AMORAS - ANTWERP MECHANICAL DEWATERING, RECYCLING AND APPLICATION OF SEDIMENTS
AN INNOVATIVE AND SUSTAINABLE SEDIMENT DISPOSAL SOLUTION FOR THE PORT OF ANTWERP

Joris Dockx¹, Edward De Broe², Agnes Heylen³,
¹ Flemish Government, Department Mobility and Public Works, Maritime Access, Tavernierkaai 3, 2000 Antwerp, Belgium
² Port Of Antwerp, Boterhamvaartweg, Haven 128, 2030 Antwerp, Belgium
³ Port Of Antwerp, Siberiastraat 20, Haven 63, 2030 Antwerp, Belgium
Phone: +32-(0)3-575-05-06
Email: Joris.dockx@mow.vlaanderen.be
Phone: +32-(0)3-229-67-53
Email: edward.debroe@haven.antwerpen.be
Phone: +32-(0)3-205-24-02
Email: agnes.heylen@haven.antwerpen.be

Introduction: In the Port of Antwerp an amount of approximate 600,000 tonnes dry matter of harbour sediments needs to be dredged every year. Until the present day the sediments have been disposed of on several containment sites on land or in underwater disposal cells. Since the present disposal capacity is insufficient and no expansion is possible due to the lack of space, the Flemish Government in association with the Port of Antwerp have planned to construct an installation for mechanical dewatering of these sediments, using the dewatering technique with membrane filter presses.

The overall management goal of this project is to achieve a sustainable solution, weighing and balancing all the associated risks and benefits.

After 2 years of further development of the project, the authors present the present state of affairs on the process and the possibilities of reuse.

Process: The design of the installation is based on 600,000 tonnes dry matter of sediments to be treated. The different treatment facilities are divided into several areas:

1. An acceptance area where sediments are received. This area is located near a dock in the Port of Antwerp and comprises an underwater acceptance cell, a sand separation unit and the necessary piping to transport the sediments to the dewatering installation.

2. The treatment installation is located at a distance of about 3.6 km from the acceptance area. The place is called ‘Bietenveld-Field of Beets’. It has a surface of about 15 ha.

3. A disposal area where the dewatered material will be disposed of. This area is called ‘Zandwinningsput-Pit for Sandwinning’. It has a surface of about 35 ha.

Possible reuse of dewatered dredged material largely depends on the properties of the clay mineral content of the dredged material. The filter cakes obtained in the pilot study showed good soil mechanical properties and processability (see above). Hence, various applications are possible (expanded clay...
grains, landscape dikes, isolation layers,...). Investigation has been started up.

Bearing in mind a successful start-up, the following issues still need to be addressed after the first years of operation: what are the limiting factors still present? What are the main actions to pursue (research, market,...) and what are the recommendations for the next years?