



Statnett SF
Projects Division
Husebybakken 28B
P.O. Box 5192 Maj.
0302 OSLO

Environment and Transport Plan

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420 kV power line Ørskog – Fardal; Section Sogndal - Ålfoten

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Summary, result

As part of the licensing terms and conditions, the Norwegian Water Resources and Energy Directorate (NVE) has stipulated that an Environment and Transport Plan (ETP) must be prepared. The plan must describe and minimise disruptions to the landscape during construction work as much as possible and the plan must be approved by the NVE prior to commencement of the work.

The purpose of the ETP is to describe important natural and cultural environment aspects of the new 420 power line between Ørskog and Fardal in the Sogndal – Ålfoten section. These aspects must be taken into account during the construction work.

The ETP is a part of the tender package, and is available in English and Norwegian.

Distribution

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1b	6 April 2011	Version submitted to the NVE for approval	Christian Færø	E. V. Vardheim (BU) P.R. Nielsen (BLB) L.E. Johansen (BLB)	O. Brattberg

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1. Introduction

On 10 June 2009, the Norwegian Water Resources and Energy Directorate (NVE) granted a licence for the construction and operation of a power line between Ørskog and Fardal [1]. The licence decision was appealed and is now being considered by the Ministry of Petroleum and Energy. The line is scheduled for completion in 2015.

Construction licence: NVE 200701252-2171 Site owner: Statnett SF Husebybakken 28b P.O. Box 5091, Majorstuen N-0302 OSLO Organisation no.: 962986633 Contact: O. Brattberg

Separate environment and construction plans have been prepared for stations with access roads to the 420 kV power line from Ørskog to Fardal.

A final licence for the construction of the power line from Sogndal to Moskog was granted by the Ministry of Petroleum and Energy (MPE) on 08.04.11

The Ørskog - Fardal project has been divided into sections with different completion plans. The sections Moskog - Høyanger and Ørsta - Ålfoten are scheduled for completion in 2013. The sections Ørskog - Sykkylven, Moskog - Ålfoten and Sykkylven - Ørsta are scheduled for completion in 2014. The final section, Høyanger – Sogndal, is scheduled for completion in 2015. An application has been submitted for a new transformer station in Sykkylven. However, implementation is contingent on a final licence decision.

2. Project description

The power line is approximately 285 kilometres long and will run through 15 municipalities and two counties. New transformer stations will be constructed in Ørsta, Ålfoten, Høyanger and Sogndal. In addition, the existing transformer stations in Ørskog and Moskog in Jølster will be expanded. The NVE has stipulated that 110 kilometres of existing 132 kV lines on the section must be demolished.

The new 420 kV power line will mainly consist of steel portal structures, power lines with a matt finish and colourless glass insulators. Furthermore, the NVE has stipulated that camouflage measures must be applied, including painted pylons and composite insulators, on approximately one third of the section. This will reduce the visual impact of the power line in the landscape.

The line is important in order to ensure security of supply in the Central region and in particular in Møre og Romsdal County. There is currently a power deficit in this

area which will increase in the years ahead. The current grid into the region does not correspond to the expected future electricity consumption in the Central region. A new line between Ørskog and Sogndal is the most robust solution with regard to future changes in production and consumption. The power line will facilitate new renewable wind and hydropower production in the region.

The local benefit of a more robust grid in the region is related to the establishment of a transformer point at certain points along the route.

2.1 Impact on biodiversity

The impact on biodiversity for the various route alternatives from Moskog to Fardal has been assessed by the Norwegian environmental consultancy firm Miljøfaglig Utredning AS [1]. Having assessed the potential impact on the natural environment, flora and fauna, Miljøfaglig Utredning AS concluded that the negative impact of the chosen route would be low to medium.

2.2 Impact on agriculture and forestry

The impact on agriculture and forestry has been assessed by Multiconsult AS [2]. From Moskog to Høyanger the licensed route will follow the alternative with the highest negative impact. From Høyanger to Leikanger the licensed route will follow the lowest impact alternative. From Leikanger to Fardal the licensed route will follow the alternative with the highest negative impact on agriculture and forestry.

The value assessments for all alternatives are in the region low to low to medium. The effect of the route alternatives has been assessed to range from low to medium negative impact to not very positive. There are therefore only minor differences.

2.3 Protected river systems

The potential impact of the construction on protected river systems has been assessed as low by Ask Consultants [3].

2.4 Outdoor recreation, tourism and holiday homes

The consultancy firm NINA [4] has assessed the impact of the construction on outdoor recreation, tourism and holiday homes. The construction would have insignificant to medium negative impact on tourism in the area. For outdoor recreation and holiday homes the construction would have an insignificant to low negative impact.

2.5 Landscape

The impact of the construction on the natural landscape has been assessed by landscape architects Agraff AS [5]. The project will have a medium to high negative impact on the landscape.

2.6 Cultural heritage sites and cultivated landscape

The potential impact on cultural heritage sites and the cultivated landscape has been assessed by the Norwegian Institute for Cultural Heritage Research (NIKU) [6]. NIKU found that the project will have a very low negative impact on cultural heritage sites and the cultivated landscape. Impact limitation measures such as camouflaging and minor adjustments of pylon points will reduce the negative consequences.

2.7 Other assessments

As part of the planning work, impact assessments and discussions have been conducted with the relevant authorities and organisations. Moreover, a supplementary cultural heritage study was conducted in 2009 and in 2010 (Norwegian Cultural Heritage Act § 9), and a supplementary study of the impact on birds was conducted in 2008. The impact assessments, supplementary studies on birds and cultural heritage sites and contact with local regional authorities and organisations have identified important environmental aspects.

2.8 Demolition/re-routing/upgrades of existing power lines

Demolition of power lines will be conducted in accordance with the requirements stipulated in the licence decision for the lines and in accordance with the general requirements of this Environment and Transport Plan.

2.8.1 Sogndal transformer station

The establishment of Sogndal transformer station, combined with the closure of Fardal transformer station, will require re-routing, upgrading and demolition of several existing lines.

The existing 300 kV power line from Fardal to Leirdøla will be re-routed east of Lake Røysevatnet to run through the Sogndal transformer station. The re-routing will be adjusted for a subsequent potential upgrade to a 420 kV power line.

The 132 (300) kV lines from Fardal – Høyanger will be demolished on the section towards Stølsdalen/Høyanger. A licence for this work was applied for in 2007.

The power line between Fardal and Mel will be demolished from Fardal up to the re-routing point towards Sogndal transformer station.

A two-kilometre section of Sognekraft's 66 kV Kvåle - Njøs power line will be moved to make room for the 420 kV Ørskog – Fardal line, and re-routing of the 132 kV line between Fardal and Mel.

2.8.2 Høyanger transformer station

To make room for a new 420 kV power line the existing 132 (300) kV line in the direction of Fardal will be demolished. Two new 132 kV power lines will be constructed from Høyanger transformer station and connected to existing lines in the mountains north of Eriksdalen. The existing lines will be demolished from this connection point to the area north of Stølsvatnet lake.

The existing 132 kV power line to Moskog will be demolished.

2.8.3 Moskog transformer station

The existing 132 kV power line in the direction of Høyanger will be demolished.

2.8.4 Ålfoten transformer station

The existing 132 kV power line currently running north of the river, will be diverted to the transformer station. Approximately 1 km of the line will therefore be demolished.

3. Maps

The map series “Transport Plan South 6-13” shows the route, base, winch and rigging sites and transport on routes covered by the licence application. The map series O3–O7 shows the parts of the section where camouflaging measures will be introduced, such as the use of composite insulators, coloured pylons, coloured power lines, or a combination of the three. Areas with restrictions have been specified in Chapter 10, and the locations are indicated on a map with a scale of 1:10.000 which has been attached to this document (Map K17 - K37). If the restrictions are not visible on a scale of 1:10.000, separate maps have been prepared of the appropriate scale.

4. Environment and Transport Plan

4.1 Purpose and contents

The project involves construction of a 420 kV power line from the Ørskog transformer station in Ørskog municipality to a new transformer station in Sogndal municipality. This document covers the construction of the above-mentioned power line on the section from the Ålfoten transformer station in Bremanger municipality, through the municipalities of Flora, Naustdal, Førde, Jølster, Gaular, Høyanger, Balestrand and Leikanger to the new Sogndal transformer station in Sogndal municipality.

It is important to ensure that respect for the natural landscape and environment is maintained during all phases of the development project. We will therefore ensure a systematic planning process, reporting and environmental follow-up of the construction. Required risk analyses will also be conducted of the various activities associated with the project.

The ETP describes how environmental considerations will be followed up during the construction phase on this section. The document assigns responsibility to both Statnett as the Builder and the contractor for the construction of the 420 kV power line. Furthermore, the ETP stipulates requirements relating to clear-up after the construction work has been concluded.

The purpose of the environmental follow-up and management during construction of power lines and transformer stations is to ensure compliance with Statnett's adopted environmental policy:

“When planning, building and operating transmission facilities we will attach equal importance to nature and the environment as the functional, technical and financial considerations”.

The ETP presents adopted environmental objectives for each technical discipline. Furthermore, the plan describes important issues, requirements defined by the Norwegian authorities or the Builder, and measures which will ensure follow-up of objectives and requirements.

This document provides a description of the most important environmental aspects. However, it does not provide an exhaustive overview of all environmental aspects that must be considered during construction of the facility. The ETP focuses on the main environmental aspects of the project and provides a more detailed description of how to act in areas where restrictions apply.

4.2 Deviations and sanctions

Employees of Statnett, contractors and sub-contractors must comply with Norwegian acts and regulations. ETP is an integrated part of Statnett, as the Builder's, quality assurance system certified in accordance with NS-EN-9001. Furthermore, Statnett has been granted environmental certification in accordance with NS-EN 14001.

Any breaches of the requirements described in the ETP must be considered as deviations and be reported and handled in accordance with the adopted routines for documentation, reporting and deviation handling.

Statnett reserves the right to adopt sanctions in the event of deviations or where deviations are not handled in accordance with the agreed routines. See the general section of the contract for sanctions related to deviations.

4.3 Revision of the ETP

All formal approvals have not yet been granted. After the appeal has been processed by the MPE, the ETP must be revised in light of any new requirements and instructions. The plan must then be approved by the NVE before the construction work can start. The ETP will be revised as and when required.

5. ENVIRONMENTAL CONSIDERATIONS DURING THE CONSTRUCTION WORK

5.1 Governing guidelines and internal control

The contractor has a duty to familiarise himself with and comply with Norwegian acts and regulations that apply for the development project.

Environmental requirements relating to the site and site operations are also stipulated in:

- ✓ The Norwegian Water Resources and Energy Directorate's licence and expropriation resolution of June 2009 [7]
- ✓ Statnett's environmental strategy 2009 [8]

In addition, input relating to environmental requirements for the power line project has been provided by municipal and county municipal authorities, as well as by landowners and other affected parties. Statnett has incorporated this input into the ETP.

The general requirements stipulated in the ETP apply to the entire site. In addition, special requirements/considerations have been stipulated for certain important areas/issues (see Table 10-1).

The Builder has the primary responsibility for ensuring satisfactory information to local authorities, landowners and local communities near the site before and during the construction activities.

The ETP will be followed up as part of the contract and be on the agenda at all construction meetings. The contractor must have an HSE plan describing environmental follow-up in the contractor/subcontractor company. The contractor is responsible for informing the Builder immediately should any environmental incidents occur which may have contractual or subsequent consequences.

The Builder has the right to carry out environmental inspections and audits.

5.2 Organisation

As the Builder, Statnett has overall responsibility for ensuring that the project is planned, coordinated and executed pursuant to environmental legislation, the licence and the approved ETP.

The project manager has the overall responsibility for the environment during the construction phase, including ensuring that:

- ✓ the terms and conditions of the licence have been complied with at start-up of the construction work and that there is an approved ETP
- ✓ resources for environmental follow-up are planned and an environmental consultant and environmental inspector(s) are appointed
- ✓ a project-specific control plan for the environment and transport is established for follow-up of the contractor and subcontractor pursuant to the requirements stipulated in the ETP

The Builder must appoint an environmental consultant who has particular responsibility for the external environment/surroundings and the local community. These factors must be regular items on the agenda of construction meetings. Statnett's function description is provided in Appendix 1.

The environmental consultant shall:

- function as an advisor for the project and construction management during the construction phase
- on the basis of the approved ETP, prepare an inspection plan for the environment and transport before work commences at the site
- notify the Q/HSE department regarding project audits
- ensure that environmental inspections are followed up in accordance with the inspection plan
- ensure transfer of experience to other development projects

The Builder must appoint an environmental controller who reports to the project manager. The environmental controller shall be responsible for following up environmental requirements stipulated in contracts, as well as execution on the site. This requires local presence. Statnett's function description is available in Appendix 2. The Builder's local property owner contact will handle questions regarding acquired land and right of way.

Environmental inspector

- ✓ conduct local follow up of the ETP during the development phase
- ✓ follow up the inspection plan for the environment and transport during the construction phase
- ✓ follow up the contractor and the contractor's handling of any subcontractors, by applying the inspection plan
- ✓ inform the construction manager/environmental consultant of any deviations, undesirable incidents or conditions

The contractor is responsible for following up objectives and requirements established in the ETP. Such requirements must be communicated to sub-suppliers and subcontractors through agreements and the contractor's quality system and HSE plan.

Contractor and subcontractor employees who will work on the site have a duty to attend a presentation of the ETP which will be given by the Builder before the work at the site commences.

6. ETP for the power line route

6.1 Information to affected parties

Objective

The municipality, the environmental department of the County Governor, local residents and property owners must be informed of the progress of the construction work. Local residents, property owners and other user groups may experience inconvenience during the construction period. Good information about what is going to happen, and why, can prevent conflicts.

General requirements

The environmental consultant maintains communication with affected public authorities. The Builder will have designated contact persons who will ensure contact with affected property owners and rightful owners.

The Builder must put up information boards at key locations along the line (in the municipalities). The information boards must include information about the construction work and any restrictions that may affect the general public. Information about the work must also be published on the municipalities' and Statnett's web pages. The contractor must contribute the required information.

The Builder must make active use of the media to inform the general public about the construction work. Regular newsletters must be distributed to the municipalities and interest organisations, and perhaps also published on the Internet.

Any enquiries or concerns from the general public and affected parties must be passed on to the Builder.

6.2 Transport and noise

Roads, hauling or transport zones, base and rigging areas, as well as the contractor route are indicated in the map series attached to this document. The road numbers are indicated on the maps. Road classifications according to the definitions in Appendix 4 is presented in a separate table. The maps also indicate no-flight zones for vulnerable areas in a time-limited period. The ETP is an appendix to the project's HSE plan.

Transport routes are shown in the map series Transport Plan South 6-13. Transport roads not included in the licence application are given in Table 10-2. Private-law agreements will be entered into with the property owners for the relevant roads.

Objective

All transport operations on the ground and in the air must take place in such a manner as to protect the environment as much as possible, and not constitute a risk for general traffic in the area.

General requirements

Based on the Builder's ETP, the contractor must prepare his own transport plan before the work commences. This must be included in the contractor's HSE plan. The contractor's transport plan must provide a description of the type of vehicles and equipment that will be used, and which transport routes the contractor intends to use into and along the route. Transport in the terrain is only permitted in connection with clearance and felling of timber along the route and for transportation of machinery for pylon foundations and/or installation of lines. Personnel transport is only permitted in exceptional circumstances after prior agreement with the Builder. The number of transport routes within the power line route must be as low as possible. The contractor's transport plan must be approved by the Builder before work commences at the site.

The Builder is responsible for all agreements with the property owners relating to the use of roads and transport routes in the terrain.

If the transport routes deviate from the power line routes, they must be marked in the terrain. Also areas where no transport will take place, but which are within the power line route, must be marked. The marking of transport routes in the terrain must be conducted by the Builder in cooperation with the contractor. The Builder must maintain contact with the property owner. In the event of deviations, the contractor must clarify this with the Builder, who will provide permissions before new transport routes are used.

The use of existing roads and parking lots must not be of significant inconvenience to the general traffic. If the Builder has entered into separate agreements with the property owner or road association with compensation for right of use, the Builder has the right to close off the road/area for general traffic or non-authorized traffic. During transport on forest roads/tractor roads, all gates must be shut after vehicles have passed during periods where these must normally remain closed.

The Builder must enter into an agreement with the property owner regarding helicopter landings. The contractor and the helicopter company have a duty to obtain all other necessary permissions and are responsible for ensuring that this activity is conducted in accordance with the provisions in the environment plan. They are also responsible for any inconvenience/damage that might occur.

The contractor must notify the Builder of particularly noisy activities, such as the use of implosive fittings, no later than one week before the activity is due to commence. The Builder must inform affected parties so that they can implement the necessary measures with regard to grazing sheep and, if necessary, monitoring of wild reindeer.

The contractor must expect local restrictions in the use of road related to ground frost and other conditions.

6.3 Disruptions to the landscape

The main issues are related to disruptions to the landscape in connection with the construction of foundations, roads and establishment of rigging areas. Damage to the landscape may also arise in connection with transportation of machinery, materials and personnel to pylon points off the beaten track.

Base areas are indicated in the map series Transport Plan South 6-13. Base areas not included in the licence application are listed in Table 10-3. Private-law agreements will be entered into with the property owners for the relevant areas.

Objective

All construction activities must be planned and conducted in such a way that permanent scars in the landscape are minimised.

General requirements

Wherever possible, the contractor must use vehicles that leave as little imprint on the ground as possible and reduce the risk of structural damage and soil erosion. The contractor must minimise the use of all terrain vehicles (ATV) in the terrain and such use must be specified in the contractor's transport plan. Primarily, all transport should be by helicopter. Haul paths must primarily be used for transportation of machinery for pylon foundations and transport in connection with forest clearance. The number of trips to each pylon point should be limited. If transport corridors have been established for existing lines and these will entail a lower risk of damage to biodiversity and cultural heritage sites, and such use does not result in major financial disadvantage, this may be considered (cf. Section 12 of the Norwegian Nature Diversity Act). The establishment of alternative transport corridors must be regulated through a contract entered into with the property owner.

The contractor has a contractual duty to restore site and rigging areas to their original condition. These areas should, to the extent possible, be restored to their original or natural condition before leaving the area, unless otherwise stipulated in a written agreement with the Builder.

Where possible, the top soil vegetation should be laid aside before interventions, and be put back afterwards to ensure quick regrowth.

The contractor is responsible for ensuring that damage to the landscape is repaired, fertilised and reseeded if necessary in order to quickly establish erosion-preventive vegetation. In marshy areas, extra care must be taken during foundation, road construction and establishment of rigging areas and transport. Such areas cannot, to the same extent, be repaired by fertilisation and reseeded.

The Builder must confirm that any construction damage has been satisfactorily repaired. Such confirmation must be obtained before the contractor's final settlement.

6.4 Forestry and agriculture

Objective

Construction work activities must be planned and executed in such a manner that inconvenience to agriculture and forestry is limited during the construction phase.

General requirements

The Builder is responsible for informing the property owners of the most important aspects of the ETP.

The contractor must ensure that machinery and equipment have been cleaned before arriving in Norway and before the equipment is transported out of Norway. Applicable local restrictions are published on the Norwegian Food Safety Authority's web page (<http://www.mattilsynet.no/>), and must be complied with.

Wherever possible, the contractor must use vehicles that leave as little imprint on the ground as possible, thus reducing the risk of structural damage and soil erosion.

The contractor must make the construction site and building pit safe for farm animals and humans. Existing fencing/barriers for farm animals must be maintained during the construction work, and any damage must be repaired immediately.

All damage that arises as a result of the construction work must be repaired and paid for by the contractor.

A forest clearance plan for the entire project is available in Appendix 3.

The Builder is responsible for ensuring that clearance of vegetation takes place in a careful manner. Wherever possible the vegetation should be kept in transition zones towards remaining forest, river systems, paths, roads and buildings, provided that the safety of the power line is maintained.

When timber is felled, the Builder must ensure that existing hiking paths, ski tracks and open ditches are cleared of logging waste immediately after the tree felling work is completed, and restored if necessary.

The contractor must carry out construction and transport work in forested areas carefully to minimise damage to remaining trees as much as possible, and minimise the risk of soil erosion.

The lines must be installed over the remaining forest in the 0 zones.

6.5 Natural environment and protected areas

6.5.1 Laws and regulations

- ✓ The Wildlife Act (1981)
- ✓ The Nature Diversity Act (2009)
- ✓ The Norwegian Red List 2010
- ✓ National protection plan for river systems in Norway

Objective

During the planning of the construction work, forest clearance and transport, both the Builder and the contractor must help provide solutions which will reduce the negative impact on important game, focussing in particular on game listed on the Norwegian Red List.

General requirements

The utmost care must be exercised with regard to eggs, nests and dens to avoid any unnecessary suffering or damage to game and wildlife.

Some parts of the power line section run through the Sunnfjord wild reindeer area. Special care must be exercised in this area, particularly in calving areas.

There are areas with valuable hayfields in connection with old mountain pastures. Particular care must be taken in such areas.

6.5.2 Birds

Along the route, there are several grazing and nesting areas for woodland birds, wetland birds and birds of prey, including species listed on the Norwegian Red List.

General requirements

To the extent possible, the contractor must limit construction traffic in known nest areas during the nesting season for species listed on the Norwegian Red List as indicated in the ETP. This must be included in the contractor's transport plan and information must be submitted to the relevant drivers in the contractor and subcontractor/supplier companies.

Special requirements

Statnett will be responsible for establishing a monitor scheme during the construction work which will keep track of nesting and breeding locations for vulnerable and endangered birds (on the Norwegian Red List) [9] in the area. Statnett will be responsible for notifying the contractor so that the construction work may be adapted as much as possible to the animals' use of the area. Statnett reserves the right to restrict transportation activities on the ground and in the air whenever necessary.

6.5.3 Wild reindeer

General requirements

The construction work in Sunnfjord wild reindeer area must, in as far as possible, be adapted with regard to wild reindeer, particularly female reindeer with newborn calves. Helicopter restrictions may be imposed in calving areas during the calving season.¹

6.5.4 Flora and vegetation

General requirements

The contractor must limit disruptions to the landscape as much as possible, and minimise removal of vegetation in areas with vulnerable vegetation according to the environment plan. See also the general requirements in Chapter 6.3 Disruptions to the landscape.

6.5.5 Protected areas

The route runs through the catchment area of the protected Naust river system in the municipality of Naustdal, the Gaular river system in Gaular municipality, the Kvinna river system in Leikanger municipality and the Sogndal river in Sogndal municipality.

The Gaular river system and Sogndal river are both included in the protection plan IV [10], and the Kvinna river in the protection plan I [11].

The protection is based on a balance between protection values and user interests where untouched nature, natural science, recreation, landscape, game/fish, cultural heritage sites, water quality and agriculture have been assessed. The general impression of the river systems has also been taken into account.

General requirements

The contractor must exercise special care when working in protected areas. See the general requirements in Chapter 6.2 and Chapter 6.3.

6.5.6 Recreation and hunting

Objective

The areas affected by the power line shall remain attractive for recreation by ensuring careful landscape management and appropriate design of the facilities.

General requirements

Transport on existing recreational paths and ski tracks should be avoided whenever possible. Should such transport be necessary, the Builder must obtain prior approval for such use and the contractor must ensure that paths/tracks are repaired and cleared as soon as possible after use.

¹ Kjell Flaten, Førde. Former leader of the wild reindeer committee for Sunnfjord wild reindeer area

Local hunting interests must be considered to the extent it is financially and practically feasible.

6.5.7 Cultural heritage sites

It is particularly important to exercise great caution in areas with cultural heritage sites/cultivated landscapes. All transport, storage of materials and accommodation of personnel must take place outside of cultural heritage sites. Such sites will be marked by the Builder physically in the terrain to avoid any direct conflict.

Objective

Construction work activities must be planned and conducted in such a manner that disruptions to cultural heritage sites are avoided.

General requirements

The Builder must clarify the transport plan with the cultural heritage authorities. The contractor must allow for and expect adjustments of the transport plan for the activities.

The Builder is responsible for marking automatically listed cultural heritage sites and certain more modern cultural heritage sites in the landscape.

The contractor has a duty to avoid transport activities over and damage to well-known cultural heritage sites and cultural environments. No activities must be conducted inside marked areas.

Should the contractor come across unknown cultural heritage sites during the construction work, the contractor has a duty to notify the Builder immediately, who will notify the cultural heritage authorities (the county council). The contractor must, in consultation with the Builder, cease all activities if there is any risk of damage to the cultural heritage site.

6.6 Pollution and waste

Objective

Construction activities must be planned and executed in such a manner that permanent pollution to the ground, river systems and the sea is avoided.

General requirements

The contractor has a duty to comply with the Environment and Transport Plan, the safety, health and working environment plan (SHA plan), Norwegian laws and

regulatory requirements relating to waste handling and hazardous products, and to avoid pollution.

6.6.1 Laws and regulations

- ✓ The Pollution Control Act (1981) with associated provisions
- ✓ Act relating to the prevention of fire, explosion and accidents involving hazardous substances and the fire service (2002) with associated provisions
- ✓ The Drinking Water Regulations – The Act relating to food production and food safety (2003)

6.6.2 Waste handling/waste management plan

Waste and hazardous waste must be handled without any risk of pollution. Waste must be stored and handled in a responsible manner pursuant to applicable regulations. All waste must be sorted and deposited at approved waste reception facilities.

General requirements

The contractor is responsible for ensuring that waste is handled in accordance with applicable regulatory requirements and the municipalities' own regulations for waste handling. The contractor must prepare a waste management plan for the project and ensure that it is implemented in the company as well as in the subcontractor/supplier companies.

The waste management plan must include waste fractions and quantities, and specify which company will transport the waste from the construction site to the approved reception facility. The contractor must be able to produce a receipt for delivered products and waste quantities, as well as a declaration form for hazardous waste.

The contractor must ensure that all waste is sorted and delivered to an approved waste reception facility. The contractor and the recipient of the waste must establish a system for separation of waste. This must be documented in a written agreement which must be submitted to the Builder.

The contractor must ensure that hazardous waste is not mixed with other types of waste. Hazardous waste must be stored in locked, purpose-made containers. Different types of hazardous waste must not be mixed as this may constitute a pollution risk or create problems for the further waste handling.

The contractor and sub-contractor must take precautions to prevent dispersion of refuse from the construction site to the environment.

Incineration of waste on the construction site or in the terrain is not permitted. This also applies to paper and wooden materials.

6.6.3 Pollution

General requirements

The contractor must ensure that an updated overview is available of the inventory and consumption of hazardous liquids and materials.

The contractor has a duty to keep easy-to-follow records of substances and products including data sheets of all the chemicals in use at the site.

The contractor is responsible for ensuring that there are sufficient quantities of oil-absorbing material at oil and fuel storage facilities. The contractor must have routines/systems which ensure that tanks and barrels are controlled regularly and that any spills and leakages are recovered. The need for vandalism protection must be assessed on site.

Refuelling of construction machines, oil changes, etc. must take place at designated sites. The contractor must present a safe refuelling system to the Builder before start-up at the site.

It must be ensured that machinery and equipment do not leak oil or fuel. Machinery which does not satisfy the Builder's requirements will immediately be removed from the site. Machinery must be equipped with oil absorption equipment, etc. Accidental spills caused by accidents or engine breakdowns must be recovered and the spill site must be cleaned immediately. Used absorbents must be handled as hazardous waste.

The contractor has a duty to take particular care in the vicinity of lakes and river systems to avoid pollution. Oil and fuel tanks must not be stored close to sources of drinking water.

The contractor must pay particular attention to local wells and water supply facilities, and has a duty to compensate any damage to these. The Builder is responsible for obtaining an overview of registered locations and indicating these on the map in the environment plan.

The contractor has a duty to establish mobile sanitary solutions at key locations for permanent stays of several persons for a certain duration (such as rigging sites, storage sites, base sites, etc.).

The contractor must prepare an emergency preparedness plan for acute pollution (for instance from oil, fuel, concrete). The plan must include notification routines, distribution of responsibility, a description of relevant measures, etc. Furthermore, the plan should include actions in the event of contamination of drinking water sources and drinking water catchment areas, such as access to alternative water supply. Should the drinking water sources become contaminated the contractor has a duty to immediately provide alternative drinking water to affected users of the drinking water source.

6.7 Clearing/completion

The rigging areas and construction areas must be kept tidy at all times. Do not leave any waste at the site. Waste must be collected and transported or retained according to Chapter 6.6.

Insofar as possible, the rigging and construction areas must be returned to their original state before the area is abandoned, unless otherwise agreed with the property owner or local authorities in writing.

The work at pylon points must be planned very carefully. The top soil vegetation must be retained and carefully returned after the work has been completed.

All materials must be sorted and transported to waste disposal facilities, see Chapter 6.6.

7. Data sources

The preparation of the ETP is based on data obtained from the impact assessment for the various topics in the NVE's assessment programme. Information about water wells has been obtained from Geological Survey of Norway's (NGU) database Granada and information about waterworks and drinking water sources from Vann-Nett.

8. Distribution list

The County Governor of Sogn og Fjordane, environmental protection department
Sogn og Fjordane County Municipality, department of culture

Bremanger Municipality

Flora Municipality

Nausdal Municipality

Førde Municipality

Gaular Municipality

Høyanger Municipality

Balestrand Municipality

Leikanger Municipality

Sogndal Municipality

9. References

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10. Tables

Table 10-1 Restrictions section Sogndal - Ålfoten

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Bremanger	E-17-BM90-0	Vasslidvatnet	K17	Important nature area	Other important natural resources	Restrictions	Area with rich flora requiring high humidity environment.	Avoid changing the course of brooks etc. during installation of pylons	
Bremanger	E-19-SM133-344	Risevatnet - Geitvikneset	K19	Important nature area	Valuable deciduous forest	Special consideration zone	No restrictions relating to power line route. The line passes overhead. TP follows the existing road	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Bremanger	E-19-SM133-342	Risevatnet - Geitvikneset	K19	Important nature area	Valuable deciduous forest	Special consideration zone	No restrictions relating to power line route. The line passes overhead. TP follows the existing road	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Bremanger	F-20-BM146-110	Reset	K20	Game area	Wetland birds	Special consideration zone	Area with wetland birds	To be considered	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Flora	C-21-BM173-75	Heiaskora	K21	Cultural heritage site	Stone fence	Special consideration zone	Stone fence along the route	To be marked in the terrain. Avoid machine activities within marked area	
Flora	F-21-FM186-0	Tjørnesvatnet - Skalla - Trettvika	K21	Observations	Birds of prey - Golden Eagle-Goshawk	Restrictions	Birds of prey biotope	Avoid helicopter flights over the area in vulnerable periods	03-06
Flora	E-21-BM177-0	Haukå	K21	Important nature area	Primeval forest/old forest	Restrictions	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Flora	C-22-BM197-141	Hesa	K22	Automatically listed cultural heritage site	Rock shelter	Restrictions	Rock shelter within the route	To be marked in the terrain. No machine activities within marked area	
Flora	C-22-BM202-26	Legene	K22	Cultural heritage site	Stone fence	Special consideration zone	Stone fence along the route	To be marked in the terrain. Avoid machine activities within marked area	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Flora	E-22-BM195-0	Hatleset	K22	Important nature area	Large old trees	Restrictions	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Flora	C-24-BM241-193	Humlestøylen	K24	Cultural heritage site	Mountain dairy farm	Special consideration zone	Mountain dairy farm along the route	Hauls outside of cultural heritage site	
Førde	E-25-FM272-247	Rotenes	K25	Important nature area	Valuable deciduous forest	Restrictions	No restrictions related to the power line route. The line runs over the area	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Førde	C-26-BM285-143	Tuftene	K26	Automatically listed cultural heritage site	Homestead	Restrictions	Homestead along the route	To be marked in the terrain. No machine activities within marked area	
Førde	C-26-BM286-171	Tuftene	K26	Automatically listed cultural heritage site	Visual	Restrictions	Mountain dairy farm along the route	To be marked in the terrain. Avoid machine activities within marked area	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Førde	C-26-FM278-163	Rotnesstølen	K26	Automatically listed cultural heritage site	Visual	Restrictions	Mountain dairy farm along the route	To be marked in the terrain. Avoid machine activities within marked area	
Førde	C-26-BM289-164	Slåttestølen	K26	Cultural heritage site	Mountain dairy farm	Special consideration zone	Mountain dairy farm along the route		
Førde	C-26-BM291-188	Kvamfossen - Merkemyra	K26	Cultural heritage site	Built-up forest road	Special consideration zone	Built-up forest road along the route		
Førde	C-26-BM291-261	Kvamfossen - Merkemyra	K26	Cultural heritage site	Stone fence	Special consideration zone	Stone fence along the route	To be marked in the terrain. Avoid machine activities within marked area	
Førde	C-27-Stasjon-5	Moskog stasjon	K27	Automatically listed cultural heritage site	Homestead	§ 8 notification			
Førde	E-28-BM22-0	Gravvatnet	K28	Calving area wild reindeer	Wild reindeer	Time-limited restrictions	Calving area	Avoid helicopter flights over the area in vulnerable periods	03-04
Gaular	E-29.1-FM39-0	Viksvatnet	K29	Drinking water	Vikedalen Waterworks. 100 persons. 153 l/pers/day. Surface water	Special consideration zone	Transport in protection zone	Cf. Section 4 of the Drinking Water Regulations	
Gaular	F-29-BM35-0	Vågsfjellet	K29	Observations	Goshawk	Time-limited restrictions	Goshawk	Avoid helicopter flights over the area in vulnerable period	04-07

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Gaular	E-29.1-BM36-0		K29	Important nature area	Old deciduous forest	Restrictions	Old valuable deciduous forest, high value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Gaular	E-30-BM43-0	Rørstaddyttingen	K30.1	Important nature area	Birds of prey Eagle Owl - Golden Eagle	Time-limited restrictions	Eagle Owl	To be clarified with ornithologist	03-06
Høyanger	Høyanger	C-31-Stasjon-0	Høyanger stasjon	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Høyanger	C-31-Stasjon-0	Høyanger stasjon	K31	Automatically listed cultural heritage site	Homesteads	§ 8 notification			
Balestrand	C-34-SM139-318	Dragsviki	K34	Automatically listed cultural heritage site	Stone age site	Special consideration zone	To be marked in the terrain	To be marked in the terrain. Avoid machine activities within marked area	
Balestrand	C-34-SM139-224	Dragsviki	K34	Automatically listed cultural heritage site	Sunken road	Special consideration zone	To be marked in the terrain	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-34-FM144-131	Raunesreinholten	K34	Automatically listed cultural heritage site	Flagstone and homestead	Restrictions	Settlement along the route	To be marked in the terrain. Avoid machine activities within marked area	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Leikanger	C-34-FM146-2	Myrset	K34	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Balestrand	C-34-SM139-250	Dragsvik	K34	Cultural heritage site	Barn	Special consideration zone	Barn under lines across the fjord	To be protected by line segment	
Leikanger	C-34-BM143-94	Kyralia	K34	Cultural heritage site	Homestead	Special consideration zone	Homestead along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-34-FM144-173	Kyralia	K34	Cultural heritage site	Stone fence	Special consideration zone	Stone fence along the route	To be marked in the terrain. Avoid machine activities within marked area	
Balestrand	E-34-SM134-82	Gjerde	K34	Important nature area	Old valuable deciduous forest	Restrictions	Old valuable deciduous forest, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	
Balestrand	E-34-SM140-73	Tenningåsen	K34	Important nature area	Primeval forest/old forest	Restrictions	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Leikanger	C-35-FM159-250	Marsete	K35	Automatically listed cultural heritage site	Visual	Restrictions	Mountain dairy farm along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-35-BM165-101	Svarthamrane	K35	Cultural heritage site	Homestead	Special consideration zone	Homestead along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-35-FM159-186	Marsete	K35	Cultural heritage site	Homestead	Special consideration zone	Homestead along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-35-FM159-90	Marsete	K35	Cultural heritage site	Homestead	Special consideration zone	Homestead along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-BM167-171	Orradalen	K36	Automatically listed cultural heritage site	Charcoal pits	Restrictions	Charcoal pits along the route	To be marked in the terrain. No machine activities within marked area	
Leikanger	C-36-BM169-112	Klepphaugen	K36	Automatically listed cultural heritage site	Rock shelter	Restrictions	Rock shelter along the route	To be marked in the terrain. No machine activities within marked area	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Leikanger	C-36-BM175-23	Kappeldalen - Pyttane	K36	Automatically listed cultural heritage site	Direct	Restrictions	Pylon on Mountain dairy farm 105910	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-BM179-97	Gamlestølen	K36	Automatically listed cultural heritage site	Visual	Restrictions	Line runs over Gamlestølen	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-BM179-61	Gamlestølen	K36	Automatically listed cultural heritage site	Visual	Restrictions	To be marked in the terrain, transport outside area	No activities on listed cultural heritage site	
Leikanger	C-36-FM177-118	Njøsdalen	K36	Automatically listed cultural heritage site	Bowl hollows	Restrictions	Bowl hollows along the route	To be marked in the terrain. No machine activities within marked area	
Leikanger	E-36-FM173-23	Henjaelvi	K36	Drinking water	Leikanger Waterworks. 2200 persons. 710 l/pers/day. Surface water	Special consideration zone	Winching site and transport in protected zone	Cf. Section 4 of the Drinking Water Regulations	
Leikanger	C-36-BM166-34	Styggeli	K36	Cultural heritage site	Mountain farm road	Special consideration zone	Old road networks along the route	To be marked in the terrain. Avoid machine activities within marked area	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Leikanger	C-36-BM172-117	Raumålsbakkane	K36	Cultural heritage site	Homestead	Special consideration zone	Homestead along the route, road	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-BM175-70	Pyttane	K36	Cultural heritage site	Mountain dairy farm/Homestead	Special consideration zone	Mountain dairy farm/Homesteads along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-BM176-53	Kappeldalen - Pyttane	K36	Cultural heritage site		Special consideration zone	Mountain dairy farm along the route		
Leikanger	C-36-FM173-0	Raumålsbakkane	K36	Cultural heritage site	Mountain dairy farm	Restrictions	Pylon in 129649	Recommended moved by Sogn og Fjordane County Council	
Leikanger	C-36-FM173-12	Henjadalen	K36	Cultural heritage site	Mountain dairy farm	Special consideration zone	Mountain dairy farm along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-FM177-111	Njøsдалen	K36	Cultural heritage site	Mountain dairy farm	Special consideration zone	Line and tractor road near 129614	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger	C-36-FM177-68	Njøsдалen	K36	Cultural heritage site	Homestead and stone fence	Special consideration zone	To be marked in the terrain, transport outside area	Avoid activities on cultural heritage site	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Leikanger	E-36-BM168-0	Viddmyrane	K36	Important nature area	Marsh terrain	Restrictions	Vulnerable habitat, particularly vulnerable to machine traffic	Only digger to be used for foundations	
Leikanger	E-36-BM171-89	Viddmyrane	K36	Important nature area	Marsh terrain	Restrictions	Vulnerable habitat, particularly vulnerable to machine traffic	Only digger to be used for foundations	
Leikanger	E-36-FM177-0	Njøsadalen	K36	Important nature area	Old valuable deciduous forest	Restrictions	Old valuable deciduous forest, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at safety height and not cut down	
Sogndal	C-37-BM192-0	Siplingane	K37	Automatically listed cultural heritage site	Direct	Restrictions	Pylon attachment on Mountain dairy farm 129640	To be marked in the terrain. No machine activities within marked area, except for the fundamentation	
Sogndal	C-37-BM192-13	Mansverk	K37	Automatically listed cultural heritage site	Mountain dairy farm	Special consideration zone	To be marked in the terrain	Use of road.	
Sogndal	C-37-BM194-0	Mansverk	K37	Automatically listed cultural heritage site	Unspecified	Special consideration zone	Hauling near settlement along the route	To be marked in the terrain. No machine activities within marked area	

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Sogndal	C-37-BM194-6	Siplingane	K37	Automatically listed cultural heritage site	Homestead	Restrictions	Settlement along the route	To be marked in the terrain. No machine activities within marked area	
Sogndal	C-37-BMV19-22	Haugsstølen	K37	Automatically listed cultural heritage site	Charcoal pit	Restrictions	To be marked in the terrain, hauling outside area	No activities on listed cultural heritage site	
Sogndal	C-37-BMV19-17	Haugsstølen	K37	Automatically listed cultural heritage site	Charcoal pit	Restrictions	Charcoal pit along the route	To be marked in the terrain. Avoid machine activities within marked area	
Leikanger/Sogndal	C-37-BM185-51	Bjørndalen	K37	Automatically listed cultural heritage site	Visual	Restrictions	Line runs over mountain dairy farm	To be marked in the terrain. Avoid machine activities within marked area	
Sogndal	C-37-FM195-11	Tuftene	K37	Automatically listed cultural heritage site	Homestead	§ 8 notification			
Sogndal	C-37-FM195-15	Tuftene	K37	Automatically listed cultural heritage site	Cocking pit	§ 8 notification			
Sogndal	C-37-Stasjon-111	Sognda stasjonl	K37	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Sogndal	C-37-BM198-1		K37	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Sogndal	C-37-Stasjon-0	Sognda stasjonl	K37	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			

Municipality	ID	Name of area	Map no.	Category	Description of value	Construction restrictions	Considerations	Restrictions	Period
Sogndal	C-37-Stasjon-0	Sognda stasjonl	K37	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Sogndal	C-37-Stasjon-0	Sognda stasjonl	K37	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Sogndal	C-37-Stasjon-0	Sognda stasjonl	K37	Automatically listed cultural heritage site	Charcoal pit	§ 8 notification			
Sogndal	C-37-BM191-35	Mansverk	K37	Cultural heritage site	Homestead	Special consideration zone	Homestead along the route	To be marked in the terrain. Avoid machine activities within marked area	
Sogndal	C-37-BM194-70		K37	Automatically listed cultural heritage site	Homestead	Restrictions	Homestead along the route	To be marked in the terrain. Avoid machine activities within marked area	

C= cultural heritage (cultural heritage site)

E= environmental (environmental topic)

F= fauna

ID= [type of location]-[Map no.]-[pylon no.]-[distance to pylon]

Table 10-2 Roads not covered by the licence application

Road_no	Type of road	Road class	Improvement measure	Repairs	Status	Note
64a	Tractor road	7			Planned	
84	Forest motor road	5			Ex	
93	Forest motor road	5			Ex	
117	Tractor road	7	Upgrading	P	Ex	Cooperation new and original, steep section, width of road narrows to 2.2m, just about passable with 4WD, assess cost against use particularly re. extension to power line. 12.4 m length limitation on public road
117b	Haul path				New	Alternative to 117 a
121a	Forest motor road	5			Planned	
121b	Forest motor road	5			Planned	
122	Forest motor road	5	Upgrading to motor road		Ex	Upgrading and extension planned in cooperation with prop. owner/ forestry dep.
122 b	Forest motor road	5			New	Upgrading and extension planned in cooperation with prop. owner/ forestry dep.
122c	Haul path				New	
124	Forest motor road	4			Ex	
125c	Forest motor road	5		P	Planned	
125d	Forest motor road	5		P	Planned	
125e	Haul path			P	Planned	
125f	Haul path			P	Planned	

126	Forest motor road	5	Gravelling, ditch clearing	P	Ex	20% of road passable by car, bridge of uncertain strength
302	Motor road	4		P	Ex	
303	Tractor road	7		P	Ex	
303a	Tractor road	7		P	Ex	
303b	Tractor road	7		P	Ex	
303c	Haul path			P	New	
306	Tractor road	7	Upgrading	P	Ex	
306a	Haul path			P	New	
306b	Haul path			P	New	
307	Tractor road	7		P	Ex	
307a	Tractor road	7		P	New	

Table 10-3 Rigging, winching and drum sites not included in the licence application

Number	Type	Area	Area daa	Improvement measure	Comments	Repairs
74	B	Gravelled area	2	New gravel	Gravelled area, approx. 100 x 30 m	P
84	B	Waste disposal site	8	Levelling	By waste disposal plant	P
96b	B	Parking area	3.5		Siplo	P
105	B	Mountainous area/forest	2.4	Levelling, filling	Developed by final road, no current truck access	P
107	B	Parking area	2.1		Tarmac parking area	
108	B	Parking area	3.3	Existing parking area	Use may be seasonal, parking for ski centre.	P
301	V	Forest/uncultivated land				T-P
302	T	Forest	0.6	Levelling		T
303	B	Gravel/uncultivated land	1.5	Levelling		P
304	B	Cultivated	1.4	Mach and gravel		T
305	B	Forest/imp	1.7	Levelling		T-P
306	V	Imp	2.7			T

Repairs: P= Permanent, T= Temporary

11. Appendix 1

Funksjonsbeskrivelse: Miljørådgiver i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

Versjon: 2.1

Dokumentnummer: 1416663

Dato: 10.01.2011

Side: 1 av 4

1 Formål/aktivitet

Rådgivning knyttet til miljørelaterte spørsmål i utbyggingsfasen

2 Definisjoner

MTP

Miljø- og transportplan

NVE

Norges vassdrags- og energidirektorat

KLIF

Klima- og forurensningsdirektoratet

2 Organisatorisk plassering

Ressursen eies av avdeling Prosjektutvikling og konsesjon i Nettutvikling som fagansvarlig for miljø i Statnett. Avdelingen er ansvarlig for å levere ressursen til prosjektet etter forutgående avtale. Funksjonen er i prosjektet organisert i staben til prosjektleder for utbyggingsprosjektet og rapporterer til prosjektleder. Miljørådgiver er fast medlem av prosjektets lederteam.

3 Beskrivelse

Miljørådgiver skal:

- fungere som rådgiver for prosjekt- og byggeledelsen i utbyggingsfasen
- med bakgrunn i godkjent miljø og transportplan (MTP), utarbeide kontrollplan miljø og transport før oppstart på anlegget
- varsle K/HMS-avdeling om behov for revisjon av prosjektet
- påse at miljøkontroller følger opp i henhold til kontrollplanen
- sikre erfaringsoverføring til andre utbyggingsprosjekter

4 Ansvarsområde

Rammene for miljørådgivers ansvarsområde er Statnetts miljøpolicy, konsesjon for utbyggingsprosjektet og miljøfaglige betingelser knyttet til denne. Miljørådgiver skal

- bistå og støtte prosjektledelsen i deres ansvar for at Statnetts miljøpolicy og fastsatte miljøkrav blir overholdt i utbyggingsfasen.
- sørge for at miljø- og transportplan (MTP) og eventuelle endringer i denne blir implementert i prosjektet, og ivareta informasjon om endringer og avvik til NVE, KLIF og berørte kommuner, Fylkesmenn og fylkeskommuner.
- utarbeide kontrollplan miljø og transport, samt tilrettelegge rutiner slik at miljøhensyn ivaretas og kontroll og revisjoner utføres løpende gjennom oppfølgingsapparatet i linjen (byggeledelse/ miljøkontroller).

Funksjonsbeskrivelse: Miljørådgiver i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

Versjon: 2.1

Dokumentnummer: 1416663

Dato: 10.01.2011

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- før oppstart, gjennomgå MTP og andre sentrale kravdokumenter med prosjektets miljøkontroller og øvrig byggeledelse og overlevere kontrollplanen til miljøkontroller.
- ikke selv være utførende i den daglige kontrollen, men løpende veilede miljøkontroller og prosjektorganisasjonen i miljøspørsmål og praktisk miljøarbeid i utbyggingsfasen. Delta på byggemøter i nødvendig omfang etter avtale med prosjektleder og miljøkontroller.
- følge opp at rapporterte avvik, uønskede hendelser og forhold i prosjektet relatert til MTP ivaretas videre i Statnett systemet.
- ved behov tilrettelegge for, delta på og følge opp interne revisjoner og "større" kontroller/befaringer der miljørådgivers ansvarsområde er et vesentlig tema. Eksempler er befaringer/kontroller i regi av NVEs miljøtilsyn eller befaringer/kontroller sammen med berørte kommuner eller andre regionale myndigheter, og evt. ved overlevering/ferdigstillelse av delstrekninger/transformatorstasjoner el.l. fra entreprenør.

5 Leveranser

Miljørådgiver overtar godkjent MTP fra prosjektplanlegger og følger opp at evt. endringer i denne implementeres i prosjektet. Miljørådgiver utarbeider kontrollplan miljø og transport basert på godkjent MTP, samt påser at det etableres rutiner og prosedyrer i prosjektet for å sikre at det ytre miljøet ivaretas i prosjektorganisasjonen gjennom alle faser av prosjektet. Planene, samt tilhørende rutiner og prosedyrer, skal godkjennes av prosjektleder.

Miljørådgiver skal rapportere kostnader i forhold til budsjett utarbeidet i planleggingsfasen, samt gi innspill til månedlig projektrapportering.

Miljørådgiver skal sikre erfaringsoverføring ved avslutning av utbyggingsfasen ved å delta i en dokumentert gjennomgang av prosjektets gjennomføring i henhold til MTP og kontrollplan.

6 Grensesnitt

Miljørådgiver skal fungere i en stabsfunksjon til prosjektleder. Miljørådgiver vil derfor internt ha et grensesnitt mot prosjektleder med tilhørende lederteam.

Funksjonsbeskrivelse: Miljørådgiver i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

Versjon: 2.1

Dokumentnummer: 1416663

Dato: 10.01.2011

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Prosjektleder og den han/hun eventuelt delegerer miljøansvaret til i linjen (delprosjektleder/byggeleder/ miljøkontroller) ivaretar kontrollansvaret i prosjektet for at arbeidet gjennomføres iht.

- Gjeldende lover, forskrifter og konsesjonskrav
- Kvalitetsportalen
- Gjeldende miljø- og transportplan med tilhørende kontrollplan

Miljørådgiver har grensesnitt mot areal- og miljøplanlegger inntil MTP er godkjent, og skal på vegne av prosjektleder løpende ivareta kontakten mot NVEs miljøtilsyn, Fylkesmannens miljøvernavdeling og berørte kommuner videre i utbyggingsfasen.

Miljørådgiver har et grensesnitt mot miljøkontroller i utbyggingsfasen. Miljørådgiver skal sikre oppdatering av kontrollplan miljø og transport, og følge opp Miljøkontrollers arbeid med MTP, men skal ikke selv være utførende i den dagelige kontrollen på anlegget. Miljøkontroller overtar ansvaret for oppfølging av kontrollplan miljø og transport i utbyggingsfasen og miljørådgiver støtter miljøkontroller ved behov.

Det vil også være et grensesnitt mot HMS-seksjonen ved at miljørådgiver er støttespiller i gjennomføring av miljørevisjoner av prosjektet.

7 Versjonslogg

Gyldig fra	Revisjonskategori (Ny/Oppdatert/Ordvalg/Ingen)	Beskrivelse av viktige endringer
9.11.2011	Ny	Godkjent versjon funksjonsbeskrivelse
10.11.2011	Oppdatert	Ny mal for funksjonsbeskrivelse

Funksjonsbeskrivelse: Miljørådgiver i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

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Function description: Environmental consultant for the construction phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

Version: 2.1

Date: 10 January 2011

Document number: 1416663

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1 Purpose/activity

Provide advice on environmental issues during the construction phase

2 Definitions

MTP Environment and Transport Plan

NVE The Norwegian Water Resources and Energy Directorate

KLIF The Norwegian Climate and Pollution Agency

3 Place in the organisation

The resource is owned by the department for project development and licensing in the Projects Division and is Statnett's technical authority on the environment. The department is responsible for delivering the resource to the project in accordance with a prior agreement. In the project, the function is a part of the project development manager's staff and reports to the project manager. The environmental consultant is a permanent member of the project management team.

4 Description

The environmental consultant shall:

- function as an advisor for the project and construction management during the construction phase
- on the basis of the approved Environment and Transport Plan, prepare an inspection plan for the environment and transport before work commences at the site
- notify the Q/HSE department regarding the need for project audits
- ensure that environmental inspections are followed up in accordance with the inspection plan
- ensure transfer of experience to other development projects

5 Area of responsibility

The framework for the environmental consultant's area of responsibility is Statnett's environmental policy, licence for the development project and associated environmental terms and conditions. The environmental consultant shall:

- assist and support the project management with their responsibility to ensure compliance with Statnett's environmental policy and stipulated environmental requirements in the construction phase
- ensure that the Environment and Transport Plan (MTP) and any changes to this are implemented in the project and submit information about changes and deviations to the NVE, KLIF and affected municipalities, county governors and county councils.

- prepare an inspection plan for the environment and transport, and establish routines to ensure that environmental aspects are maintained and inspections and audits are conducted continuously throughout the follow-up process in the line (construction management /environment inspections).

Function description: Environmental consultant for the construction phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

Version: 2.1

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- review the Environment and Transport Plan and other important regulatory documentation with the project's environmental controller and other construction managers before start-up and hand over the inspection plan to the environmental controller.
- not execute the daily inspections himself, but provide continuous advice to the environmental controller and project organisation relating to environmental issues and practical environment work in the construction phase. Attend construction meetings when necessary and pursuant to an agreement with the project manager and environmental controller.
- ensure that any reported deviations, undesirable incidents and conditions in the project relating to the Environment and Transport Plan are carried forward to the Statnett system.
- when necessary, facilitate, attend and follow up internal audits and "major" inspections/controls where the environmental consultant's area of responsibility is concerned, such as inspections/controls under the direction of the NVE's environmental audit or inspections/control conducted together with other affected municipalities or other regional authorities, and, if necessary, take part in handover/commissioning of parts of sections/transformer stations, etc. from the contractor.

6 Deliveries

The environmental consultant takes over the approved Environment and Transport Plan from the project planner and follows up that any changes in the plan are implemented in the project. The environmental consultant prepares an inspection plan for the environment and transport based on the approved plan, ensures that routines and procedures are established to ensure that consideration for the external environment is maintained in the project organisation through all phases of the project. The plans and its associated routines and procedures must be approved by the project leader.

The environmental consultant must report costs according to the budget prepared in the planning phase, and provide input to the monthly project reporting.

The environmental consultant must ensure transfer of experience at conclusion of the construction phase by participating in a documented review of the project's implementation according to the Environment and Transport Plan and inspection plan.

7 Interfaces

The environmental consultant will be part of the project manager's staff function. The environmental consultant will therefore have an internal interface towards the project manager and his or her management team.

Function description: Environmental consultant for the construction phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

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The project manager and, if relevant, the person to whom he or she delegates environmental responsibility in the line (sub-project manager/construction supervisor/environmental controller) has inspection responsibility in the project for ensuring that the work is conducted in accordance with:

- Applicable laws, regulations and licence requirements
- The quality portal
- The current Environment and Transport Plan and the associated inspection plan

The environmental consultant's interface is to the area and environmental planner until the Environment and Transport Plan has been approved. On behalf of the project manager, he or she must keep in continuous contact with the NVE's environmental inspection department, the environmental department of the County Governor and affected municipalities in the forthcoming construction phase.

The environmental consultant has an interface towards the environmental controller in the construction phase. The environmental consultant must ensure that the inspection plan for the environment and transport is updated, and follow up the environmental controller's work with the Environment and Transport Plan. However, he or she shall not take part in the daily inspections on the site. The environmental controller will take over responsibility for following up the inspection plan for the environment and transport in the construction phase and the environmental consultant shall support the environmental controller whenever necessary.

There will also be an interface towards the HSE section as the environmental consultant supports the implementation of environmental audits in the project.

7 Version log

Valid from	Revision category (New/updated/wording/none)	Description of important changes
9 November 2011	New	Approved version function description
10 November 2011	Updated	New function description template

Statnett

Function description: Environmental consultant for the construction
phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

Version: 2.1

Date: 10 January 2011

Document number: 1416663

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12. Appendix 2

Funksjonsbeskrivelse: Miljøkontroller i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

Versjon: 2.1

Dokumentnummer: 1471152

Dato: 10.01.2011

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1 Formål/aktivitet

Oppfølging og kontroll av miljørelaterte aktiviteter i utbyggingsfasen.

2 Definisjoner

MTP

Miljø- og transportplan

NVE

Norges vassdrags- og

energidirektorat

KLIF

Klima- og forurensningsdirektoratet

3 Organisatorisk plassering

Ressursen eies av Nettutbygging som er ansvarlig for å levere ressursen til prosjektet etter forutgående avtale. Funksjonen er i prosjektet organisert i linjen i byggeledelsen og rapporterer til byggeleder. Miljøkontroller er fast medlem av prosjektets byggeledelse.

Miljørådgiver vil på vegne av Nettutvikling/Prosjektutvikling og konsesjon/fagansvarlig for miljø i Statnett, være ansvarlig for faglig veiledning av miljøkontroller, jfr. funksjonsbeskrivelsen for miljørådgiver i utbyggingsfasen.

4 Beskrivelse

Miljøkontroller skal:

- ivareta den stedlige oppfølgingen av miljø- og transportplan (MTP) i utbyggingsfasen
- følge opp kontrollplan miljø og transport i utbyggingsfasen
- følge opp entreprenør, og dens håndtering av evt. underleverandører, ved hjelp av kontrollplan
- informere byggeleder/miljørådgiver om avvik, uønskede hendelser og forhold relatert til MTP

5 Ansvarsområde

Rammene for miljøkontrollerens ansvarsområde er Statnetts miljøpolicy, konsesjon og miljøfaglige betingelser knyttet til denne, godkjent miljø- og transportplan og avfallsplaner.

Miljøkontroller skal

- bistå prosjekt- og byggeledelsen i deres ansvar for at Statnetts miljøpolicy og fastsatte miljøkrav blir overholdt på anlegget

Funksjonsbeskrivelse: Miljøkontroller i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

Versjon: 2.1

Dato: 10.01.2011

Dokumentnummer: 1471152

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- overta ansvar for kontrollplan miljø og transport fra miljørådgiver ved oppstart på anlegget, delta på gjennomgang av MTP og andre kravdokumenter sammen med øvrig byggeledelse
- sammen med miljørådgiver, gjennomgå MTP med entreprenørene ved oppstart på anlegget
- tilrettelegge slik at MTP og kontrollplan blir overholdt i prosjektet
- påse at entreprenøren
 - tildeler ansvar i sin organisasjon for oppfølging av forhold knyttet til miljø og transport i utførelsesfasen
 - gjennomfører risikoanalyser før oppstart
 - etablerer beredskapsplan som oversendes prosjektleder før oppstart
- sørge for løpende kontroll i samarbeid med resten av byggeledelsen, delta på byggemøter og vernerunder
- gi veiledning til byggeplassorganisasjonen i spørsmål knyttet til kontrollplanen og ved behov avklare spørsmål knyttet til MTP med miljørådgiver
- sørge for informasjon om endringer/avvik til miljørådgiver, som igjen skal varsle NVE, KLIF og berørte kommuner, fylkesmenn og fylkeskommuner.
- i samarbeid med miljørådgiver, tilrettelegge for interne miljørevisjoner og for eksterne befaringer og kontroller som revisjoner og tilsyn, samt bistå i senere oppfølging av disse

6 Leveranser

Miljøkontroller skal

- følge opp kontrollplan for aktiviteter knyttet til MTP
 - påse at det etableres rutiner i prosjektet for å sikre at ytre miljø ivaretas i prosjektorganisasjonen gjennom hele prosjektet
 - gi innspill til månedlig projektrapportering
- rapportere avvik og uønskede hendelser knyttet til MTP og kontrollplan, samt miljø generelt, til byggeleder/ miljørådgiver

7 Grensesnitt

Miljøkontroller er en del av byggeplassledelsen og rapporterer til byggeleder i spørsmål knyttet til prosjektets MTP og tilhørende kontrollplan.

Miljøkontroller vil ha grensesnitt til prosjektleder med tilhørende lederteam.

Prosjektleder og den han eventuelt delegerer dette ansvaret til i linjen (delprosjektleder/byggeleder) ivaretar kontrollansvaret i prosjektet for at arbeidet gjennomføres iht.

- Gjeldende lover, forskrifter og konsesjonskrav
- Kvalitetsportalen

Funksjonsbeskrivelse: Miljøkontroller i utbyggingsfasen

Godkjent av: Direktør Prosjektutvikling og konsesjon

Dokumenteier: Areal- og miljøplanlegger

Versjon: 2.1

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- Gjeldende HMS-plan, miljø- og transportplan med tilhørende kontrollplan

Miljøkontroller vil ha et grensesnitt mot miljørådgiver ift MTP og myndighetshåndtering, samt grunneierkontakt i forhold til konkrete forhold på anlegget. Miljørådgiver veileder miljøkontroller ved behov.

8 Versjonslogg

Gyldig fra	Revisjonskategori (Ny/Oppdatert/Ordvalg/Ingen)	Beskrivelse av viktige endringer
09.11.2010	Ny	Nyetablering av funksjon
10.01.2011	Oppdatert	I hht ny mal for funksjonsbeskrivelse.

<tekst i uredigerbart bilde:>

Function description: Environmental controller for the construction phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

Version: 2.1

Date: 10 January 2011

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1 Purpose/activity

Follow-up and control of environment-related activities in the construction phase

2 Definitions

MTP	Environment and Transport Plan
NVE	The Norwegian Water Resources and Energy Directorate
KLIF	The Norwegian Climate and Pollution Agency

3 Place in the organisation

The resource is owned by the Projects Division. The division is responsible for delivering the resource to the project in accordance with a prior agreement. In the project, the function is organised in the construction management line and reports to the construction manager.

The environmental controller is a permanent member of the project management team.

The environmental consultant will be responsible for providing professional guidance to the environmental controller on behalf of the Projects Division and licensing/lead professional on the environment in Statnett, cf. function description for the environmental consultant for the development phase.

4 Description

The environmental controller shall:

- conduct on-site follow-up of the Environment and Transport Plan (MTP) during the construction phase
- follow up the inspection plan for the environment and transport during the construction phase
- follow up the contractor and his handling of any sub-contractors by use of the inspection plan
- inform the construction supervisor/environmental consultant about any deviations, undesirable incidents and other matters relating to the Environment and Transport Plan

5 Area of responsibility

The framework for the environmental controller's area of responsibility is Statnett's environmental policy, licence and environmental terms and conditions relating to this, the approved Environment and Transport Plan and waste plans.

The environmental consultant shall:

- help the project and construction manager ensure that Statnett complies with the company's environmental policy and established environmental requirements at the site.

Function description: Environmental controller for the construction phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

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- take over responsibility for the environment and transport inspection plan from the environmental consultant when work is ready to start at the site, attend a review of the MTP and other regulatory documents together with the other members of the construction management
- together with the environmental consultant, review the MTP together with the contractors at start-up at the site
- facilitate compliance with the MTP and the inspection plan in the project
- ensure that the contractor
 - assigns responsibility in his organisation for follow-up of environment and transport conditions in the execution phase
 - conducts risk analyses before start-up
 - establishes an emergency preparedness plan which is submitted to the project manager before start-up
- ensure continuous control in cooperation with the other members of the construction management team, attend construction meetings and HWES inspections
- provide guidance for the construction site organisation on matters pertaining to the inspection plan and, if necessary, clarify questions relating to the MTP with the environmental consultant
- provide information about changes/deviations to the environmental consultant who will notify the NVE, KLIF and other affected municipalities, County Governors and county councils.
- in cooperation with the environmental consultant, facilitate internal environment audits and external inspections and controls such as inspections and audits, and assist with subsequent follow-up of these

6 Deliveries

The environmental controller shall:

- follow up the inspection plan for activities relating to MTP
- ensure that routines are established in the project to ensure that consideration for the external environment is maintained in the project organisation through all phases of the project
- provide input to the monthly project reporting

report deviations and undesirable incidents relating to the MTP and inspection plan and the environment in general to the construction supervisor/environmental consultant.

7 Interfaces

The environmental controller is part of the construction site management and reports any issues relating to the project's MTP and associated inspection plan to the construction supervisor. The environmental controller will have interface towards the project manager and his or her management team. The project manager and, if relevant, the person to whom he or she delegates environmental responsibility in the line (sub-project manager/construction supervisor) has inspection responsibility in the project for ensuring that the work is conducted in accordance with:

- Applicable laws, regulations and licence requirements
- The quality portal

Function description: Environmental controller for the construction phase

Approved by: Project development and licensing manager

Document owner: Area and environment planner

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- The current Environment and Transport Plan with associated inspection plan

The environmental controller will have interface towards the environmental consultant with regard to the MTP and contact with the authorities. He or she will also be responsible for contact with property owners with regard to specific issues or conditions at the site. The environmental consultant will assist the environmental controller when necessary.

8 Version log

Valid from	Revision category (New/updated/wording/none)	Description of important changes
9 November 2011	New	New function established
10 November 2011	Updated	In acc. with the new function description template

13. Appendix 3:

Forest clearance and forest care plan for the Ørskog – Fardal section.

Governing requirements and objectives

- Forest clearance must be conducted in accordance with the stipulated licence conditions for the site, applicable laws and regulations, protection provisions and Statnett's safety routine objectives.
- Forest clearance must be conducted in such a manner that construction of the line can take place with as few disruptions as possible and with easy access to the power line routes.
- It must be possible to install the line over the remaining forest in order to minimise the need for clearing forest
 - Forest clearance must be conducted in such a manner that the regulations for electrical safety are complied with and flashover to the forest does not occur.
- The Norwegian Technical Standard; *Skogrydding av kraftledningstrase (forest clearance of power line route)* prepared by Statnett must be complied with unless stricter requirements have been stipulated in the licence terms or in the Environment and Transport Plan.

General requirements

Forest clearance must be conducted in the most careful manner possible. Slow and low growing vegetation must be retained where possible. This particularly applies to zones bordering marshes, streams, rivers, lakes, paths, roads, cultivated landscape and buildings, provided that line security is maintained.

In several places, the power line routes run through important grazing areas for big game. Grazing vegetation for big game must be maintained (such as the so-called ROS species (rowan, aspen and goat willow). Alternatively, the tops can be taken off these trees in the clearance zone, with the exception of pylon points. Slow and low growing vegetation (such as juniper, hazel and willows) should be left. Dead trees that are still standing and trees used for nests and that are below the safety height should not be taken down, or alternatively be cut at the safety height (high stumping), provided that it is safe to do so according to the HSE requirements.

Felling of timber/clearance and transport of timber must be planned and conducted in such a way that permanent scars in the landscape and temporary damage to the landscape are minimised. If damage does occur this must be repaired as soon as possible, and fertilised and reseeded if necessary in order to quickly establish new vegetation. Special care must be exercised in marsh areas/poor load-bearing ground. See Section 22 of the Living Forest Standard, Terrain Transport, for more information.

During the planning and execution of the forest clearance and transport, both the Builder and the contractor must help provide solutions which will reduce the negative impact on important game, focussing in particular on game listed on the Norwegian Red List.

To the extent possible, the contractor must limit construction traffic in known nest areas during the nesting season for species listed on the Norwegian Red List.

Existing hiking paths, ski tracks and open ditches must be cleared of logging waste immediately after the tree felling/clearance work is completed. Transport in existing hiking paths and ski track routes must be avoided when possible. Should this nevertheless be required such work must be agreed upon and approved in advance. Any damage must be repaired and the area tidied up as soon as possible after use.

The use of existing roads and parking lots must be of as little inconvenience to general traffic as possible. During transport on forest roads/tractor roads, all gates must be shut after vehicles have passed.

Areas with restrictions and special requirements

Table 1. Areas with valuable deciduous forests, etc. for which restrictions have been imposed and a separate description of how these areas should be managed has been prepared.

Loc.	Area	Value	Description of value	Considerations	Restrictions	Management and measures <i>final management measures will be established after inspections in the spring</i>	Plan	Pylon no.	KP
E121	Åskåra East	A	Old deciduous forest	Old valuable deciduous forest, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	Unproductive forest, all lumber to be left. Minimum clearance, <i>high stumping possible? Check line profile – sloping terrain</i> . Pylon points must be cleared acc. to the work description (3 points).	MP	269 - 271	121
E123	Åskåra West	B	Old deciduous forest	Old valuable deciduous forest, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	Unproductive forest, all timber to be left. Minimum clearance, high stumping may be relevant – close to road. Check line profile – 0 zone?	MP	275	123
E143	Risevatnet - Geitvikneset	C	Valuable deciduous forest	No restrictions relating to the route. The line runs over. TP follows the existing road	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	0 zone. Line runs approx. ?? m overhead. No need for initial or maintenance clearing.	BP	133B	143

Loc.	Area	Value	Description of value	Considerations	Restrictions	Management and measures final management measures will be established after inspections in the spring	Plan	Pylon no.	KP
E159	Haukå	B	Primeval forest/old forest	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	Unproductive forest, all timber to be left. Minimum clearance, high stumping possible? Check line profile – sloping terrain. Pylon points must be cleared acc. to the work description (4 points). (NB! New haul path planned for pylons 175 and 176)	MP	175 - 178	159
E168	Hatleset	C	Big old trees	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	Not included in GIS. Productive forest – must be checked in more detail.	MP	195	168
E196	Rotenes	A	Valuable deciduous forest	No restrictions relating to the power line route. The line runs over the area	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	0 zone. Line runs approx. ?? m overhead. No need for initial or maintenance clearing.	MP	272	196
E36	Vågsfjellet	A	Primeval forest/old forest-Goshawk	Large old trees, high value. If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	Western alt. Moskog – Høyanger. Not assessed	MP	36	217

Loc.	Area	Value	Description of value	Considerations	Restrictions	Management and measures final management measures will be established after inspections in the spring	Plan	Pylon no.	KP
E260-3	Gjerde,	B	Old valuable deciduous forest	Old valuable deciduous forest, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	0 zone. Line runs ?? m overhead. No need for initial or maintenance clearing.	MP	134D	260
E260-2	Tjugum	A	Valuable deciduous forest	Valuable deciduous forest, high value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	0 zone. Line runs ?? m overhead. No need for initial or maintenance clearing.	MP	134D	260
E260-1	Grøneng	B	Large old trees	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	0 zone. Line runs ?? m overhead. No need for initial or maintenance clearing.	MP	134D	260
E264	Tenningåsen	B	Primeval forest/old forest	Large old trees, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	0 zone. Line runs ?? m overhead. No need for initial or maintenance clearing.	MP	140A	264

Loc.	Area	Value	Description of value	Considerations	Restrictions	Management and measures final management measures will be established after inspections in the spring	Plan	Pylon no.	KP
E279	Njøsadalen	B	Old valuable deciduous forest	Old valuable deciduous forest, medium value.	If line clearance is necessary, felled trees should be left. Dead trees should be cut at the safety height and not cut down	Unproductive forest, all timber to be left. Minimum clearance except around pylon points, high stumping possible? Check line profile – sloping terrain. Pylon points must be cleared	MP	177	279
	Skjervatjørna, Førde		Marsh area, drinking water source	Marsh/poor load bearing ground. Drinking water source	Transport in the terrain should be minimised, no transport through the terrain	Roads in from both sides minimises terrain transport. Timber transport out of the area may be possible in winter.			
	Eldal, Gaular. Eastern alternative			Elm forest	Agreement with property owners	Polling of elm			

Before clearance commences, the Builder will mark out special areas where restrictions apply, as well as zones where clauses apply and where sideways displacements/extensions of the clearance path are necessary.

The restriction described as Dead trees should be cut at the safety height and not cut down should only be complied with if this is in accordance with the HSE requirements. Otherwise, the trees should be cut down.

To the extent possible, the contractor must limit construction traffic in known nest areas during the nesting season for species listed on the Norwegian Red List. **See Chapter Feil! Fant ikke referansekilden..**

The Builder has prepared a transport plan showing existing roads, new roads that will be constructed and transport zones which will primarily be used during felling of trees and transportation of timber. If roads, haul paths or routes are discovered which are better for the forest management or generally advantageous to use, this may be done on the condition that this has been agreed with the property owner and Statnett. The transport plan also shows the standard (road classification) of existing and new roads. New approved roads and haul paths that are to be constructed will be marked by the Builder.

Extra care must be taken in marsh areas/areas with poor load-bearing ground. This may involve building a cordwood road or leaving piles of wood in the forest for later transportation during snow/frost, which improves load bearing and thus reduces damage to the terrain. Marshy areas and areas with poor load-bearing ground where extra care must be taken are described in Table 1. However, consideration should be shown in all areas where practically possible, also smaller areas. See Section 22 of the Living Forest Standard, Terrain Transport, for more information.

Description of initial clearance

Maps have been prepared showing the sections which will be cleared and areas where special conditions apply/care must be taken.

Clearance overview

Colour coding refers to digital map (GIS)

Colour code	Description	May be cleared		Must not be cleared
		General	Special/ deviations	
Green	Productive forest	Forested area with commercial dimensions (Timber grades III - V) which are to be cleared, transported out of the power line route and piled in the indicated unloading area.		Grazing vegetation for big game (ROS species) and slow-growing or low-growing vegetation, provided that the vegetation is under the safety height and does not obstruct access to the site or hinders installation of the line.
Pink	Non-productive forest	Forested area with commercial and non-commercial dimensions (Timber grades I - V) which are to be cleared but		Grazing vegetation for big game (ROS species) and slow-growing or low-growing vegetation, provided that the vegetation is under the safety height and

		not transported out because of landscape, financial or other reasons		does not obstruct access to the site or hinders installation of the line.
No colour	0 zone	Individual trees and groves may have to be cleared to comply with the electricity safety regulations, to prevent flashover to the forest. A path may also have to be cleared (width of 2 -3 m) for installation of lines across a fjord.	Pylon points must be cleared.	Areas where the forest can grow freely, either with high enough line height for initial clearing to be unnecessary or areas with mountain forest, impediment or other slow/low growing forest, as well as vegetation where clearance is unnecessary.
Yellow	Important areas, special considerations/conditions		Pylon points must be cleared.	Areas where special conditions apply acc. to the licence or that have a special environmental status (such as valuable deciduous forest and species on the Norwegian Red List) or where special considerations apply. A separate management description has been prepared for each area.

For areas defined as *non-commercial forest* (pink) where there is coniferous forest which is not transported out, an application for a dispensation from the regulations relating to forest hygiene has been submitted. To prevent infestation of bark beetles and pine-shoot beetles, timber in this area must be treated as described in Item 6 of the work description or according to any applicable municipal requirements. To reduce the volume of timber left in the area, the use of helicopter is also considered for transportation out of areas that are difficult to access.

Work description.

- 1) The clearance must take place on the route for which the clause applies.
- 2) In areas of *Productive forest and non-productive forest* (indicated as green or pink in the set of basic map data) all vegetation above 50 cm must be cleared except for the following:
 - a. Slow-growing and low-growing vegetation (such as juniper, hazel and willows).
 - b. Vegetation up to approx. 2 metres (such as pine, rowan, aspen and goat willow) grazed by deer. In order to promote production of grazing land, it is an advantage to cut such vegetation down to 1.5 metres.
- 3) For sections which Statnett has registered as restricted areas, special terms and conditions in the licence or the forest care plan apply. These are shown as yellow areas in the set of basic map data and in a separate description in the table or plan.
- 4) Trees that are to be cut down must be cut low enough for the stump not to cause damage to machinery, human beings or animals.
- 5) Treatment of wood which is to be transported out: the wood must be trimmed, cut and sorted according to the terms of delivery, marking for cross-cutting agreement and logging agreement.
- 6) Transport of wood: wood which Statnett chooses to remove must be transported out of the route on the roads or haul path specified in the transport plan to the unloading area specified by Statnett.
- 7) Treatment of wood in areas where the wood will not be transported out (shown in pink): To prevent infestation of bark beetles and pine-shoot beetles, sawn coniferous

timber which is not transported out of the forest must be rendered unsuitable as breeding material by barking the wood in strips² or cutting it into logs.

- 8) Roads, paths, ski tracks, timber haul paths, streams, ditches and fences must be kept clear of branches and felled trees. Damage to any of the above-mentioned elements must be repaired without undue delay.
- 9) Clearance of pylon points:

Along the route's longitudinal direction: All vegetation closer than 15 m from the outer edges of the pylon must be cleared and removed from the pylon point. Along the width of the route: All vegetation along the width of the route must be cleared and removed from the pylon points. See the figure below.

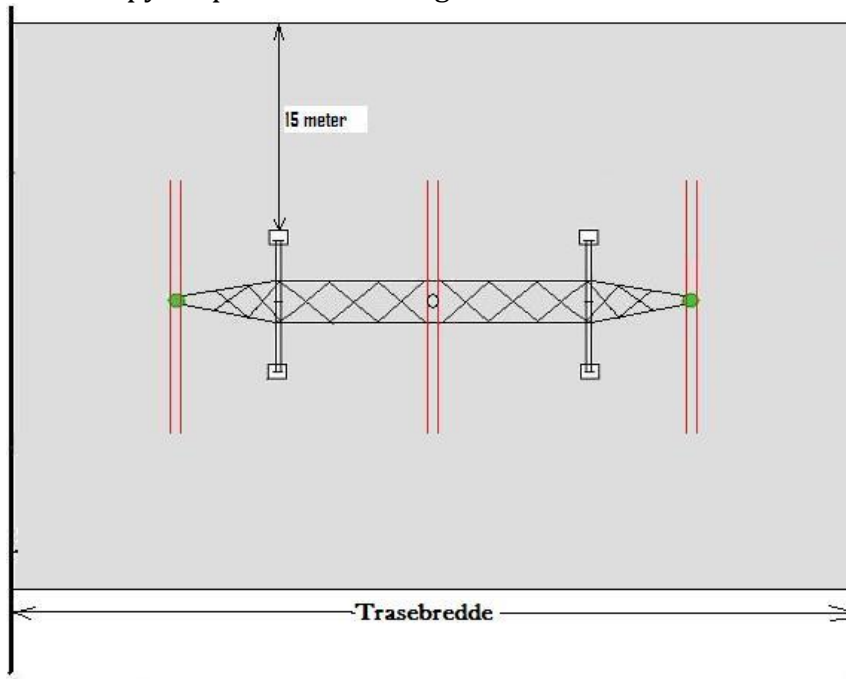


Figure 1: Pylon point clearance area, initial clearance.

For more details about initial clearance or other aspects not described herein, please see the Norwegian technical standard: Teknisk Standard; Skogrydding av kraftledningstrase Kap 6.5 Krav til utførelse av førstegangstrydding (*Technical Standard: Forest clearance along power line routes, Chapter 6.5. Requirements relating to initial clearance.*)

Extent of initial clearance (not calculated)

Municipality	Area, daa	Cubic mass			total cbm
		Spruce	Pine	Deciduous	
Ørskog	175	50	950	0	1000
Sykkylven	875	1800	700	900	3400
Ørsta	700	1200	350	300	1850
Volda	180	850	100	250	1200
Eid	500	200	400	200	800
Bremanger	600	1000	500	700	2200
Flora	800	1000	1800	100	2900

² Can be conducted using a chain saw running the saw along 3 sides of the trunk.

Naustdal	110	450	250	50	750
Førde	460	900	1000	200	2100
Jølster	50	50	200	0	250
Gaular	300	450	700	150	1300
Høyanger	20	0	0	50	50
Balestrand	150	50	0	100	150
Leikanger	400	3500	150	300	3950
Sogndal	80	300	50	150	500
Total	5400	11800	7150	3450	22400

Table 2. Shows the forested area and volumes that must be cleared according to the type of wood and municipality.

Follow-up/inspection, clearing and supplementary work

Statnett's project manager responsible for the forest must ensure that the forest clearance has been conducted in a satisfactory manner in compliance with the forest clearance requirements and objectives. The Builder must confirm that any construction damage that has been caused by the clearance and transportation of timber has been properly repaired. Such approval must be obtained before the contractor's final settlement. With regard to drive tracks in transport zones, haul tracks and tractor roads, Section 22 of the Living Forest Standard, Terrain Transport applies as a guideline to when the drive track should be repaired.

Maintenance clearance

The development project will submit documentation to the route management according to the specifications in the Technical Standard. This documentation will contain all requirements given in the licence, agreements, court records, the Environment and Transport Plan incl. Clearance and Forest Care plan for forest clearance. Together with the requirements in the Technical Standard this will form the basis of the maintenance clearance. The maintenance clearance will follow an 8 – 12-year cycle for the whole licensed power line route.

Cycle	Activity
Year 1	Main clearance and, if necessary, topping using a helicopter with a top saw
Year 2	Inspection (safety felling if necessary)
Year 4	Inspection of the forest
Year 5	Intermediate clearance (safety felling if necessary)
Year 8	New main clearance

Table 3: Example of 8-year clearance cycle

For more details about initial clearance or other aspects not described here, please see the Norwegian technical standard: Skogrydding av kraftledningstrase Kap 5 Vedlikeholdstrydding (*Forest clearance of power line route, Chapter 5 Maintenance Clearance*).

14. Appendix 4

Road classification definitions

There are 8 road classifications for rural roads for cars and tractors.

Road classification 1

Road classification 1 is a motor road for year-round use constructed with the public authorities for subsequent inclusion in the public network of roads. Requirements relating to geometric design, etc. must comply with the specifications stipulated for the agreed road classification by the Norwegian Public Roads Administration.

Road classification 2 *Main road/rural road*

Road classification 2 is a motor road for year-round use. The road has a high standard and traffic with loads is possible all year round. This road classification is used for rural roads with different types of traffic and for forest motor roads, farm roads and mountain farm roads heavily trafficked by heavy vehicles.

Road classification 3 *Farm roads for year-round use*

Road classification 3 is for forest motor roads with moderate to heavy traffic, as well as certain farm and mountain farm roads. Traffic with loads is possible all year, except during spring thaw periods and periods with particularly heavy precipitation.

Road classification 4 *Summer motor roads (for timber trucks with trailer)*

Road classification 4 is for motor roads constructed for transportation of timber during the *bare ground period*, simple mountain farm roads, etc. Roads of this classification should only be constructed in areas where motor car transport is deemed necessary on the basis of the quantities of timber and transportation distances, but where the condition of the terrain and available resources do not provide a financial basis for construction of a road for all-year use.

Road classification 5 *Summer motor road (for timber trucks without trailer)*

Road classification 5 is for motor roads intended for transportation of timber using trucks without trailers and *only during the bare ground period*. Roads of this classification must only be constructed where it is not technically possible or economically viable to construct a road of a higher standard.

Road classification 6 *Winter motor road*

Road classification 6 is for motor roads intended for transportation of timber on winter roads, where the carrying capacity of the road is based on frost and snow. This road classification is suitable in areas with stable winter conditions and large transportation distances, and in areas where timber operations only take place in certain years with several years in between each operation.

Road classification 7 *Heavy tractor road*

Road classification 7 is used for roads used for transportation of agricultural products and timber by loading tractors and agricultural tractors with a trailer. These roads can generally be used for transportation all year round, except in the spring thaw period. Weak subsurface sections must be reinforced by a base course.

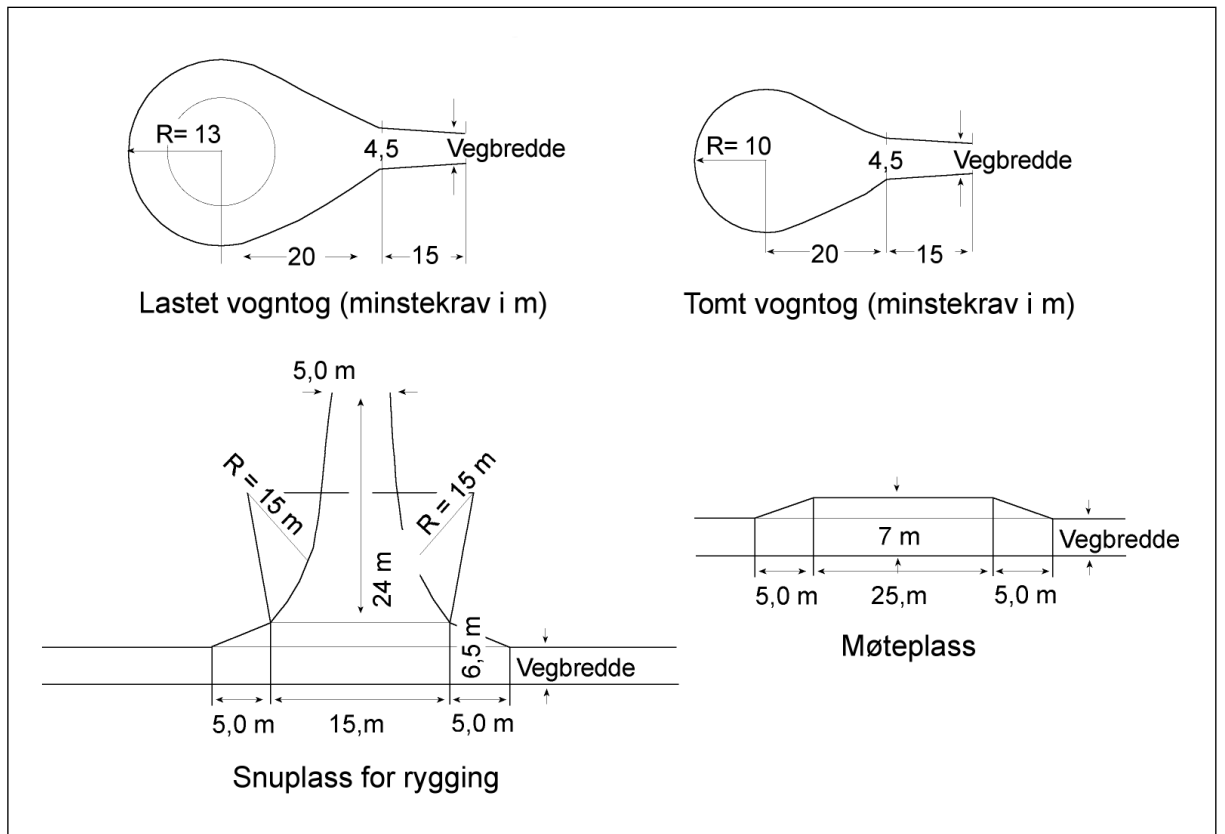
Road classification 8 *Light tractor road*

Road classification 8 is used for roads intended for hauling of timber and transportation of agricultural products and tools using an agricultural tractor or other lightweight transportation equipment. The classification includes simple tractor roads included in the permanent agricultural road network and causes permanent disruptions to the landscape. The standard must to a great extent be adapted to the purpose and transportation equipment for which the road has been constructed.

TECHNICAL REQUIREMENTS FOR AGRICULTURAL ROADS

Design axle load for motor roads: 13 tonnes on bridges and 10 tonnes on roads.

Tecn.req.	Width of road, m	Ascent %		Hor. curvature, r-min	Comment
Road classification		Load direction	Empty running		
CI 1					Constructed acc. to public requirements
CI 2	4,5	8	10	20	Req. relating to width extension and ascent red. for curves $r < 60$ m.
CI 3	4	10	12	10	Req. relating to width extension and ascent red. for curves $r < 60$ m.
CI 4	4	12 (14)	18	10	Req. relating to width extension and ascent red. for curves $r < 60$ m.
CI 5	4	18	20 (22)	10	Req. relating to width extension and ascent red. for curves $r < 60$ m.
CI 6	4,5	8 (10)	12	20	Req. relating to width extension and ascent red. for curves $r < 60$ m.
CI 7	3,5	15/20*	20/30*	(10)	* agricultural tractors/load tractors. Req. relating to width extension and ascent red. for curves $r < 40$ m.
CI 8	2,5	15	30		



Turnarounds and passing lanes, road classifications 2, 3, 4 and 6 .

<tekst i bilde: loaded heavy goods vehicle (minimum requirements in m), empty heavy goods vehicle (minimum requirements in m), turnaround for reversing, width of road, passing lane, width of road>

For more details about technical and geometric requirements and a construction description, please see the Norwegian highway standards and specifications; <http://www.skogkurs.no/vegnormaler/index.html>

Restrictions in the Environment and Transport Plan.

Transport zones.

Permitted use of diggers in connection with foundation work and forestry machinery used for felling of timber along the power line route.

Haul paths

Def: Drive tracks for diggers/forest machinery. Driving with diggers and forest machinery is permitted.