Documentation for the scoping consultation prior to the preparation of an Environmental Impact Assessment (EIA) for the Detailed Development Plan

Detailed Development Plan for Skällåkra 6:4 et al., new nuclear power on the Värö Peninsula, Varberg Municipality

2025-10-22

Assignment Information

Case name	EIA for the detailed development plan for Skällåkra 6:4 et al., New Nuclear Power on the Värö Peninsula
Assignment number	10360194
Author	Jessica Andersson, Projektbyggaren Teknik Syd AB (Underkonsult)
Date	2025-10-15
Reviewed by	Linda Rosqvist and Anders Strindvall, WSP Sweden AB
Approved by	Linda Rosqvist, WSP Sverige AB

Consultant

WSP

Org nr: 556057-4880

wsp.com

Projektbyggaren Teknik Syd AB

Org nr: 556057-4880

projektbyggaren.se

Contact persons

Lena Alström and Elin Friberg, Municipality of Varberg

Cover image: Linda Rosqvist and Anders Strindvall, WSP Sweden AB

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1 Intoduction

Varberg Municipality is currently preparing a detailed development plan for Skällåkra 6:4 et al., concerning new nuclear power facilities on the Värö Peninsula. As the detailed development plan is expected to result in significant environmental impact, a strategic environmental assessment must be conducted, and an environmental impact assessment (EIA) prepared.

In accordance with Chapter 6, Section 10 of the Swedish Environmental Code (Miljöbalken), a scoping consultation regarding the scope and level of detail of the environmental impact assessment must be carried out. The consultation shall be held with municipalities, county administrative boards, and other authorities that, due to their specific environmental responsibilities, may be affected by the plan. This memorandum serves as the basis for such consultation.

1.1 Background to the Detailed Development Plan

The Swedish Parliament has adopted a national target for electricity production to be entirely fossil-free by the year 2040. To meet the increasing demand for electricity, all available fossil-free energy sources must be expanded, including nuclear power. Nuclear energy can generate large amounts of electricity using small quantities of fuel and limited land area and will be a key component of the fossil-free energy system that will meet Sweden's future electricity needs. To achieve the national target and increase electricity production, Vattenfall aims to enable the establishment of new nuclear power in Sweden.

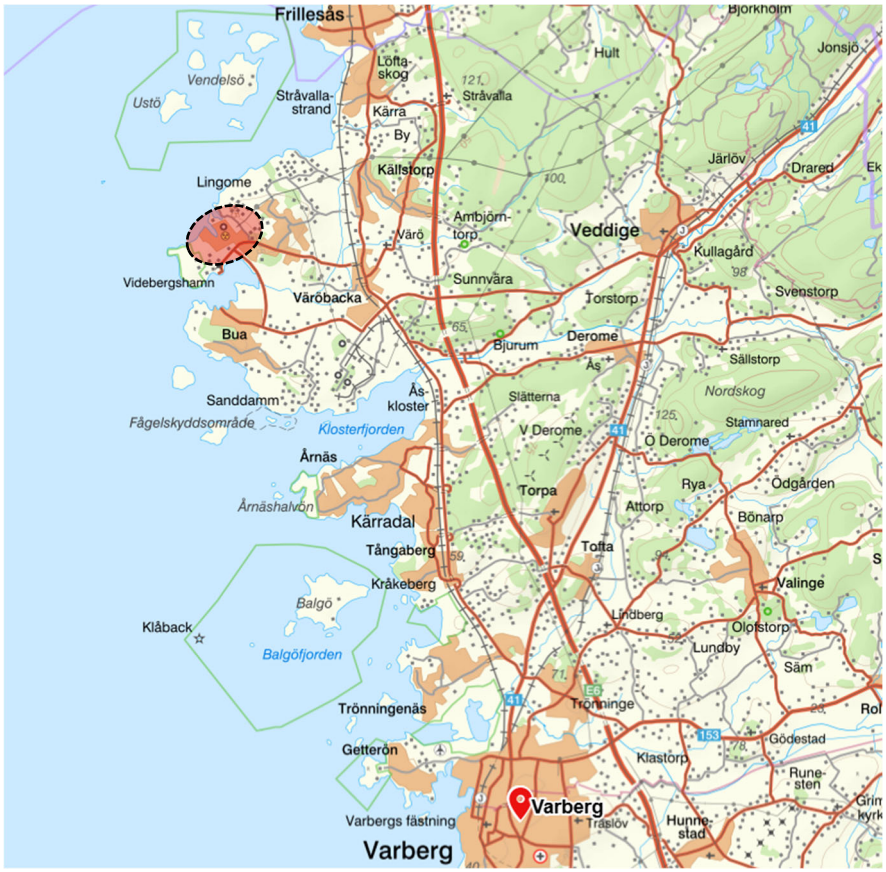

Figure 1. Location of the detailed development plan area on the Värö Peninsula, just north of Varberg (red circle). Map source: Lantmäteriet.

Parts of the area in question on the Värö Peninsula are currently governed by an existing detailed development plan: *"Proposal for amendment and extension of the city plan for Ringhals (VÄ56)"* (adopted by the Building Committee of Varberg Municipality in 1986).

As Vattenfall intends to expand the planned operational area to accommodate new nuclear power facilities, a new detailed development plan is required. Vattenfall has therefore submitted a planning application to initiate the development of a new plan for the area. Through a decision dated 2023-12-14 (Ref. SBK 2023/1450) by the Building Committee of Varberg Municipality, Vattenfall has received a positive planning notification.

1.2 Purpose of the Detailed Development Plan

The purpose of the new detailed development plan is to assess the suitability of developing new nuclear power facilities adjacent to the Ringhals nuclear power plant, along with the supporting infrastructure required for the area, such as workshops, offices, parking, staff accomodation, and substations. The plan aims to enable the land use designation *"Technical facility for energy production – nuclear power"*, where the aforementioned elements constitute complementary functions.

1.3 Significant Environmental Impact

According to Chapter 6, Sections 5–7 of the Environmental Code, the municipality is required to conduct a screening of environmental effects when a plan is prepared or amended, in order to determine whether the implementation of the plan is likely to result in significant environmental impact (SEI). Provisions regarding which plans are subject to strategic environmental assessment and screening are found in Chapter 6, Sections 3–8 of the Environmental Code. Sections 2–5 of the Environmental Assessment Ordinance contain provisions on which plans are presumed to result in significant environmental effects and the basis for assessing such effects.

The Municipality of Varberg conducted a screening for significant environmental impact on 2 October 2025 (Ref. SBK 2023–1450).The detailed development plan is considered likely to entail a significant environmental impact, as it sets out the prerequisites for a permit-requiring activity that is deemed to have significant environmental impact under Chapter 6, Section 2 of the Environmental Assessment Ordinance (2017:966).This means that a strategic environmental assessment (SEA) shall be conducted, and an environmental impact assessment (EIA) report shall be prepared in accordance with the content requirements of the Environmental Code.

It is important to note that, in connection with the permitting process under the Environmental Code for the construction and operation of a new nuclear power plant on the Värö Peninsula, a specific environmental assessment will be conducted. This should not be confused with the strategic environmental assessment required for the detailed development plan. The difference lies in the fact that strategic environmental assessments apply to plans and programmes, while specific environmental assessments concern concrete activities and measures. The strategic assessment is broader and conducted earlier in the process, whereas the specific assessment is more detailed and focused on a particular activity. See Table 1.

Table 1. Difference Between Strategic Environmental Assessment and Project-Specific Environmental Assessment

Function	Strategic Environmental Assessment	Project-specific Environmental Impact Assessment
Scope	Plans and programmes, for example detail development plans	Specific projects and activities

Purpose	To assess the environmental impacts of a specific proposed project	To assess the environmental impacts of a specific proposed activity
Timing	At an early stage in the planning process, and in parallel with the preparation of the detail development plan	At a later stage, once the detail development plan has become legally binding, or in parallel with the strategic assessment
Focus	Broad and forward-looking	More detailed and concrete, for example concerning materials and emissions related to the specific project
Relationship between the two	Provides the foundation and context for the specific assessment	Builds on the strategic assessment to enable more detailed analyses and assessment of potential effects and impacts

1.4 Transboundary Environmental Effects

The Convention on Environmental Impact Assessment in a Transboundary Context, commonly referred to as the Espoo Convention, is an environmental protection treaty ratified by Sweden. The convention is supplemented by the Protocol on Strategic Environmental Assessment, which Sweden has also signed. The purpose of the convention is to ensure that its parties assess the environmental impact of certain activities at an early stage of planning, and that they notify and consult with one another regarding activities listed in the convention that are likely to cause significant adverse transboundary environmental effects.

The present detailed development plan proposal permits activities that, under the Espoo Convention, entail an obligation to consult with affected neighbouring countries. Consultation under the Espoo Convention takes place within the framework of the detailed planning process under the Planning and Building Act (2010:900), the strategic environmental assessment under Chapter 6 of the Environmental Code, and the Environmental Assessment Ordinance (2017:966), as well as in connection with the specific environmental assessment.

The Swedish Environmental Protection Agency (Naturvårdsverket) coordinates the Espoo consultation. Varberg Municipality and Vattenfall maintain an ongoing dialogue with the Swedish Environmental Protection Agency regarding the design and implementation of the Espoo consultation.

1.5 Process

Parts of the area in question on the Värö Peninsula are currently covered by an existing detailed development plan: *"Proposal for Amendment and Extension of the City Plan for Ringhals (VÄ56)"* (adopted by the Building Committee of Varberg Municipality in 1986). As Vattenfall intends to expand the area designated by the detailed development plan to enable the establishment of new nuclear power facilities, a new detailed development plan is required.

The detailed development plan will be prepared using the so-called *extended procedure* (see Figure 2).
The extended procedure is applied when the standard procedure cannot be used and must be used if the proposal is expected to result in significant environmental effects. Since the extended procedure is applied, the decision to adopt the detailed development plan will be made by the Municipal Council of Varberg Municipality.

Figure 2. Detailed development plan process – extended procedure.Source: Projektbyggaren Teknik AB.

In addition to a new detailed development plan for the area in question, permits under the Environmental Code and the Nuclear Technology Act are also required. Under current regulations, an application for a new nuclear facility must be submitted both to the Swedish Radiation Safety Authority, which processes the application under the Nuclear Technology Act, and to the Land and Environment Court, which processes the application under the Environmental Code.

The cases are then forwarded to the Government, which decides on permissibility under the Environmental Code and grants a permit under the Nuclear Technology Act. If the Government grants permissibility, the case is returned to the Land and Environment Court, which then decides on the permit under the Environmental Code and any associated permit conditions. Both the application under the Nuclear Technology Act and the application under the Environmental Code must include an Environmental Impact Assessment (EIA) report.

The various procedures under the Planning and Building Act, the Environmental Code, and the Nuclear Technology Act run in parallel (see Figure 3)

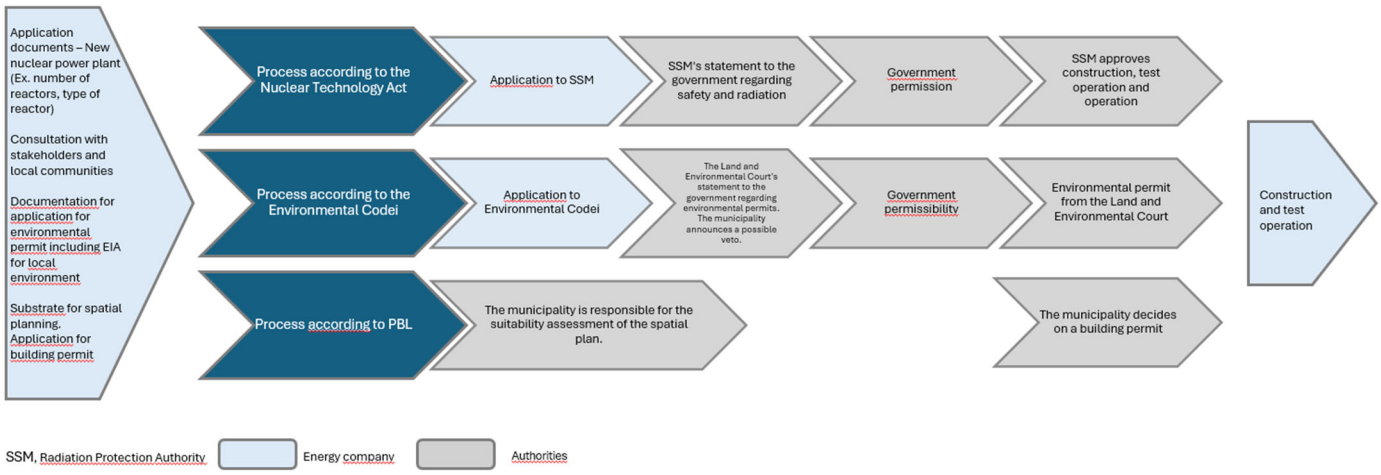

Figure 3. The figure illustrates the parallel process between the permitting procedures under the Nuclear Technology Act, the Environmental Code, and the Planning and Building Act (Projektbyggaren Teknik Syd AB, 2025).

2 Overview of the Detailed Development Plan

Within parts of the planning area, the forthcoming detailed development plan aims to enable the establishment of a new nuclear power facility adjacent to the Ringhals Nuclear Power Plant. The plan area is intended to accommodate the construction of between three and five Small Modular Reactors (SMRs). Each nuclear reactor unit comprises a reactor section and a turbine section, with an approximate capacity of 300–500 MWe. The reactor units are independent of each other but share common service functions, such as seawater intake, maintenance workshops, waste management etcetera.

The nuclear reactors currently under consideration for the project are based on light water reactor (LWR) technology, meaning that enriched uranium is used as fuel, and ordinary water serves as both coolant and moderator. Light water reactors are available in two designs: boiling water reactors (BWR) and pressurized water reactors (PWR).

In addition to enabling the construction of a new nuclear power facility, the detailed development plan will also provide opportunities for other types of land use indirectly related to the power plant, such as temporary accommodation (hostels, cabin villages, camping areas). Other potential functions include a restaurant, visitor centre, sports facility, multi-storey car park, or small convenience store. Investigations are currently ongoing to determine which supporting functions will be required for the facility. Furthermore, the possibility of including a new harbour (either permanent or temporary) within the scope of the detailed development plan is currently being evaluated.

3 Site Selection Study

In accordance with Chapter 2, Section 6 of the Swedish Environmental Code (Miljöbalken), the location of the proposed development must be selected based on the site's suitability, ensuring that the intended purpose can be achieved with the least possible intrusion and inconvenience to human health and the environment. As the proposed activity requires the use of new land areas the choice of location must also take into account the resource management provisions in Chapters 3 and 4 of the Environmental Code.

A site selection study has been conducted from both a national and subsequently a local perspective.
In the evaluation of the various location alternatives, both fundamental conditions (such as available land area, electricity capacity, etc.) and the requirements of the Environmental Code have been considered.
In the final evaluation, the advantages of the current planning area were assessed to be significantly greater compared to the other alternatives.

The site selection study will be presented in full in the Environmental Impact Assessment (EIA) report for the detailed development plan.

4 Conditions

4.1 Current Detailed Development Plans

The planning area is located adjacent to the Ringhals Nuclear Power Plant on the Värö Peninsula.
The area is largely covered by existing plans, including the "*Proposal for Amendment and Extension of the City Plan for Ringhals (VÄ56),*" adopted by the Building Committee in 1986, and the "*Detailed Development Plan for Wind Power Facility (VÄ94),"* adopted by the Municipal Executive Committee in 2011.

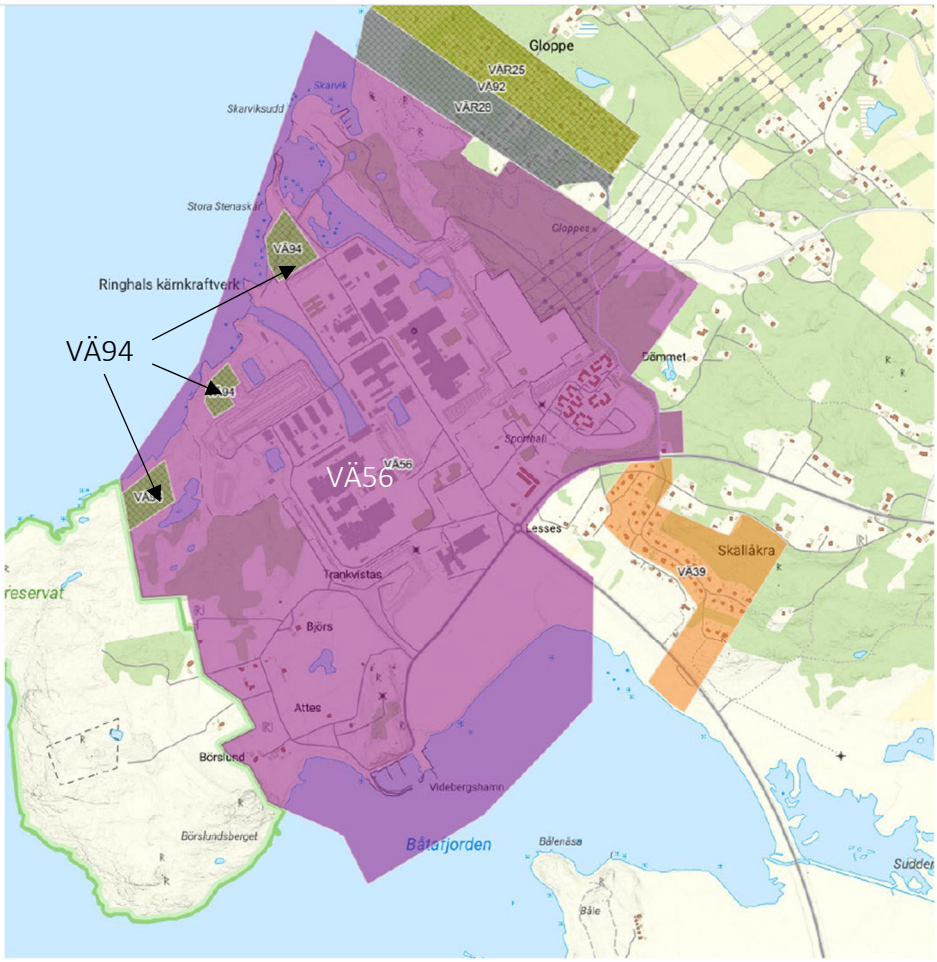

Figure 4. Existing detailed development plans on the Värö Peninsula. Source: Varbergs kommun (www.varberg.se)

The city plan for Ringhals covers the entire Ringhals area and primarily designates the land for heavy industrial use, with a maximum building height of 83 meters above sea level.
The detailed development plan for the wind power facility aims to enable wind turbines within the area but does not affect the publicly accessible coastal strip.

4.2 Comprehensive Plan and Detailed Comprehensive Plan for the Northern Coast

Varberg Municipality has adopted a planning strategy (approved by the Municipal Council on 18 June 2024).
The planning strategy is a tool intended to keep the comprehensive plan up to date. The outcome of the strategy indicates that the Comprehensive Plan for Varberg Municipality (2010) has lost relevance in certain areas and should be considered outdated in its entirety.

Work is currently underway in Varberg Municipality to develop a new comprehensive plan to replace the current plan (CP 2010).

The new comprehensive plan has been subject to public consultation. In the proposed plan, it is stated that existing land use (industry and related activities) should continue. Certain parts of the Värö Peninsula are designated as investigation areas for wind power (in accordance with the current "*Detailed Development Plan for Wind Power Facility (VÄ94),*" adopted by the Municipal Executive Committee in 2011).

The planning strategy also notes that several new conditions have emerged for the geographic area concerning the Supplementary Plan for the Northern Coast. These include advanced planning for Väröbacka, the need to adapt to nationally significant values, and new requirements related to climate adaptation, among other factors.
In light of this, the guidance provided by the comprehensive plan for the geographic area needs to be reviewed. The Supplementary Plan for the Northern Coast (2017) should therefore be considered outdated in its entirety.

4.3 Detailed Comprehensive Plan for Väröbacka

Varberg Municipality is currently preparing a new *Supplementary Comprehensive Plan for Väröbacka*. The purpose of this plan is to provide detailed guidance for the development of a new railway station and the continued expansion of Väröbacka. In the proposed supplementary plan, it is stated that the emergency preparedness plans for the Ringhals Nuclear Power Plant affect future land use within the plan area.

The proposal for the Supplementary Comprehensive Plan for Väröbacka was subject to public consultation in early 2024.

4.4 Areas of National Interest

An area of national interest is a land or water area considered to hold values of national significance and must therefore be protected from actions that may harm these values. Such areas may include those designated for nature conservation, transportation, cultural heritage, outdoor recreation, or commercial fishing. These interests must be considered in physical planning, including comprehensive and detailed development planning, as well as in permitting processes. The values within an area of national interest must not be significantly harmed. The provisions regarding national interests are found in Chapters 3 and 4 of the Environmental Code.

Areas of national interest must be protected from actions that may significantly harm them. The assessment of what constitutes significant harm is always site-specific and depends on the nature and scale of the proposed activity. Generally, any intervention that causes an area to lose the values for which it was designated should be considered significantly harmful (General Guidelines SNV NFS 2005:17).

The following areas of national interest may be affected by the detailed development plan:

National Interest for Energy Production (Chapter 3, Section 8) - Areas designated as being of national interest for energy production are considered of strategic importance for national energy supply. These areas are designated to ensure a secure and sustainable energy system and must be taken into account in spatial planning and permitting processes. The Swedish Energy Agency (Energimyndigheten) has been tasked with reviewing all areas of national interest for energy production by 25 March 2026. The area surrounding the Ringhals Nuclear Power Plant on the Värö Peninsula is designated as a national interest for energy production, meaning it is strategically important for electricity and power supply in Sweden.

The national interest area includes not only the nuclear facility but also Videbergshamnen, the substation, and connection lines to the next transmission grid station. The detailed boundaries of the national interest area are classified.

National interest for energy distribution (Chapter 3, Section 8) - Areas of national interest for energy distribution are land and water areas specifically designated to protect critical infrastructure in the energy system, such as power lines and transformer stations.

The purpose is to safeguard these areas from actions that may hinder their development or use, in order to ensure energy supply—particularly during the ongoing energy transition. The area surrounding the Ringhals Nuclear Power Plant on the Värö Peninsula is designated by the Swedish Energy Agency (Energimyndigheten) as an area of national interest for energy transmission. The designation also includes the connection lines from each respective area of national interest to the national transmission grid.

National interest for outdoor recreation and tourism (Chapter 4, Section 2 of the Environmental Code – Coastal Zone) - According to Chapter 4, Section 2 of the Environmental Code, the interests of tourism and outdoor recreation—particularly mobile outdoor activities—must be given special consideration when assessing the permissibility of development projects or other environmental interventions in areas designated for these purposes. This means that in planning and permitting processes for areas with high values for tourism and recreation, careful consideration must be given to how proposed actions may affect opportunities for outdoor activities and tourism.

National interest for highly developed coastal zones (Chapter 4, Section 4 of the Environmental Code – Coastal Area) - According to Chapter 4, Section 4 of the Environmental Code, a highly developed coastal zone is a geographic area of national interest due to its significant natural and cultural values. These areas are protected from development that could significantly harm these values. The purpose is to prevent further fragmentation of the natural and cultural environment.

National interest for commercial fishing in the coastal zone (Chapter 3, Section 5 – Offshore Värö Peninsula) - National interest for commercial fishing in the coastal zone means that certain areas are of great importance for the country's professional fishing industry and are therefore protected from actions that may hinder fishing activities.These areas are essential to ensure that commercial fishing can be conducted efficiently and that necessary infrastructure, such as fishing harbours, is available.

National interest for nature conservation (Chapter 3, Section 6 of the Environmental Code – Klosterfjorden-Getterön)- National interest for nature conservation under Chapter 3, Section 6 of the Environmental Code means that areas with significant natural values must be protected from actions that may harm these values.
This is a national interest and must be considered and safeguarded in spatial planning.

National interest for shipping lanes (Chapter 3, Section 8 of the Environmental Code – Shipping route by Videbergshamnen) - A national interest for shipping lanes means that a specific water area is important for maritime transport and holds nationally significant values. These areas must be protected from actions that may impair navigation or the values associated with the shipping lane.

National interest for harbour (Chapter 3, Section 8 of the Environmental Code – Videbergshamnen and its approach)- A national interest for harbour means that a specific harbour area is of national importance for maritime transport and must therefore be protected from actions that may hinder harbour operations. This means the harbour plays an important role in Sweden's economy and infrastructure and must be considered in spatial planning.

National interest for transportation (Chapter 3, Section 8 of the Environmental Code – E6 and Västkustbanan)- National interest for transportation means that an area is of national importance for roads, railways, airports, ports, or electronic communication. These areas must be protected from actions that may hinder the development or use of communication facilities.

4.5 Biskopshagen Nature Reserve

Parts of the planning area are located within the Biskopshagen Nature Reserve (see Figure 5).
The development of nuclear power in the area will affect the Biskopshagen Nature Reserve.
Vattenfall has therefore submitted a formal request to the County Administrative Board of Halland to revoke parts of the nature reserve designation. The handling of this request is managed by the County Administrative Board of Halland and, at the time of writing, no decision has been made.

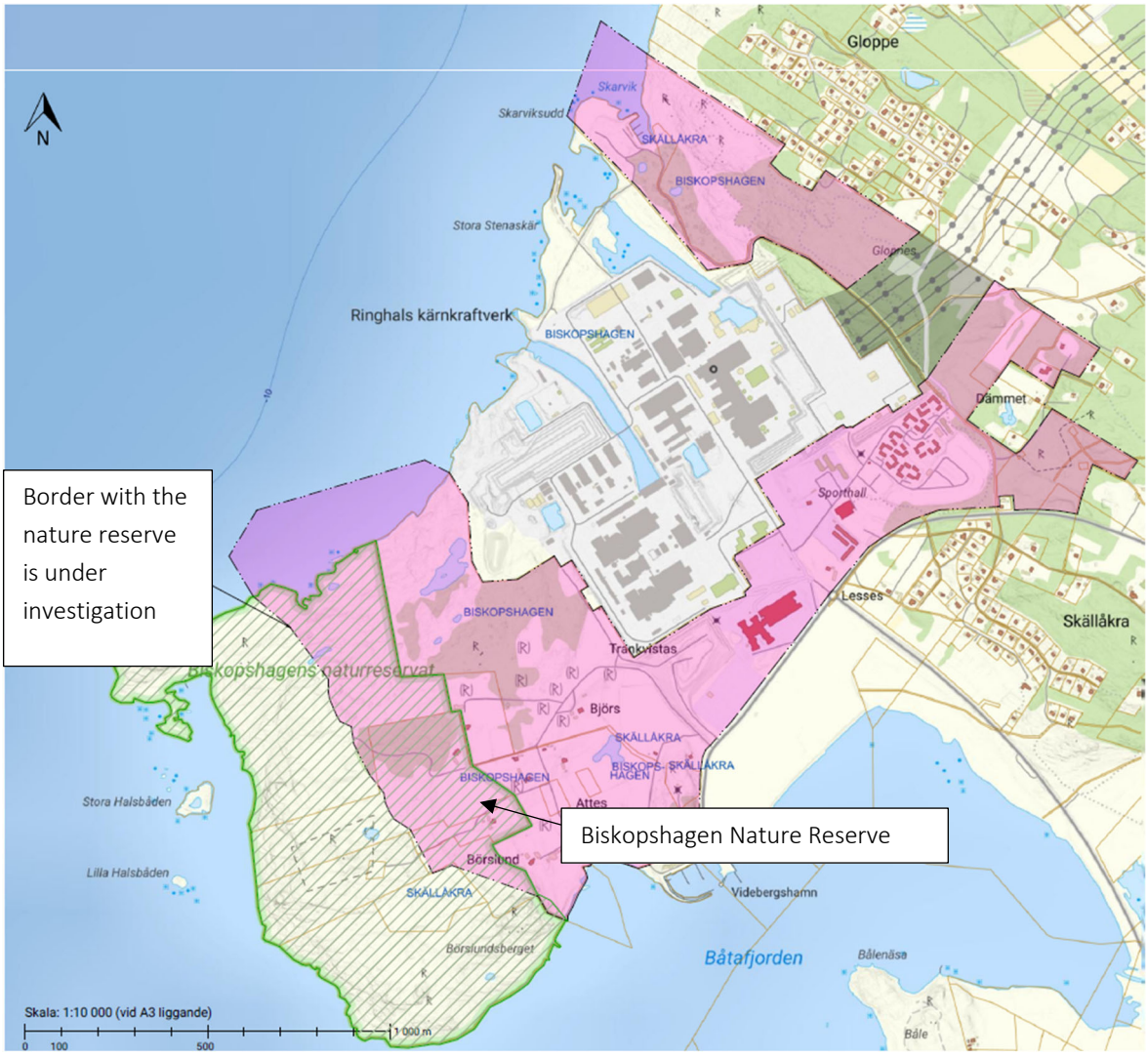

Figure 5. Biskopshagen Nature Reserve and preliminary planning area boundary (pink). Note that the boundary toward the nature reserve in the west is under investigation (WSP 2025).

4.6 Natura 2000

The planning area is located directly adjacent to the Natura 2000 site Båtafjorden (SE0510176), see Figure 6. The area is designated as a Natura 2000 site under the Birds Directive (SPA).

The purpose of Natura 2000 sites designated under the Birds Directive is to protect and preserve habitats for wild birds within the EU.This is achieved by maintaining or restoring a favourable conservation status for the bird species and their habitats listed in the directive.

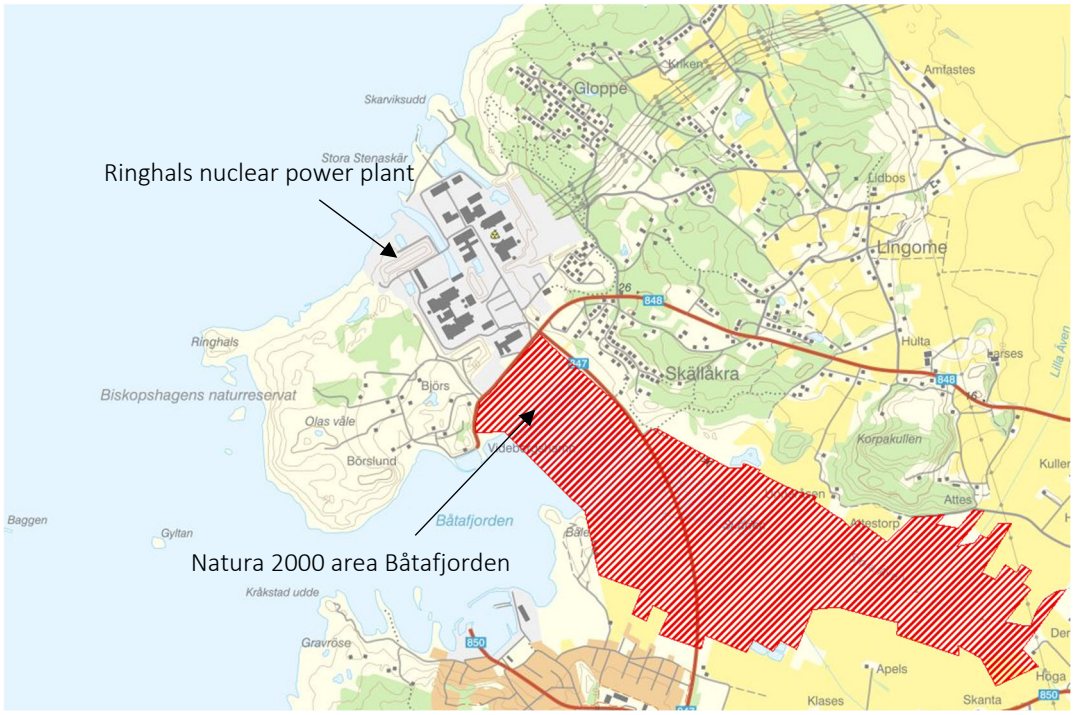

Figure 6. Natura 2000 site Båtafjorden. Source: Swedish Environmental Protection Agency (https://skyddadnatur.naturvardsverket.se/)

4.7 Shoreline Protection

Large parts of the planning area are subject to shoreline protection under Chapter 7 of the Environmental Code. Exceptions apply to areas where shoreline protection has been revoked through existing detailed development plans. Figure 7 shows the extent of shoreline protection.

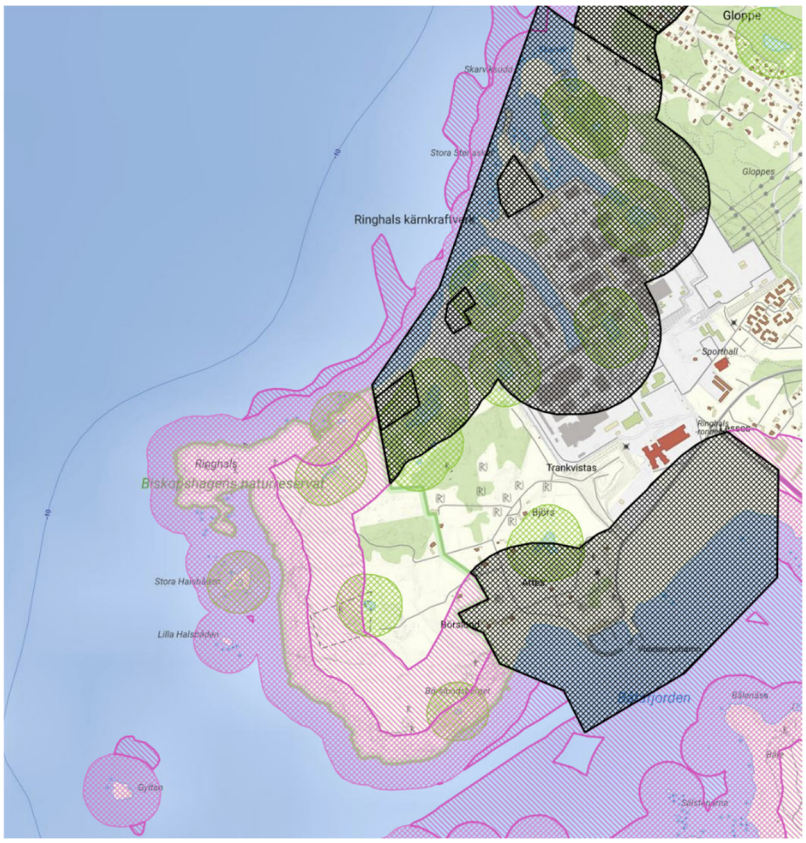

Figure 7. Areas subject to current shoreline protection regulations. In black: areas where shoreline protection has been revoked via detailed development plans. In purple: areas where shoreline protection regulations apply. In green: areas not subject to shoreline protection.

Shoreline protection will be addressed in the new detailed development plan intended for the area.
This will be done through a planning provision for revocation of shoreline protection.
Specific reasons for the revocation will be stated in the planning documents.

4.8 Nature Conservation Programme

The municipality has developed a nature conservation programme, in which parts of the Värö Peninsula are included in Site 102. Additionally, Site 101 (Båtafjorden) and Site 134 (Gloppes) may be affected by the detailed development plan.

Site 102 largely overlaps with the Biskopshagen Nature Reserve, including an area north of the reserve containing a wetland. The area consists of a coastal environment with striking geology and barren heathland, linked to historical land use and featuring a characteristic and partly species-rich flora. The site is classified as Class III (high nature value).

Site 101 comprises the inner parts of Båtafjorden. The area is dominated by extensive coastal meadows and includes open heathland at Bålenäsa and extending toward Biskopshagen. The site is part of the Natura 2000 area Båtafjorden. With its large area of well-grazed coastal meadows, rich flora, and exceptionally diverse birdlife, Båtafjorden is of the highest nature value. Together with Getterön, it is the most highly valued bird habitat in northern Halland, and only a few areas in Sweden have similar density and abundance of breeding waders.
The site is classified as Class I (particularly high nature value).

Site 134 is an open and scenic area with striking and dramatic geology, including terraced gneiss formations and an impressive shingle field. The area is important for outdoor recreation and is classified as Class III (high nature value).

4.9 Biotope-Protected Features

Within and adjacent to the planning area, 112 features protected under general biotope protection regulations have been identified. These include 41 stone cairns, 17 stone walls, 19 open ditches, nine field islets, four springs, ten wetlands, and one avenue of trees. Most of these features are located in the small-scale agricultural landscape southwest of the Ringhals Nuclear Power Plant. Additional features may be identified as further inventories are conducted in the area.

Impacts on biotope-protected features and the need for exemptions related to the construction of the nuclear facility will be assessed and, if necessary, included in the environmental permitting process.
For other measures enabled by the detailed development plan or actions that need to be implemented at an earlier stage, impacts will be assessed and any exemption applications submitted to the County Administrative Board.

4.10 Protected and strictly protected specis

The EU species protection framework comprises several directives aimed at conserving biodiversity within Member States, primarily the *Habitats Directive (92/43/EEC)* and the *Birds Directive*. These directives seek to conserve habitats and threatened species through protection, prohibition of disturbance, and the establishment of *Natura 2000* sites.

Swedish species protection is regulated by the Species Protection Ordinance (2007:845), which includes protection provisions based on both EU legislation and international agreements, as well as national regulations. The application of these provisions varies, as some are based on EU directives and others on Swedish legislation.

Several inventories of protected species on land and in the marine environment of the Värö Peninsula have been conducted. These inventories have identified several species protected under the Species Protection Ordinance, including harbour porpoise, vascular plants, smooth snake, bats, hazel dormouse, frogs, and smaller newts.
An assessment is currently underway to determine the impact on these protected species and whether exemptions from species protection regulations will be required.

For areas subject to environmental permitting for the nuclear facility, any exemptions will be handled as part of the permitting process. For other parts of the planning area not covered by the environmental permit, separate exemption applications will be submitted if needed. In these areas, consultations under Chapter 12, Section 6 of the Environmental Code may also be required.

4.11 Environmental Quality Standards for Water

The Värö Peninsula borders two surface water bodies: Vändelsö Archipelago (SE571720-120640) and Northern Central Halland Coastal Waters (SE570000-120701). Both water bodies are classified as having moderate ecological status and do not meet good chemical status.

4.12 Preparedness Zone

The Ringhals Nuclear Power Plant is surrounded by an inner and an outer preparedness zone, as defined by the County Administrative Board. The area within five kilometers of the facility constitutes the inner zone, while the area between 5 and 25 kilometers constitutes the outer preparedness zone. These zones are delineated by roads and other natural boundaries, meaning the distances are not exact.

In addition to the emergency zones, there is also a planning zone, which extends approximately 100 kilometers from the nuclear facility.The County Administrative Board, together with other authorities, has established clear procedures to protect the public in the event of an accident, such as evacuation to another location or advising the public to remain indoors and take iodine tablets.

New preparedness zones may be established as a result of the proposed nuclear activities enabled by the detailed development plan.

4.13 Cultural Heritage

The Ringhals Nuclear Power Plant is identified in Varberg Municipality's cultural heritage programme.
The operational area holds clear cultural-historical values from societal, industrial, and architectural perspectives. The facility is considered to have symbolic value, although no formal preservation value is currently assigned. The cultural heritage programme describes, among other things, the plant's characteristic chimneys, the strict southwest–northeast orientation of the buildings, and the geometrically placed embankments covered with crushed stone, which are distinctive features of the site.

The area between the Ringhals Nuclear Power Plant and the nature reserve currently consists of a small-scale, culturally historic agricultural landscape. It is made up of grazing land with heathland, rocky outcrops, and wetter areas. Parts of the area are overgrown. Although the land is not cultivated, it is used for grazing

Within the planning area, there are several known ancient monuments and other cultural heritage remains. Archaeological investigations are currently underway to delineate the extent of the remains located just east of the nature reserve.

Figure 8. Presence of ancient monuments and other cultural heritage remains within the area, including marked areas subject to further investigation. Source: Swedish National Heritage Board, Fornsök – Data extract 2025-10-19 (https://app.raa.se/open/fornsok/).

5 Proposed scope

5.1 Temporal scope

The temporal scope delimitation is limited to the year 2045, as this is the year when the full development rights are expected to have been fully utilized.

5.2 Geographical scope

The spatial delimitation largely corresponds to the boundary of the planning area, as illustrated in Figure 9. However, for certain environmental aspects, impacts may also occur outside the designated area. For example, in relation to noise pollution and environmental quality standards for water, the geographical scope is extended. Consequently, the affected geographical area varies depending on the aspect being studied. An investigation is currently underway regarding the detailed planning boundary to the west, adjacent to the nature reserve.

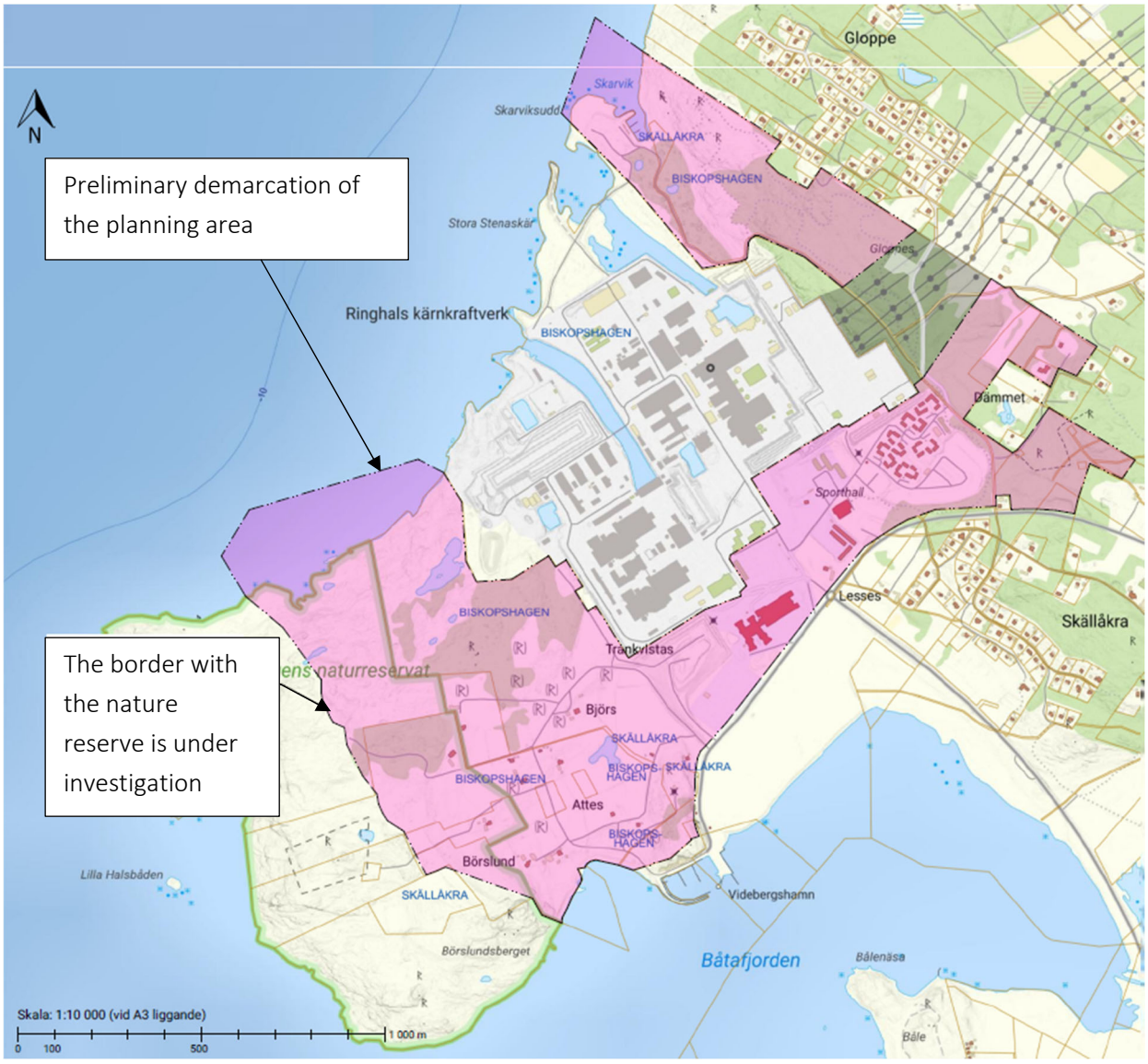

Figure 9. Preliminary boundary of the planning area marked in red. Note that the boundary toward the nature reserve in the west is currently under investigation (WSP 2025).

5.3 Scope and Level of Detail

According to Chapter 6, Section 12 of the Environmental Code, the scope and level of detail of an Environmental Impact Assessment (EIA) shall be reasonable with regard to:

1. assessment methods and current knowledge,
2. the content and level of detail of the plan or programme,
3. the stage reached in the decision-making process for the plan or programme,
4. that certain issues may be better assessed in connection with the review of other plans and programmes or in the permitting process for specific activities or measures, and
5. public interest.

5.4 Thematic scope

5.4.1 Analysis of Aspects According to Chapter 6 of the Swedish Environmental Code

Based on the aspects listed in Chapter 6, Section 2 of the Environmental Code, an analysis has been conducted to identify which aspects may be considered to result in significant environmental effects.

1. Population and Human Health,

Recreation and Outdoor Activities – Once the operational area is developed, the land within the area will no longer be accessible for recreation and outdoor activities. Access to the undeveloped parts of the Värö Peninsula and the Biskopshagen Nature Reserve may be restricted. Access will also be limited during the construction phase.

Noise – Transport and operational activities will generate noise, which may affect the residential environment in the area. Noise disturbances will also occur during construction, including from transport, blasting, and material crushing.

Traffic and Traffic Safety – Implementation of the detailed development plan will lead to increased transport, including internal transport, external freight transport, and commuting by personnel. During the operational phase, freight transport is expected to occur mainly by truck, with sea transport used only occasionally. During construction, transport will include soil and rock materials, construction materials, and facility components. Sea transport may be used during construction. Existing roads in the area may be used, and nearby residential areas may be negatively affected by reduced traffic safety and accessibility.

Light – Implementation of the detailed development plan entails that illumination from the operational area may be perceived as disturbing by residents in the surroundings. During the construction period, work may take place at night, meaning that the construction site will also be illuminated during nighttime, which may also be perceived as disturbing.

Vibrations – Implementation of the plan will involve blasting, piling, sheet piling, and heavy transport, which may cause vibrations that negatively affect the residential environment. No vibrations are expected during the operational phase.

Risks – The detailed development plan shall examine the possibility for a nuclear installation to be established within parts of the planning area. An accident involving nuclear power, leading to increased radiation levels in the surrounding environment, may entail serious health risks for exposed individuals. Implementation of certain parts of the plan may also involve handling of substances with environmentally hazardous properties, as well as substances considered to present a physical hazard under the Seveso legislation.
In the surroundings of the planning area, there are also existing Seveso establishments, such as the Ringhals Nuclear Power Plant, which may be affected by the proposed land use. Existing Seveso facilities may also negatively affect the proposed land use in the detailed development plan. There is also a risk of accidents related to the transport of dangerous goods.

2. Protected animal or plant species under Chapter 8 of the Environmental Code, and biodiversity in general

The detailed development plan may result in significant environmental impacts on the Natura 2000 site Båtafjorden and the Biskopshagen Nature Reserve. There is a risk that protected species may be adversely affected, both through the use of habitats and through intake and discharge of, among other things, cooling water into the marine environment. The plan may also have negative consequences for biodiversity, green infrastructure, and ecological connectivity. During the construction phase, the natural environment may be negatively affected by noise, dust, turbidity in seawater, vibrations, and light.

3. Soil, land, water, air, climate, landscape, built environment, and cultural heritage

Landscape Character – The proposed detailed development plan is assessed to result in changes to the landscape character, and the planning area will become more visually exposed to its surroundings, particularly towards existing development in Bua to the south and from the sea. Areas that have not previously been developed will be taken into use.

Cultural heritage – Known ancient monuments and other cultural heritage features within the planning area may be affected by the plan.

Air – The proposed activity within the planning area will result in minor releases of radioactive substances into the atmosphere. During construction, machinery and transport will emit carbon dioxide, nitrogen oxides, sulfur dioxide, and particulate matter.

Groundwater – Parts of the plan will likely require groundwater diversion through pumping, which may alter existing groundwater levels.

Surface water – The Värö Peninsula borders two surface water bodies: Vendelsö Archipelago (SE571720-120640) and Northern Central Halland Coastal Waters (SE570000-120701). Both are classified as having moderate ecological status and do not meet good chemical status. The plan will increase stormwater runoff due to a higher proportion of impervious surfaces, which may negatively affect these water bodies. Impact may also arise from cooling water management.

Climate adaptation – To enable the proposed land use within the detailed development plan, significant adjustments to existing ground levels will likely be required. Measures must be taken to prevent water accumulation during cloudbursts, which could cause flooding both inside and outside the planning area. The area may also be affected by projected sea level rise. Existing roads in the area are at low elevations and may be at risk of flooding during extreme weather or sea level rise. Accessibility to the facility must be ensured.

Climate impact – The plan will assess the possibility of establishing a nuclear facility within parts of the planning area. Nuclear power is a low-carbon, fossil-free energy source and is therefore considered to have a potentially positive impact on the climate.

4. Management of land, water, and the physical environment in general

Areas of national interest – The detailed development plan is considered to potentially affect several areas of national interest.

Agricultural Land – The Municipality of Varberg has prepared an investigation regarding the use of agricultural land. The study was carried out in connection with the development of the municipality's new Comprehensive Plan. The study identifies areas within the planning area as agricultural land, primarily used for grazing.

5. Other management of materials, raw materials and energy

The planning area is designated as an area of national interest for energy production.

The plan will enable the establishment of a nuclear facility within parts of the area. Nuclear power is a fossil-free energy source but relies on uranium, which is classified as a non-renewable natural resource. Uranium dioxide is used as fuel in the reactors, with an estimated annual consumption of approximately 35 tonnes for the entire facility.

The nuclear facility will generate waste. Waste will be managed and classified according to established procedures, based on material type and level of radioactivity. Radioactive waste will be handled with safety as the highest priority and in accordance with applicable laws and regulations. The waste generated during operation is expected to be similar in nature to that produced by other nuclear reactors in Sweden.

6. Other Parts of the Environment

Not applicable.

5.4.2 Aspects assessed as likely to result in significant environmental impact

I nedanstående tabell redovisas de aspekter som utifrån analysen i avsnitt 4.4.1. har bedömts kunna medföra en betydande miljöpåverkan, samt förslag till avgränsning av respektive aspekt.

Table 2. Aspects assessed as potentially causing a significant environmental impact.

Aspet	Scope of Assessment
Landscape Character	The aspect is delimited to address the impact of the detailed development plan on the landscape character.
Cultural Heritage	The aspect is delimited to address the impact of the plan on ancient monuments and other cultural heritage values, both on land and in the marine environment.
Natural Environment	The aspect is delimited to assess the detailed development plan's impact on natural areas of national and international importance, such as nature reserves and Natura 2000 sites, as well as other protected areas under Chapters 3, 4 and 7 of the Environmental Code. The assessment will also address impacts on protected species (both terrestrial and aquatic).

Recreation and Outdoor Activities	The aspect is delimited to assess the detailed development plan's impact on national interests for outdoor recreation (Chapters 3 and 4 of the Environmental Code) and on public access to the Biskopshagen Nature Reserve.
Water and Water Quality	The aspect is delimited to address the impact on environmental quality standards for surface water, increased runoff, and risks of pollution in stormwater.
Groundwater	The aspect is delimited to assess the detailed development plan's impact on groundwater conditions.
Climate Adaptation	Flooding (risk of flooding, cloudbursts).
Resource Management	The aspect is delimited to address the impact on national interest areas not covered under other aspects, and whether the use of agricultural land can be justified as being of substantial public interest.
Human Health and Environment	The aspect is delimited to assess the detailed development plan's impact on human health and the environment, including noise from operations and traffic, traffic safety, accessibility, air emissions, vibration, and light pollution.
Risk	The aspect is delimited to assess risks associated with the nuclear facility, including radiological consequences during operation and accidents. Also includes assessment of the facility's risk profile and its potential impact on human health and the environment, as well as cumulative effects in relation to the Ringhals nuclear operations. Risks related to hazardous goods and waste are also included.
Climate Impact	The aspect is delimited to address the climate impact of the detailed development plan.
Construction Phase Impacts	The aspect is delimited to provide an overview of the plan's effects during the construction phase on the natural environment, residential environment, health, water, etc. Detailed assessment of construction-related impacts for the specific activity will be addressed in the project-specific environmental impact assessment.

5.4.3 Identification of Transboundary Environmental Impact

Based on the analysis above, the aspects of the detailed development plan that are considered likely to result in transboundary environmental effects have been identified. These include:

- Human health and the environment – Delimited to emissions to air.
- Risk – Delimited to risks associated with the nuclear facility, that is radiological consequences during operation and in the event of accidents, as well as cumulative effects in relation to the Ringhals nuclear operations.
- Climate impact – Delimited to emissions that may affect the climate, both positively and negatively.

6 Environmental Assessment Methodology

6.1 Impact, Effect, and Consequence

The environmental assessment and Environmental Impact Assessment (EIA) report shall identify and describe the significant environmental effects that may arise as a result of the provisions of the plan, for the environmental aspects identified during the scoping process. The consequences of the zero alternative and the proposed plan will be assessed and presented in comparison to the zero alternative. The description will be based, among other things, on background studies developed during both the planning and permitting processes. The assessment of environmental consequences will be based on relevant municipal plans, programmes, and objectives, national environmental quality objectives, current research, guideline values, and environmental quality standards. These will be presented in the EIA report. The assessment of consequences is carried out in several steps:

- Value or sensitivity of the affected areas is assessed.
- Impact – Refers to the change in physical or behavioural conditions that is affected.
- Effect – Refers to the change caused by the impact, for example, a change in the landscape character.
- Consequence – The final step, where the significance of the effect/change on the assumed value or sensitivity of the area is assessed.

In the EIA report a specific scale is used to evaluate the consequences. The scale is based on the relationship between existing values and the extent of the assessed environmental impact. It can describe both positive and negative consequences:

- Very large consequences – Impacts on national interests or interests at the EU level, such as Natura 2000 sites or exceedance of environmental quality standards.
- Large conequences – Consequences on areas of national interest or on values of regional or municipal significance.
- Small to moderate consequences – Consequences on areas or values of municipal importance, or effects on areas or values of lesser or local significance.
- Negligible consequences – No or insignificant consequences on areas or values of national, regional, or local significance.

To determine the likely consequence in the affected areas, the assumed value/sensitivity of the area is weighed against the expected impact using a matrix (see Table 2 below).

For example, the fact that an area of national interest is affected does not automatically mean that the plan will have large or very large consequences. The impact may be of limited extent or affect only a small portion of the area of interest. Conversely, an impact on aspects of a local nature—such as noise disturbance—may still be assessed as having large consequences.

The risk section is assessed based on whether the risks are acceptable or unacceptable and is therefore not linked to the figure below.

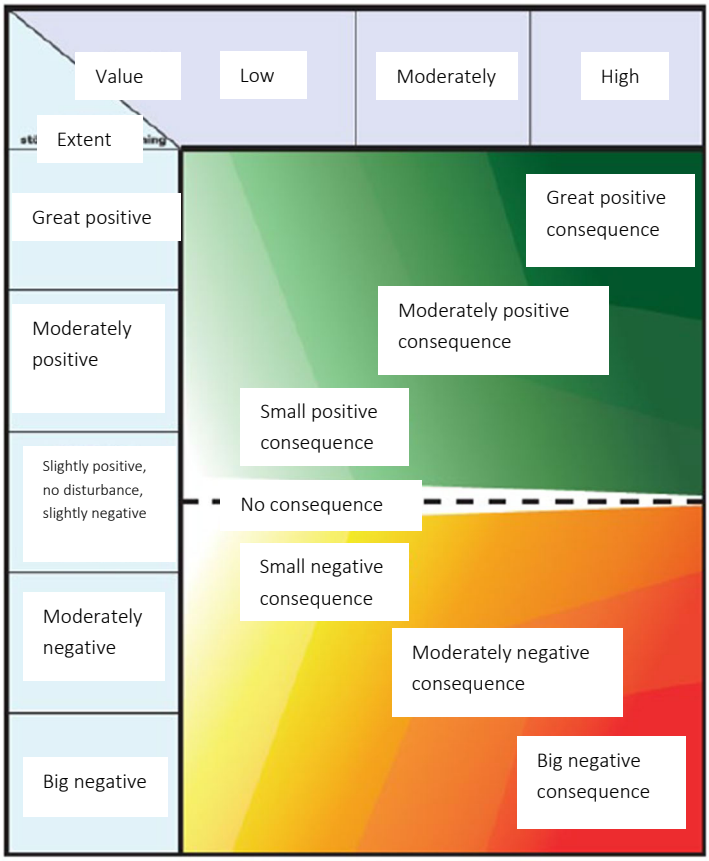

Figure 10. Consequence Assessment Scale (Projektbyggaren Teknik Syd AB, 2025)

6.2 Assessment Criteria

To describe and evaluate the changes that implementation of the detailed development plan may entail, various legal or otherwise established objectives, guidelines, and regulatory frameworks will be used.
These are collectively referred to as assessment criteria.

The assessment criteria are both general and specific in nature. General criteria are primarily used to assess whether the plan promotes long-term sustainable development and whether it adequately considers environmental aspects. Examples of general criteria include the national environmental objectives. The other type of criteria is more specific and relates to particular environmental aspects. These include various standards, defined objectives, guideline values, and recommendations from agency recommendations.

6.3 Uncertainties

The Environmental Impact Assessment (EIA) will be carried out in accordance with applicable legislation and established practice. Spatial analyses have been based on available cartographic material. Where assessments could be based on existing guideline values or standards, such comparisons have been made. The EIA is based on assessments of a future situation. A major uncertainty is always how society will develop over time. It is also uncertain whether all necessary information for a correct assessment has been available. Despite multiple reviewers, the assessments in the EIA may still be subjective.

6.4 Mitigation Measures and Regulatory Instruments

The purpose of the EIA is to provide a basis for decision-makers and the public, describing the potential effects of the detailed development plan on human health and the environment.
The EIA itself is not legally binding, and any mitigation measures proposed within the document are therefore not automatically enforceable.

To ensure implementation, measures must be regulated in other binding documents. This can be done through planning provisions or by including them in an implementation agreement, if such an agreement is established for the detailed development plan. The implementation agreement is signed between the municipality and the developer and regulates the implementation issues of the plan.

In parallel with this detailed development plan, an application for permits is being prepared under Chapter 9 of the Swedish Environmental Code for the construction and operation of a new nuclear power plant.
Permits will also be sought under Chapter 11 for the water operations required for construction and operation of the facility, including abstraction of seawater for cooling purposes, installation of structures in the water area, dewatering, filling of ponds and water bodies, and reinfiltration. Furthermore, the project may require a permit under Chapter 7, Section 28a of the Environmental Code (a Natura 2000 permit), if the activity is deemed likely to have a significant effect on a nearby Natura 2000 site.

When permits are granted, requirements regarding mitigation measures and technical performance standards will be stipulated as permit conditions. Some of these conditions will relate to environmental performance — for example, limits on air emissions, noise levels, or water abstraction. All permitted activities are required to submit annual environmental reports demonstrating compliance with their permit conditions.

Regarding exemptions from the Species Protection Ordinance and biotope protection, those required for the nuclear facility will be handled within the environmental permitting process. For other parts of the planning area not covered by the permit, separate exemption applications will be submitted as needed. For these areas, a consultation under Chapter 12, Section 6 of the Environmental Code (so-called 12:6 consultation) may also be necessary.

6.5 Alternatives

Two alternatives have been identified for the environmental assessment:

- The proposed detailed development plan
- The zero alternative

The zero alternative consists of the current detailed development plans for the areas covered by such plans; see further Section 3.1 *Current Detailed Development Plans*. For those parts of the planning area not covered by detailed development plans, the zero alternative consists of the current land use (advanced present state).

7 Investigations

A number of investigations have been carried out, and additional ones will be conducted within the framework of the project (see list below). In addition to the investigations listed below, further studies may be added. The investigations will serve as a basis for assessing the effects and impacts of the detailed development plan.

- Archaeological investigation
- Species inventory / Species protection assessments
- Rock / Geotechnical survey
- Noise assessment – operations
- Noise assessment – traffic (both operational and construction phases)
- Stormwater assessment
- Action programme / Safety report – Seveso
- Hydrogeological investigation
- Climate calculations
- Compensation measures – natural environment
- Cultural heritage assessment
- Landscape visual analysis – Design study – Photomontage
- Site selection study
- Light impact assessment
- Marine inventories
- Marine archaeological investigation
- Excavated material management plan
- Natura 2000 assessment
- Nature value inventories
- Radiological impact assessment
- Risk analyses
- Cloudburst / Flooding
- Firefighting water
- Traffic assessment during both operational and construction phases, incl. mobility study

- Air emissions
- Road load assessment – Swedish Transport Administration
- Concession and routing study /power lines
- Routing study – water supply and stormwater pipelines

8 Proposed Table of Contents

A proposed structure for the forthcoming Environmental Impact Assessment (EIA) is presented in the table of contents below. The description should be regarded as an example of how the scope of the EIA will be reported, and not as a definitive format. The table of contents is based on the applicable provisions in Chapter 6 of the Swedish Environmental Code and the Environmental Assessment Ordinance (2017:966).

1. Introduction

1.1 Purpose and content of the environmental assessment

1.2 Fulfilment of expert knowledge

1.3 Background

1.4 Permit application

1.5 Purpose of the detailed development plan

1.6 SEVESO

2. Scoping

2.1 Significant environmental impact and preliminary study

2.2 Scoping consultation

2.3 Temporal scope

2.4 Thematic scope

2.5 Scope of level of detail

2.6 Geographical scope

3. Method for the environmental assessment

3.1 Method for knowledge compilation and assessment

3.2 Assessment criteria

3.3 Uncertainties

3.4 Mitigation measures and regulation of measures

4. Planning conditions

4.1 Current land use

4.2 Comprehensive plan

4.3 Detailed development plans

4.4 National interests

4.5 Environmental objectives

4.6 Environmental quality standards

5. Studied alternatives

5.1 Zero alternative

5.2 Alternative location

5.3 Alternative design

9 Requirement for Expertise

The Environmental Impact Assessment (EIA) will be prepared with the expertise required in relation to the specific conditions of the detailed development plan and its anticipated environmental effects.

Jessica Andersson, Projektbyggaren Teknik Syd AB, will be responsible for the EIA for the strategic environmental assessment. She is a specialist in environmental assessment and EIA, and has worked with environmental and sustainability issues in urban planning for over twenty-five years. Jessica is highly experienced in leading, preparing, coordinating, and reviewing various impact assessments in accordance with the SEA Directive (Directive 2001/42/EC) and the EIA Directive (Directive 2011/92/EU).

Jessica also has extensive experience in managing both the Environmental Code and the Planning and Building Act (PBL) within the same project. Furthermore, she has developed various models and methods for strategic environmental assessment in her assignments, which have been used in both governmental and municipal projects.

In addition to Jessica Andersson, a number of specialists will participate in the preparation of the Environmental Impact Assessment within their respective areas of expertise.

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