTES:

- STEAM JACKETED SULFUR NOZZLE & VALVE IS HORIZONTAL AND "TANGENTIAL" TO BOTTOM OF OUTLET CHANNEL.
- MINIMUM DISTANCE FROM TEE AND HV & HV. DELETED.
- LOCATE AT HIGH POINT IN LINE.
- LP STEAM JACKETED VALVE WITH LP STEAM HEATED SHAFT. INSTALL SHAFT IN THE HORIZONTAL.
- CROSS TO BE CAPABLE OF BEING RODDED OUT IN BOTH DIRECTIONS. EVERY CHANGE IN DIRECTION HAS A CROSS.
- STEAM AND CONDENSATE TO/FROM INTERNAL STEAM COIL UNDERNEATH MESH PAD.
- STEAM AND CONDENSATE TO/FROM CHANNEL STEAM JACKET LOCATED AT ENDS OF MESH PAD. DELETED.
- DELETED.
- TOP ENTRY.
- STEAM SUPPLY TO VALVE FROM STEAM MANIFOLD/ CONDENSATE WITH STEAM TRAP TO CONDENSATE MANIFOLD.
- ANALYZER VENDOR TO SUPPLY SPECIAL PROBE, 50MM NOZZLE.
- PLATFORM ACCESS REQUIRED TO 3 SIDE SHELTER FOR AIR DEMAND ANALYSER.
- DELETED.
- LOCATE MANIFOLD NEAR HZV-0205 AND HZV-0206.
- PRESSURE TAP/SAMPLE POINT WITH STRAHMAN PISTON TYPE VALVE.
- DELETED.
- FAIL LAST DRIFT TO OPEN.
- FAIL LAST DRIFT TO CLOSE.
- DELETED.
- DELETED.
- INLET CHANNEL SHALL HAVE 90MM OF INSULATION OUTLET CHANNEL SHALL HAVE 50MM OF INSULATION FOR HEAT CONSERVATION.
- DELETED.
- NOZZLES T4 & T5 ARE STEAM INLET AND CONDENSATE OUTLET FOR JACKET ON NOZZLE T3. NO LOCAL RESET.
- TWO PHASE FLOW.
- FOR ANALYSER TYPICAL DETAIL SEE DRAWINGS PDRP4220-8110-25-085-0009.

REFERENCE DRAWINGS

DRAWING No.	TITLE

UNIT LICENSED BY M/s BLACK & VEATCH

REV	DATE	DESCRIPTION	STATUS	BY	CHKD	APPD
Z1	14/07/16	ISSUED AS-BUILT	IAB	MM	SATB	RRK
S2	05/09/12	ISSUE FOR CONSTRUCTION	IFC	RKH	AST	RRK
S1	26/07/11	ISSUE FOR CONSTRUCTION	IFC	RKH	ALD	SKH
B1	28/02/11	ISSUED FOR DET. DESIGN	IFD	LKK	ALD	SKH

CLIENT

**INDIAN OIL CORPORATION LIMITED**

PARADIP REFINERY PROJECT  
Paradip, Orissa State, India

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**INDIAN OIL CORPORATION LTD**  
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LSTK CONTRACTOR  
**PUNJ LLOYD LTD.**  
NEW DELHI

DETAIL ENGINEERING SUB CONTRACTOR  
**Lurgi India Co. Pvt. Ltd.**

EPCm-1 REFERENCE. DRAWING NO:  
PDRP4220-8110-25-086-0016 REV. A

TITLE:  
**PARADIP REFINERY PROJECT**  
  
SRU TRAIN 1  
FINAL CONDENSER & BFW  
PREHEATER  
PIPING & INSTRUMENTATION DIAGRAM

SCALE: 1:XXXX  
DRAWING NO: PDRP4220-271-8110-25-086-0016  
SHT NO: 1 OF 1  
REV: Z1

AS-BUILT

THIS DRAWING HAS BEEN MARKED BY TECHPIPMAC FOR SRU TRAIN 3 & INCINERATOR PROJECT, FROM DRAWING PDRP4220-271-8110-25-086-0016 REV Z1

NOTES CONTD.

29. FOR STEAM TRAP DETAIL SEE DRAWING PDRP4220-8110-25-085-0008.

30. PROCESS CRITICAL ALARM.

31. PG 2037 & PG2036 SHOULD BE READABLE FROM BIL PLATFORM.

32. JUMP OVER SECTION FOR STEAM ACROSS JACKETED FITTINGS.

33. FOR OWS CONNECTIONS REFER PID PDRP4220-271-8110-25-086-9900

34. IN BLUE CLOUDED PORTIONS EXISTING LINES STEAM TRACING TO BE REPLACED WITH CONTRAST TRACING.

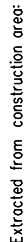












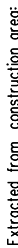
**AS-BUILT**




BEAD086N22031 .i0

LINE ID - BEAD-086-N-2203-1

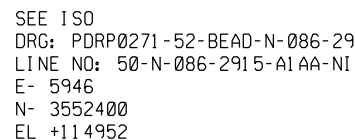
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	4	40





<b>PARADIP REFINERY PROJECT</b> Paradip, Orissa State, India				 <b>IndianOil</b>		<b>INDIAN OIL CORPORATION LIMITED</b>	
				 Punj Lloyd			
				<p style="text-align: center;">This Drawing is the Property of  <b>INDIAN OIL CORPORATION LTD</b>          and is lent without consideration other than the          Borrower's agreement that it shall not be          reproduced, copied lent or disposed of directly or          indirectly, nor used for any purpose other than that          for which it is specifically furnished. The apparatus          shown in the drawing is covered by patents.          Information contained in this drawing may be proprietary          to Indian Oil Corporation Ltd and/or licensors, and is          subject to obligations of confidentiality.</p>			
S2	04/01/12	REVISED AS MARKED	VPR				
S1	28/10/11	ISSUED FOR CONSTRUCTION	VPR				
REV.	DATE	DESCRIPTION	APPD.				
REFERENCE STDS / DRGS							
PIPING MATERIAL SPEC. PDRP4200-8230-SP-1001							
PIPE SUPPORT STD. PDRP4200-8230-SP-1016							
PIPING STD. HOOK-UPS PDRP4200-8230-SP-1008							
P&ID No. 086-0022							
LINE ID - BEAD-086-N-2204-1							
CONTRACT NO.- LSTKB/271				SHT 1 OF 1		REV S2	





FIELD MATERIAL							
PART NO.	REQ ITEM NO.	QTY	SIZE	SCHED.	RATING	END COND	DESCRIPTION
11	1574SACB00079	2	40				SPIRAL WOUND GASKET 4.5MM THK SP WOUND GRAPHITE FILLER
12	1572SDDA06018	8	3/4				STUD BOLTS ALLOY ST. TO ASTM A193 GR B7, 90.0MM BOLT LENGTH
<u>INSTRUMENTS/SP ITEMS</u>							
13	086-F1-0202	1	40	S-80	CL300	RFFE	INSTRUMENT, REF. TO UNIT INSTRUMENT INDEX

## AS-BUILT

DRAWING NO. PDRP0271-52-BEAD-N-086-2205 SHT 1

PARADIP REFINERY PROJECT  
Paradip, Orissa State, India



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TITLE:  
ISOMETRIC PIPING DETAIL - UNIT 086

DRAWING NO. PDRP0271-52-BEAD-N-086-2205

CONTRACT NO.- LSTKB/271 SHT 1 OF 1 REV S1

TRAIN NO.- 1

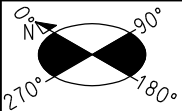
BEAD086N22051 .j0

LEGEND FOR MATERIAL PART NUMBERS	[1]	[S3]	[F5]	[B6]	[G7 B8]		[F9 G10 B11]			OPERATING CONDITIONS	PRESSURE	0.000	DESIGN CONDITIONS	PRESSURE	0.000	INSULATION	TYPE	NI									
	REFER TO PART "1" IN MATERIAL LISTING	S - SUPPORT 3 - PART 3	F - FLANGE 5 - PART 5	B - BOLTS 6 - PART 6	G - GASKET 7- PART 7	B - BOLT 8 - PART 8	F - FLANGE 9 - PART 9	G - GASKET 10 - PART 10	B - BOLT 11 - PART 11		TEMPERATURE	0.00		TEMPERATURE	0.00		THICKNESS	0.000									
GENERAL NOTES:																											
1. INSULATION IS IN ACCORDANCE WITH THE SPECIFICATION PDRP-8440-SP-0004 & 0005					7. CONTRACTOR TO SUPPLY, FABRICATE & INSTALL ALL STANDARD PIPE SUPPORTS & INSTALL ANY FREE ISSUE SUPPORTS (HANGERS, SLIDE UNITS, ETC.)					12. CONTROL VALVE AND PSV'S HOLD TOBE REMOVED AS PER EXACT DIMENSION AT SITE.																	
2. PRESSURE TESTING IS IN ACCORDANCE WITH THE SPECIFICATION PDRP4200-8820-SP-1002					8. FOR PWHT REQUIREMENT SEE PIPING MATERIAL SPECIFICATION & LINE LIST.					13. DIMENSION FOR LINE SIZE 40MM AND BELOW TOBE CHECKED AT SITE BEFORE FABRICATION. DIMENSIONS ARE FOR GUIDANCE ONLY.																	
3. PAINTING IS IN ACCORDANCE WITH THE SPECIFICATION PDRP4200-8440-SP-1006					9. FOR DATA RELATING TO LINE CONDITIONS, TEST PRESSURE/MEDIUM ETC.-SEE LINE LIST.					14. LINE SIZE 40MM AND BELOW SHALL BE FIELD SUPPORTED BY CONSTRUCTION CONTRACTOR.																	
4. FOR VENTS & DRAINS DETAILS REFER SPECIFICATION PDRP4200-8440-SP-1001					10. ALL SMALL BORE BRANCHES IN STAINLESS STEEL PIPING (AG) ARE TO BE BRACED IN ACCORDANCE WITH PS-69A/B AS PER PIPE SUPPORT STANDARD.					15. ALL LOW SUPPORTED PEDESTAL HEIGHT SHALL BE 150MM FROM HPP.																	
5. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO FACE OF FLANGE OR CL. OF PIPE.					11. FOR ALL T-TYPE STRAINERS TEMPORARY STRAINER MESH ELEMENT SHALL BE REMOVED & PERMANENT STRAINER MESH ELEMENT SHALL BE INSTALLED AFTER PRE-COMMISSIONING.					16. FOR NON CRITICAL FIELD RUN PIPING SYSTEM, CONTRACTOR IS RESPONSIBLE FOR SITE VERIFYING THE ROUTING AND THE SELECTION AND ALLOCATION OF PIPE SUPPORTS.																	
6. BOLT HOLES ON FLANGES STRADDLE CENTRE LINE. ALL DIMENSIONS ARE IN MILLIMETERS.																											
6. SPRING LOCK NUTS TO BE RELEASED POST HYDROTEST.																											
REV		DRAWN	CHECKED	STRESS	APPD	APPD	REV		DRAWN	CHECKED	STRESS	APPD	APPD	REV		DRAWN	CHECKED	STRESS	APPD	APPD	REV		DRAWN	CHECKED	STRESS	APPD	APPD
S1	SIGN						S2	SIGN						S3	SIGN						S4	SIGN					
	DATE							DATE							DATE							DATE					









PART NO.	REQ ITEM NO.	QTY	SIZE	SCHED.	RATING	END COND	DESCRIPTION
							SHT SHT 1
INSTRUMENTS/SP ITEMS							
28	086-HV-0207	1	80	NREOD	CL300	RFFE	INSTRUMENT, REF. TO UNIT INSTRUMENT INDEX
PIPE SUPPORTS							
29	TR-3E	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
30	PS-99A	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
31	PS-7A	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
32	PS-10B	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
33	PG-3A	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
34	PS-1A	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016
35	REST	1	80				PIPE SUPPORT, REF. TO PDRP4200-8230-SP-1016

AS-BUILT

DRAWING NO. PDRP0271-52-BEAD-N-086-2918 SHT 1

PARADIP REFINERY PROJECT  
Paradip, Orissa State, India



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CORPORATION LIMITED



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TITLE:  
ISOMETRIC PIPING DETAIL - UNIT 086

LINE NO. 80-N-086-2918-A2AP-IT

DRAWING NO. PDRP0271-52-BEAD-N-086-2918

CONTRACT NO.- LSTKB/271

SHT 2 OF 2 REV S2

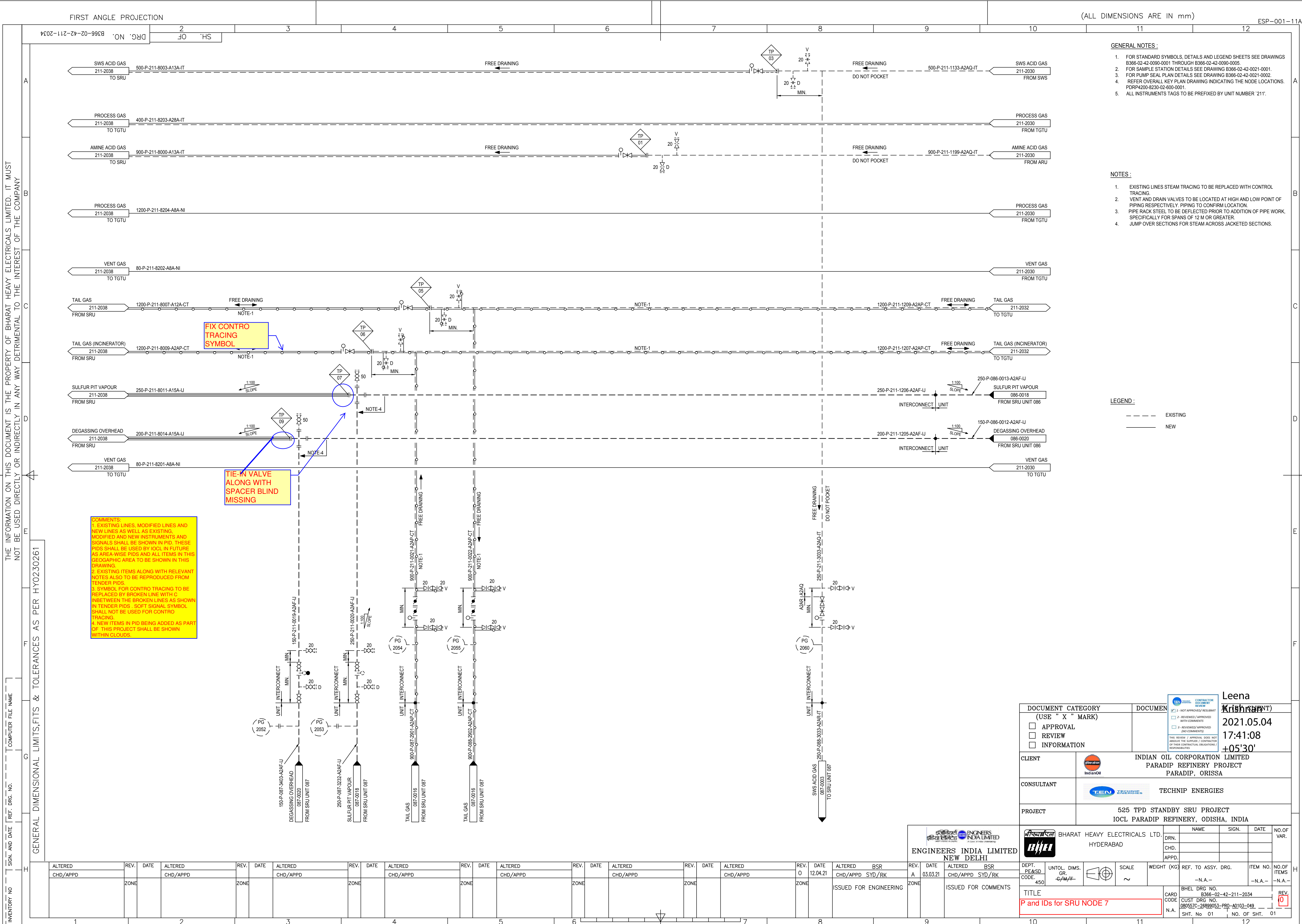
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BEAD086N29181 .i02



DATE: 01/03/12





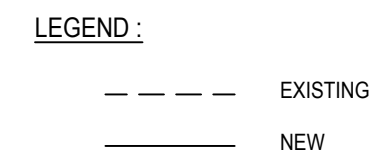
DOCUMENT CATEGORY (USE "X" MARK) <input type="checkbox"/> APPROVAL <input type="checkbox"/> REVIEW <input type="checkbox"/> INFORMATION		DOCUMENT
CLIENT	INDIAN OIL CORPORATION LIMITED PARADIP REFINERY PROJECT PARADIP, ORISSA	
CONSULTANT	TECHNIP ENERGIES	
PROJECT	525 TPD STANDBY SRU PROJECT IOCL PARADIP REFINERY, ODISHA, INDIA	
Bharat Heavy Electricals Ltd HYDERABAD		NAME SIGN. DATE NO. OF VAR.
ENGINEERS INDIA LIMITED NEW DELHI		DRN. CHD. APPD.
DEPT. PE&SD CODE: 450		UNTO. DIMS. OR C/M/F
SCALE ~		WEIGHT (KG)
REF. TO ASSY. DRG.		ITEM NO.
TITLE P and IDs for SRU NODE 7		NO. OF REV.
CARD CODE N.A.		BHEL DRG. NO. CUST DRG. NO. SHT. No. 01
NO. OF SHT.		NO. OF SHT.

Leena  
Krishna  
2021.05.04  
17:41:08  
+05'30'

CONTRACTOR REVIEW  
1. NOT APPROVED / RESUBMIT  
2. REVIEWED / APPROVED WITH COMMENTS  
3. REVIEWED / APPROVED (NO COMMENTS)  
THIS REVIEW / APPROVAL DOES NOT ABOVE THE SUPERVISOR / CONTRACTOR OF THEIR CONTRACTUAL OBLIGATIONS / RESPONSIBILITIES



GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261	U	U
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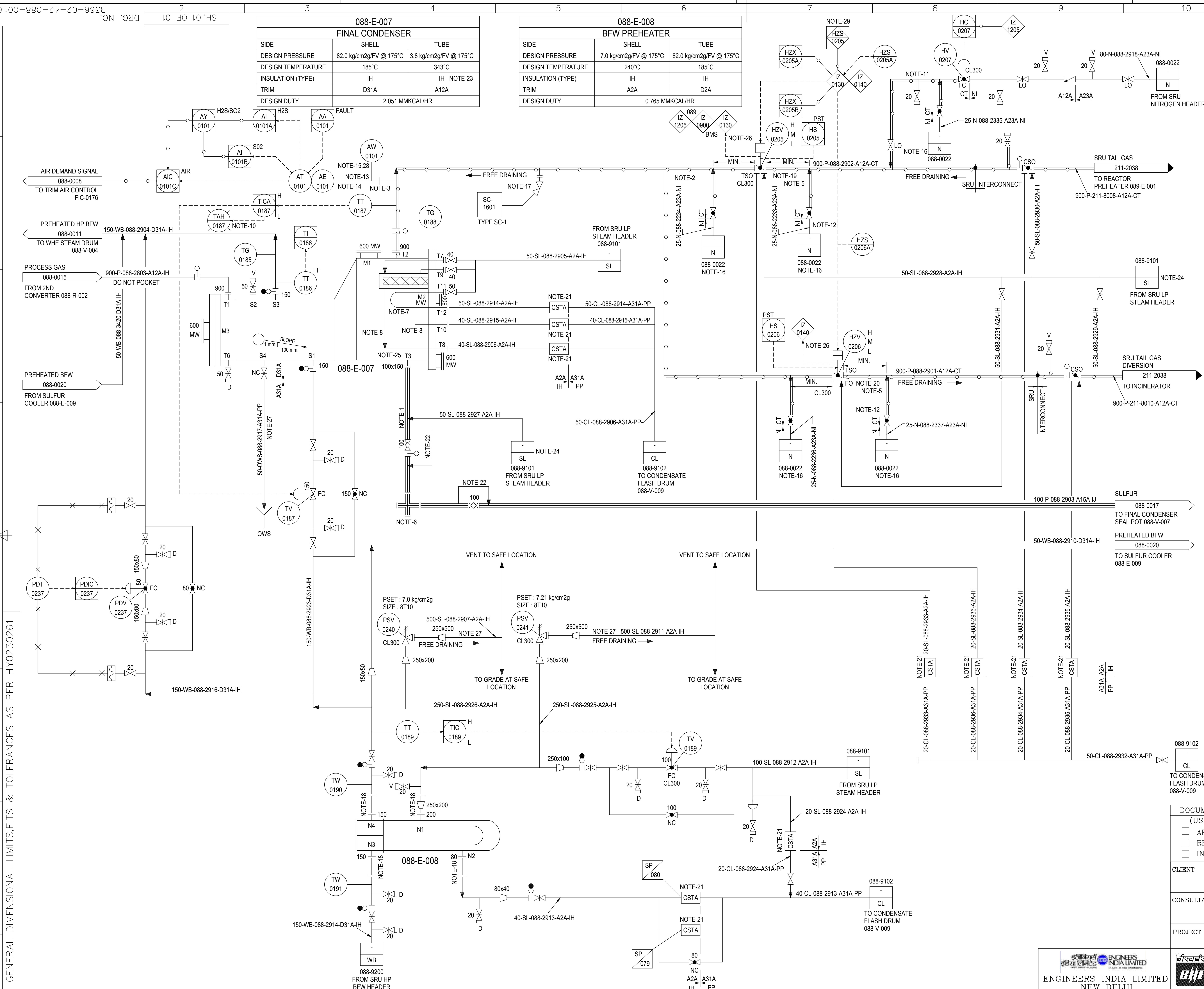
इंजीनियर्स  
इंडिया लिमिटेड  
(A SEZ OF INDIA UNDERSTANDING)

ENGINEERS  
INDIA LIMITED  
(A SEZ OF INDIA UNDERSTANDING)

ENGINEERS INDIA LIMITED



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## GENERAL NOTES :

- FOR STANDARD SYMBOLS, DETAILS AND LEGEND SHEETS SEE DRAWINGS B366-02-42-0090-0001 THROUGH B366-02-42-0090-0005.
- FOR SAMPLE STATION DETAILS SEE DRAWING B366-02-42-0090-0001.
- FOR PUMP SEAL PLAN DETAILS SEE DRAWING B366-02-42-0090-0002.

## NOTES :

- STEAM JACKETED SULFUR NOZZLE & VALVE IS HORIZONTAL AND 'TANGENTIAL' TO BOTTOM OF OUTLET CHANNEL.
- MINIMUM DISTANCE FROM TEE AND HV & HV.
- ELECTRIC TRACE ANALYZER TAPPINGS.
- LOCATE AT HIGH POINT IN LINE.
- FURNISH LP STEAM JACKETED VALVE WITH LP STEAM HEATED SHAFT. INSTALL SHAFT IN THE HORIZONTAL.
- CROSS TO BE CAPABLE OF BEING RODDED OUT IN BOTH DIRECTION. EVERY CHANGE IN DIRECTION HAS A CROSS.
- STEAM AND CONDENSATE TO/FROM INTERNAL STEAM COIL UNDERNEATH MESH PAD.
- STEAM AND CONDENSATE TO/FROM CHANNEL STEAM JACKET LOCATED AT END OF MESH PAD.
- ALL INSTRUMENT TAG NUMBER SHALL BE PREFIXED BY UNIT NUMBER '088'.
- PROCESS CRITICAL ALARM.
- TOP ENTRY.
- TO/FROM STEAM JACKETING MANIFOLD.
- ANALYZER VENDOR TO SUPPLY SPECIAL PROBE, 80MM OR 100MM NOZZLE.
- PLATFORM ACCESS REQUIRED TO 3 ANALYZER CABINET FOR AIR DEMAND ANALYSER.
- SAMPLE PROBE SHALL BE FIXED VERTICALLY UPWARDS (AT 90° ORIENTATION) TO ALLOW DRAIN OUT OF LIQUID SULPHUR FROM SAMPLE PROBE.
- LOCATE MANIFOLD NEAR HZV-0205 AND HZV-0206. SEE P&ID 088-0022.
- PRESSURE TAP/SAMPLE POINT WITH STRAHMAN PISTON TYPE VALVE.
- REMOVABLE SPOOL TO BE INSTALLED.
- FAIL LAST DRIFT TO OPEN.
- FAIL LAST DRIFT TO CLOSE.
- STEAM TRAPS TO BE COMPACT TYPE ASSEMBLY.
- JUMP OVER SECTION FOR STEAM ACROSS JACKETED SECTIONS.
- INLET CHANNEL SHALL HAVE 90MM OF INSULATION OUTLET CHANNEL SHALL HAVE 50MM OF INSULATION FOR HEAT CONSERVATION.
- NUMBER OF STEAM CONNECTIONS FOR JACKETED PIPE WORK/VALVES TO BE CONFIRMED.
- NOZZLE T4 & T5 ARE STEAM INLET AND CONDENSATE OUTLET FOR JACKET ON NOZZLE T3.
- NO LOCAL RESET.
- TWO PHASE FLOW.
- AIR DEMAND ANALYZER SAMPLE TUBE SHOULD BE MINIMUM IN LENGTH (AS PER ANALYZER VENDORS RECOMMENDATION).
- VALVE RESET BY ESD SCREEN PUSH BUTTON.

## DOCUMENT CATEGORY (USE "X" MARK)

- ☐ APPROVAL  
☐ REVIEW  
☐ INFORMATION

CLIENT  
INDIAN OIL CORPORATION LIMITED  
PARADIP REFINERY PROJECT  
PARADIP, ORISSACONSULTANT  
TECHNIP ENERGIESPROJECT  
525 TPD STANDBY SRU PROJECT  
IOCL PARADIP REFINERY, ODISHA, INDIA

NAME	SIGN.	DATE	NO. OF
DRN. Anupam		20.04.21	VAR.
CHD. K.N.B.R.		20.04.21	
APPD. M.S.S.N.		20.04.21	

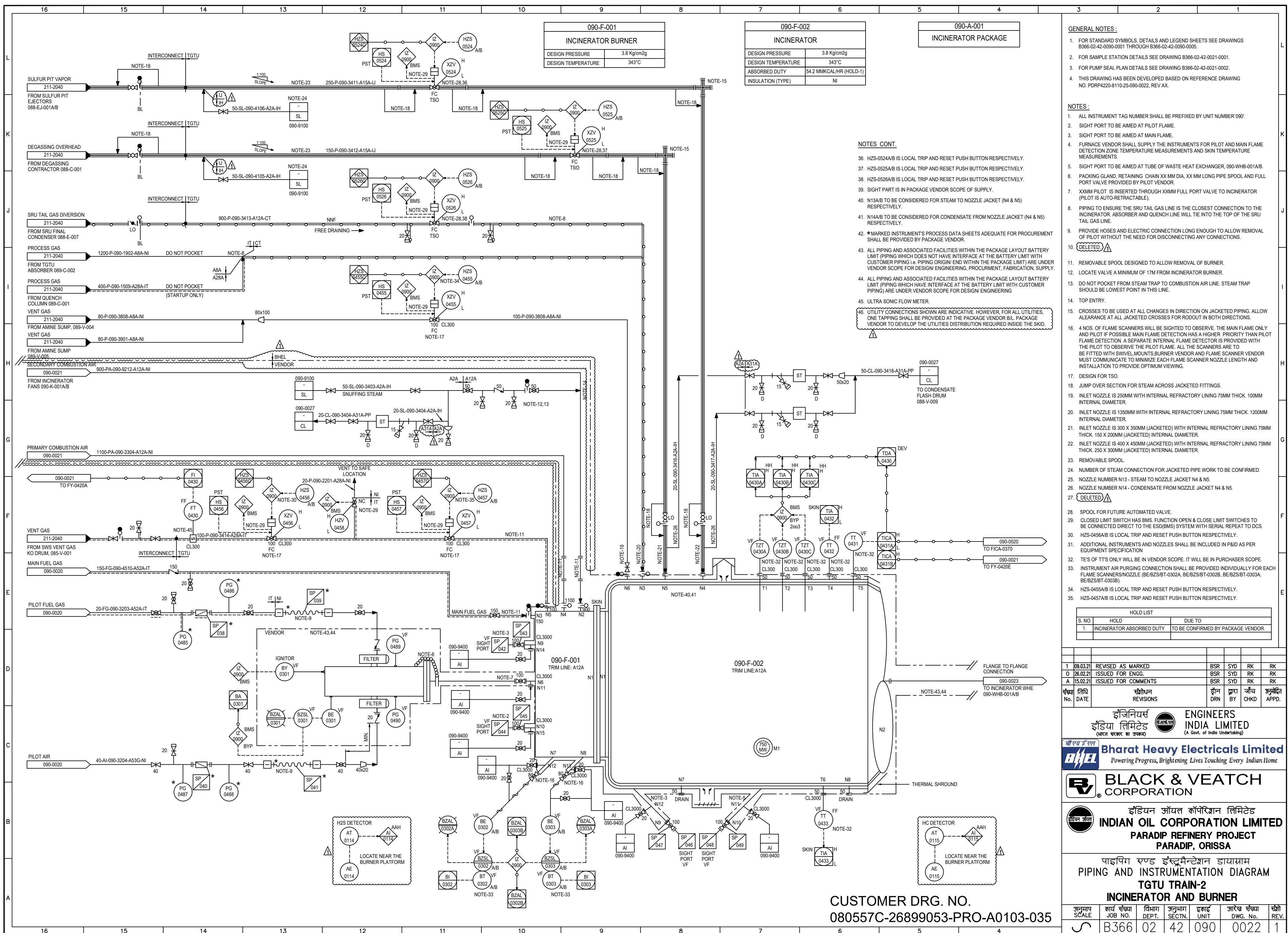
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GR. 6/11/11  
SCALE  
WEIGHT (KG)  
REF. TO ASSY. DRG.  
ITEM NO.  
NO. OF  
ITEMS  
N.A. -N.A. -N.A.TITLE  
P&IDs FOR  
FINAL CONDENSER AND BFW PREHEATER  
CARD  
CODE  
N.A.  
BHEL DRG NO.  
B366-02-42-088-0016  
CUST DRG NO.  
080557C-26899053-PRO-A0103-014  
SHT. No 01  
NO. OF SHT. 01  
REV.  
00ENGINEERS INDIA LIMITED  
NEW DELHI

ISSUED FOR ENGG.

ISSUED FOR COMMENTS



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CUSTOMER DRG. NO.  
080557C-26899053-PRO-A0103-035