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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 1

Page 1 of 12

HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

SITE REQUIREMENTS

JUNE 2021

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Doc No: DSF-SPC-CIV-002

Rev. 1

Page 3 of 12

Table of Contents

REFERENCES DOCUMENTS.....	4
1. SCOPE	5
2. ROUTE TRANSFER	5
3. WORKING WIDTH.....	5
4. ENTRY IN LAND.....	7
5. TEMPORARY FENCES AND ACCESS FOR LANDOWNERS	7
6. CLEARING OF THE WORKING WIDTH.....	8
7. LEVELING OF WORKING WIDTH.....	9
8. MAINTENANCE OF WORKING WIDTH.....	10
9. ROADS.....	10
10. 10.0 PIPE STORAGEES	11
11. HORIZONTAL DIRECTIONAL DRILLING	11



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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 1

Page 4 of 12

REFERENCES DOCUMENTS

Job Spec. DSF-SPC-PIP-016 [Crossings]

Job Spec. DSF-SPC-CIV-014
[Reinstatement]

ELOT EN 1594

[Gas supply systems - Pipelines for maximum operating pressure over 16 bar - Functional requirements]



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Doc No: DSF-SPC-CIV-002

Rev. 1

Page 5 of 12

1. SCOPE

This specification covers site requirements for the construction of natural gas pipelines.

For establishment and maintenance of the site, requirements of the following, listed in order of precedence, shall be fulfilled:

- This specification.
- Other documents referred in this specification.
- **ELOT EN 1594**

2. ROUTE TRANSFER

Before the commencement of works Owner will hand over the route to the Contractor. The route will be given in the form of route maps 1:5000 and recording plans scale 1:1000 with pertinent coordinate lists and reference points in the field (Bench marks) as shown on the recording plans and set out by Owner.

All Bench marks shall be secured by the Contractor and in case that abandoning of any of these is deemed necessary due to construction works, the Contractor shall survey and secure a sufficient number of new reference points at no extra costs to the Owner.

It is the Contractor's obligation to set out the pipeline route in accordance with the project drawings and to maintain the setting-out until the as-built drawings have been approved by Owner. Should according to the Contractor's opinion the survey drawings are not in sufficient detail for the construction works the Contractor shall perform additional survey works and drawings including the establishment of all necessary bench marks without any cost to the Owner.

No works based on the Contractor's setting-out shall be performed, until the Owner's Representative has verified and released the setting-out for construction.

The 1:5000 route maps and the recording plans are not expected to contain all the information about working conditions necessary for the Contractor. The Contractor shall therefore, on the actual site, make himself familiar with working conditions, ground conditions, soil conditions, means of communication, etc.

The Contractor shall himself make arrangements to get the necessary access approvals for transport of pipes and equipment and no extra cost to the Owner.

No site for the erection of shelters, parking places, etc is available. The Contractor shall make written agreements with Authorities and/or landowners if any land is necessary for these purposes. The Owner Representative shall be notified before signing of such agreements and has the right to be present. A copy of the agreement shall be handed to the Owner Representative.

3. WORKING WIDTH

Along the route a working width will be available to the Contractor free of charge.



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Doc No: DSF-SPC-CIV-002

Rev. 1

Page 6 of 12

The working width for shall be determined as follows:

In open country

Nominal Pipe Diameter	Working	Width
DN 100-400	16m	
DN 450-700	20m	
DN 750-1050	26m	

In Woods, plantations, Orchards, Wine yards, etc.

Nominal Pipe Diameter	Working	Width
DN 100-400	12m	
DN 450-700	14m	
DN 750-1050	16m	

For other dimensions the split of the working width will be decided upon accordingly.

The working width shall be divided as shown on the 1:1000 scale diagrams unless agreed otherwise.

In woods, plantations, Orchards, Wine yards, etc. and when directed by the Owner Representation the working width will be made with a windbreak belt, a hedge or similar at no extra costs to the Owner.

In order to avoid falling of trees, the Contractor is obliged to accept a parallel displacement of the working width or a changed disposition of the working width as compared with the standard disposition, when directed by the Owner Representative, and at no extra costs to the Owner.

In certain areas, the working width may be less than the above mentioned. These areas will be stated on the plans.

At crossings with railways and national roads which shall be performed by boring and/or casing where the above-mentioned working width is insufficient, a necessary additional area will be available free of charge, Job Specification No. DSF-SPC-CIV-013. The additional areas will be 20m x 30m at receiving pit and 40m x 50 m at the boring pit for pipelines ranging from DN 600-1050 and 20m x 30m and 30m x 30m for smaller diameters.

The work shall be performed in such a way that all operations can be carried out within the working width.

Damages to roads, fences, etc. shall be avoided as far as possible.

Any compensation to landowners for the use of lands not approved by the Owner Representative shall be paid by the Contractor to the landowners, and a copy of the agreement shall be sent to Owner.

The Contractor shall ensure that there is adequate access from public roads to the working width for vehicular traffic, at all times during the working period and under all weather conditions.



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Doc No: DSF-SPC-CIV-002

Rev. 1

Page 7 of 12

Indicating traffic signs will be installed at all main, public, access roads, informing the way to the working area.

4. ENTRY IN LAND

Before entry in any land a protocol shall be prepared by Contractor and the Owner Representative in co-operation with the landowner, stating the facilities to be provided and / or maintained by the Contractor during the construction period and the location, if known, of any drains, cables, etc. which cross the route.

Both Contractor and landowner, in the presence of the Owner Representative, shall sign the protocol.

At the same time the Contractor shall make a photographic record of the condition of the land and property along the working width at concerned places (i.e. at building areas, other areas with special features, and areas where, according to Contractor's opinion, any problem may arise during reinstatement). This record shall be prepared in duplicate, one set is transmitted to the Owner, and the other will be filled by the Contractor. In case of later disagreement during reinstatement, these records may constitute evidence.

In addition to this, a notice of intention to commence construction shall be issued by Contractor to landowners at least two weeks in advance, so that the landowner to be able to make necessary actions (e.g. to harvest any ripe crops along working width).

The notice shall be given in writing file or protocol. If the Contractor fails to give sufficient notice, then he is responsible for any resulting compensation to the landowner.

If the Contractor needs to cross railways with machinery at other than public crossings, he shall obtain approval from the Railway Authority, and inform the Owner Representative of his intentions.

Any public road crossed or used by Contractor's vehicles shall be cleaned or repaired immediately. Any claims arising from Contractor's failure to do so are Contractor's responsibility.

5. TEMPORARY FENCES AND ACCESS FOR LANDOWNERS

The length of temporary fences and access shall be agreed between Contractor, landowner, and the Owner Representative, Section 4.0.

When working through existing fenced areas the Contractor shall, at his own expense, erect temporary wire fences along the working width to prevent free going domestic animals getting hurt or leaving enclosures.

The Contractor shall ensure that the landowners from their premises have adequate access to public or private road during the whole working period, as well as access from one part of their property to another for both stock and machinery. Should domestic animals are in fields that have been divided by Contractor, any existing drinking water installations shall be extended to provide water in both separated areas of the field.

Field-watering installations crossed by the route shall be in service on both sides of the separated land throughout the construction period without extra costs to the Owner.



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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 1

Page 8 of 12

Before a wire fence is cut, the adjacent posts shall be strutted, thus maintaining the original tension in the wires.

The responsibility for any damages or claims, which may arise as a result of inadequate or deficient marking, fencing, etc. lies with the Contractor.

The fences shall as far as possible, be of the same function and quality as the demolished fences.

The distance between fence posts and the new gates to be provided by Contractor shall be according to the Supervision's instructions and the landowner's request.

If landowner wishes so, the fences constructed by Contractor shall remain after completion of construction. The Contractor will not receive any compensation for this work.

6. CLEARING OF THE WORKING WIDTH

Unless otherwise specified on recording plans, Contractor shall clear the working width in such a way that pipeline works can be carried out, including surfacing in rocky terrain.

Watercourses, drains or ditches may not be filled or blocked without permission obtained from the landowner or the relevant Authority. When crossing watercourses, fish-farmers close to downstream the crossing point shall be notified minimum 1 week before the work commencement at the crossing.

Any necessary temporary diversions bridges etc. shall be constructed and maintained at the Contractor's expense.

The same applies also for the protection of embankments.

Clearing of the working width shall not take place more than 30 calendar days ahead of scheduled pipe lowering in areas where any kind of cultivations exists.

Under normal circumstances the working length from clearing to reinstatement, shall not exceed 20 km.

Under special circumstances, Contractor can obtain the permission from the Owner Representative to prolong the normal working length Job Spec. DSF-SPC-CIV-014 Fig. 1. The Owner Representative is entitled to stop Contractor's clearing operations, if pipe lowering is outside this limit.

Any cleared part of the working width shall be totally cleared of crops, bushes, trees, stumps and roots. If the working width runs through or besides building areas, solitary buildings, hedges, woods, gardens, lawns, etc., Contractor shall clear only the width, which is absolutely necessary for construction of the pipeline.

Hollows occurring where tree stumps are removed shall be filled with suitable material and compacted.

Prior to cutting of any trees, Contractor is obliged to prepare a protocol undersigned by Contractor, Owner Representative and Landowner or forester, declaring the number of trees which will be cut out for the preparation of the R.O.W.



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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 1

Page 9 of 12

Without signed this protocol, Contractor shall not proceed cutting the trees, otherwise Contractor will be exclusively responsible for any problems/expenses which may arise.

Felling of trees shall only be carried out with approval of the Owner Representative. Trees in plantations shall be cut according to the forester's directions.

Felled trees shall be lopped, cut up, and either stacked as directed by the Owner Representative, or handed over to the landowner or forester, if they so wish.

Branches and cleared scrub shall be burned, removed or handed over to the landowner or forester, if they wish so.

Necessary permission to burn scrub shall be obtained by Contractor.

In areas with big boulders and stones on the surface, such boulders and stones shall be removed outside the working area by heavy equipment at Contractor's expense. If requested by the Owner's Representative any of these boulders and stones shall be returned back to the working area in for the reinstatement.

Contractor shall perform Works strictly within the working width, unless otherwise agreed with the Owner's Representative prior to the commencement of construction.

The Owner nor his Representative shall not be held liable for any agreements made by Contractor with owners or tenants concerning the use of additional land as working width or as access to the construction site.

Contractor shall submit to Owner's Representative any agreement in writing.

Contractor shall be liable for any damage caused by him outside the working width.

Contractor shall not be liable for any damage or loss including consequential agricultural damage, such as reduced harvest, when work carried out outside of the working width has been approved by the Owner's Representative.

Contractor shall notify the Owner's Representative and the competent Authorities without delay, of any explosives identified within the working width or in the vicinity of it.

7. LEVELING OF WORKING WIDTH

In principle, the working width in its whole width, except in areas/strips used for stacking of topsoil only, shall be stripped of topsoil to a depth of 0.30m.

In meadows and similar areas the topsoil will not to be removed, as the best attainable base for the pipeline construction is provided by the grass. In such places as well as in areas with reduced working width, the extent of top soil removal must be agreed with the Owner's Representative.

The working width shall be leveled after stripping of the topsoil so that the pipeline installation works can be safely performed.

Topsoil shall normally be stacked on one side of the working width and the excavated subsoil on the opposite side. In areas where the working width and/or actual site conditions do not allow stacking of topsoil, this shall be removed and shall be temporary stacked under Contractor's care and cost, in order to be spread over the working width during reinstatement.



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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 1

Page 10 of 12

Stacked topsoil shall be kept free of weeds (by mechanical means only), if so required by the Owner's Representative. All cultivated turf in gardens shall be carefully removed and stacked for subsequent replacement, or Contractor may buy and deliver new turf if required so.

Contractor shall ensure that all buildings, monuments, boundary posts, fixed points, etc. in and along the working width are not damaged during the working period.

If it proves necessary to remove boundary posts, etc. during the working period, Contractor shall arrange for the remove to be re-measured and fixed by a surveyor.

Contractor is responsible for detecting areas where dewatering is necessary well ahead of construction, so that the time schedule is not affected. In order to do this, trial holes shall be made; available geotechnical reports in the area can be used by Contractor for this work.

Contractor shall level minor slopes of the working width and shall remove any rock or other debris, which will not be removed by the conventional leveling equipment, in order to provide an adequate working area for the pipeline route.

Where the working width is routed through or along estates, buildings, woods, orchards, lawns, ditches, pasture, roads and other urban areas or cultivated land, Contractor shall not level more than a working width adequate for the excavation of the pipeline trench and the construction of the pipeline.

Watercourses and riverbanks shall not be interfered, unless any such interference is indispensable for the works.

8. MAINTENANCE OF WORKING WIDTH

During all the working period, the working width shall be always maintained passable by four (4)-wheel drive car under all whether conditions.

The working width shall be kept clean and passable during the construction period. All unnecessary materials, electrode stumps, tools, paper rubbish etc. shall, if required by the Owner's Representative, shall be removed on a day-to-day basis from the working width. The site shall be left clean and unless otherwise specified, with its original character and outlines.

When changing oil of the equipment, the oil waste shall be gathered in drums and removed in a safe way acceptable by the Authorities. In the event of oil spillage, Contractor shall clean the polluted area at his own expense.

9. ROADS

Private roads or areas shall only be used by Contractor when a written agreement has been made with the owner of the area. The Owner's Representative shall be notified before signing of such agreements and shall have the possibility to be present. A copy of the agreement shall be handed over to the Owner's Representative. Such roads or areas, which are being used for haulage, shall be reinstated at Contractor's expense.

Contractor shall not unnecessarily impede traffic on any public road and shall not interrupt any such traffic without the prior permission of the competent Authority. If any interruption of traffic is necessary for safety reasons, Contractor shall take all necessary steps including



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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 1

Page 11 of 12

diversions, lighting, marking, and sign posting and shall maintain any Temporary Works so installed at his own expense.

10. PIPE STORAGES

Contractor is responsible to foresee and arrange adequate sites for the storage of the materials (pipes and all other components) during the construction period.

After use Contractor is responsible for the reinstatement of storage sites, including removal of pipe supports.

11. HORIZONTAL DIRECTIONAL DRILLING

In cases where a crossing with a river or other natural or/and technical obstacle is being constructed by the Horizontal Directional Drilling method, the following apply indicatively and not restrictedly:

- The Contractor will issue 1:1000 drawings based on the results of the geodetic survey.

The area for pipe string fabrication should also be assessed together with the entry and exit areas. Moreover, detailed information concerning the access roads (i.e. weight limitations for bridges and roads, maximum heights in tunnels or bridges etc) should be provided.

The drawings of the work area plan should have at least the following information:

- * Location of the separate components
- * Method of anchoring the rig
- * Build up of the drill fluid preparation unit
- * Location and size of the drill fluid storage basin
- * Access roads
- Contractor shall confirm the water table elevation before the commencement to works.
- The Horizontal Directional Drilling requires a minimum working area completely different from the conventional way of pipe laying.

The work area is dependent upon the length of the drilling, the diameter of the pipe and the formations to be drilled. The Horizontal Directional Drilled crossing requires two separate working areas. These are the "Rig Site" (work area at the rig) and the "String Site" (work area at the opposite side at the exit point of the drilling).

For details about Horizontal Directional Drilling see Job Specification DSF-SPC-CIV-018.

11.1 RIG SITE

For most of the crossings, a work area for the rig site of around 50m x 50m is sufficient. For smaller crossings 20m x 30m is sufficient, while very large crossings need a working area of about 70m x 100m.

11.2 STRING SITE



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TECHNICAL SPECIFICATION

Doc No: DSF-SPC-CIV-002

Rev. 0

Page 12 of 12

For normal Horizontal Directional Drilling crossings a work area at the exit point of about 15m x 30m is required, while for big crossings this can be up to 30m x 50m.

When planning a drilled crossing it should be arranged that the pipe string to be installed, is constructed to be pull-in in one length and, when possible, without horizontal curves.