



Havforskningsinstituttet – Rederiavdelingen



Fartøy: Kronprins Haakon

VEDLEGG 34: VERKSTEDSPESIFIKASJON NR. 31

Nummer :32

Dato utført :

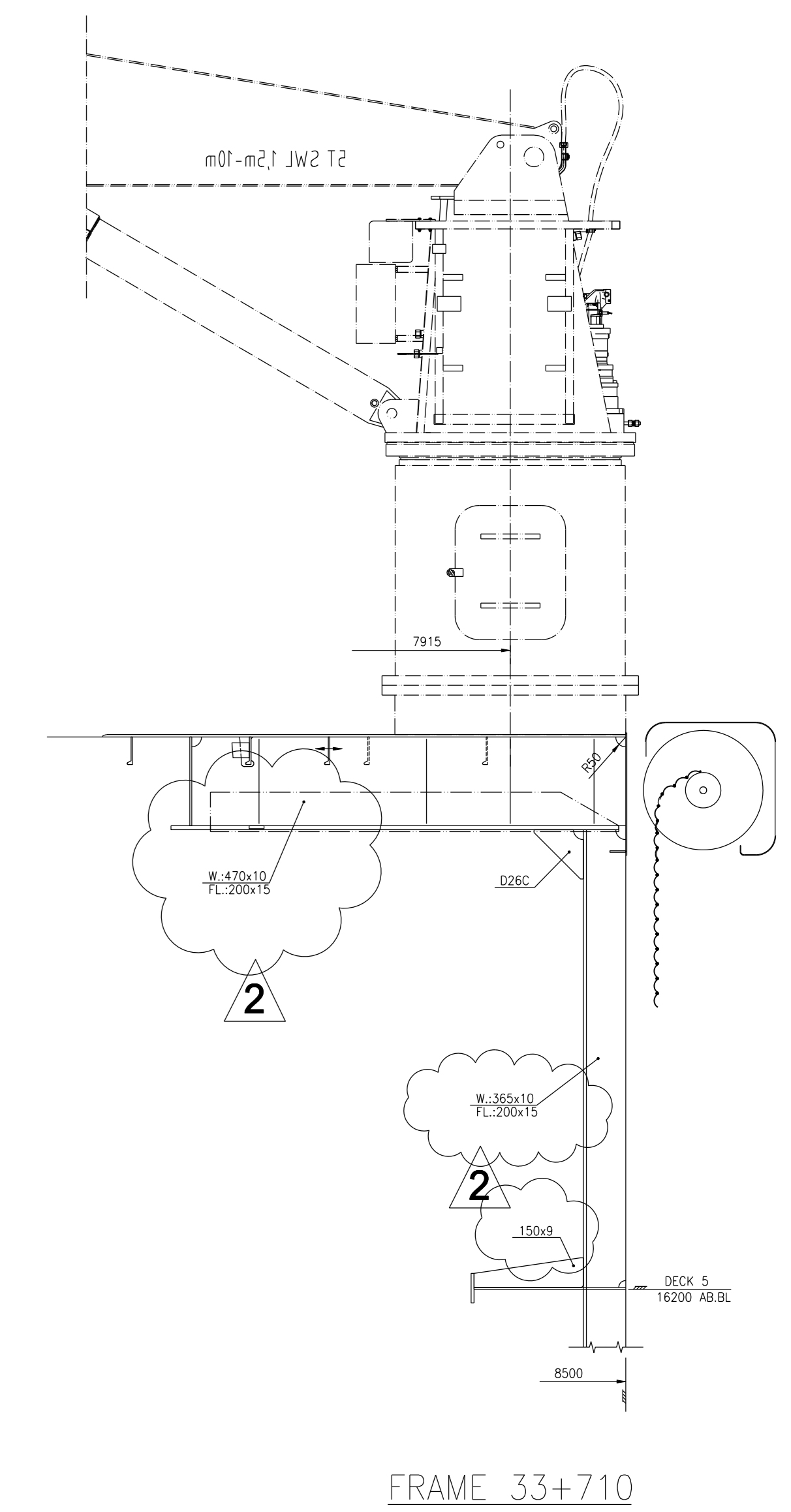
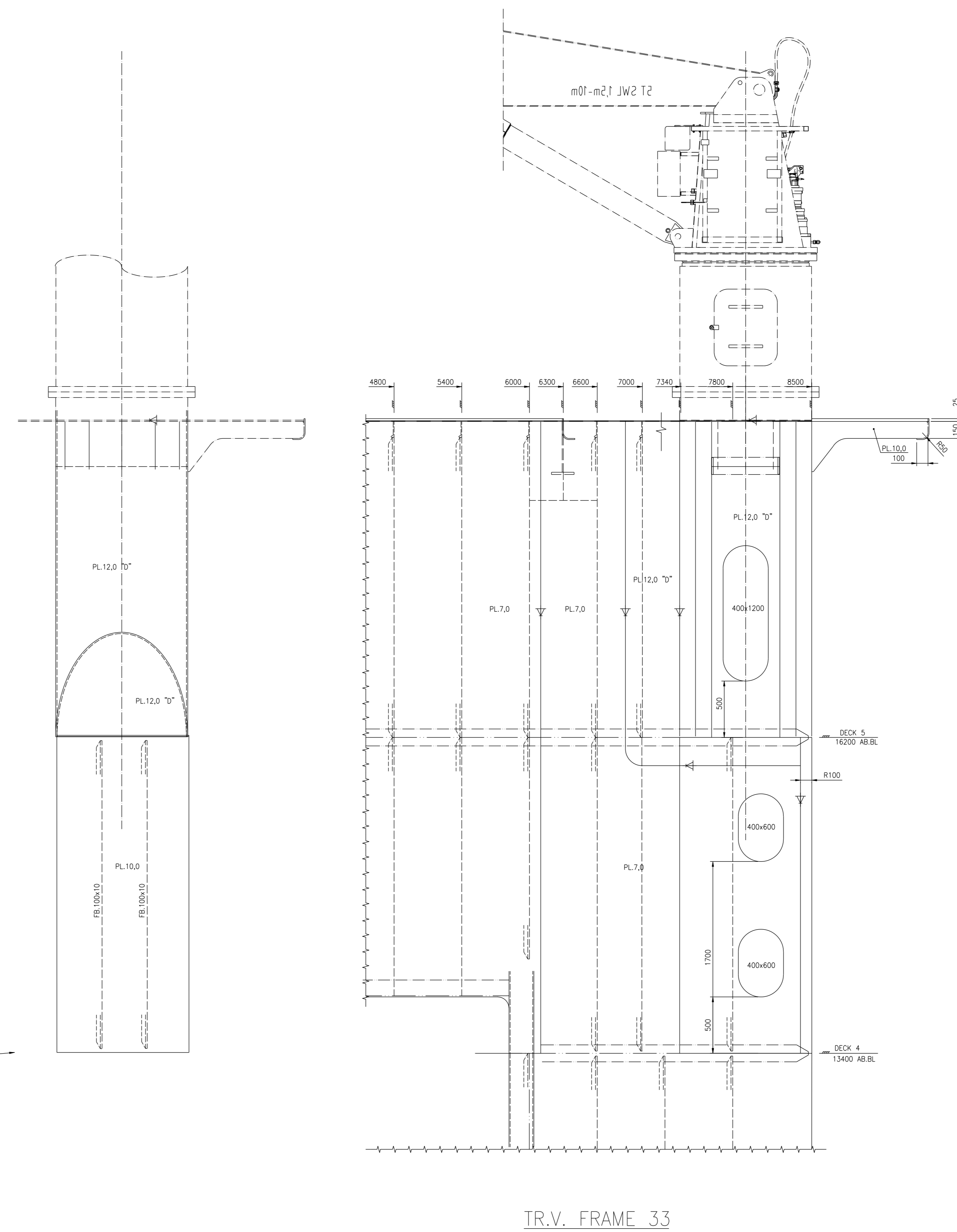
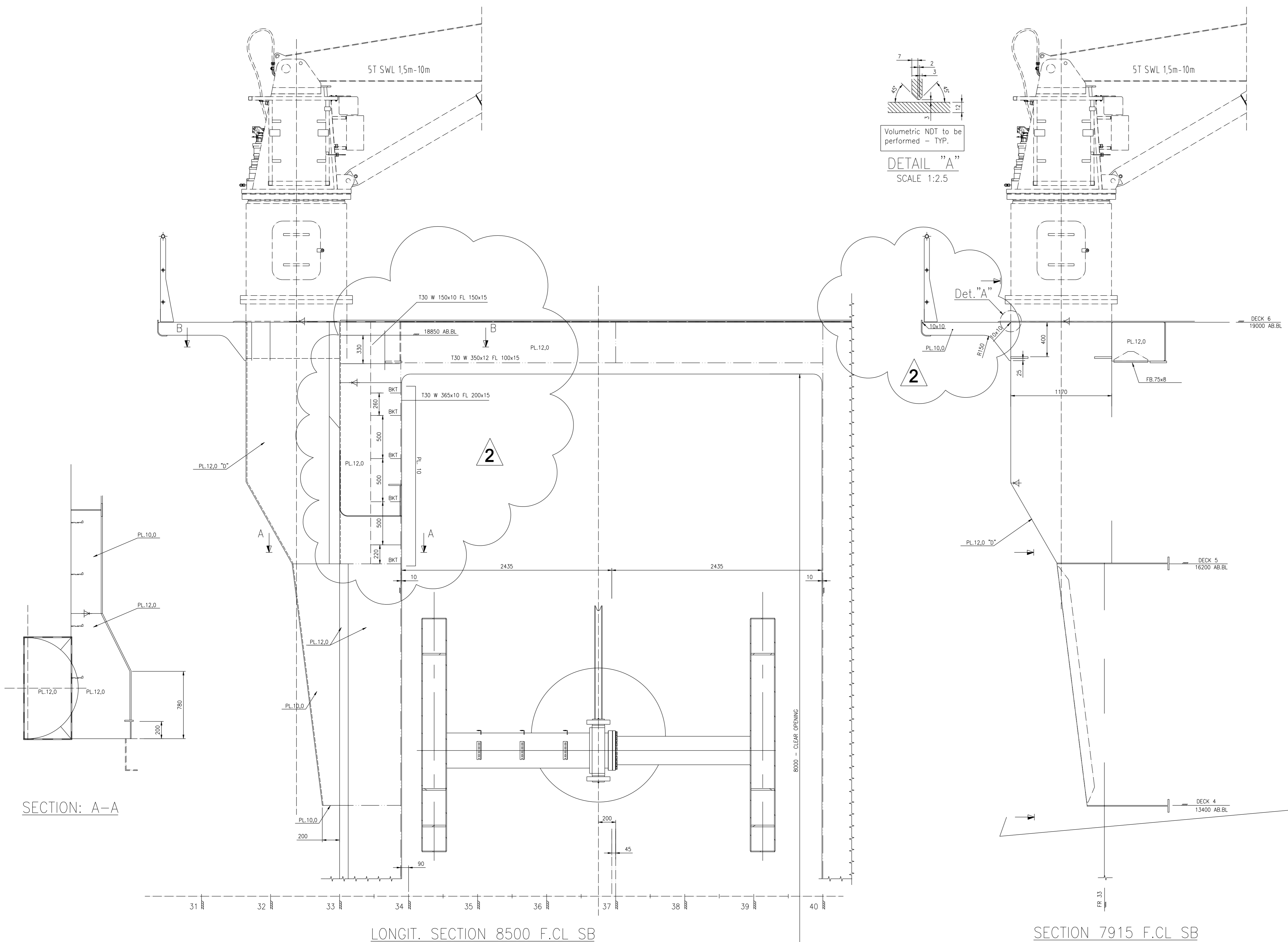
Sign :

Konto nr :

Lokalitet/plassering : Hovedhangar

Komponent: : Installasjon av nye hangarporter i hovedhangar

JOBB INFORMASJON/ DETALJER	INKLUDERT I ARBEID
<p>Installasjon av to (2) nye hangarporter i hovedhangar, som nærmere spesifisert nedenfor.</p> <p>Som det følger av kravspesifikasjon for nye hangarporter til "Kronprins Haakon" skal det installeres en (1) todelt foldeport i hovedhangar mot styrbord skuteside og en (1) «spadeport» i hovedhangar akter mot arbeidsdekk.</p> <p>Installasjon av de nye hangarportene skal utføres i henhold til utstyrsleverandørens spesifikasjoner og skal omfatte alt arbeid som er nødvendig i den forbindelse.</p> <p>Ved installasjonen av nye hangarporter skal det foretas styrkeberegning av stålskott og eksisterende kranfundament etc. Eventuelle forsterkninger / justeringer i eksisterende kranfundament som følge av installasjon av nye hangarporter skal inngå i arbeidsomfanget, se vedlagt tegning for fundament for dekkskran på dekk 6 og fundament for takkran i hovedhangar.</p> <p>Det skal installeres støttebein i hangarport mot styrbord skuteside, samt låsing for sikring av hangarporten i åpen posisjon. Hangarporten skal kunne låses i hhv. lukket og åpen posisjon. En hydraulisk låsmekanisme skal monteres i karm. Eventuelt smøresystem skal være ved hjelp av smøresentral.</p> <p>For hangarport mot arbeidsdekk skal kunne låses i hhv. lukket og åpen posisjon. I tillegg skal hangarporten kunne låses med 2400mm åpning.</p> <p>Øvrig designarbeid i forbindelse med installasjon av de nye hangarportene skal også være inkludert i arbeidsomfanget. Det skal bl.a. leveres "som bygget" dokumentasjon for installerte hangarporter.</p> <p>Hangarportene skal kobles til eksisterende hydraulisk system HPU2 (360liter / 260 bar maks) Hydraulikksystemet har olje type Mobil HVI26. Avstand til skipets hydraulikksystem er ca. 20 meter. Rørdimensjoner på hydraulikksystem er Ø38mm.</p> <p>Hangarporten skal videre utrustes med varmekabler som kobles til fartøyets anti-isingsystem. Installerte varmekabler skal ha en effekt på 450w/m². Varmekablene skal være operativ uavhengig av hangarportens posisjon. Verkstedet skal i den forbindelse oppdatere vedlagte vinterinseringsplan (autocad vil leveres etter kontraktinngåelse).</p> <p>Igangkjøring og testing av ferdig installerte hangarporter før levering.</p> <p>Installasjonen skal kontrolleres/godkjennes av DNV.</p> <p>I forbindelse med installasjon av nye hangarporter i hovedhangar skal det også legges opp drenering fra dekk 6 i galvanisert tykkvegget stål til dekk 3.</p>	<input type="checkbox"/> Gassfri sertifikat
	<input type="checkbox"/> Ekstra belysning
	<input type="checkbox"/> Ventilasjon
	<input type="checkbox"/> Tilkomst
	<input type="checkbox"/> Rengjøring før
	<input type="checkbox"/> Rengjøring etter
	<input type="checkbox"/> Stillas
	<input type="checkbox"/> Krane
	<input type="checkbox"/> Transport til verksted
	<input type="checkbox"/> Transport ombord
	<input type="checkbox"/> Sandblåsing
	<input type="checkbox"/> Priming/Grunning
	<input type="checkbox"/> Maling
	<input type="checkbox"/> Trykk/Vacuum testing
	<input type="checkbox"/> X-ray
	<input type="checkbox"/> Ultrasonic testing
	<input type="checkbox"/> Brannvakt/Sikkerhetsvakt
	<input type="checkbox"/> Isolasjonstest/Megging
	<input type="checkbox"/> Rette opp tegninger
	ARBEIDET SKAL KONTROLL. AV:
<input checked="" type="checkbox"/>	Klasse (DnV)
<input checked="" type="checkbox"/>	Teknisk inspektør
<input type="checkbox"/>	Kaptein/Maskinsjef
<input checked="" type="checkbox"/>	Utstyrs leverandør
	MATERIAL:
<input checked="" type="checkbox"/>	Verkstedes levering
<input type="checkbox"/>	Rederi levering (bunnstoff)
	VEDLEGG:
<input type="checkbox"/>	Foto
<input checked="" type="checkbox"/>	Tegning
<input checked="" type="checkbox"/>	Spesifikasjon
<input type="checkbox"/>	Eksempel/Prøve



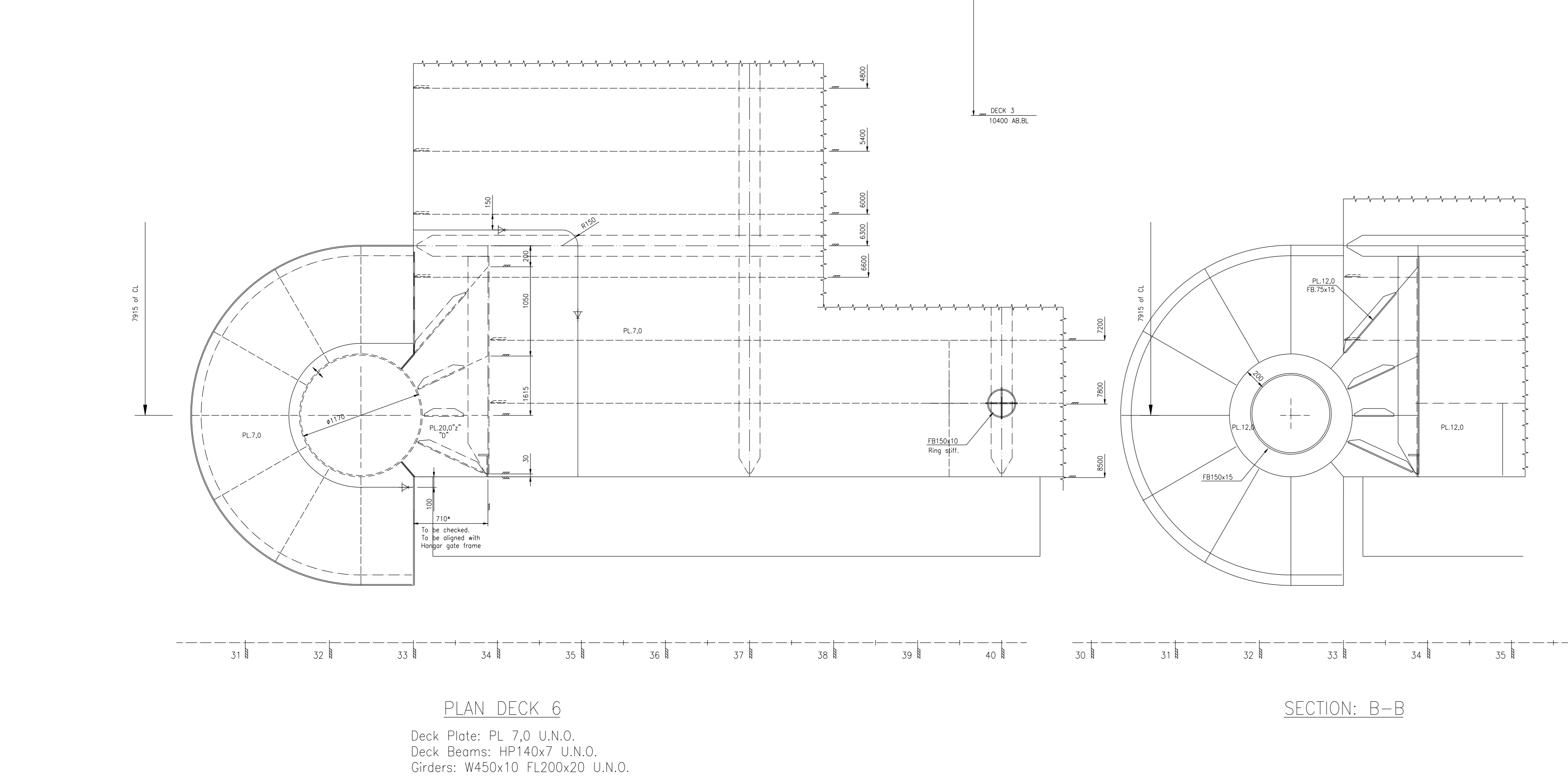
TECHNICAL SPECIFICATION	
CRANE OPERATION APPROVED FOR OFFSHORE USE.	
MAX OUTREACH	10.0 m
CRANE WEIGHT	app. 7500 kg
DYNAMIC FACTOR	1.6
LIFTING MOMENT	1255 kNm
AXIAL LOAD	190 kN
SLEWING TORQUE	MAX OUTREACH 235 kNm
BOOM REST	
N: AXIAL FORCE	40 kN
L: OFFLEAD FORCE	±7 kN
T: SIDELEAD FORCE	±44 kN

REF. ROLLS-ROYCE MARINE DRAWING NO.:

- 08-6543-00-200-001-03: PROFILE AND PLAN
- 08-6543-00-200-021-03: MIDSHIP SECTIONS
- 08-6543-00-200-101-001: GENERAL ARRANGEMENT

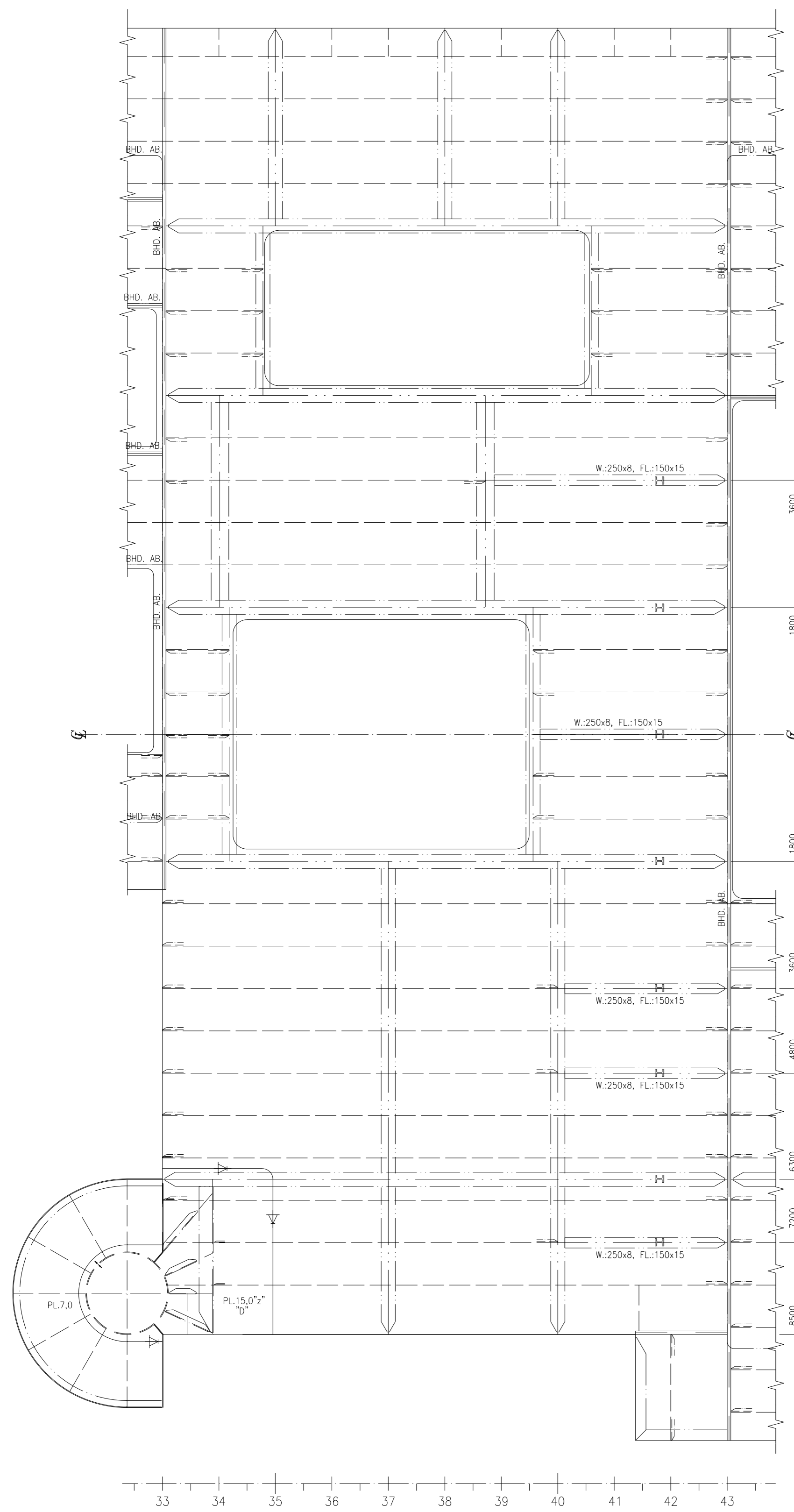
REF. NON ROLLS-ROYCE MARINE DRAWING NO.:

- SEAONICS dwg. 101633: Knuckle boom crane 5t-10,0m - Dimensional Sketch



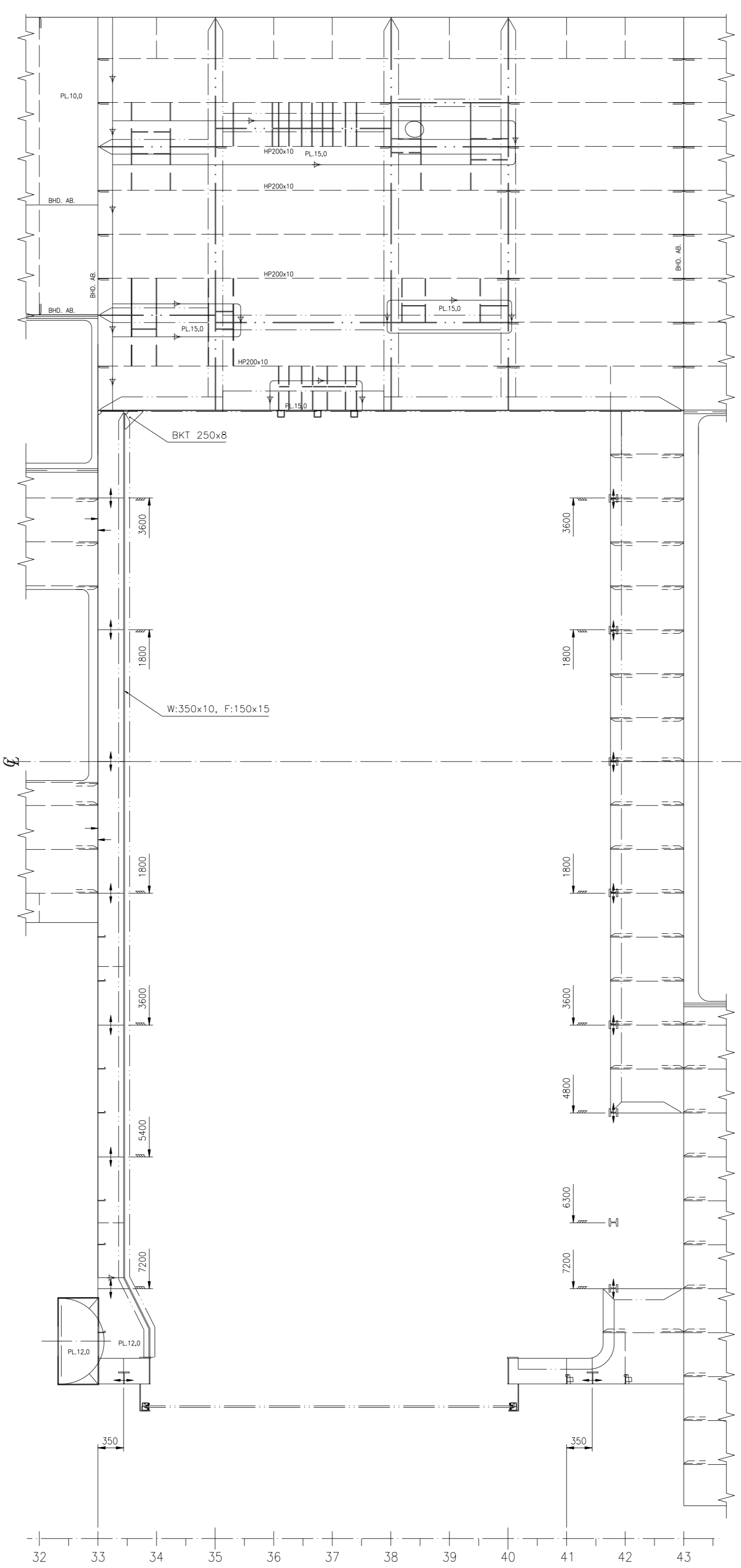
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FINCANTIERI DRWG. NUMBER	REV.	DATE	REVISION DESCRIPTION			
ECR/CO 08255-02487	2	19.07.17	REVISION AS BUILT			
ECR/CO 08255-02487	1	28.11.16	DNV APPROVED WITH FTEL CRANE INVD 36			
08255G018500003	0	07.08.15				
3	22.10.15	Updated acc. to DNV-GL comments	good			
2	19.08.15	Crane moved aft	good			
1	02.07.15	For approval	good			
Rev.	Date	Reason for issue	Made by	Chkd by	Disc. by	Client by
CUSTOMER			TITLE			
FINCANTIERI			FOUNDATION FOR DECK CRANE-6TH DK			
Yard no.: 6255			DOCUMENT NO: 08-6543-00-263-331.103.01			
Scale: 1:25			Format: A0 Variant: 3.0			

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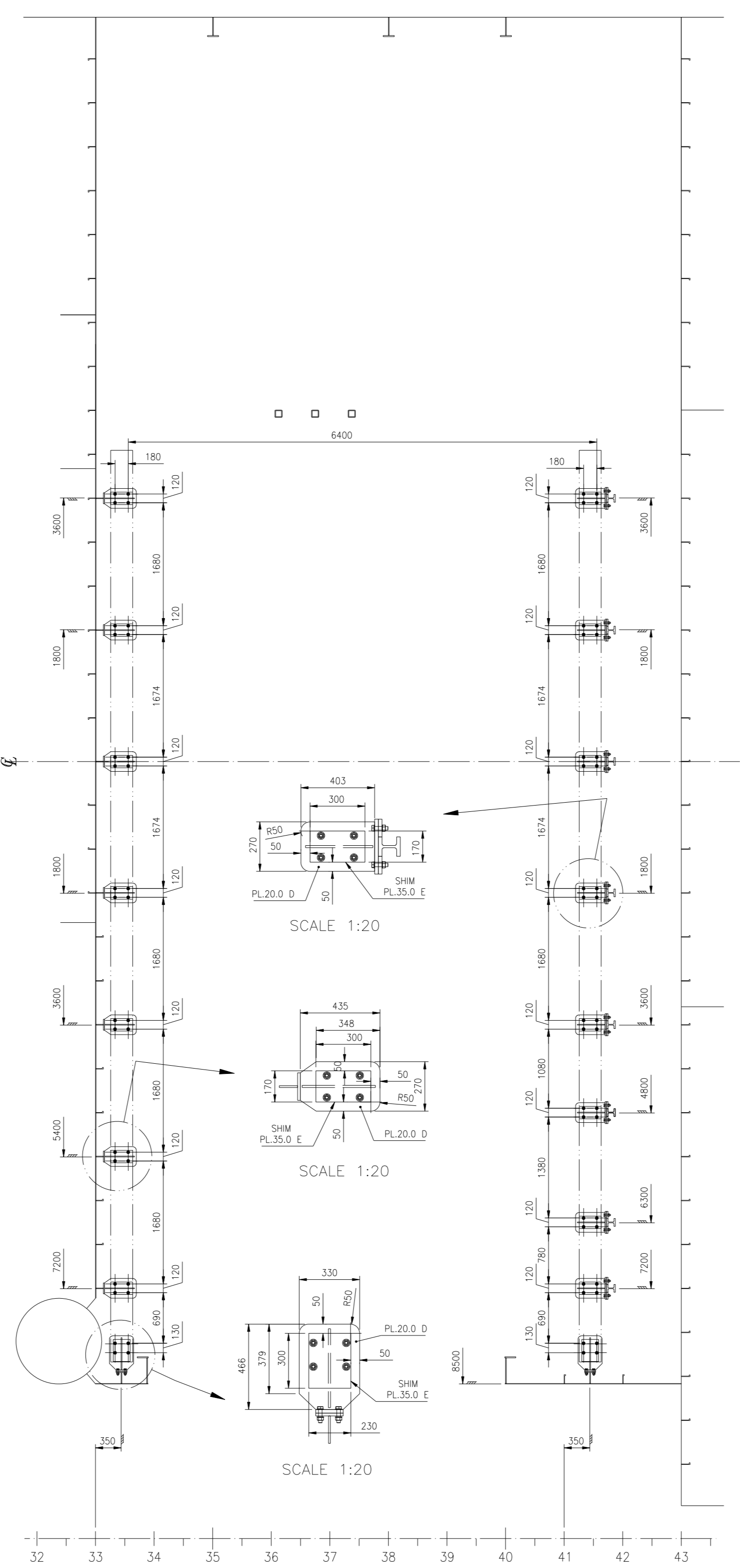
DECK 6 19000 AB.BL. PS

Deck Plate: PL 7.0 U.N.O.
Deck beams: HP140x7 U.N.O.
Girders: W450x10 FL200x20 U.N.O.

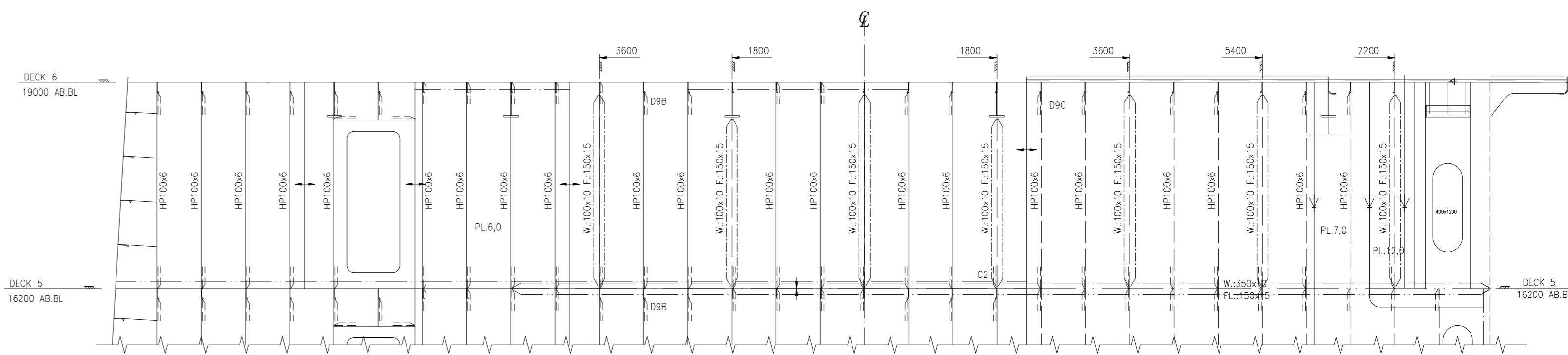


DECK 5 16200 AB.BL. PS

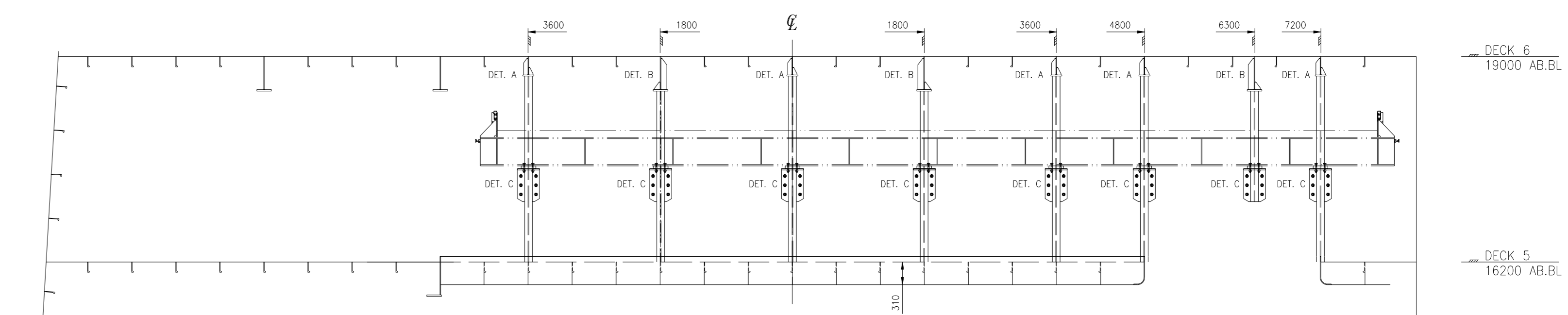
Deck Plate: PL 7.5 U.N.O.
Deck beams: HP140x7 U.N.O.



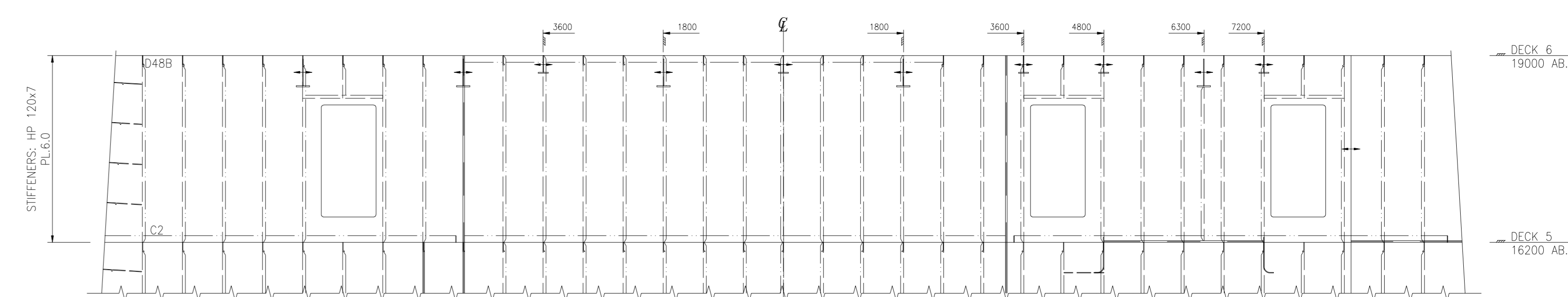
SECTION A-A



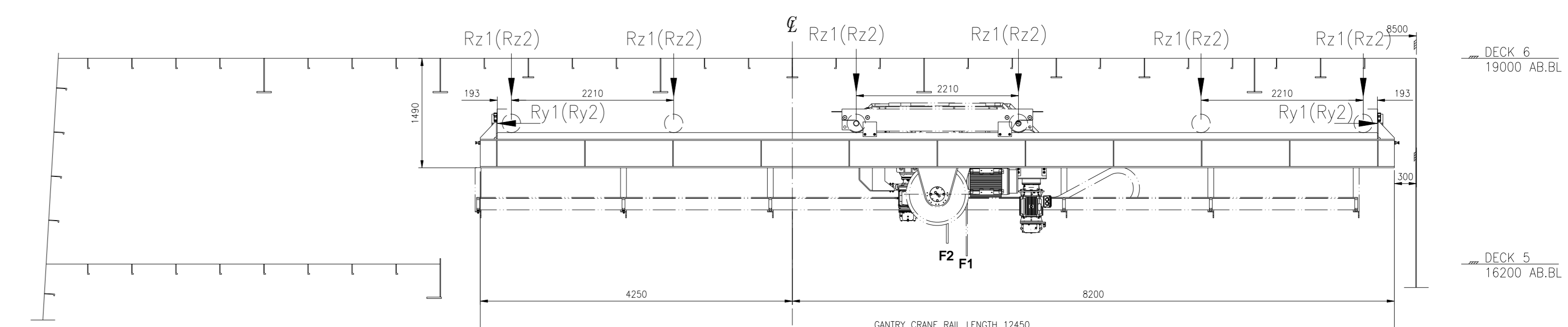
FRAME 33



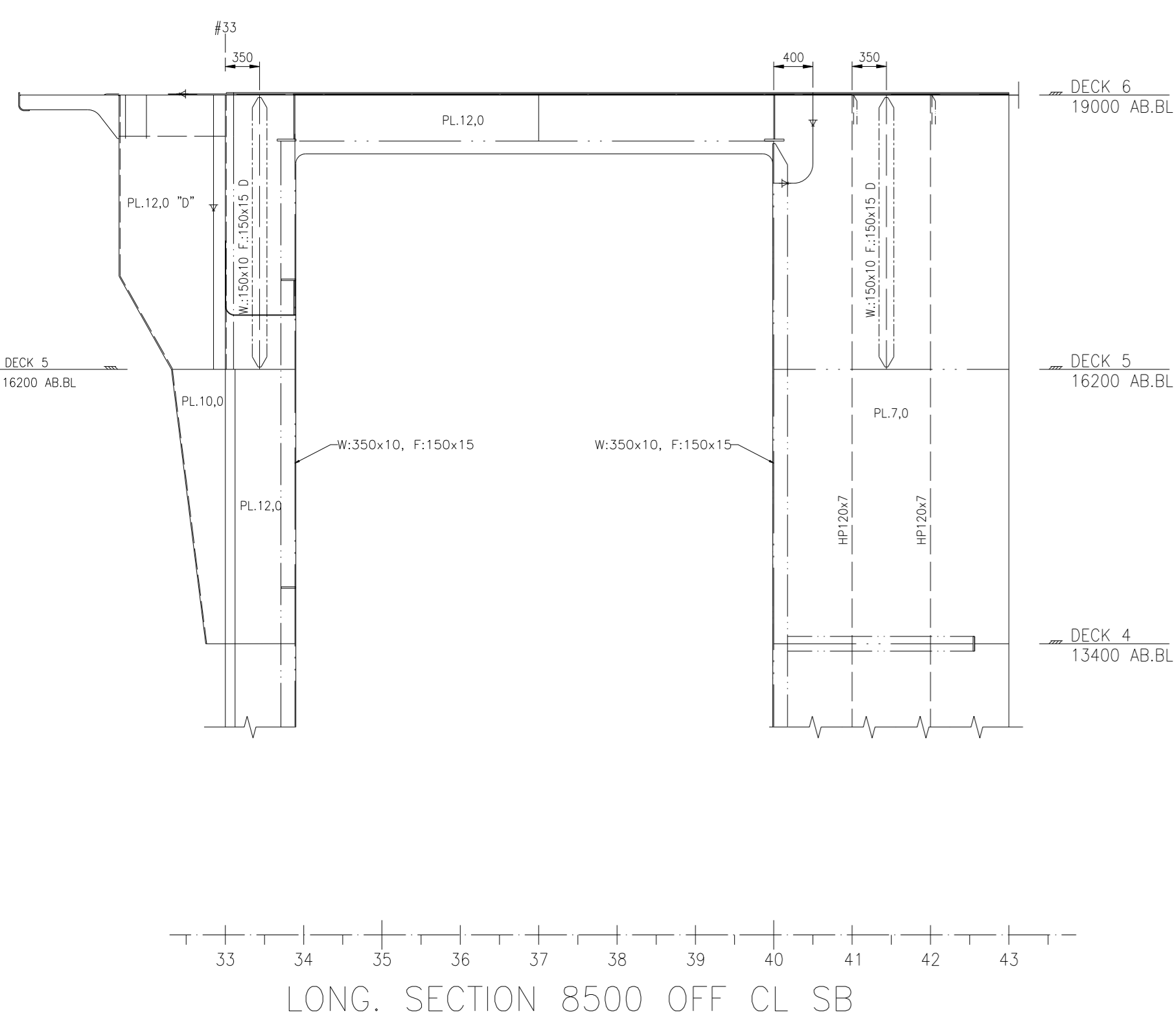
FRAME 41+600



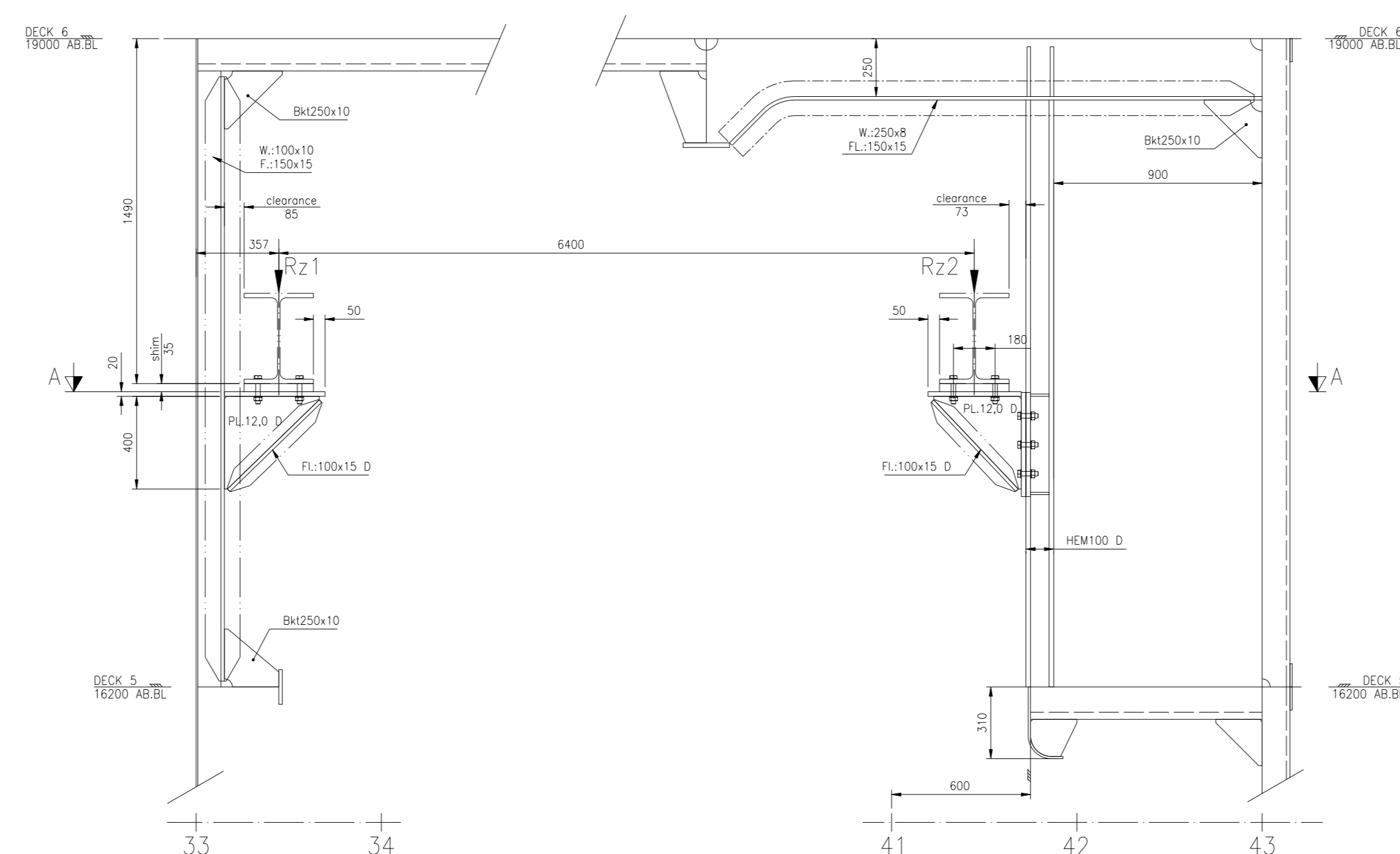
FRAME 43



GANTRY CRANE TRANSVERSE ARRANGEMENT



LONG. SECTION 8500 OFF CL SB



LONG. SECTION 3600 OFF CL PS,

SECTION IN CL, 1800 OFF CL PS SIMILAR,

1800, 3600, 5400, 7200 OFF CL SB SIMILAR,

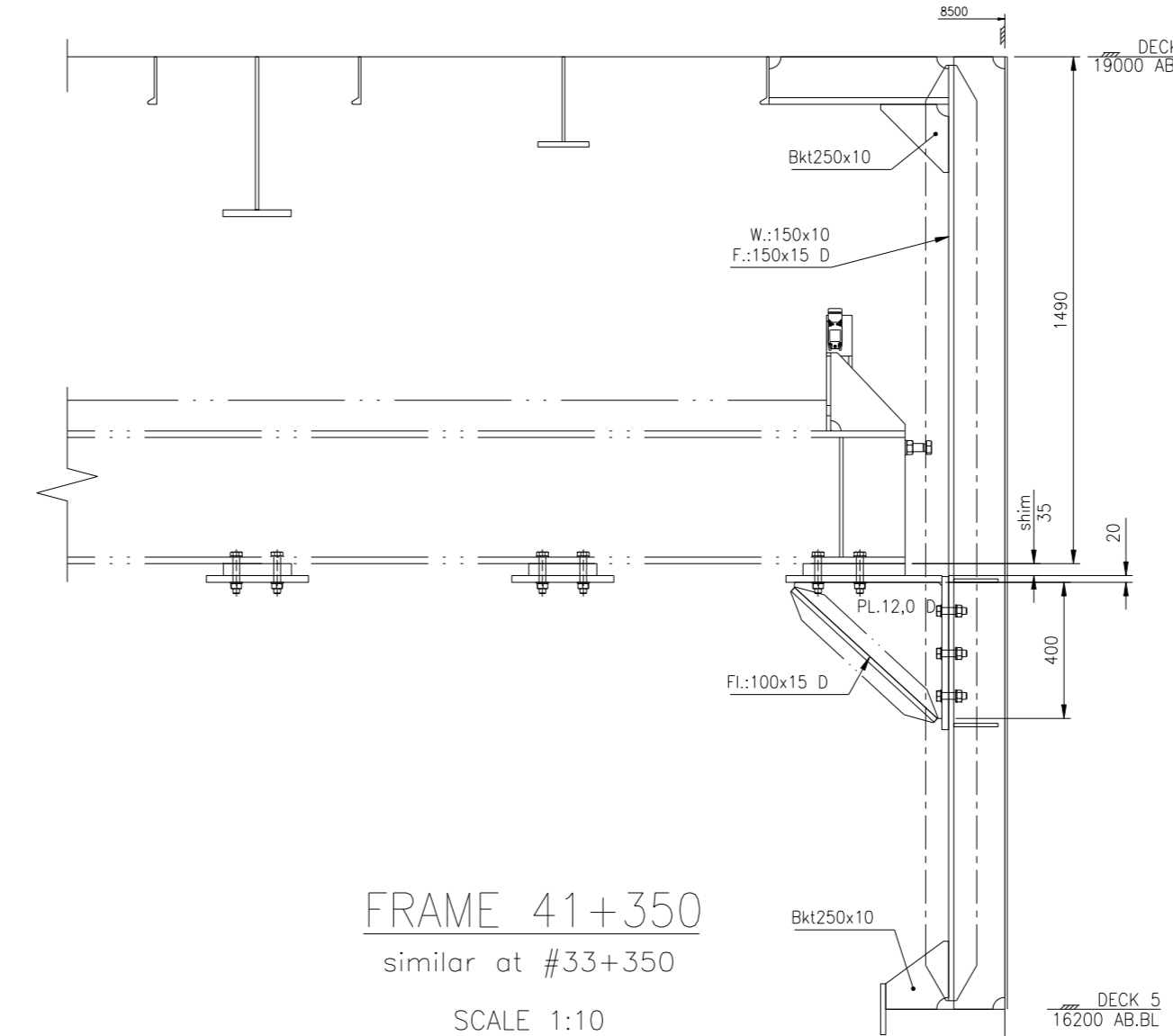
SCALE 1:10

LONG. SECTION 3600 OFF CL PS,

SECTION IN CL, 1800 OFF CL PS SIMILAR,

1800, 3600, 4800, 6300, 7200 OFF CL SB SIMILAR,

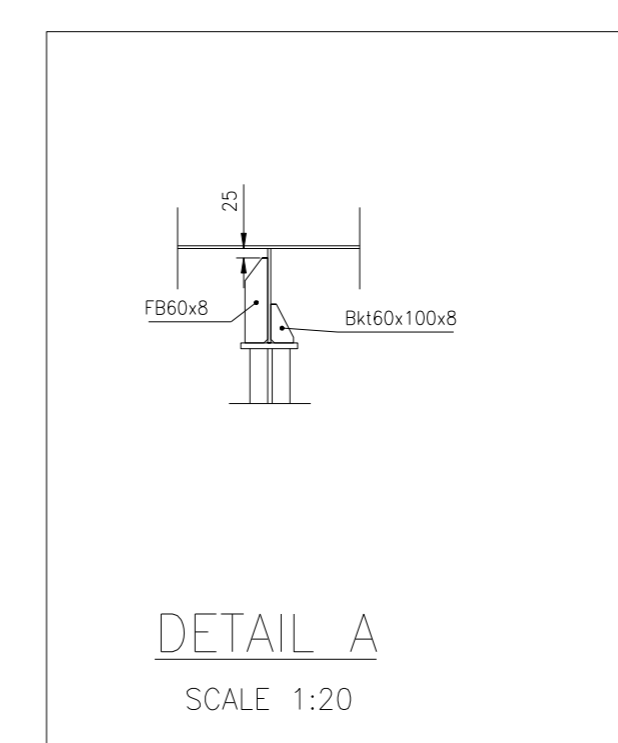
SCALE 1:10



FRAME 41+350

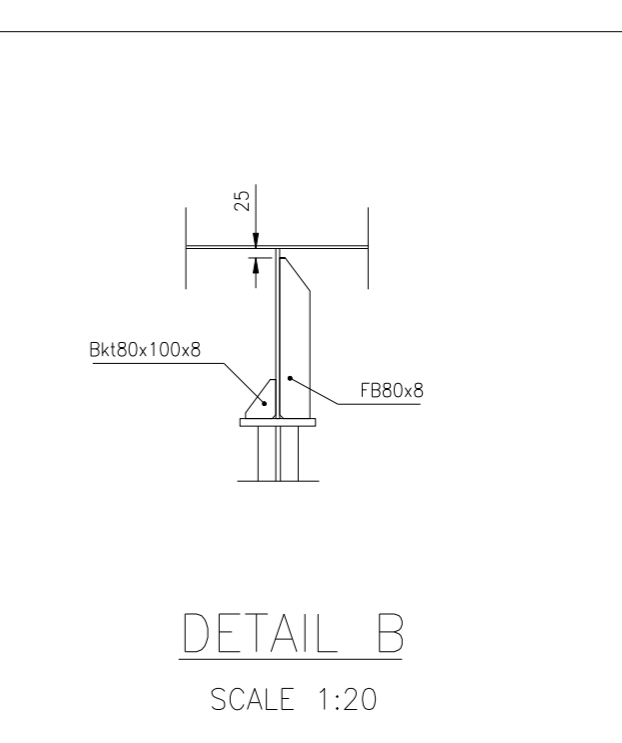
similar at #33+350

SCALE 1:10



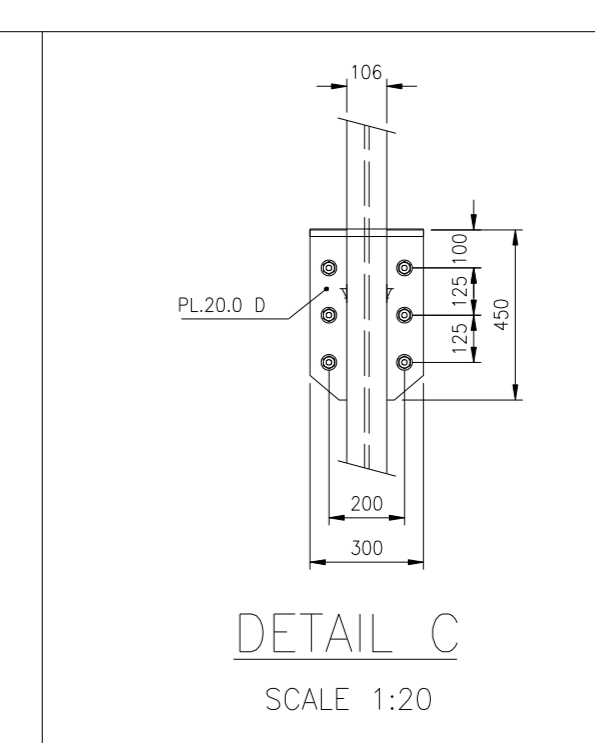
DETAIL A

SCALE 1:20



DETAIL B

SCALE 1:20



DETAIL C

SCALE 1:20

- LOADS:
- SELF WEIGHT: 15 050 KG
 - DYNAMIC FACTOR 1.3
 - LOAD: 15 T

- FORCES:
1. Gantry crane at foremost position:
Rz1=140kN, Rz2=80kN, Ry1=Ry2=150kN
 2. Gantry crane at foremost position:
Rz1=80kN, Rz2=140kN, Ry1=Ry2=150kN

(self weigh and dynamic factor 1.3 included)

- NOTES:
- ALL MATERIAL OF GRADE NVA36 U.N.O.
 - ALL WELDS TO BE ACCORDING TO WELDING TABLES U.N.O.

REF. ROLLS-ROYCE MARINE DRAWING NO:
 -08-6543-00-200-001-01/04 PROFILE AND PLAN
 -08-6543-00-200-021-01 MIDSHIP SECTIONS
 -08-6543-00-200-101-001 GENERAL ARRANGEMENT
 -08-6543-00-485-010 MAIN HANGAR ARRANGEMENT

REF. NON ROLLS-ROYCE MARINE DRAWING NO:
 SEACONICS dwg. 2048326 G: 1ST GANTRY CRANE DIMENSIONAL SKETCH

FINCANTIERI REGISTRATION NUMBER (ONLY FOR DOCUMENTATION MANAGEMENT)		REVISION DESCRIPTION	
FINCANTIERI DRAWING NUMBER	REV.	DATE	
09255G1800027	0	30.12.15	
1	03.12.15	ISSUED FOR APPROVAL	
Rev.	Date	Reason for issue	

CUSTOMER	TITLE	Rev.	By	Check	Drawn	Client
FINCANTIERI	FOUNDATION FOR OVERHEAD CEILING					
	CRANE MAIN HANGAR					


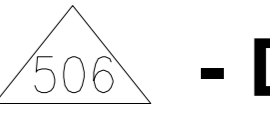
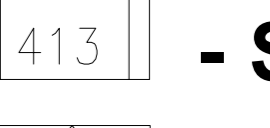


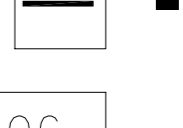

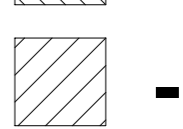
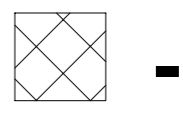

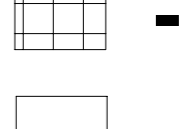


Yard no.:	6255
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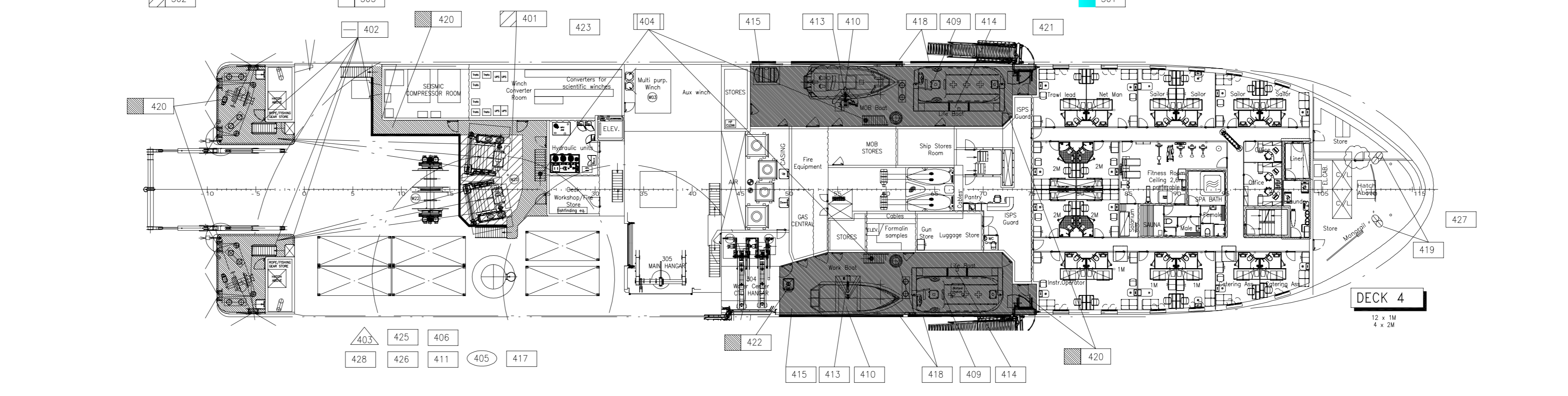
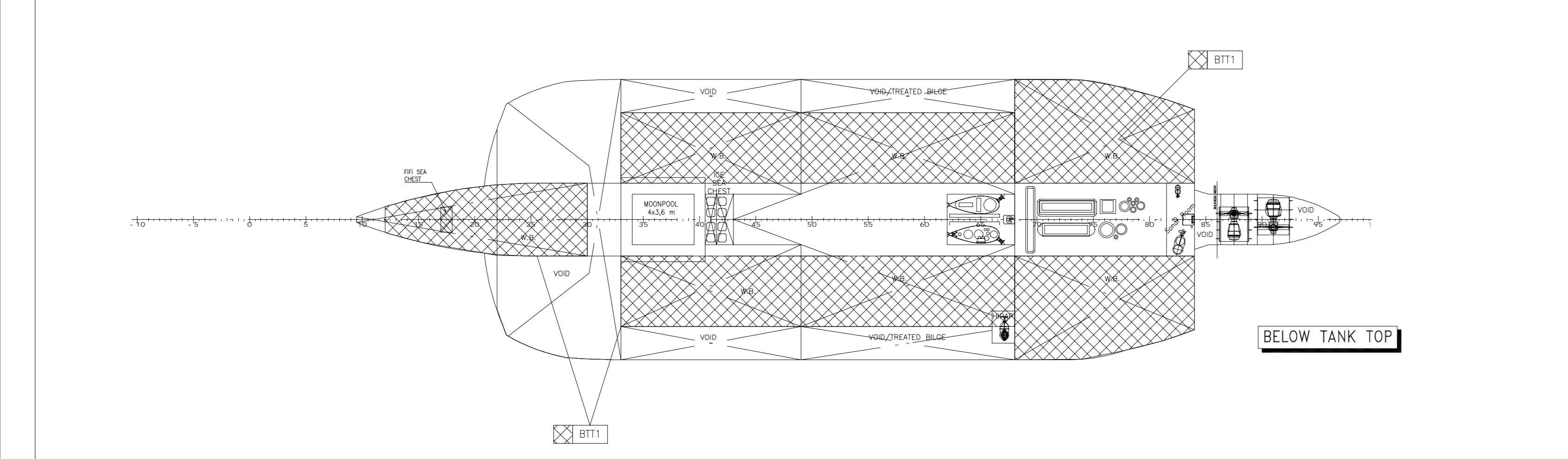
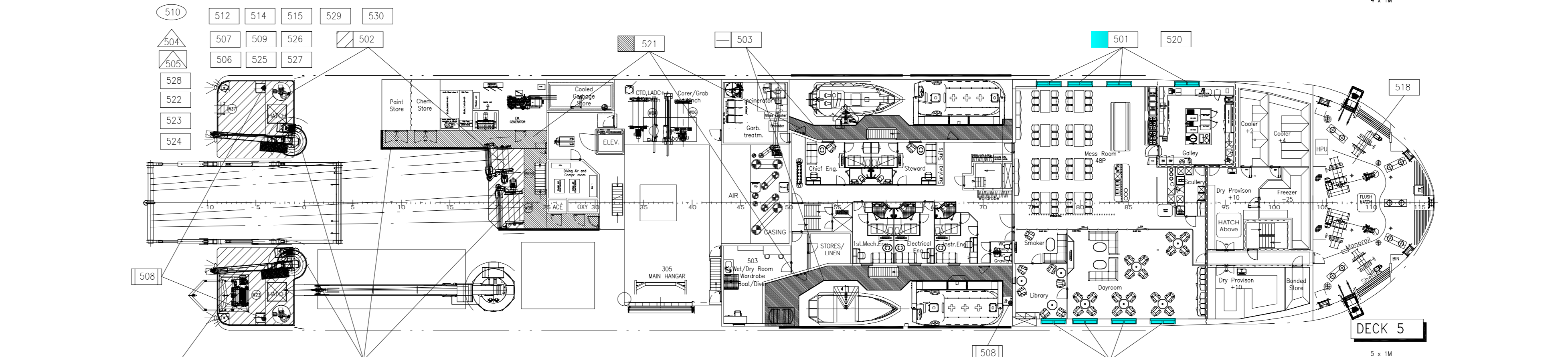
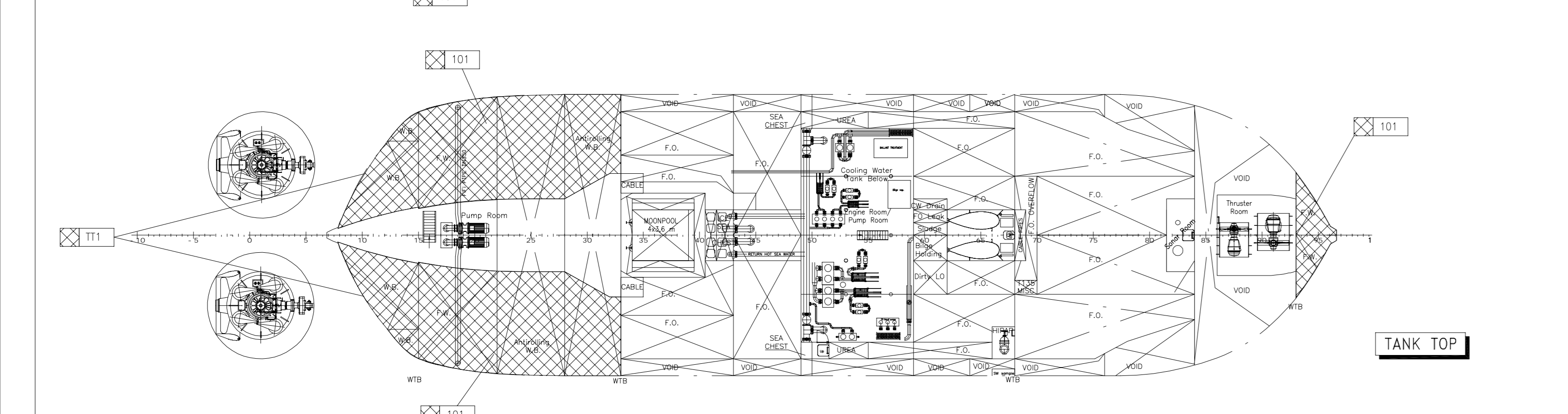
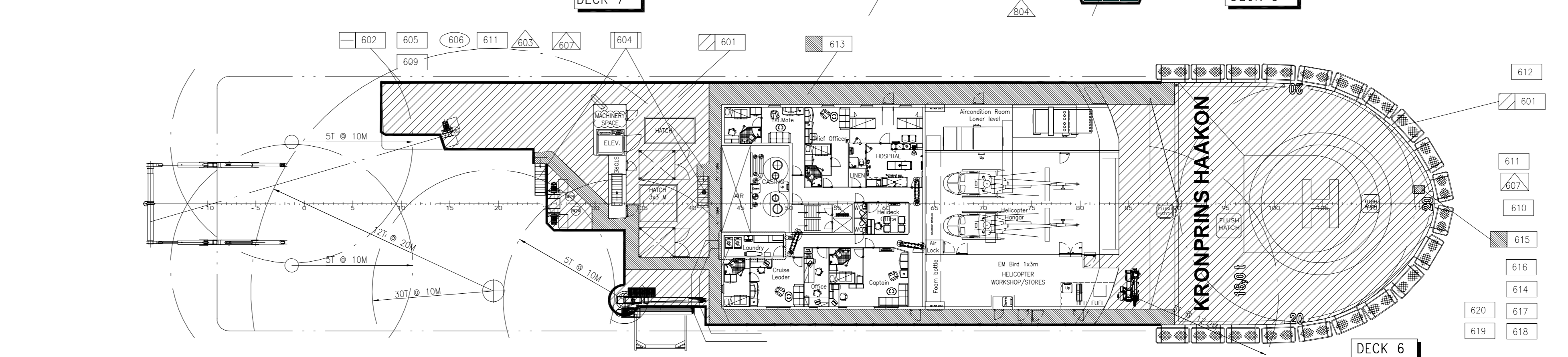
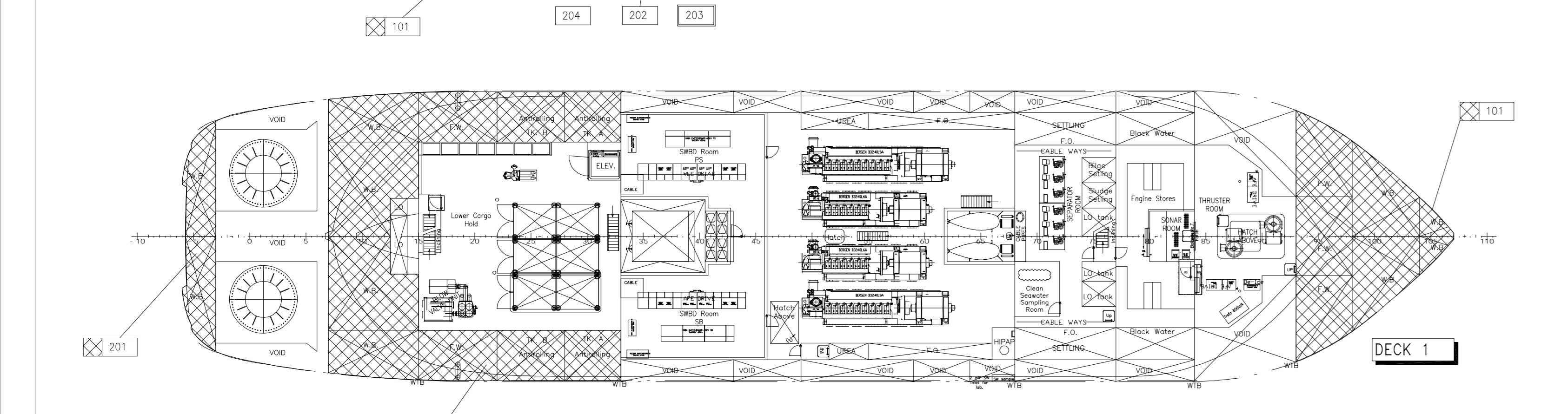
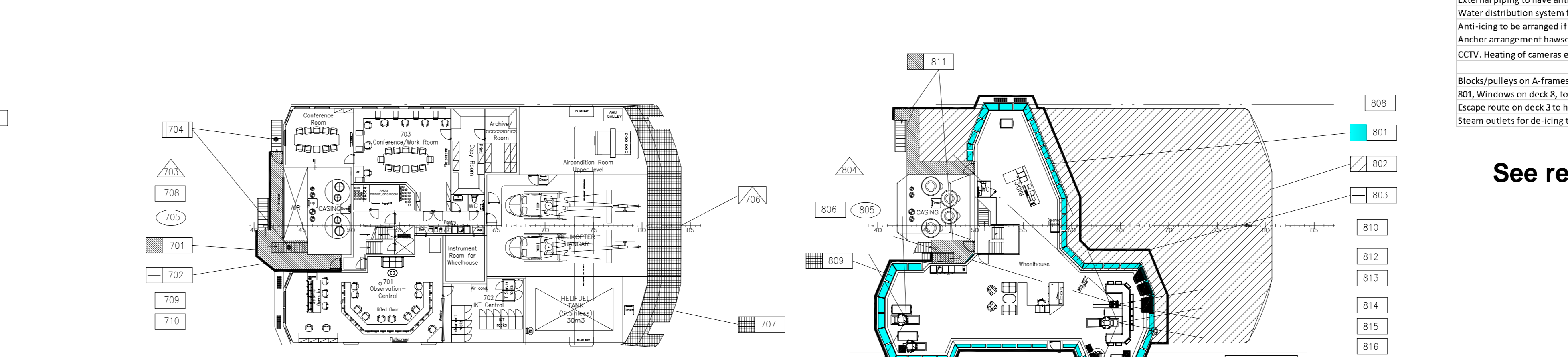
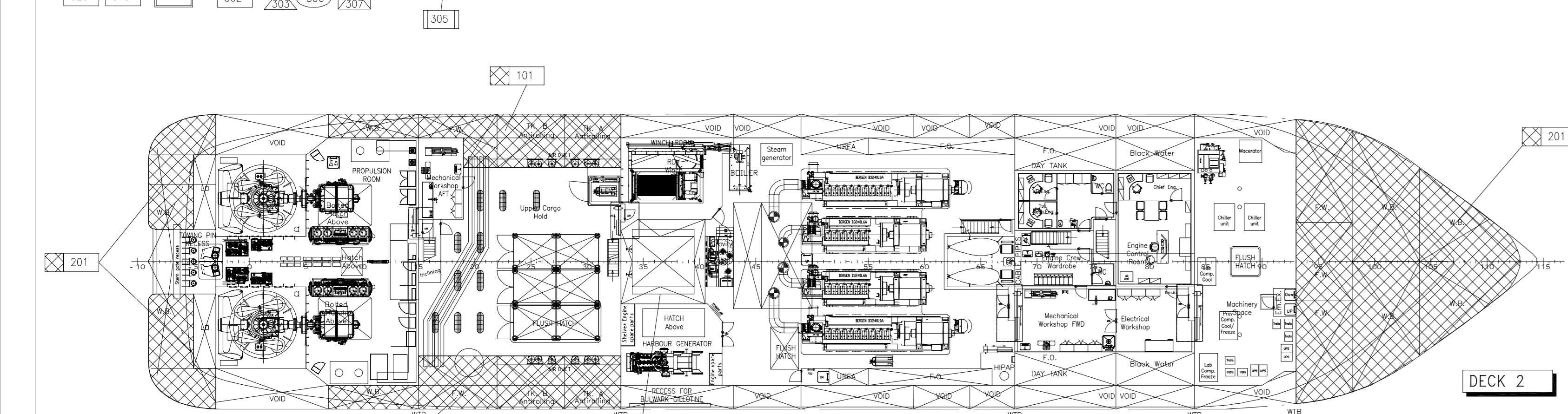
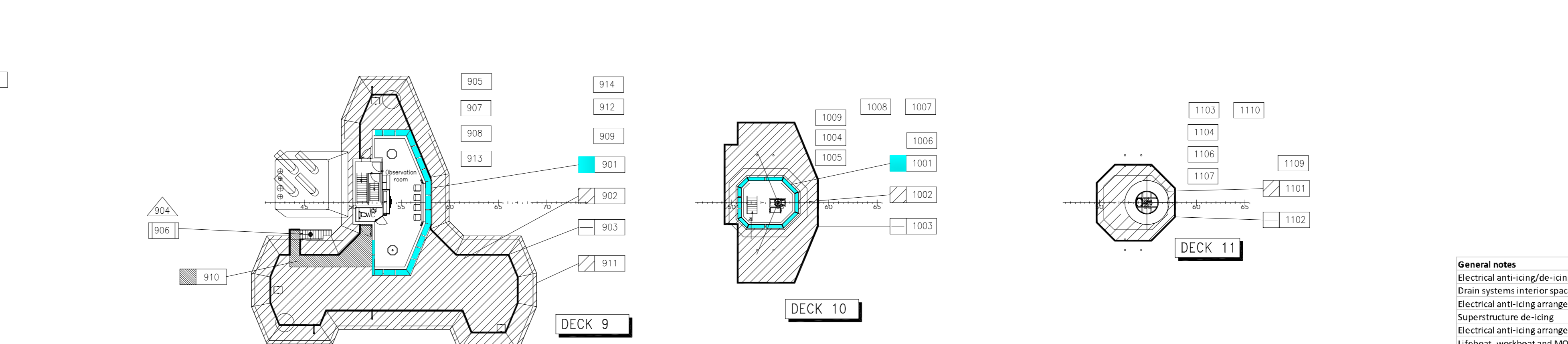
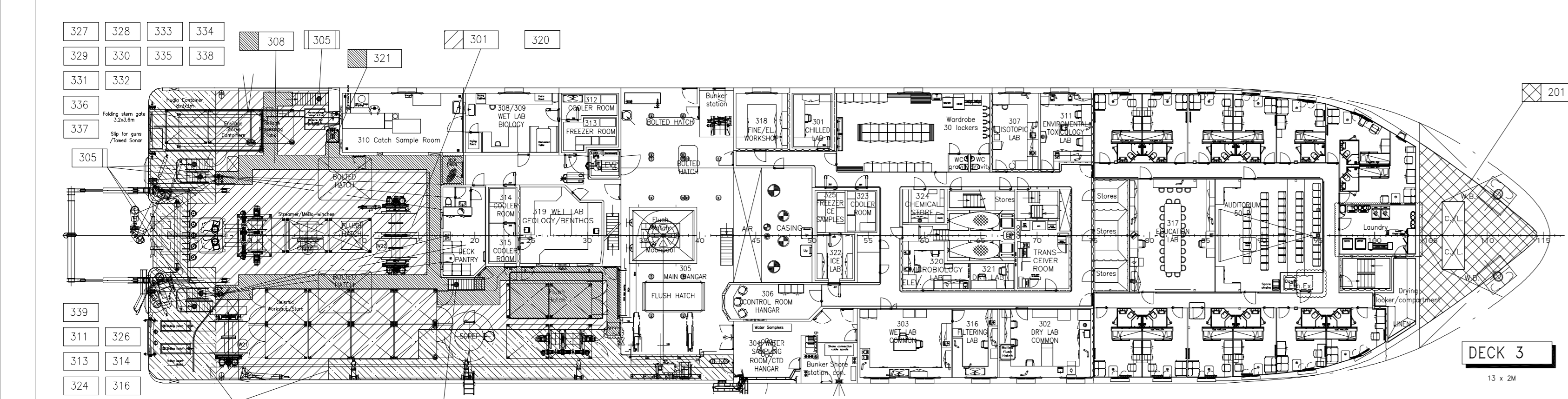
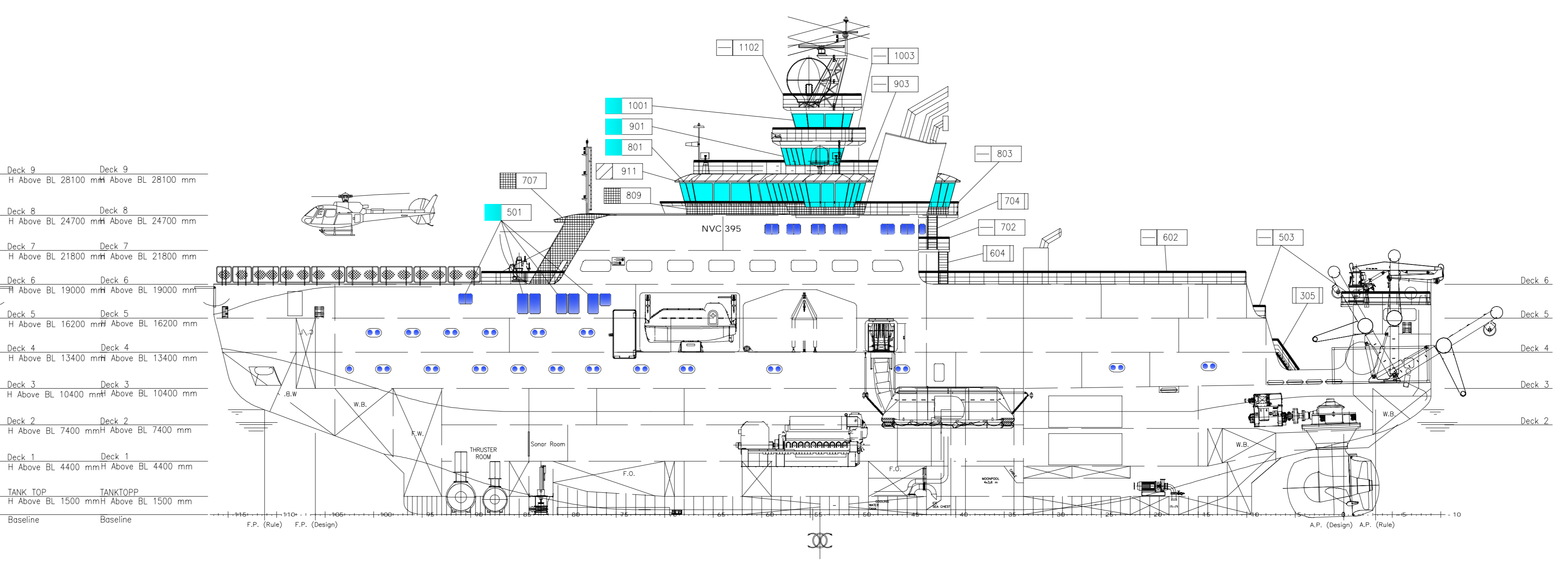
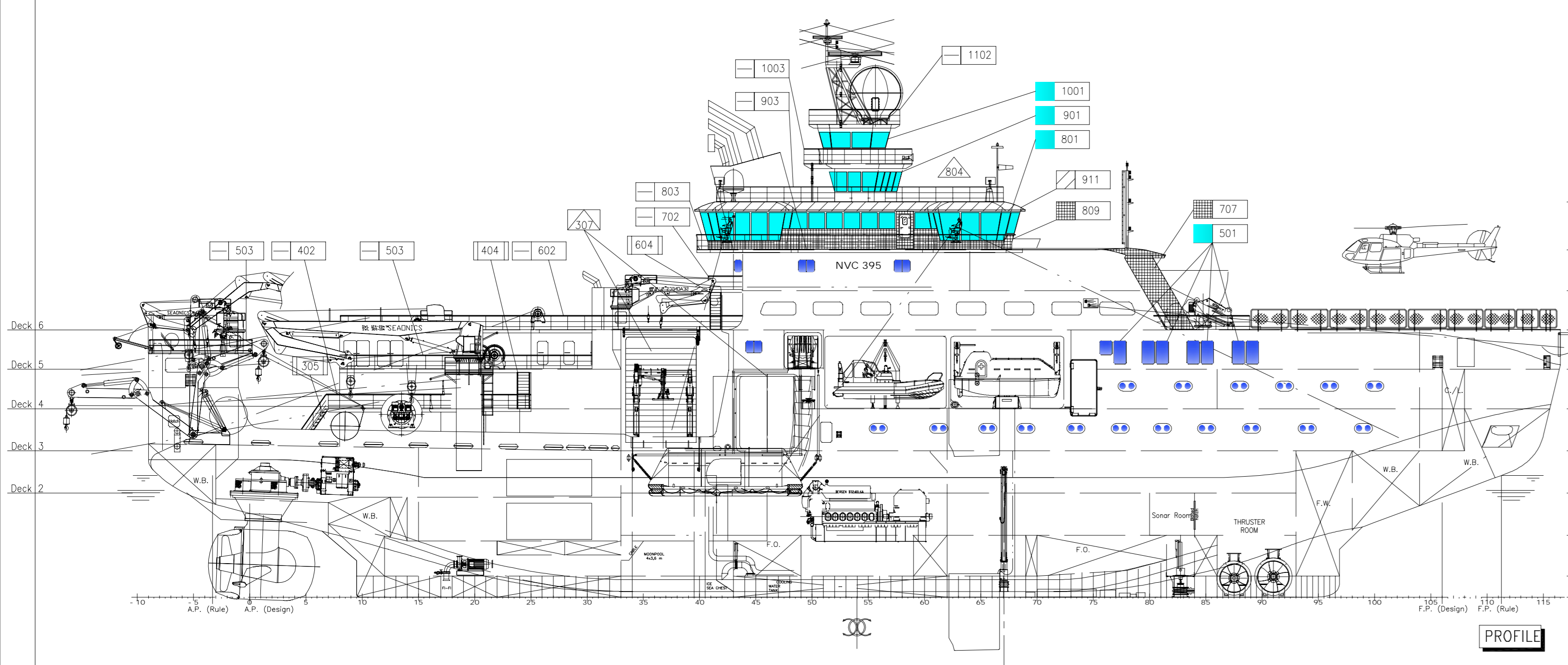
Rolls-Royce	Ship Technology Offshore Systems
NVC-Design	Rolls-Royce Marine AS NORWAY Tromsøveien 115 NO-1407 BRUMDAL Tel: +47 90 28 32 00 E: nvc@nvcdesign.com E: nvc@rolls-royce.com

DOCUMENT NO: 08-6543-00-263-333-10

Scale: 1:150 Format: A0 Version: 1.1

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-  - Window
-  - Door
-  - Stairs and ladders
-  - Hatch
-  - HVAC
-  - Railing
-  - Steam outlets
-  - Deck heat.(cat.I)
-  - Deck heat.(cat.II)
-  - Tank heating
-  - Manual Removal
-  - Bulkhead heating (cat.II)
-  - Other



General notes

Electrical anti-icing/de-icing arrangement of external drains and scuppers	Spec. Reference
Drain systems interior spaces. Pipes going overboard to be provided with heating cables for anti-icing	Gr 8.806
Electrical anti-icing arrangement for air pipe ventilation heads to tanks	Gr 8.821
Superstructure de-icing	Gr 4.487
Electrical anti-icing arrangement of external fire / heliport washing system	Gr 8.813
Liferaft, workboat and MOB board areas. To be provided by 2 x 2 hot water heated fan coils, in addition to anti-icing facilities.	Gr 4.487
External piping to have anti/de-icing by means of heating cables	Gr 4.487
Water distribution system for fire extinction	Gr 4.487
Anti-icing to be arranged if calibrated heat from lanterns is too low to avoid ice accretion.	Gr 4.427
Anchor arrangement to have pipes. (Note that heating cables are not to be mounted at the anchor pocket)	Gr 4.487
CCTV. Heating of cameras exposed to low temperatures, and extreme temperature, -35°C	Gr 4.416

Blocks/pulleys on A-frames to have de-ice by electrical heating

803. Windows on deck 8, to include windows in deck on starboard side

Escape route on deck 3 to have anti-ice by heating. To be avoided

Steam outlets for de-icing to be included

See reference table in own excel document for more info.

DNVGL Notes/Comments:

22. Heating power capacity for anti-icing
With reference to anti-icing DNV GL will apply the January 2013 rules for this contract. P15 Ch1 Sec3 specifies the minimum heating power capacity and it is noted that the specifications for the project are equivalent or exceed these values.
23. De-icing
The winterization basic rules are ensuring that the vessel is capable of and suitable prepared for operations in low temperatures. The areas / components requiring de-icing and how this shall be done should be mentioned in the operational manual and the essential equipment should be provided to the attending surveyor from DNV GL.
To be checked out and closed by surveyor.
(DNV Rules P15 Ch1 Sec.6)
24. Heliporter deck foam piping system and fire main for Winterized Basic
With respect to the Winterized Basic notation, all heliporter deck foam and fire main pipes arranged on weather-deck shall for these try system be arranged with self-drainage at the lowest points to ensure that no water / condensate is trapped, which can block the system.
Isolation valves if arranged on open deck shall have anti-icing protection. To be verified by the attending surveyor from DNV GL.
(P15 Ch1 Sec.6)
62. NAU-006. To comply with the requirements of 1800W/m² in P15 Ch1 Sec3 = 8115/P16 Ch20 Sec2 = 0202 we see that the intention is to use a combination of heated glass panes (1200W/m²) and defogger system. Please forward ventilation calculations for the defogger system.
80W answer: Heated glass power is increased to meet requirements.
63. NAU-006. The window covers to be type approved and to comply with ISO 17889 (P16 Ch20 Sec1 = Table 57 / Sec2 = 0202) hence provision for de-icing according to ISO 17891/11 to be provided. Please forward a type approval certificate showing compliance.

FINCANTIERI REGISTRATION NUMBER (ONLY FOR DOCUMENTATION MANAGEMENT)			
FINCANTIERI DRWS NUMBER	REV.	DATE	REVISION DESCRIPTION
006255GZ83500003	00	10.02.15	
	01	19.05.15	ECR/ECO 006255-00665 date 19/05/2015
	02	25.08.15	ECR/ECO 006255-00792 date 12/08/2015
	03	04.11.15	ECR/ECO 006255-01039 date 03/11/2015

6	20.04.21	Heating cables from helideck safety net removed	khf	(Lengthen)	
5	16.06.16	Heating cables from anchor pockets removed	kph		
4	08.04.16	Reissued for Approval	kph		
3	11.03.15		BSV		
2	04.12.14		ET	ET	
1	14.03.14	For approval	FR		
Rev.	Date	Reason for issue	Made by	Checked by	Disc. apprv.

CUSTOMER: FINCANTIERI

TITLE: WINTERIZATION PLAN

Sheet 1 of 3

Yard No.: 6255

Rolls-Royce Ship Technology
Offshore Systems

Rolls-Royce Marine AS
Rønde 100, 2007 Skjerve, Norway
Tel: +47 91 20 20 00
E: info@rolls-royce.com
www.rolls-royce.com

DOCUMENT NO.: 08-6543-00-487-010 -01

Scale: 1:250

Format: A4

Version: 6.1

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