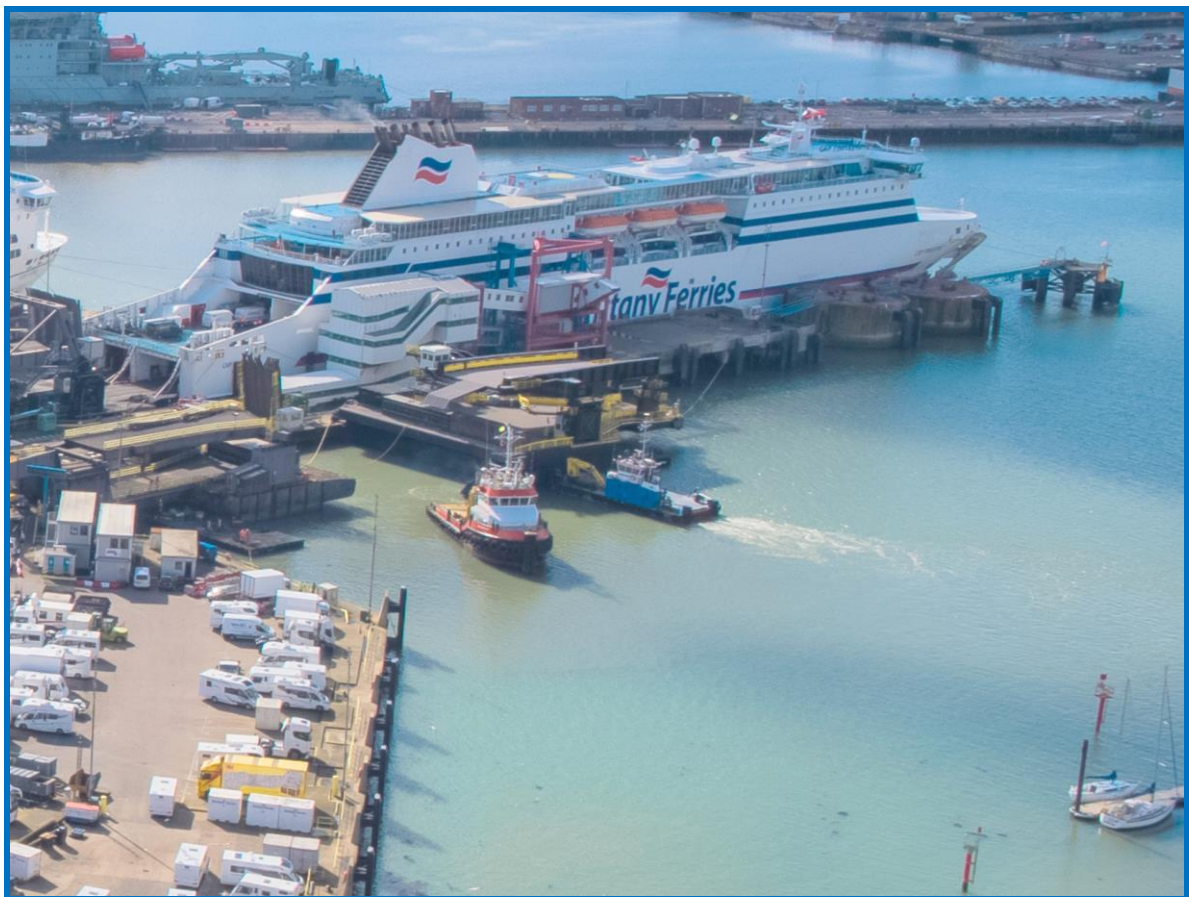


Ports Energy and Carbon Savings

Deliverable 3.8.2

Report of the Installation, pre-testing and Certification of PECS supported (PP8) Link-span for Portsmouth City Council



Project No. 2S03-009



With the financial support of



NAME [USE TABLE-TITLE]	ORGANISATION [USE TABLE-TITLE]
Jeremy Clarke	Portsmouth International Port/Portsmouth City Council

REVISION	DATE	AUTHOR	ORGANISATION	DESCRIPTION
First Draft	10/05/2018	Jeremy Clarke	Portsmouth International Port	

Table of contents

1.	Introduction.....	4
2.	Removal of Existing Linkspan and Installation of the new	Error! Bookmark not defined.
3.	Lloyds testing of both decks of New Linkspan 27 th March.....	11
4.	New Linkspan commences Operations 30 th March.....	15

1. Introduction

Portsmouth International Port is wholly owned by Portsmouth City Council, it is therefore proudly owned by the people of Portsmouth and is a municipal port. Portsmouth City Council is Partner No. 8 within the Interreg 2 Seas accepted project PECS (Ports Energy and Carbon Savings). This report is produced in happy recognition of the support given by the EC and Interreg 2 Seas in helping Portsmouth City Council adopt low carbon technologies in the running of their municipal port.

2. Removal of existing linkspan & Installation of the New

2.1. Method Statement

Ravestain as manufacturers of the new linkspan were tasked with producing a Method Statement for the removal of the old linkspan and the installation of the new. The Method Statement was produced in First Issue on 29.12.2017 and finally updated prior to removal of the old linkspan on 21.02.2018. Prior to removal of the old linkspan the following preparatory work needed to be carried out:

The Method Statement identified the following points that needed to be undertaken prior to removal:

- 2.1.1 Delivery and storage of eleven containers which would form part of a modular pontoon
- 2.1.2 The upper bridge of the existing linkspan needed to be moved as far forward as possible
- 2.1.3 Emptying of the complete ballast tank and blanking of outlets
- 2.1.4 Placing of four of the eleven modular containers on the linkspan edge
- 2.1.5 Prepare bollards and tirlor eyes on quay and linkspan. The tirlor is a hand operated wire hauling device that allows extremely heavy object to be moved incrementally over short distances.
- 2.1.6 All transition flaps were disconnected from the linkspan from the upper and lower bridge
- 2.1.7 Welding of towing eyes and lifting eyes onto existing linkspan for later towing and hoisting.
- 2.1.8 All water and power supply cables and piping disconnected
- 2.1.9 Modular pontoon of containers to be ballasted and placed nearby linkspan



Photograph showing Old Linkspan at moorings following successful removal

2.2 Removal of Old Linkspan

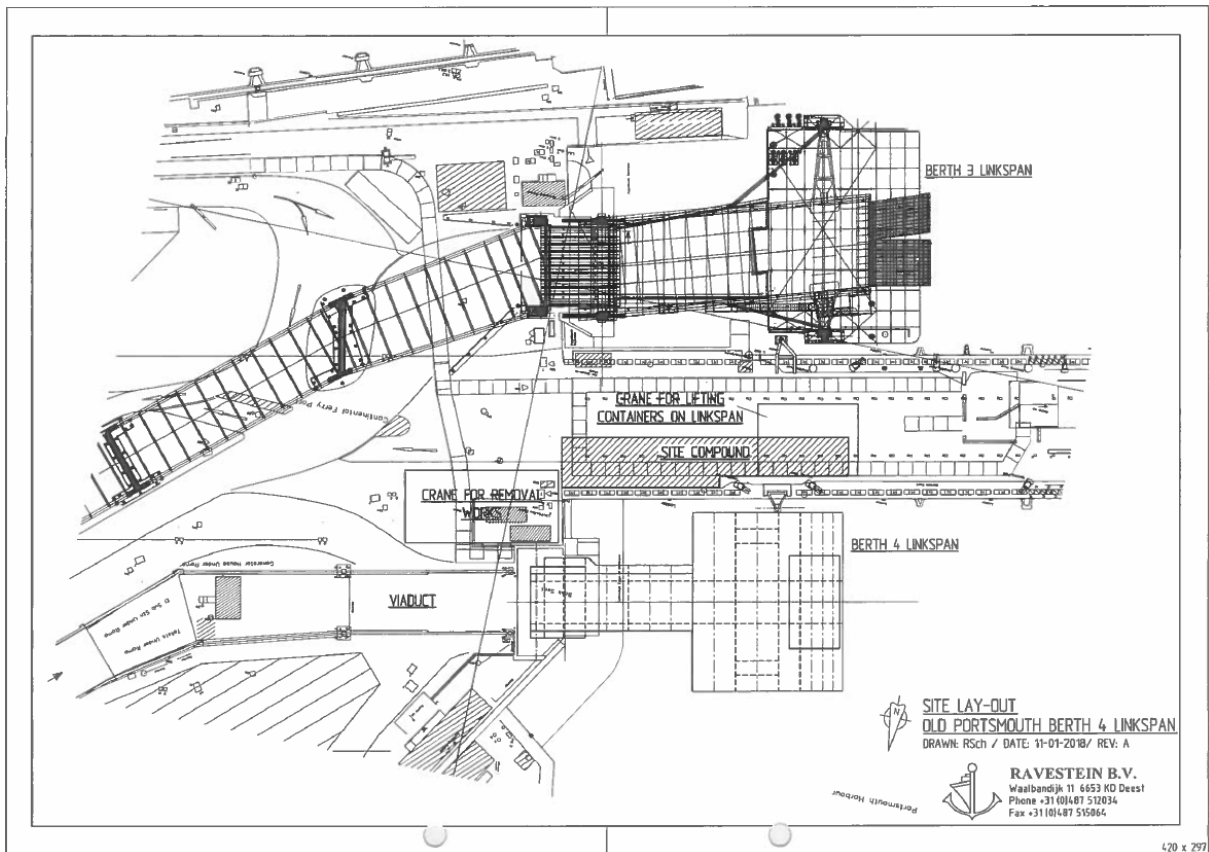


Diagram showing site lay-out of Berth 4 Linkspan

The modular pontoons were moved below the linkspan when the tide was giving a reading of 2.8m above Chart Datum. When the containers which formed the pontoon were moved into place they were immediately pumped out until the pontoon made contact with the linkspan. With the pontoon in contact with the linkspan the constraints on the bank-seat and the guide pile were removed. Divers were then utilised using torch cutting equipment in order to remove the guide frame. As the tide continued to rise the old linkspan was lifted above the level of the bank-seat (hinge). The hinge can be seen clearly below. The linkspan was lifted clear of the bank-seat when the tide height was 3.5m above Chart Datum. A large capacity crane was in place in order to lift the rear of the old linkspan clear of the bank-seat if the tide failed to do so. This was not needed on the day. When the linkspan was lifted clear of the bank-seat it was moved some distance forward to be clear of the area.



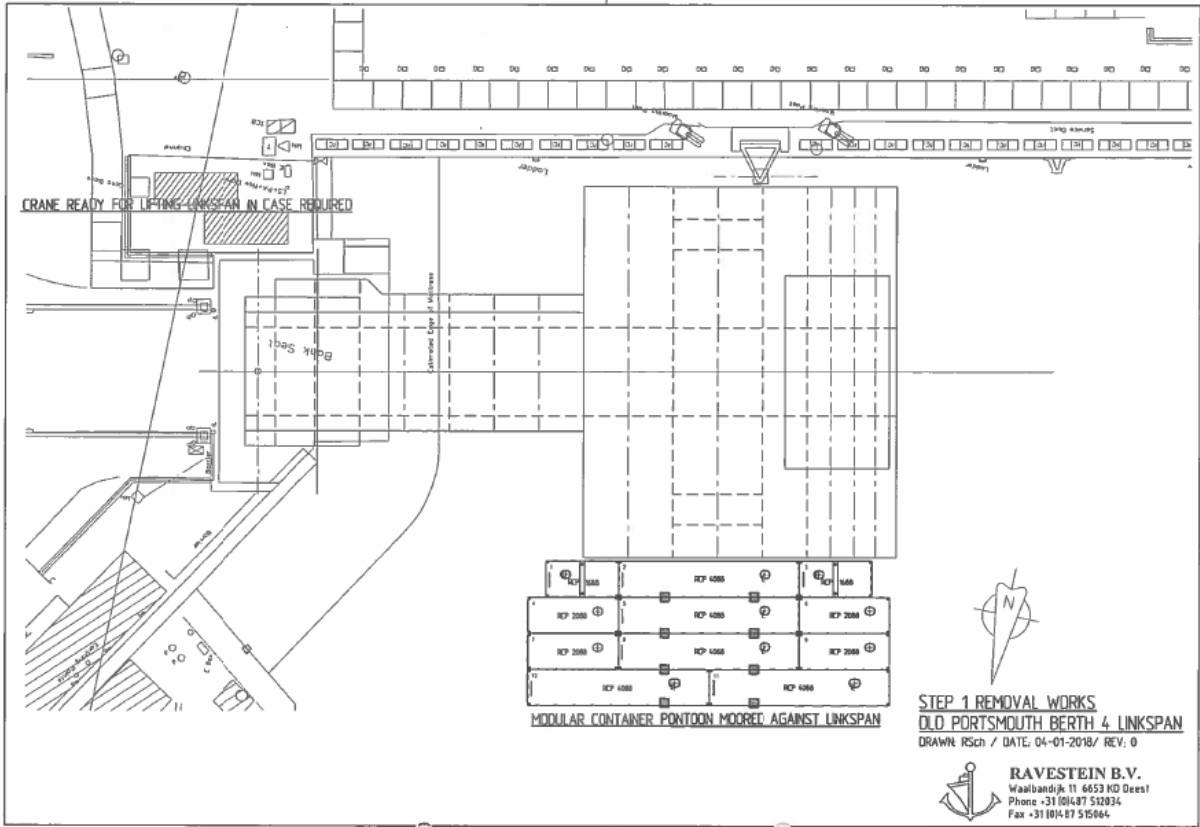


Diagram showing STEP 1 modular pontoons moored against linkspan afloat but being filled with sea-water for sinkage.

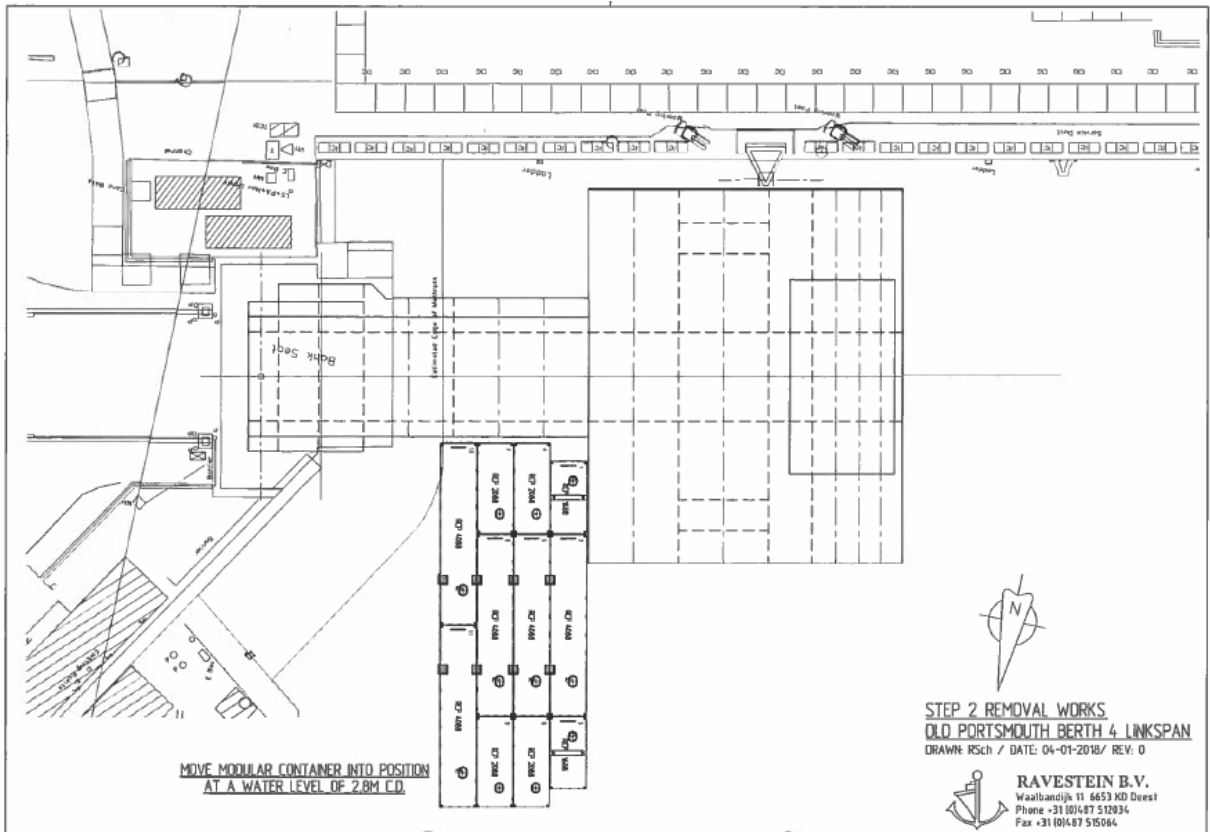


Diagram showing STEP 2 Modular pontoons in position ready to be pushed under the linkspan bridge at +2.8mCD

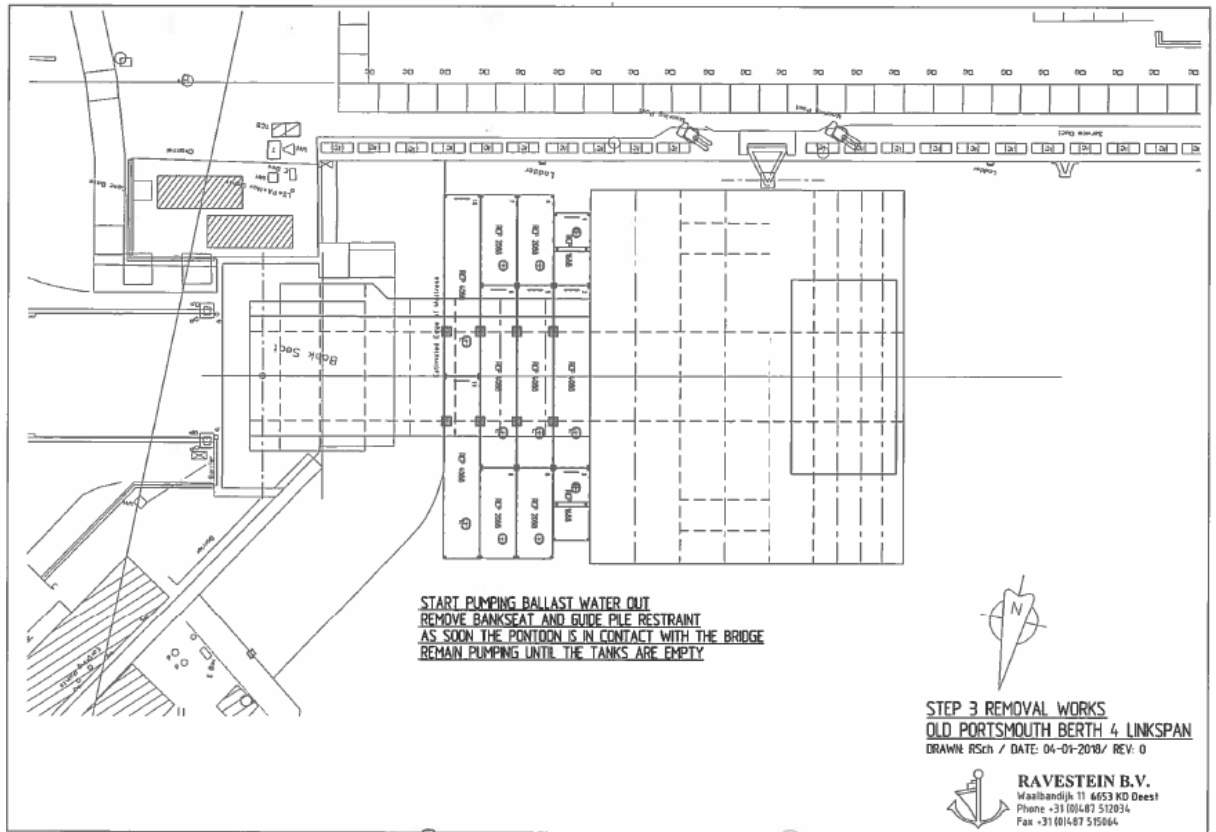


Diagram showing STEP 3 modular pontoons in position beneath linkspan bridge, pump out pontoons fully.

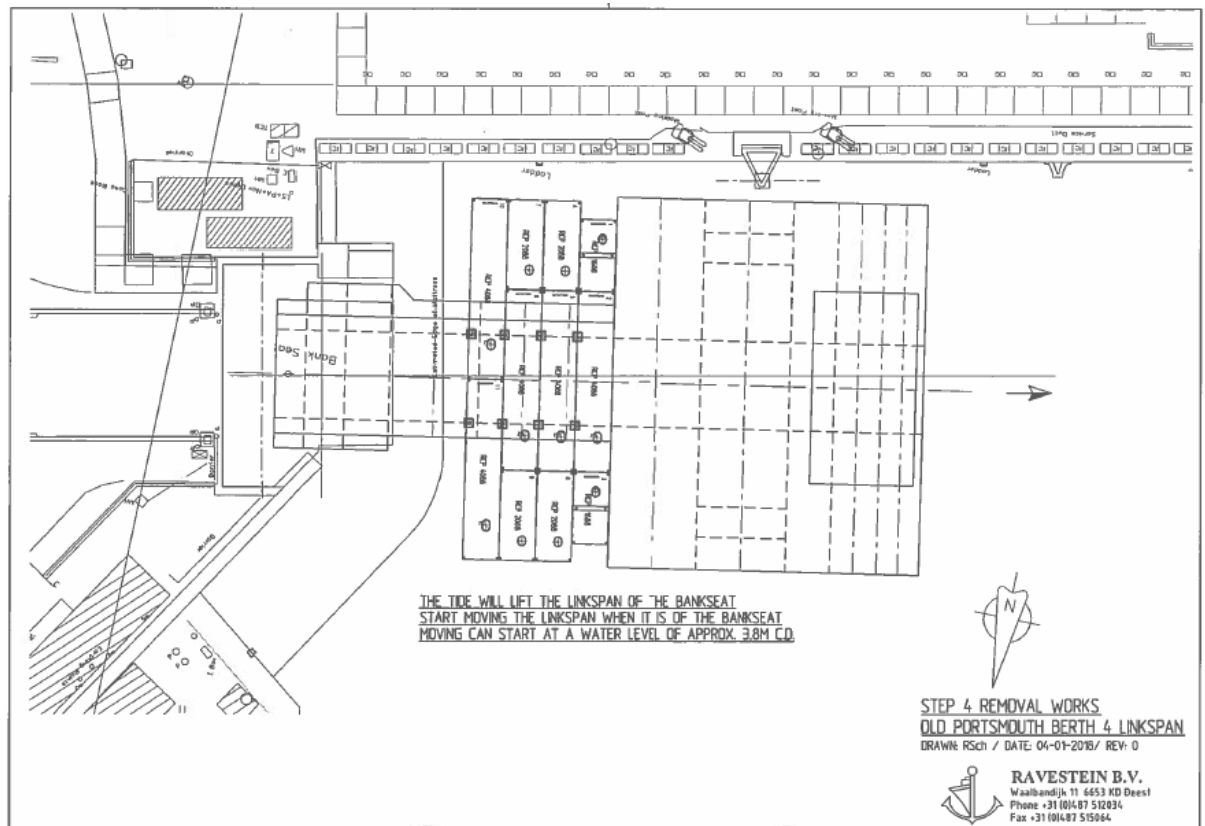


Diagram showing STEP 4 removal of linkspan once linkspan bridge has lifted from bank-seat

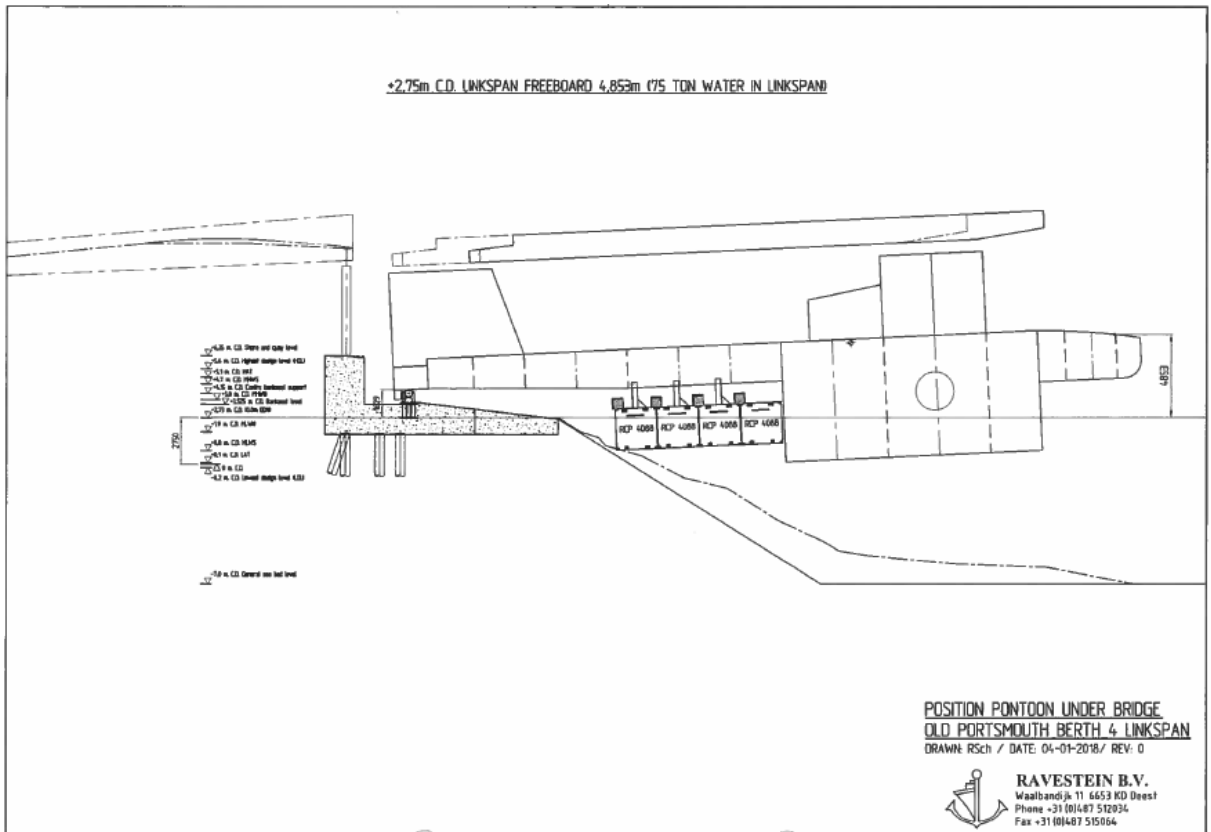
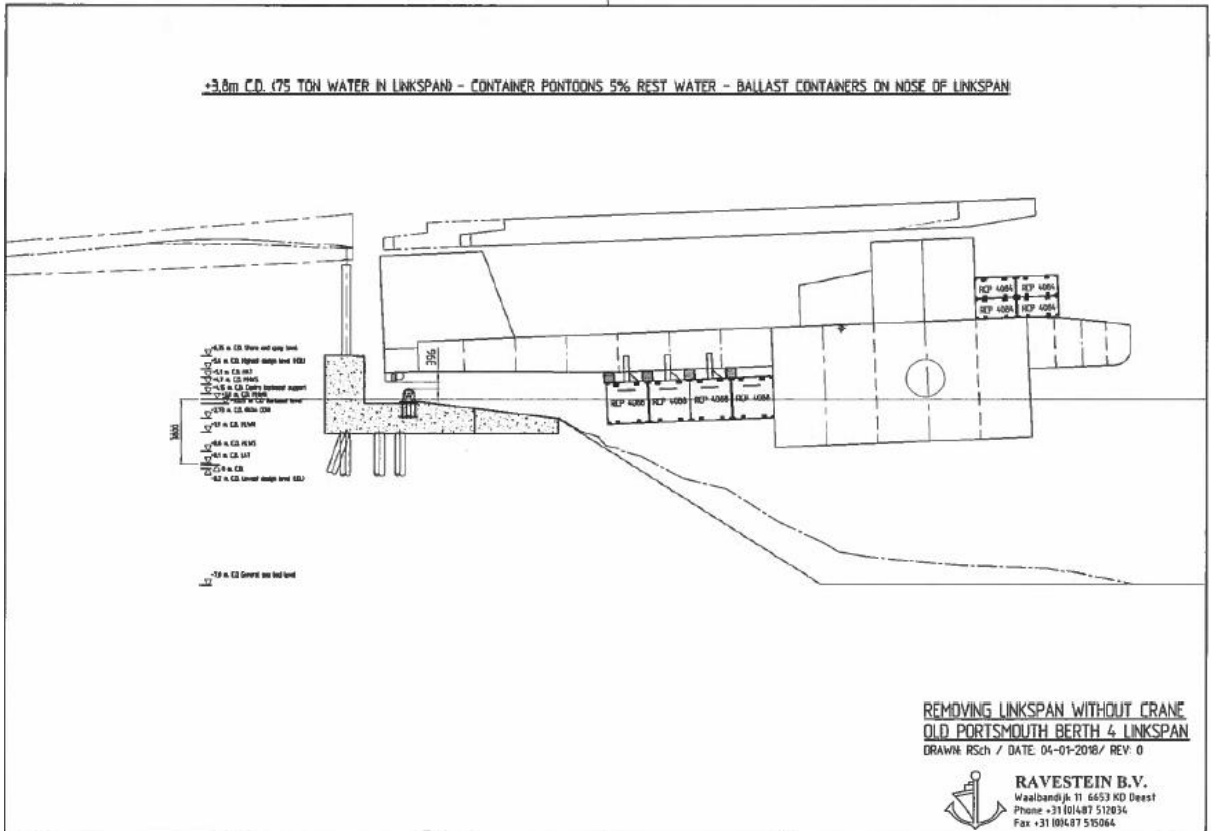


Diagram showing modular pontoons in position under linkspan lifting the linkspan on a rising tide until linkspan is clear of the bank-seat shown in diagram below.



2.2.1 Timetable for removal, delivery and Installation

Start date	Task	End date
10-02-2018	Upper deck load out at the yard	10-02-2018
12-02-2018	Preparation for transport	16-02-2018
12-02-2018	Preparation for transport	17-02-2018
17-02-2018	Transport linkspan to Rotterdam	17-02-2018
18-02-2018	Upper deck transport to Rotterdam	18-02-2018
19-02-2018	Lifting upper deck on linkspan	19-02-2018
20-02-2018	Installation of ship side finger flaps	23-02-2018
20-02-2018	Filling hydraulic installation	23-02-2018
21-02-2018	SAT testing	23-02-2018
24-02-2018	Transport linkspan to Portsmouth	26-02-2018
27-02-2018	Removing sea fastening	01-03-2018
03-03-2018	Modular pontoon assembling	05-03-2018
03-03-2018	Disconnecting electric, water supply and data connections. Removing transition flaps.	05-03-2018
03-03-2018	Lifting and filling ballast containers on nose linkspan	05-03-2018
06-03-2018	Removal existing linkspan	06-03-2018
07-03-2018	Fitting guide frame coupling beams	09-03-2018
07-03-2018	Modifications to existing bankseat	10-03-2018
11-03-2018	Installation of new linkspan	11-03-2018
12-03-2018	Connecting water supply, electrics and data connections. Install transition flaps.	13-03-2018
13-03-2018	Testing linkspan operation systems	13-03-2018
14-03-2018	Load testing linkspan + bankseat	14-03-2018

With the Old Linkspan now removed from the bank-seat the new linkspan was on its way from Rotterdam having sailed on 3rd March. The New Linkspan arrived in Portsmouth towed by MTS Vigilant on 7th March when it was delivered (towed) direct to No 4 berth and secured further down from the linkspan position to the East of the berth.

There was too little daylight on the 7th to remove the old linkspan to the moorings waiting for it in Portchester Creek so the old linkspan was not moved until the next day, the 8th of March.

In with the New



Out with the Old



With the new Linkspan safely alongside berth 4, the old linkspan was prepared for departure on the 8th and towed to a mooring in Portchester Creek prior to her being re-used/disposed of.

Once the old linkspan was removed the new linkspan was manoeuvred into position and the reverse operation used for mounting the new linkspan upon the existing bank-seat vacated by the old linkspan. That is to say the same modular pontoons were ballasted and sunk beneath the bridge of the new pontoon and as the tide rose and the pontoons were de-ballasted the bridge was brought above the level of the bank seat and 'dropped' into position over it. The pontoons were immediately ballasted again and removed before being trapped beneath the new linkspan whilst it was in position.

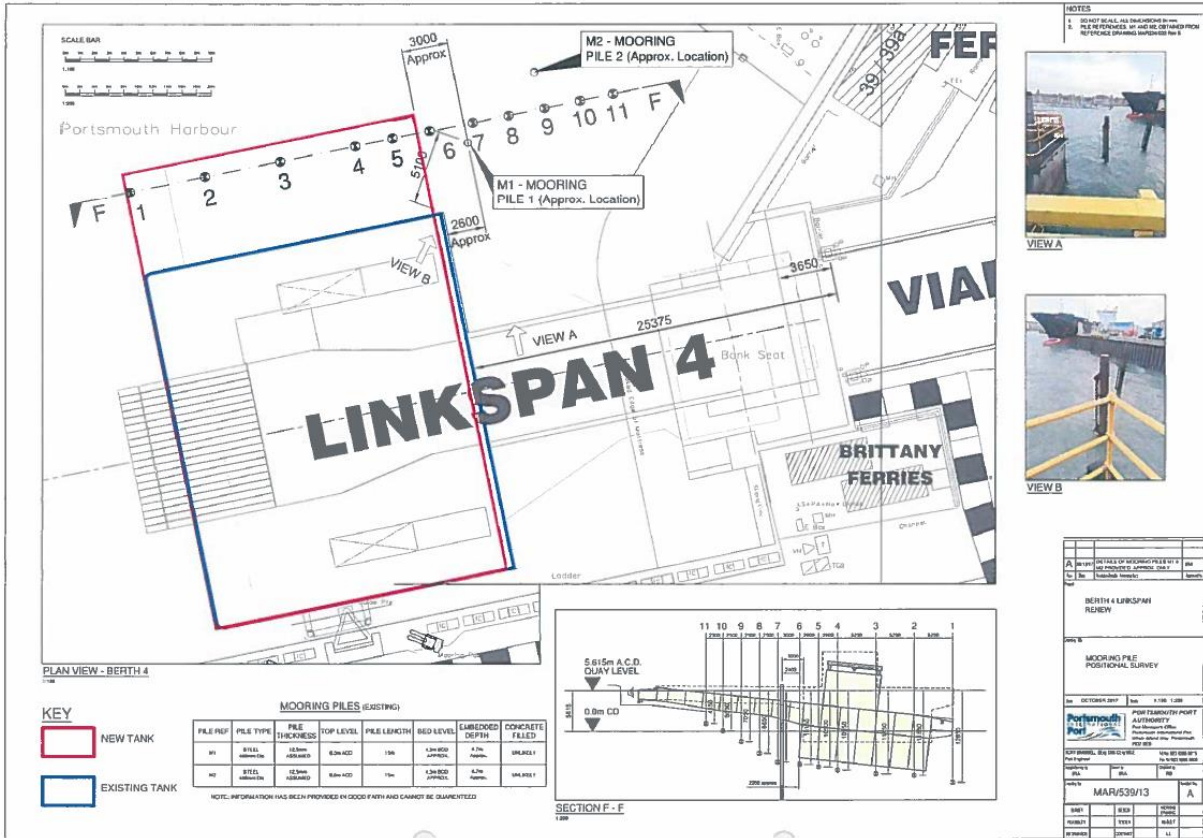


Diagram showing size differences between New 'Tank' and Old 'Tank'.

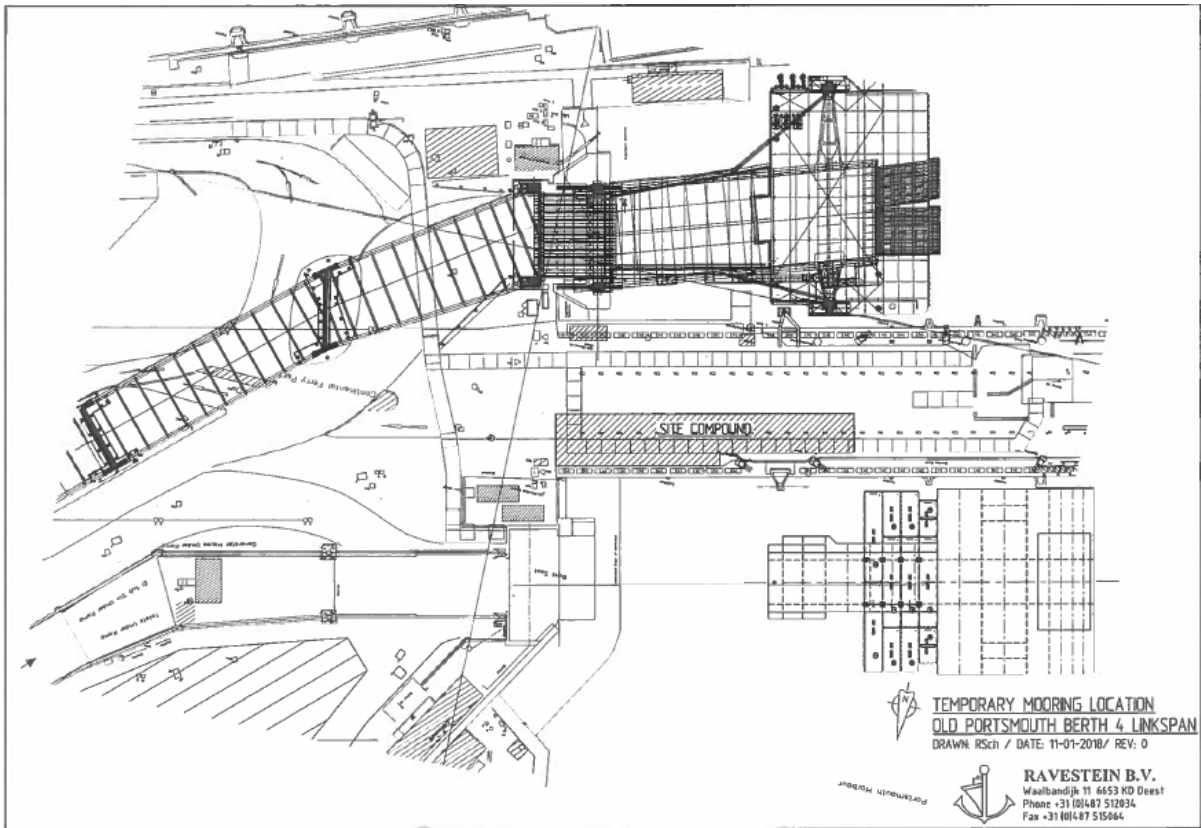


Diagram showing the berthing position of the delivered New Linkspan East of the berth prior to fitting.

3. Lloyds Testing of both decks New Linkspan 27th March

The linkspan was designed and constructed in accordance with, and classified as, a Lloyd's Register classification ✕AT Passenger and Vehicle Linkspan.

The testing of the new linkspan was specified as being to 1.1 times the worst case scenario over a full tidal cycle. In this case the full tidal cycle was taken to mean from HW to HW rather than a 24hr cycle of tides.

The sinkage of the linkspan under full load was to be no more than 350mm.

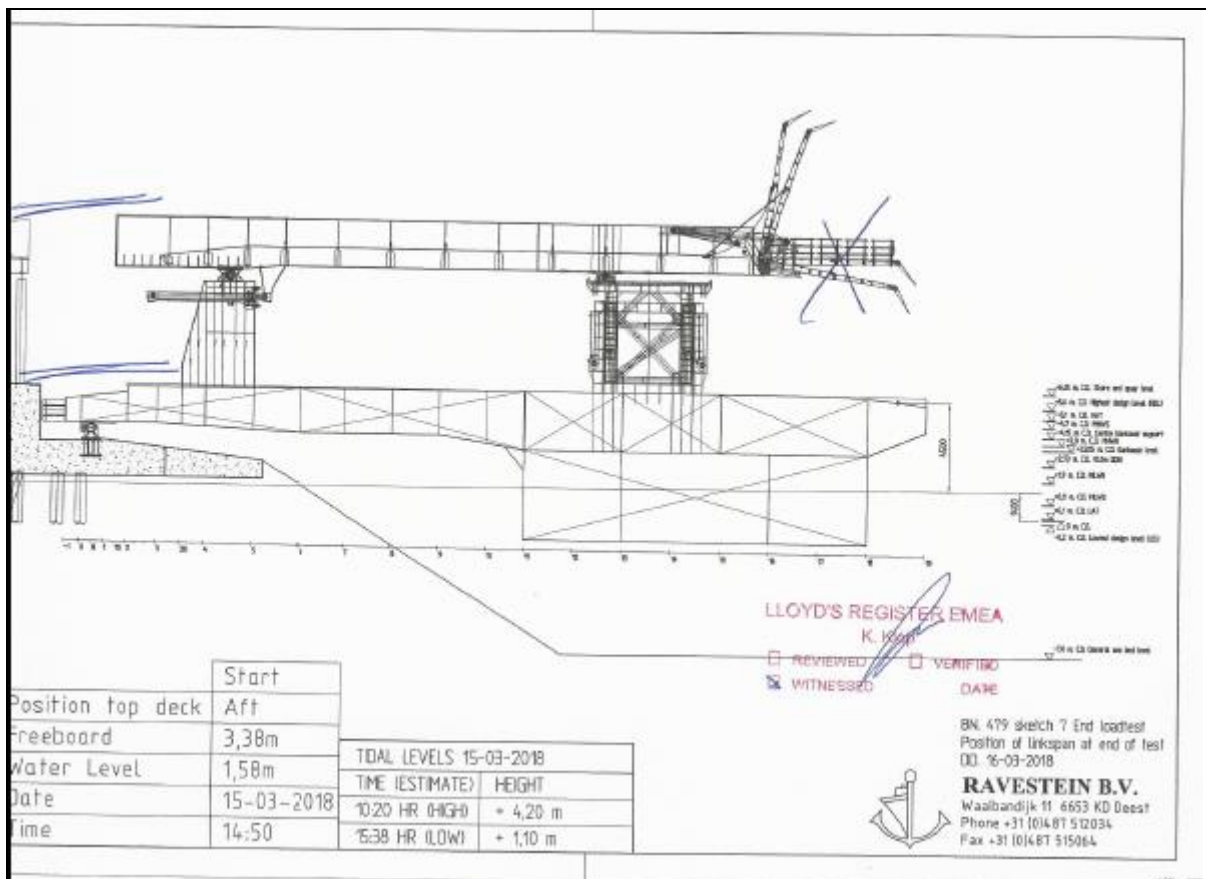
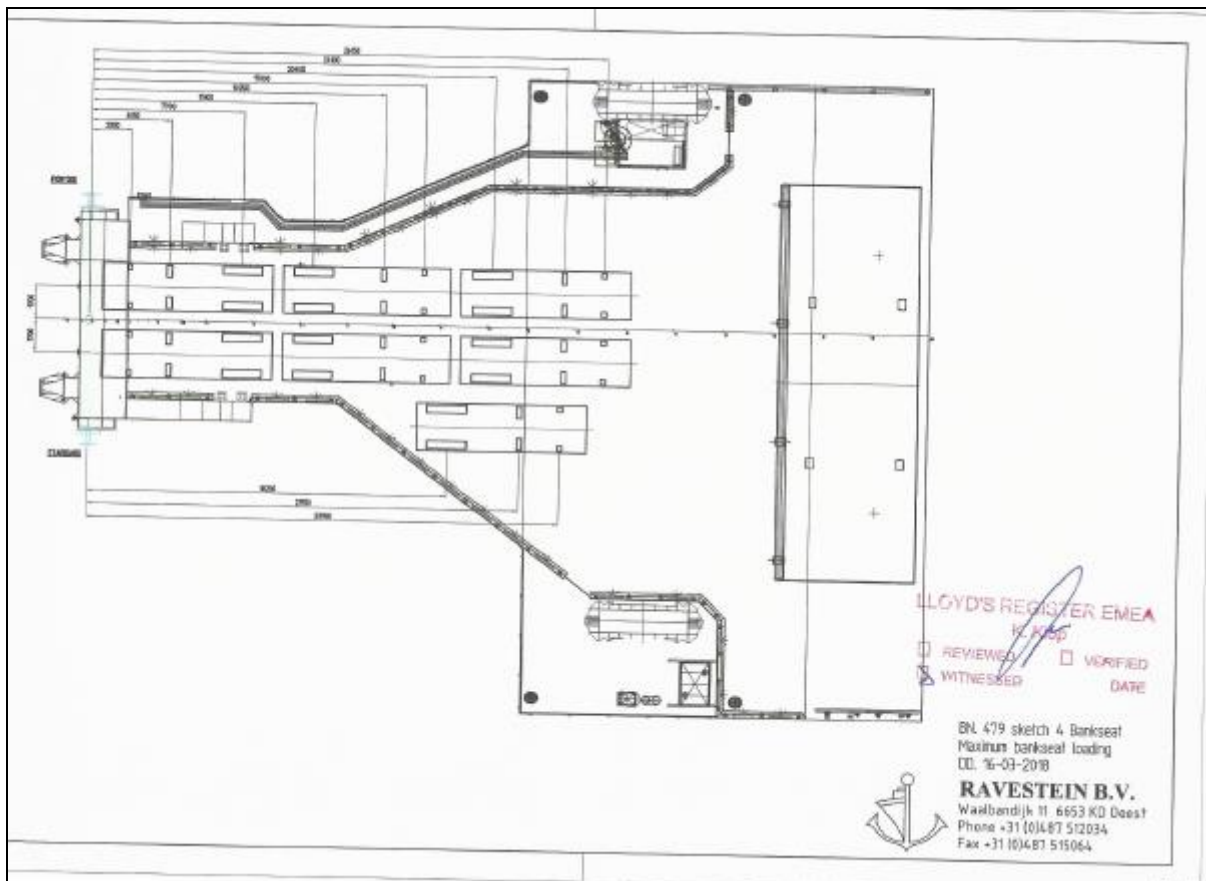
The performance to be tested was for a vehicle loading as follows:

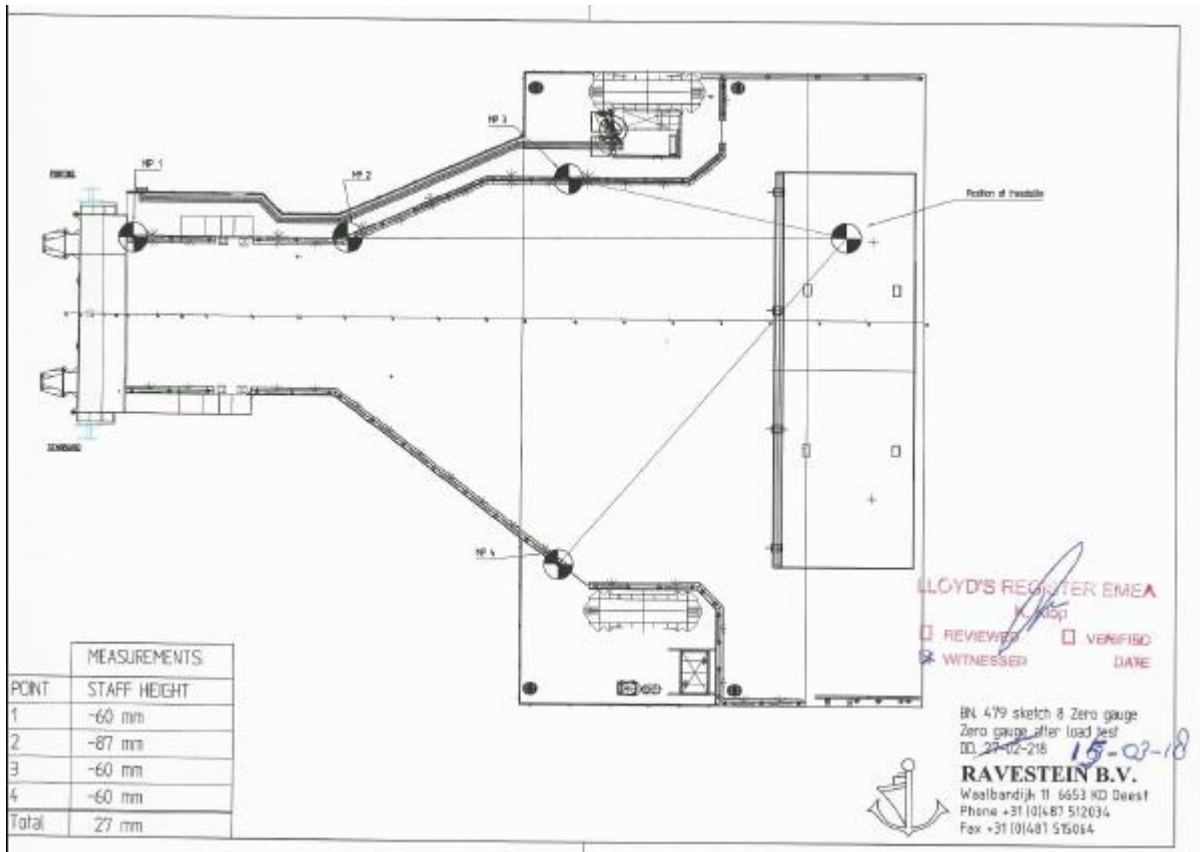
- (i) 2 lanes of HGV Vehicles on the top and bottom decks simultaneously.
- (ii) 1 lane of loaded, 85t MAAFI units/Cassettes plus one lane of tugs returning empty on the lower deck only.
- (iii) 1 vehicle of 45 units HB loading (180t) on the lower deck only.

The testing took place on 27th March with water loads using the modular units previously used for floating the linkspans placed upon the upper and lower decks of the linkspan simulating the 110% loading stipulated in the initial tender documentation.

The testing was completed after the full tidal cycle and the Certification completed by Lloyds.

The diagrams reproduced below are the 'as built' diagrams initialled by the attending Lloyds Surveyor shown with the Lloyds stamp certifying the Linkspan as meeting their requirements for Lloyd's Register classification ✕AT Passenger and Vehicle Linkspan.





4. New Linkspan commences Operations on 30th March

