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Volume I **Report and drawings**

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PM Signature

Volume composition

1. Report and drawings. Volume I

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II DRAWINGS

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I REPORT

Introduction

Aseri Port masterplan is developed according to assignment with Aseri Sadam AS and it is in compliance with clients development plans. Harbour structures have been described by consultant Aavo Raig. As a base map for the Masterplan Estonian Land Board aerial photos and maps have been used as well as hydrographic data available from earlier projects carried out at the location.

At the project location there was a seaport before World War II. Aseri harbour and Aseri-Sonda railway were built in 1939 to better marketing possibilities for Meriküla brick factory. Harbour had an idea to significantly increase brick export and also to export timber and agricultural products.

The berths and rail track were destroyed in summer of 1944 when German army retreated.

1 Masterplan

1.1 Harbour facilities and objects

EXPLICATION	DESCRIPTION
H0 APPROACH CHANNEL (STAGE 1)	SEMI-RESTRICTED SINGLE LINE CHANNEL WITH GUARANTEED DEPTH 16.0M, SATISFACTORY DAY AND NIGHT NAVIGATIONAL AIDS AND INITIAL TURNING AREA FOR TUG BOAT ASSISTED BIGGEST VESSELS AT THE SITE WITH LESSER DREDGING WORKS. CHANNEL AND TURNING AREA LOCATION TO BE FINALLY SELECTED WITH-IN MASTERPLAN FURTHER REFINING PROCESS.
H1 LIQUID CARGO HARBOUR (STAGE 1)	LIQUID CARGO HARBOUR FOR TANKERS FROM 1000 DWT UP TO 100000 DWT CL50%.
H11 LIQUID CARGO HARBOUR BASIN	BASIN FOR THREE CONSECUTIVELY LOCATED JETTIES WITH WATER DEPTHS FROM 9.0M UP TO 16.0M.
H12 EASTERN BREAKWATER	FOR PROTECTING JETTIES FROM NW ... N-DIRECTIONAL WAVES (DOMINANT STORMS)
H13 JETTY FOR TANKERS LC1	JETTY FOR TANKERS WITH DIMENTIONS L250M B40M T14.0M, UP TO: 50000 DWT 75000 DT CL95%, 70000 DWT 104000 DT CL75% & 100000 DWT 118000 DT CL50%
H14 JETTY FOR TANKERS LC2	JETTY FOR TANKERS WITH DIMENTIONS L170M B28M T10.5M, UP TO: 20000 DWT 31400 DT CL95%

H15	JETTY FOR TANKERS LC3	JETTY FOR TANKERS WITH DIMENTIONS L100M B17M T6.5M, UP TO: 5000 DWT 7360 DT CL75%
H2	ASSISTING BOATS HARBOUR (STAGE 1)	LOCATION FOR LIQUID CARGO HARBOUR DEVELOPMENT (STAGE 1). IN CASE OF GENERAL CARGO HARBOUR DEVELOPMENT THE LOCATION OF ASSISTING BOATS HARBOUR CAN BE RELOCATED INTO THE GENERAL CARGO HARBOUR BASIN.
H21	ASSISTING BOATS HARBOUR BASIN	BERTHING STRUCTURES AND TECHNICAL SUPPLY.
H22	ASSISTING BOATS HARBOUR MOLE	FOR PROTECTING ASSISTING BOATS HARBOUR BASIN FROM NE-DIRECTIONAL WAVES.
H3	GENERAL CARGO HARBOUR (STAGE 2)	PORT EXPANSION FOR HANDLING GENERAL CARGO SHIPS, BULK CARRIERS, CONTAINER SHIPS, RO-RO SHIPS AND FERRIES WITH DIMENTIONS UP TO L170M B25M T9.3M, INCL: GENERAL CARGO SHIPS UP TO 10000 DWT 16200 DT CL95% BULK CARRIERS UP TO 15000 DWT 20300 DT CL95% CONTAINER SHIPS UP TP 10000 DWT 16200 DT CL95% RO-RO SHIPS AND FERRIES UP TO 7000 DWT 15300 DT CL95%
H31	GENERAL CARGO HARBOUR BASIN	WATER DEPTH 11.0M, TURNING AREA
H32	NORTHERN BREAKWATER	FOR PROTECTING GENERAL CARGO BERTHING LINE FROM NW ... NE-DIRECTIONAL WAVES.
H33	BERTHING LINE FOR GENERAL CARGO	BERTHING LINE LENGTH 1050M, WATER DEPTH 11.0M. AS EXAMPLE 6 SIMULTANEOUSLY BERTHING VESSELS, INCL 2 RO-RO SHIPS / FERRIES.
H34	BERTH FOR RO-RO / FERRY	2 COMPLEMENTARY BERTHS FOR RO-RO SHIPS / FERRIES WITH WATER DEPTH 10.0M
H4	LIQUID CARGO HARBOUR (STAGE 2)	COMPLEMENTARY DEVELOPMENT OF LIQUID CARGO HARBOUR IN GENERAL CARGO HARBOUR BASIN FOR TANKERS FROM 5000 DWT UP TO 20000 DWT CL95%
H41	LIQUID CARGO HARBOUR BASIN	COMPLEMENTARY DREDGED GENERAL CARGO HARBOUR BASIN AND ENTRANCE, WATER DEPTH 13.0M.
H42	JETTY FOR TANKERS LC2	2 JETTIES FOR TANKERS WITH DIMENTIONS L170M B28M T10.5M, UP TO: 20000 DWT 31400 DT CL95%

1.2 Railways

1.2.1 Joining station

Harbour railway joins state railway at Sonda. Sonda station is owned by AS Eesti Raudtee. Station has four tracks ranging from 680 to 893 meters of usable length. Station has centralized dispatching. To join Aseri railway into Sonda station, it is mandatory to ask technical specification of conditions from AS EVR Infra, under what the confluent track and other necessary constructions can be built. A construction project must be carried out to specify how to join harbour track to centralized station infrastructure.

In the near past industries in Aseri had railway connection to Sonda so it can be rebuilt onto former causeway.

1.2.2 Connecting railway

Currently there is no railway connection between Aseri and Sonda, but causeway of old rail track is still there. Proposed new track will run on that land under old causeway. Old causeway though has worn out and has to be reconstructed taking into account modern construction techniques and payloads and it also needs updated design for storm water systems. Whole length of connecting railway line is 14,5 km. It has several same level road crossings that calls for a need to configure those crossings. Pavement construction and crossing safety systems must be worked out within construction project.

Altitude difference between Sonda and Aseri stations is over 50 meters. Altitude difference between Sonda station and Tallinn-Narva road is 12 meters, so most of the difference is distributed to a quite short distance between the Tallinn-Narva road and harbour, so mean inclination of the last railway section is about 15%. This calls for a need to build a harbour station before quite steep inclining slope where train consist can be divided into smaller consist units so they can be safely operated to harbour marshalling yard and back up to Joining station in Sonda.

1.2.3 Aseri harbour railway station

To accept trains from Sonda joining station there is railway station located approximately 8 km North from Sonda station south from Tallinn-Narva road. Station has up to 10 tracks with usable length of 1050 meters and train formation track with 560 meters in length. It can handle about 8 million tons of goods per year. Station tracks have inclination of 1.5‰ to reduce ground levelling works volume. Station can be developed in stages depending on volume of goods. Station needs automatic electrical systems building and infrastructure for automatically controlled switches, access roads for trucks and cars, lighting, communication and other necessary infrastructure.

1.2.4 Marshalling yard

To accept and process goods wagons in port territory there is marshalling yard at the east side of the port. It consists of 10 tracks of at least 500 meters of length and train formation track of 560 meters of length. Marshalling yard has inclination of 1.5‰ to reduce ground levelling works volume.

Manoeuvring of goods wagons to and from private branches takes place through Aseri port station. The number of freight waggons that can be operated in one consist depends on which locomotive type is used.

Goods wagons are directed from Aseri station to marshalling park and from there using train formation track to freight terminal at the cargo wharf.

1.2.5 Terminals

Development plan includes terminals for crude oil refinery and its sub products, and general cargo like containers, bulk and brakebulk cargo.

Oil terminal can deal with up to 6 million tons of liquid fuels a year. Railway cargo volume up to 3 million tons a year. This needs a loading area with two tracks in length of 408 meters to oil terminal. Loading trestle accepts 68 tanker wagons (whole train) at once.

For general cargo four tracks in usable length of at least 500 meters are designed with one train formation track in 560 meters in length.

1.2.6 Locomotive and wagon depot

The depot serves as a maintenance centre for harbour locomotives and cargo wagons. There is an old depot buildings at Aseri borough that can be used for the purpose after renovation of the buildings.

1.3 Roads

Main State road (Tallinn-Narva) is located 3 km south from the harbour and it's connected to harbour via Rannu-Aseri road, Kordoni Street and also new section of connecting road has been designed. New road runs on an old rail causeway for about 600 meters approaching the harbour.

General cargo terminal designed into current submerged shore area is divided into two by the railhead and freight station tracks as well as roads parallel to them. To make shortest possible connection to main State road from the named road network on the cargo wharf, a railway crossing has been designed in the harbour

Harbour has two emergency exit roads – west side one connects harbour road network to local roads Aseriaru and Reeskalda. Through those also to Viru-Nigula-Aseri road. East side exit runs parallel to Marshalling yard tracks, joins Aseri borough road network and runs out to Rannu-Aseri road.