

Fehmarnbelt Fixed Link

Geotechnical Large Scale Testing

Information to Candidates

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1. Introduction

The Geotechnical Large Scale Testing constitutes an element in the ongoing Geotechnical Investigations for Design and Construction.

This Large Scale Testing is by Femern A/S put into a restricted EU tendering procedure.

A Contract Notice, 2010/S 18-024721, was published in the Official Journal of the EU 27 January 2010.

The objective of the pre-qualification procedure is to give candidates the possibility to document their experiences, competences and resources related to

- Marine precision earth works incl. multibeam documentation hereof and geotechnical instrumentation
- Subsea pile and ground anchor installation and subsequent testing hereof
- Subsea plate load testing, active/sliding and passive
- Geotechnical Data Reporting, GDR

and thereby give Femern A/S the best possible basis for selecting competent tenderers for the subsequent tendering procedure.

The present document supplements the Contract Notice. The document gives brief background information about the Fehmarnbelt Fixed Link project and provides some general information about the Geotechnical Investigations. It also describes the procedure for selecting tenderers to participate in the following tendering procedure.

Section 2 includes information about the contracting authority, i.e. Femern A/S.

Section 3 includes general information about the planned Fehmarnbelt Fixed Link.

Section 4 gives an overview of the Geotechnical Investigations for the Fehmarnbelt Fixed Link project.

Section 5 describes briefly the services included in the contract covering the Geotechnical Large Scale Testing.

Section 6 is listing the required information to be included in a complete Request to Participate.

Section 7 describes the criteria for selection of tenderers.

Section 8 includes certain administrative information to the candidates.

Section 9 describes briefly the subsequent tendering procedure.

Section 10 presents the tentative time schedule until award of contract covering Large Scale Testing.

2. Contracting authority

The contracting authority is:

Femern A/S

CVR no. 28986564

Address:

Vester Søgade 10

DK-1601 Copenhagen V

Tel +45 33 41 63 00

Fax +45 33 41 63 01

www.femern.com

Femern A/S is a company in the Sund & Bælt group. The Sund & Bælt Holding A/S owns and operates the Great Belt Fixed Link and owns half of Øresundsbro Konsortiet, the Danish-Swedish company responsible for the operation of the Øresund Fixed Link.

Femern A/S is ultimately owned by the Kingdom of Denmark and is established according to a separate Danish law. Femern A/S is responsible for the preparation and planning phase for the coast to coast part of the fixed link across the Fehmarnbelt.

3. Background information

3.1 The fixed link across the Fehmarnbelt

A fixed link across Fehmarnbelt will address “the missing link” in the transport corridor Hamburg-Copenhagen also known as “Fugleflugtslinien” or “Vogelfluglinie”. Since this transport corridor was opened in 1963 the idea of establishing a fixed link between Puttgarden and Rødbyhavn, (distance 20 kilometres), has surfaced on a number of occasions.

In 1992 the Ministers of Transport of Germany and Denmark agreed to initiate a feasibility study for a fixed link between the two countries. The study was carried out in 1995-1999.

The transport system between Scandinavia and continental Europe is today to a large extent based on ferry transport.

The fixed link across Fehmarnbelt is supposed to replace the existing ferry service between Puttgarden and Rødbyhavn. The currently used five ferries on the route carry approx. 2 million vehicles a year and also a number of rolling stock on the Copenhagen-Lübeck-Hamburg railway line for passengers. Since 1997 all freight trains between Zealand in Denmark and Germany have used the Jutland route via the Great Belt fixed link.

In recent years road traffic has shown fairly strong growth after a stagnant period in the 1990s. In the years 2000-2007 the annual growth of vehicles on the Rødbyhavn-Puttgarden ferry service was approx. 6.5 %.

As part of the feasibility studies, preliminary Geological/Geotechnical Investigations were carried out in 1995/96. During these feasibility studies, a number of technical solutions for the fixed link were investigated, including bored tunnels, immersed tunnels, suspension and cable-stayed bridge solutions, for different traffic capacities.

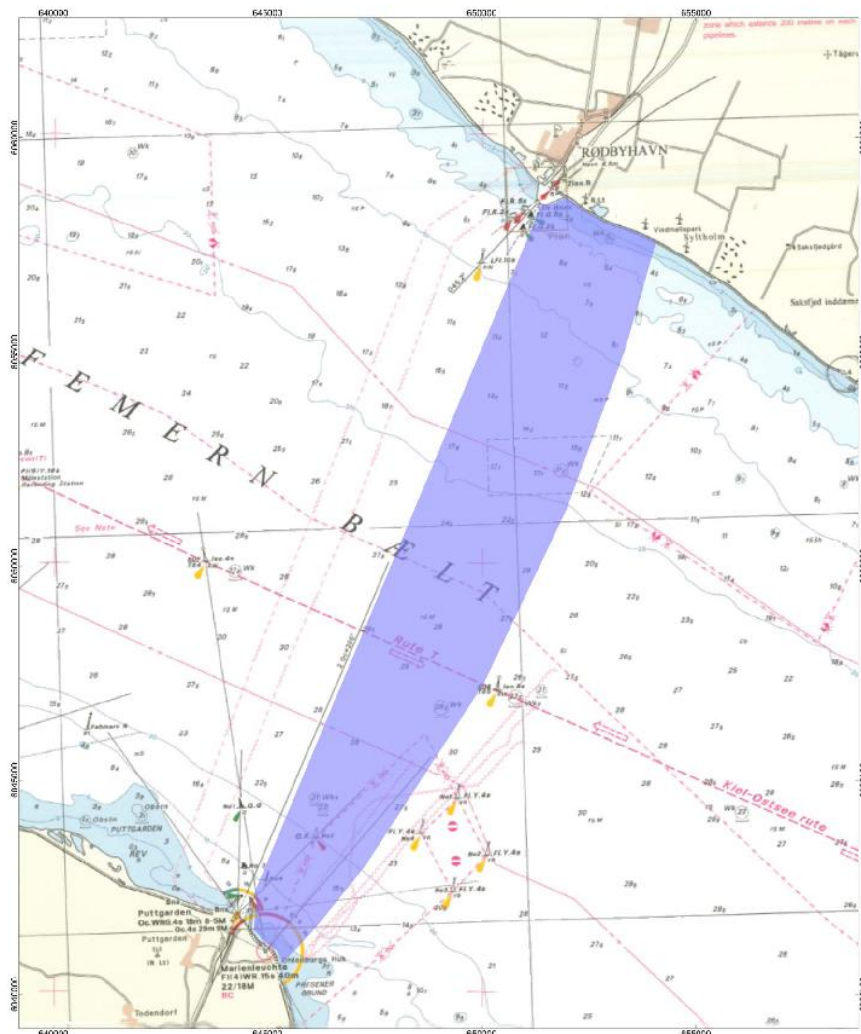
The Ministers of Transport of Germany and Denmark have agreed that a cable-stayed bridge should be considered the preferred technical solution and an immersed tunnel the preferred alternative solution for future investigations. Both the selected solutions are outlined with a four-lane motorway and a twin-track railway.

Nevertheless, a suspension bridge solution is included in the Navigational Studies currently being performed and the choice between the cable stayed bridge and the suspension bridge solutions will await the result of the Navigational Studies and the recommendation/decision from the Maritime Authorities.

The Plan Approval process in Denmark and in Germany (Planfeststellungsverfahren) shall therefore on parallel basis include both a bridge solution, (a cable stayed bridge or a suspension bridge) as well as an immersed tunnel solution until a final decision has been taken.

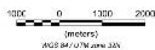
Hence, the geotechnical investigations shall cover all conceivable solutions as outlined above in a corridor around the existing ferry route between Rødbyhavn and Puttgarden.

The area for the geotechnical works planned for 2010 is shown in the figure below.



Corridor

© Korf & Matnelstyreisen
(G.7-98)
"KAN IKKE ANVENDES TIL NAVIGATION"



Femern A/S
Investigation Corridor
Rev. A 2010-01-21



3.2 German - Danish Treaty

Following the Guidelines of the Memorandum of Understanding signed by the Ministers of Transport of Denmark and Germany 29 June 2007, a Treaty was signed by the ministers on 3 September 2008. The treaty establishes the overall terms and conditions under which the fixed link across the Fehmarnbelt will be designed, approved, constructed, financed and operated.

3.3 German and Danish hinterland connection

The Federal Republic of Germany is solely responsible for the upgrading and financing of the hinterland connections to the fixed link in Germany and the Kingdom of Denmark is solely responsible for the upgrading and financing of the hinterland connections in Denmark.

3.4 Homepage for the Fehmarnbelt Fixed Link

Candidates are encouraged to visit the homepage (address set forth above) for the Fehmarnbelt Fixed Link. It is the policy of Femern A/S to continually make available developed information about the link. Such information is, however, made available without assuming any liability for the completeness, accuracy or fitness for any particular purpose. It is the responsibility of the user of the information to decide if and to what extent he can use the information including the need to verify the information before using it for any particular purpose. Reports from both completed and ongoing studies can be downloaded from the homepage.

All geotechnical information collected until beginning 2010 will be made available to the tenderers in the form of online access to the GeoInformationSystem.

4. Geotechnical Investigations

The geotechnical investigations for the Fehmarnbelt Fixed Link project are performed in phases.

Preliminary Investigations (completed)

Geological/Geotechnical Investigations were performed 1995/96 as part of the feasibility studies. These investigations unveiled the following geological units:

- Post and late glacial deposits (peat, gyttja, sand, silt, clay)
- Upper till, hard to very hard low plasticity
- Lower till, medium plasticity, influenced by Palaeogene clays
- Palaeogene clays, i.e. very high plasticity clays in places dislocated or folded
- Cretaceous chalk, i.e. slightly indurated, white limestone

The Prequaternary deposits exhibit a domal structure as a result of rising salt. The region is considered a low seismicity zone.

The Geological/Geotechnical Investigations performed in 1995/96 are now classified as Preliminary Investigations in the Eurocode EC7 context. The reports from those investigations are available to the candidates from the Client's homepage under "Publications".

Investigations for Design and Construction (ongoing)

In 2008, Femern A/S initiated the Geotechnical Investigations for Design and Construction. These investigations comprise:

- Geotechnical consultancy services, including geophysical investigations. A contract covering these services was signed with Rambøll Arup JV in April 2008 and the work is ongoing
- Boring Campaign, 2009-2010. A contract was signed with Fugro Engineers BV in April 2009 and the work is ongoing
- Advanced Laboratory Testing. A contract was signed with GEO, Denmark in September 2009 and the work is ongoing
- RTK DNSS Fehmarnbelt Positioning System. A contract was signed with Axio-Net GmbH in July 2009. The system will be commissioned spring 2010.
- Large Scale Testing, the subject of this prequalification process.

Control Investigations (to be performed during construction)

The control investigations are foreseen to be performed by the construction contractors.

5. Geotechnical Large Scale Testing Contract

5.1 Scope of works

The investigation corridor is crossing the navigation route of the Fehmarnbelt which is presently used by approx. 50.000 vessels a year and where the largest vessels exceed 200.000 BRT.

The Baltic Sea including the Fehmarnbelt is by HELCOM, (Helsinki Commission, Baltic Marine Environment Protection Commission), designated to be a "Particularly Sensitive Sea Area", PSSA, and therefore all possible precautions to protect the environment shall be taken.

The scope of works for the Geotechnical Large Scale Testing will encompass works in an area with a natural seabed approximately at elevation -10 m NE of Puttgarden Ferry Harbour.

The ground conditions at the test area are dominated by Palaeogene clays, folded and with undrained shear strengths increasing with depth from some 30 kN/m² at seabed elevation -10 m to some 300 kN/m² at elevation -40 m.

Year 2010

- Detailed planning, including establishment of a QHSE-plan and participation in authorities approvals
- Mobilization of the marine spread and preparing the work area with navigational markers, buoys, etc.
- Phase I of the test excavation to elevation -20 m , bottom dimension 40 m x 40 m, in total 30,000 m³ to excavate, transport and deposit at allocated dumping ground at a distance of some 50 Nm
- Performance of multibeam surveys
- Perform seabed CPTs
- In the excavation, install 3 bottom heave monitoring groups (one centre and two wing locations). The wing groups comprising settlement plate (elev. -20m) and settlement indicators at elev. -25 m and -50 m. The centre group furthermore with piezometers at elev. -23, -26- -32 and -44 m.
- In the vicinity of the test excavation, at natural seabed, using a subsea guide, install two groups of piles, each with 9 piles (3 x 3), OD 500 mm.
One group shall comprise driven hollow steel piles. One group shall comprise bored reinforced concrete piles.
The piles shall be installed with a tip elevation of -40 m. Effective testing interval shall be -20 m to -40 m
- For each group of piles, install a subsea reaction frame for test loading of the piles. Corner piles shall be used as reaction piles only.
- In the vicinity of the test excavation, at natural seabed, using a subsea guide, install a group of ground anchors.
- For the group of ground anchors, install a subsea reaction frame for test loading of the ground anchors
- On land near Rødbyhavn install a group of ground anchors
- Record settlement readings
- Record piezometer readings
- Perform load pull test on piles (concrete and steel, offshore)
- Perform load pull tests on the ground anchors (onshore and offshore)
- Present results in a geotechnical data report, GDR

Year 2011 (optional)

- Performance of multibeam surveys
- Cleaning of the excavation using air lifting equipment
- Perform seabed CPTs
- Extension of the excavation in one end to bottom dimension 40 m x 70 m with some further 20,000 m³ to excavate, transport and deposit at an allocated dumping ground
- Perform plate load test, vertical, sliding and horizontal. Vertical reaction must be applied by deadweight arrangements.
- Record settlement readings
- Record piezometer readings
- Partial backfilling of the excavation with sand

- Perform load pull test on piles (concrete and steel, offshore)
- Perform load pull tests on the ground anchors (onshore and offshore)
- Present results in a geotechnical data report, GDR

Year 2012 (optional)

- Performance of multibeam surveys
- Cleaning of the excavation using air lifting equipment
- Record settlement readings
- Record piezometer readings
- Perform load pull test on piles (concrete and steel, offshore)
- Perform load pull tests on the ground anchors (onshore and offshore)
- Reinstatement
- Present results in a geotechnical data report, GDR

The English Language will be the working language in the Fehmarnbelt Fixed Link project and normally all reports, drawings and other documents will be prepared only in English language. The Contractor must be able to communicate with the authorities and other stake-holders in both German and Danish as well.

5.2 Tentative Overall time Schedule

June 2010:	Contract award
June through September 2010:	Main contract
May through September 2011:	2011 option
May through September 2012:	2012 option

6. Legal, economic, financial and technical information

A Request to Participate in the tendering procedure for the Geotechnical Large Scale Testing shall comply with the following requirements:

6.1 Legal information

The candidate shall provide the following information:

- a) Name and address of candidate
- b) Candidate's contact person
- c) Brief description of candidate's organisation

The candidate (and each member of a joint venture or a partnership, if applicable) shall provide certificate(s) from competent authorities/trade registers for the purpose of showing the following:

- a) that he is not subject to proceedings for bankruptcy, winding-up or arrangements with creditors
- b) that he has not been convicted of an offence concerning his professional conduct
- c) that he has fulfilled obligations related to taxes and social security contributions

6.2 *Economic and financial information*

The candidate (and each member of a joint venture or a partnership, if applicable) shall provide the following information:

- a) annual reports or at least balance sheets for the previous two financial years
- b) statement of overall turnover and turnover in respect of the works to which the contract relates for the previous three financial years

6.3 *Technical information*

In view of the complex nature of the scope of works, as described in section 5.1, presentation of appropriate evidence of the candidate's state-of-the-art technical capability (incl. skills, efficiency, experience, reliability and facilities) is an absolute requirement for being selected as tenderer

For this purpose the candidate (and each member of a joint venture or a partnership, if applicable) shall provide the following information:

- a) a list of the principal assignments in respect of the services to which the Geotechnical Large Scale Testing contract relates i.e. marine works and geotechnical subsea testing for major infrastructure project. For each assignment the following information shall be included: the value, dates and client, public or private, the kind of services provided;
- b) general information about the candidate's educational and professional qualifications and those of the firm's managerial staff, (CVs documenting experience and skills of dedicated personnel shall not be included in the Request to Participate);
- c) general description of the quality control system, QHSE-plans, used by the candidate and his measures for ensuring adherence hereto;
- d) a statement of the candidate's average annual manpower and the number of managerial staff for the last three years;
- e) a statement of the platforms, vessels, tools, technical equipment, and systems available to the candidate and their suitability for carrying out the services.

7. Procedure for selection of tenderers

The Requests to Participate will be reviewed and ranked by Femern A/S according to the following selection criteria.

Candidates not satisfying the basic requirements, (See section 6.1 and 6.2), on good standing and proper conduct will be excluded.

Requests to Participate complying with the basic requirements will be evaluated with the use of the following selection criteria and weighting factors:

Selection criteria	Weighting factor	Rating	Score
References Experience of similar type of services and assignments. See section 6.3, item a.	4		
Organisation Relevant experience and skills of organisation in general and quality control systems in general. See section 6.3, items b, c and d.	3		
Facilities Availability/standard of vessels, platforms, tools, equipment and systems. See section 6.3, items e.	3		
		Total score	

For each selection criterion applications from candidates will be given a rating as follows:

	Rating
Not acceptable	0
Good	2
Excellent	3

Candidates with a rating “not acceptable” on any criterion will not be selected.

Five (5) of the candidates with the highest score will be selected to participate in the following tendering procedure (subject to sufficient number of qualified candidates).

8. Administrative information

8.1 Queries

Questions shall be addressed to Mr. Jens Kammer, jka@femern.dk.

8.2 Closing date

Time limit for receipt of Request to Participate is Tuesday 2 March 2010 at 14.00 hrs.

8.3 Language

The information included in a Request to Participate shall be in English.

8.4 Copies

Request to Participate shall include 3 hard copies (one marked “Original” and the others marked “Copy 1” and “Copy 2”) and 1 electronic version of all information.

8.5 Labels

Request to Participate shall be marked:

Fehmarnbelt Fixed Link
Geotechnical Large Scale Testing
Request to Participate

8.6 Address

Request to Participate shall be sent to the address stated above. See section 2 “Contracting Authority”.

9. Subsequent tendering procedure

Femern A/S will to the selected tenderers issue the enquiry documents including:

- Letter of Invitation
- Instructions to Tenderers
- Scope of Works
- Form of Contract
- Special Conditions
- General Conditions, AB 92

The selected tenderers shall in their tenders include attachments, covering:

- Method statements, covering the activities and including time schedule
- Experience and skills of dedicated personnel (CVs) and the way of organizing the services, including QHSE procedures,
- Price elements,
- Proof of authorization

as will be further described in the enquiry documents.

10. Time schedule

It is Femern A/S' current intention that the tender procedure will follow the following milestones:

Selection of candidates	March 2010
Issuing of enquiry documents	March 2010
Closing date for receipt of tenders	April 2010
Completion of evaluation of tenders	May 2010
Contract award	June 2010