

Heritage Impact Assessment (english version)

Contents

1	Introduction	2
2	Project Description	2
2.1	Project area	2
2.2	Planning	3
2.3	Project design	5
2.4	Project phases.....	6
2.4.1	Construction phase.....	6
2.4.2	Operation phase	6
3	Methodology.....	7
4	Baseline.....	8
4.1	The World Heritage Site Jelling Mounds, Runic Stones and Church	8
4.2	Outstanding Universal Value.....	9
4.2.1	Values:	9
4.2.2	Attributes:	9
4.2.3	Authenticity.....	13
4.2.4	Integrity	14
4.2.5	Protection and management	14
4.3	The wider setting	16
4.4	Landscape analysis	17
4.5	Noise regulations	17
5	Identifying potential impacts	18
5.1	Impact on the visual landscape.....	20
5.2	Impact of noise	20
5.3	Impact of wear and tears.....	20
6	Evaluating potential impacts	20
6.1	Impact on the visual landscape.....	21
6.1.1	Construction phase: Impact of the visual landscape.....	21
6.1.2	Operational phase: Impact of the visual landscape from new park area	21
6.1.3	Operational phase: Impact of the visual landscape from music festival in Jelling	26
6.2	Impact of noise	32
6.2.1	Evaluation of the noise impact of the Jelling Music Festival	32
6.3	Impact of wear and tear	37
6.3.1	Evaluation of impact from the music festival in Jelling.....	37
7	Conclusion	38
8	References	38

1 Introduction

This report is a Heritage Impact Assessment (HIA) of a project located north of Jelling town and the UNESCO World Heritage site in Jelling. The purpose of this HIA is to examine the impact of the project on the Outstanding Universal Value (OUV) of the heritage site *Jelling Mounds, Runic Stones and Church*. The World Heritage property comprises the entire area within the palisade and includes both the archaeological traces in the ground and the visible elements above ground: the North Mound and the South Mound, the two rune stones, Jelling Church and churchyard, the palisade including remnants of several wooden houses in the form of postholes and the ship setting.

This HIA is a part of an overall Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) conducted to assess the environmental impact of the planning and project of a new recreational area north of Jelling. In the following HIA, the EIA and SEA are referred to as EIA, and the planning and project area is referred to as the project area. The EIA is presented in *Miljøvurderingsrapport for Rekreativt område ved Herningvej nord for Jelling*.¹

2 Project Description

Vejle Municipality wishes to establish a new recreational area to the north of Jelling. The purpose of the project is to create a new park area with permanent landscaping and facilities for recreational use, as well as establish a new area for the annual music festival in Jelling. To carry out the project, a new local plan and a municipal zoning plan amendment must first be prepared and approved.

2.1 Project area

The project is located on agricultural land north of Jelling near the roads Herningvej and Mangehøje in a rural zone. The project area is shown in Figure 2-1. Map of the project area, the division of areas within the project area, including numbers and the location of the area in relation to World Heritage property.

and covers an area of 60 hectares, 21 of which will be permanently dedicated to the recreational park area. The remainder of the project area will be used for parking and camping during the annual music festival in Jelling. With this project, the location of the music festival in Jelling will be moved approximately 1 km northeast of its current location.

The project areas landscape is characterized by a hummocky topography with agricultural fields and scattered plantings of trees and hedgerows. The road Mangehøje cuts diagonally through the plan and project area. A smaller branch of Mangehøje forms the northeastern border of the project area and continues as a walking and cycling path towards the Monument Area and the town of Jelling. To the south, the project area borders the Monument Area and Jelling, and to the southwest, it borders the road Herningvej. The northern and northwestern borders follow the outline of the land parcel, which is visibly outlined with existing hedgerows.

¹ Translated: Environmental Impact Assessment Report for Recreational area by Herningvej North of Jelling

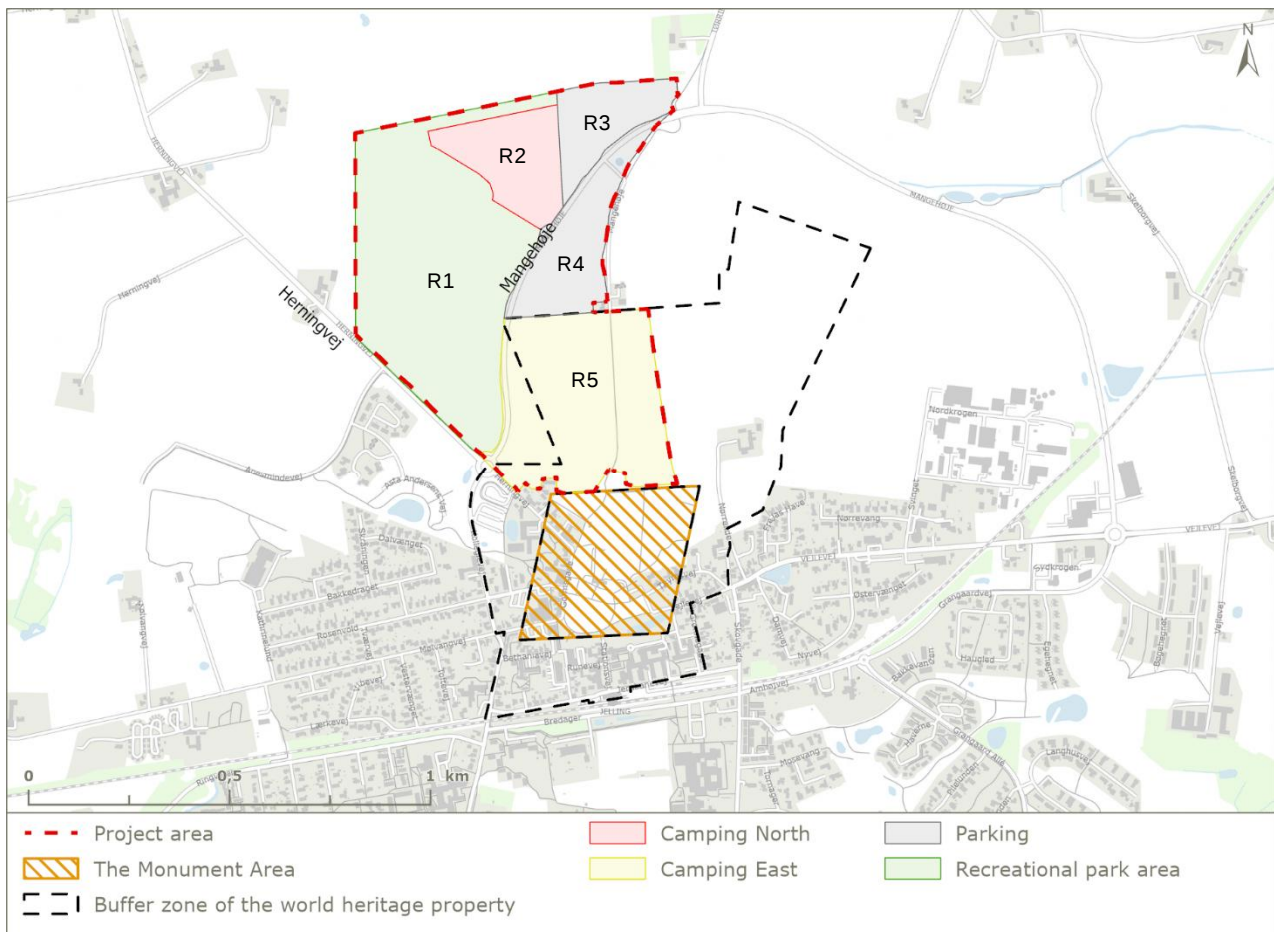


Figure 2-1. Map of the project area, the division of areas within the project area, including numbers and the location of the area in relation to World Heritage property.

2.2 Planning

For the project to be realized, the Vejle Municipal Council must approve the necessary local and municipal planning documents. The local plan and municipal plan supplement regulate the use and functionality of the area, as well as other regulations such as the location and size of buildings, terrain grading, planting, water management and accessibility. Figure 2-2 illustrates the design of the permanent recreational park, and Figure 2-3 illustrates the design of the temporary activity, the Jelling Music Festival.



Figure 2-2. Project design for the new permanent recreational park area.



Figure 2-3. Design of the project area for the recreational park used for the music festival in Jelling.

2.3 Project design

The following paragraphs will present the overall elements and design of the project, shown in Figure 2-2 and Figure 2-3.

Permanent recreational park area

The recreational park area will be located between the roads Mangehøj and Herningvej and will consist of pathways, planted areas, earth berms with planting, and permanent buildings. The permanent buildings will consist of an office, a workshop/storage facility, and potentially shelters, public restrooms and a playground. There will also be established a small pathway for pedestrians and cyclists on the northern side of Herningvej that connects the town of Jelling to the permanent recreational park area.

The buildings will be constructed within two building zones. The northern building zone will have a maximum building area of 2400 m² and a maximum height of 9 meters, while the southern building zone will have a maximum building area of 1800 m² and a maximum height of 6 meters. They are shown as white areas in Figure 2-2. As part of the project, two large rainwater storage basins will be established to handle surface water, along with ditches to direct rainwater to the basins. Access to the park area will be via Herningvej. The center of the park area will be an open grass field, and different types of trees and shrubs will be planted around the perimeters of the park area. Around the perimeter of the project area and surrounding the building areas, earth berms planted with rows of trees and shrubs will visually enclose the park area. The earth berms will have a maximum height of 5 meters, and the trees will be up to 15 meters tall when fully grown, in the western area up to 20 meters. Trees planted within the park area, that is, not on the earth berms surrounding the perimeter of the project area or the buildings, will reach a height of 8-15 meters tall when fully grown, with a few higher trees. After 3-10 years, the trees will reach a height of approximately 5 meters.

Music festival in Jelling

During the annual music festival in Jelling, the permanent recreational park area will be transformed into the festival's main site. The site will feature concert stages, food stalls, and other festival facilities. The rest of the project area will be converted into temporary camping and parking areas, as shown in Figure 2-3.

The festival is held over five days at the end of May each year. It is expected to attract 50,000 visitors annually in future years. Concerts will take place from noon to 2 am, from Wednesday to Saturday. The set-up and preparation of the festival will take place eight weeks before the festival, and the dismantling and clean-up process will take around four weeks afterwards. In total, the temporary use of the project area for the music festival in Jelling will amount to thirteen weeks each year. The areas R4 and R5, closest to the World Heritage Property, will only be used for 6 weeks, from the middle of April to end of June.

The largest temporary facilities will be placed on the festival site and consist of six concert stages, with the smallest being 5.5 meters tall and the largest being 17 meters tall. There will also be a 40-meter-high mobile tower. Temporary lighting will be set up at the festival site and in the camping and parking areas. The entire project area will be closed off with a two-meter-high fence along the perimeter. Mangehøje will be partially closed during the festival. There will be increased traffic to and from the area during the thirteen weeks of festival-related activities, especially during the five days of the festival.

2.4 Project phases

In the following paragraphs, the activities during the construction and operational phases are described. As the music festival in Jelling takes place after the construction of the permanent recreational park area, the festival-related activities are viewed as part of the operational phase.

2.4.1 Construction phase

The construction phase of the recreational park area is planned to begin in mid-2026 and end by mid-2029. The activities during the construction phase will consist of land grading, construction of berms and permanent buildings, and planting of vegetation. During the construction phase, traffic with heavy vehicles will increase, especially in the first half of the construction period, where the peak load of construction work is expected to take place. During the construction phase, machines, materials, and facilities for the construction workers will be used and temporarily stored within the park area.

2.4.2 Operation phase

The operational phase is expected to begin in mid-2029. The operational activities related to the permanent recreational park area will be minor and consist of maintenance of the park area and its facilities.

The activities related to the execution of the annual music festival in Jelling are described in paragraph 2.3 Project design.

3 Methodology

The HIA was conducted as part of the EIA for the project New Recreational area by Herningvej North of Jelling, and it is based on the framework presented in *Guidance and Toolkit for Impact Assessments in a World Heritage Context* (UNESCO et al., 2022). This framework outlines the principles and understandings of World Heritage properties, and the methodology and tools used to conduct HIAs. Furthermore, the methodology used for this HIA is based on Ramboll's method of Environmental Impact Assessments and the process of EIA according to Danish laws and regulations.

Process

The process of EIA, of which the HIA is a part, is divided into the following phases:

Screening phase

Prior to the preparation of the EIA report, the authority responsible for the EIA process carries out a screening phase. During the screening phase, the authority will publish a contribution to the debate and invite the public, other authorities, and interest groups to submit ideas and comments.

Scoping phase

The authority responsible for the EIA process will prepare a scoping document determining the environmental factors and impacts to be assessed in the EIA report. The scoping document will then be subject to consultation with the relevant authorities. The screening and scoping phases can be carried out in tandem.

EIA reporting

The developer is responsible for applying for environmental permits and for conducting the EIA report for a project. The EIA report must include a project description, and an assessment of the environmental impacts determined by the scoping report. The SEA of a plan is the responsibility of the relevant planning authority. The authority acting as the environmental authority for the EIA or SEA will review the EIA or SEA report to ensure the report meets the requirements of Danish legislation.

Public hearing phase

The EIA report will undergo a public hearing phase lasting a minimum of eight weeks.

Decision-making phase

Responses collected during the public hearing phase will be processed and incorporated into a comprehensive review of the project and the EIA during the decision-making phase. The authority responsible for the EIA process will then determine whether to approve the project and plan. The decision is based on the EIA report, the comprehensive review, and the responses collected during the public hearing phase.

Evaluating impacts

The assessment of the impact of the proposed plan and project on the *Jelling Mounds, Runic Stones and Church*, a World Heritage property, is based on an assessment of the impact on the OUV of the property, specifically the impact on property's attributes. The attributes contribute to the property's value, which is what makes the world heritage site important (UNESCO et al., 2022). When assessing the impact of a project on the OUV of a property, it is necessary to consider the property's immediate and extended environment, as these can play a significant role in supporting the property's OUV. Therefore, proposed actions that will take place within the buffer zone or the wider setting of the property can impact the OUV.

To assess the impacts on the OUV, the attributes, values, and the wider setting are defined, and the potential impacts on the attributes from the proposed project are identified. The identified impacts are evaluated based on the following categories of impact:

- Neutral: Research into the potential impact reveals that no impact would occur to the attribute.
- Minor: Research into the potential impact shows that the impact would be negligible.
- Moderate: Research into the potential impact shows that there would be some impact to the attribute.
- Major: Research into the potential impact shows that there would be a large impact to the attribute.

Based on the evaluation, the report will reach one of three conclusions if the proposed action has a negative impact on the OUV:

- The negative impact is negligible and raises no concern.
- The negative impact is significant, but avoidance and mitigation measures can eliminate or minimize it to an acceptable level.
- The negative impact is significant and cannot be avoided or mitigated; therefore, the proposed action must not proceed if the nomination as a World Heritage Site is to be maintained.

The HIA will use relevant data and analysis that has been gathered and conducted as part of the EIA.

4 Baseline

The baseline describes the World Heritage property, the Outstanding Universal Value, the attributes, the values, the buffer zone, and the wider setting (UNESCO et al., 2022).

Near the site of the new recreational park is World Heritage Site *Jelling Mounds, Runic Stones and Church*. The World Heritage property is geographically defined by:

- The boundary of the property, also known as the Monument Area in Jelling.
- The buffer zone of the World Heritage Site.

The definition of a World Heritage Site depends on the type of heritage site. The World Heritage property is a cultural heritage site. The definition of a UNESCO cultural heritage site is:

“Architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of Outstanding Universal Value from the point of view of history, art or science” (UNESCO, 2023).

4.1 The World Heritage Site Jelling Mounds, Runic Stones and Church

World Heritage Site consists of two burial mounds, two runic stones, a church, a cemetery, a palisade, a ship setting, and remnants of several wooden houses in the form of postholes. The elements were constructed between the mid-10th century AD and the end of the 10th century AD (Nationalmuseet, n.d.-f). The current stone church was built around 1100 AD (Nationalmuseet, n.d.-b).

The burial mounds, runic stones, and church were added to the UNESCO World Heritage List in 1994. The palisade and the ship setting were added to the nomination in 2018 (Nationalmuseet, n.d.-f).

Jelling Mounds, Runic Stones and Church have been nominated for inclusion on the UNESCO World Heritage List because the site fulfils criterion III, as explained below:

"The Jelling Complex, and especially the pagan burial mounds and the two runic stones, are outstanding examples of the pagan Nordic culture" (UNESCO, n.d.-b).

Jelling Mounds, Runic Stones and Church depict the Viking Age in Denmark and the transition from paganism to Christianity, the latter of which became the country's official religion. The World Heritage Site also tells the story of when the country became united as a kingdom and became a nation. The writing on one of the runic stones is believed to be the earliest recorded instance of the name 'Denmark'. In addition, the present Danish royal family can trace their lineage back to this period and have sat on the Danish throne ever since. The Jelling location was a center of royal power in Denmark under Gorm the Old and Harald Bluetooth. However, Harald Bluetooth moved the center of power to Roskilde in the late 900s or early 1000s (Nationalmuseet, n.d.-f). The Jelling Mounds, Runic Stones and Church are a testimony of Harald Bluetooth's reign, as do the Danevirke, the large bridge at Ravning Enge, and the five ring fortresses (Aggersborg at Limfjord, Fyrkat at Hobro, Nonnebakken in Odense, Trelleborg in Slagelse, and Borgring in Køge). These sites are also on the UNESCO World Heritage List (Slots- og Kulturstyrelsen, n.d.).

4.2 Outstanding Universal Value

Outstanding Universal Value (OUV) includes a description of the attributes and values of a World Heritage property, as well as its integrity and authenticity (UNESCO et al., 2022). When a cultural and/or natural site is submitted to the UNESCO World Heritage List, the Committee adopts a Statement of Outstanding Universal Value. The Statement is the key reference for the future protection and management of the heritage site. The OUV should be understood as a cultural and/or natural significance which is exceptional and important for the present and future (UNESCO, 2023).

The World Heritage Site *Jelling Mounds, Runic Stones and Church* are outstanding physical manifestations of the beginning of the transition from Nordic pagan tradition to Christianity in Scandinavia. The site holds outstanding examples of pagan Nordic culture and is exceptional in Scandinavia and Europe (UNESCO, n.d.-b).

4.2.1 Values:

Values are the qualities for which a heritage place is considered important to be protected for present and future generations. Heritage sites have a range of values: architectural, ecological, geological, spiritual, aesthetic, biological, social, historic, etc. (UNESCO et al., 2022).

The values of the *Jelling Mounds, Runic Stones and Church* are defined as (Nationalmuseet, n.d.; UNESCO et al., 2022):

- *Marking the transition from a Nordic pagan society to a European Christian civilization in Scandinavia.*
- *Marking the time when Denmark and Norway became a united kingdom.*
- *Marking the time when Christianity became the official religion of Denmark.*
- *Marking the first appearance of the "Denmark".*
- *Marking the location of the large runic stone as a symbol of Denmark's foundation as a nation.*
- *Marking of the progenitor of the current Danish royal family.*

4.2.2 Attributes:

A heritage site consists of elements that convey its OUV and values, making them understandable. These elements are called attributes, and attributes can be physical qualities or intangible aspects. The attributes are the elements that form the basis of protection, conservation, and management measures (UNESCO et al., 2022).

The attributes for the World Heritage property consist of:

- The runic stones

- The burial mounds
- The church and churchyard
- The palisade.
- The remnants of several wooden houses in the form of postholes
- The ship setting.

The Monument Area in Jelling covers the area around the burial mounds, the runic stones, the church, the palisade, and the ship setting, see Figure 4-1.



Figure 4-1. Overview of the Monument Area (Nationalmuseet, n.d.-e).

4.2.2.1 The runic stones

The Monuments Area in Jelling contains two runic stones. The large runic stone, see Figure 4-2, was erected in 965 AD by Harald Bluetooth in memory of his parents, Queen Thyra and Gorm the Old. It also serves as a testament to Harald's own achievements. The inscription reads, "*King Harald bade this monument be made in memory of Gorm his father and Thyra his mother, that Harald who won for himself all Denmark and Norway and made the Danes Christians.*" The large runic stone is called Denmark's birth certificate, because it is the first evidence of the name Denmark being used and it is a physical proof of the change from paganism to Christianity. The smaller runic stone, see Figure 4-2, was erected by Gorm the Old in honor of Queen Thyra. The inscription reads, "*King Gorm made this monument to his wife Thyra, Denmark's ornament.*" Both runic stones stand in front of the Jelling Church. The church and the runic stones are located between the two burial mounds erected for Gorm the Old and Queen Thyra (Slots- og Kulturstyrelsen, n.d.).



Figure 4-2. To the left: The large runic stone. To the right: the small runic stone (UNESCO, n.d.-b).

4.2.2.2 The burial mounds

The Monument Area contains two mounds: the North Mound and the South Mound, see Figure 4-3. The North Mound, which was built in 958/959 AD, stands on top of an older Bronze Age burial mound. It has a diameter of approximately 62 meters and a height of 8 meters. The deceased person was placed in a wooden burial chamber filled with expensive and valuable equipment. The North Mound is at the center of a ship setting (Nationalmuseet, n.d.-d). The North Mound was built above the burial chamber. Until recently, it was believed that the North Mound had been erected in honor of Gorm the Old. However, recent discoveries relating to the identity of the carver of the runic stone have led researchers to believe that Queen Thyra may have held more power than previously thought, and that the North Mound may have been built in her honor rather than in Gorm the Old's. The North Mound is also called Thyra's Mound, and the South Mound is called Gorm's Mound (Imer et al., 2023). The South Mound was built in around 970 AD, located above the southern end of the ship setting. The South Mound is the larger of the two burial mounds, measuring 70 meters in diameter and 10 meters in height (Nationalmuseet, n.d.-f).



Figure 4-3. To the left: The Northern burial mound. To the right: The South Mound (Nationalmuseet, n.d.-e).

4.2.2.3 The Jelling church

The current Jelling church is a stone church, see Figure 4-4, built around 1100 AD. Before the stone church was built, three wooden churches had been erected. All of these burned down. The first of the wooden churches was possibly built by King Harald Bluetooth around 965 AD and was the largest of the wooden churches of its time (Nationalmuseet, n.d.-c).



Figure 4-4. The Jelling church. Nationalmuseet. Kirkerne i Jelling (Nationalmuseet, n.d.-c).

4.2.2.4 The palisade

In addition to the burial mound, runic stones and church, a palisade framed the area in a square, covering an area of 120,000 m², see Figure 4-5.



Figure 4-5. Left photo: Excavations photo of the palisade (Nationalmuseet, n.d.-e). Middle photo: The remnants of a house found inside the palisade (Nationalmuseet, n.d.-e). Right photo: Contemporary artistic interpretation of the palisade (Fortidens Jelling, n.d.).

The palisade consisted of oak posts and large oak planks and protected the ship setting, burial mounds, runic stones, and the church (Nationalmuseet, n.d.-d). The palisade was discovered during excavations between 2006 and 2024, and it measures 1,440 meters (Nationalmuseet, n.d.-e).

Inside the palisade, several houses reminiscent of those found at the ring fortresses of Trelleborg on Zealand and Aggersborg and Fyrkat in Jutland were discovered, see Figure 4-5. This similarity in design allows the houses to be dated to the second half of the 10th century (Nationalmuseet, n.d.-d). The palisade and the houses have been

artistically recreated and are clearly visible in the landscape, showed in Figure 4-1 and Figure 4-5 (Vejle Kommune, n.d.-b).

4.2.2.5 The ship setting

In the pagan traditions, it was common to bury high-ranking individuals, particularly kings, in stone settings shaped like ships. The ship was considered a means of transporting the deceased to the realm of the dead (Slots- og Kulturstyrelsen, n.d.). The ship setting measures approximately 355 meters in length and 70 meters in width (Nationalmuseet, n.d.-d). The ship setting was first discovered in 1941 when large stones were found at the bottom of the South Mound. It was not until later, in 1964, that the theory emerged that the stones belonged to a large ship setting.

During excavations carried out by Vejlemuseerne between 2006 and 2007, more large stones were discovered. These belonged to the northern end of the ship setting (Hvass, n.d.). The ship setting has been artistically recreated and is clearly visible in the landscape. See Figure 4-6.



Figure 4-6. An overview of the contemporary recreation of the ship setting (Danmarks Nationalleksikon, n.d.).

4.2.3 Authenticity

UNESCO Cultural Heritage properties must meet the conditions of authenticity. Authenticity for cultural heritage *“refers to the degree to which knowledge and understanding of the property’s heritage values are understood and believed to be credible: whether their cultural values are truthfully and credibly expressed through attributes”* (UNESCO et al., 2022).

The World Heritage property meets the conditions of authenticity because the burial mounds have retained their original form. The runic stones are also preserved in large glass casings to protect them from the elements. The National Museum of Denmark has conducted several excavations and documented the findings in archives, retaining the finds. While the current church and cemetery are not the original ones, the site has been used continuously as a church and cemetery for over 1,000 years (UNESCO, n.d.-b).

4.2.4 Integrity

Integrity is “a measure of the wholeness and intactness of the cultural heritage and its attributes: the extent to which the property includes all elements necessary to express its Outstanding Universal Value”. All World Heritage properties must satisfy the conditions of integrity (UNESCO et al., 2022).

The conditions of integrity are met because the property contains all the attributes that express the OUV of the property, especially the fundamental and central elements: the Jelling Mounds, the runic Stones, and the church are preserved and express the value of the property. The setting also contributes significantly to the visual integrity of the property. Changes to the area (buildings and roads) have a limited impact on the integrity of the World Heritage property.

4.2.5 Protection and management

UNESCO describes the protection and management of a cultural site as how a property's Outstanding Universal Value (OUV), including integrity and authenticity, are maintained and improved over time (§96) (UNESCO, 2023). The World Heritage property *Jelling Mounds, Runic Stones and Church* is protected under various laws and regulations such as the Consolidated Act on Museums and the Nature Conservation Act, and under designations in the Vejle Municipal Plan (Vejle Kommune, n.d.-c).

The Consolidated Act on Museums (Legislative Decree No. 1505 of 14 December 2006) protects the burial mounds and runic stones, establishing a 2 meters protection zone around the elements. In addition, the Nature Conservation Act (Section 18) provides an extra 100 m protection zone extending from the initial 2 m zone around the burial mounds and runic stones (UNESCO, n.d.-b). Planning and construction activities in construction, excavation etc. may only be carried out if the cultural environment is considered (Vejle Kommune, n.d.-b). The same applies to the designation of the church surroundings. In this case, the location of the church in the landscape, the view to and from the church, and its interaction with the established surrounding environment must be considered when planning and carrying out construction and excavation work. The Jelling Church has a building restriction zone extending 300 meters from the church. This means that no buildings above 8.5 meters high may be constructed (The Nature Conservation Act, §19). This restriction zone enables the authorities to ensure that no elements are built that could affect the church's visual impact on the landscape (Vejle Kommune, n.d.-a).

The Mangelhøj area and the Monument Area is designated as a valuable cultural environment in the municipal plan for Vejle Municipality. According to Vejle Municipality's guidelines, no facilities or constructions that would interfere with the monument area may be established (Vejle Kommune, 2025b). The view to and from the north of the Monument Area has been protected by an area protection designation since 1947. This protection is intended to prevent construction and preserve the landscape views north of the Monument Area, protecting the experience of the site's landscape and history, as well as the views of the burial mounds from the area north of the Monument Area (Fredningskendelser Jellingehøjene, n.d.).

The runic stones are protected from the elements in air-conditioned glass casings, see Figure 4-7.



Figure 4-7. The runic stones are placed in glass cases (UNESCO, n.d.-b).

Before the conservation efforts, the runic stones were in critical condition, with several cracks and areas with hollow spaces inside them. The air conditioning in the glass cases controls the climate around the stones, preventing further damage. The large runic stone was not moved during the installation of the glass case. This helps to preserve the authenticity of the large stone, which remains where it was originally installed more than 1,000 years ago (Hvass, n.d.). Furthermore, subdued discreet lighting highlights the runic stones during the dark hours. The lighting consists of fiber optics that will not discolor the runic stones (Hvass, n.d.).

4.2.5.1 The buffer zone

The buffer zone, which covers an area of over 59.2 hectares around the property boundaries, see Figure 4-8, contributes to the protection, management, sustainability, conservation, authenticity, and integrity of the property's OUV. Although it is not a part of the inscribed property, the buffer zone should be viewed as an integral component of its management, protection, and conservation of the property (UNESCO, n.d.-a). Within the buffer zone, no facilities, installations, or buildings that dominate or disturb the protected monument may be constructed (Vejle Kommune, n.d.-c). The buffer zone is also designated in the Vejle Municipal Plan. In the municipal plan, the buffer zone is an area where buildings and uses are related to the Monuments' area in Jelling, and the zone has the closest interaction with the monument area. The buffer zone is naturally defined by the crossing roads: Mangelhøj, Herningvej, and Gormsgade (Vejle Kommune, n.d.-c). Part of the buffer zone in the northern part of the area has been protected by an area protection designation since 1947 (Fredningskender Jellingehøjene, n.d.).

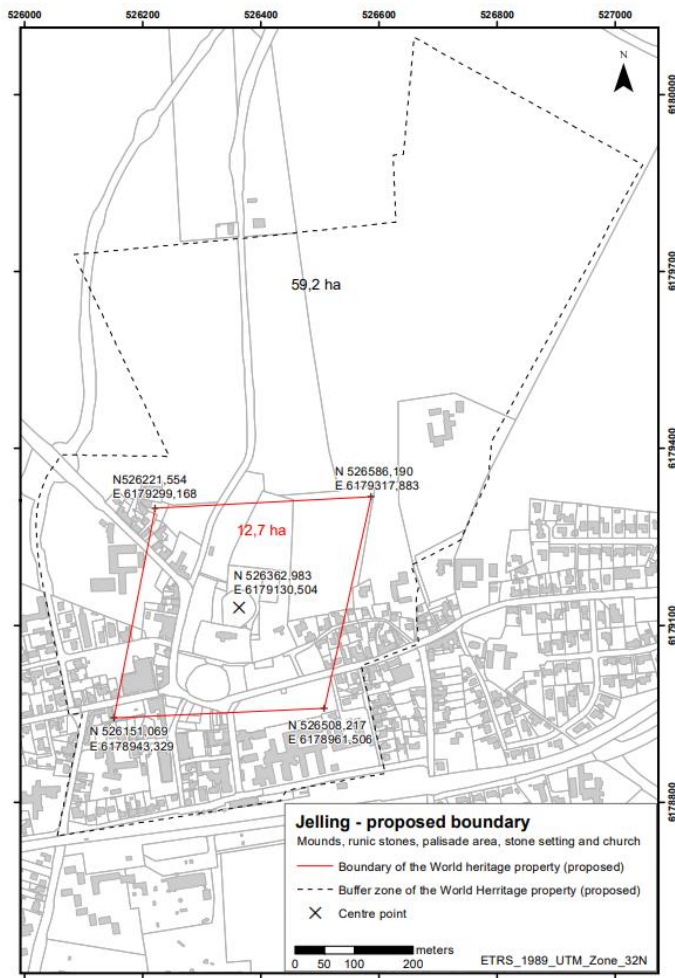


Figure 4-8. Map of the World Heritage property boundary and buffer zone (UNESCO, 2018).

4.3 The wider setting

The wider setting encompasses with topography, the natural and built environment, infrastructure, land-use pattern, spatial organization, and visual conditions, as well as related social and cultural practices, economic processes, and other intangible dimensions of cultural heritage, such as perceptions and associations. The wider setting also has a part in protecting the authenticity and integrity of the cultural heritage site (UNESCO et al., 2022). It is not required to define the wider setting of a property to be nominated as a World Heritage Site. Therefore, it is often defined during the HIA or EIA process. The Jelling World Heritage property has no official definition of its wider setting. However, the setting of the property is stated to contribute greatly to its visual integrity of the property (UNESCO, n.d.-b). For this HIA, the wider setting is defined as the landscape visible from the property. As the proposed project is located to the north of the property, the wider setting is specifically defined as the landscape visible from the North Mound in a northerly direction, since this is the highest viewpoint from which the surrounding landscape can be seen. Figure 4-9 shows a photograph taken from the North Mound facing north. From this viewpoint, part of Jelling town can be seen to the west, as well as the palisade, the ship setting and the cemetery at the front. To the north-east, there is more dense vegetation. To the north and north-west, long-distance views of the landscape are visible, with fields sometimes stretching a few kilometers into the distance, framed by vegetation and terrain.



Figure 4-9. Panoramic photograph from the top of the North Mound overlooking the landscape facing north (LYTT, 2025)
Landscape analysis

4.4 Landscape analysis

The landscape in and around the project area is characterized as a moraine landscape with a hummocky topography that is situated above the average elevation in Denmark. Apart from the town of Jelling and the structures surrounding the Monument Area to the west, south and east, the landscape mostly consists of agricultural land with agricultural properties and other houses scattered in the landscape. The vegetation is either fragmented and scattered or more structured with planted hedgerows along the borders of fields. There are few industrial facilities in the area; those which are present are mostly situated in the southern part of Jelling. The roads running through and alongside the project area are visible infrastructural elements in the landscape and can create visual disturbance from passing cars. However, there are no roads with heavy traffic, and the roads are also from where people primarily view the World Heritage Property.

The terrain, open fields and vegetation create a landscape in and around the project area that is relatively calm and open with some long-distance landscape views that are framed by the vegetation, terrain and buildings. During summer, the landscape seems less transparent than in the winter, where you can partially look through the bare-leaved trees and there are no crops on the fields that could potentially obstruct views. Especially from the top of the Northern burial mound, it is possible to see further in the distance in a northern direction.

4.5 Noise regulations

Today, the planning and project area primarily consists of cultivated agricultural land. This means that the area and its surroundings are regularly affected by noise and vibrations from large agricultural machinery. The project area is in a region with soft terrain, consisting mainly of fields and green spaces. It is not currently designated as being exposed to noise (Rambøll, 2025). The monument area is both a cultural heritage site and a recreational area.

According to the Danish Environmental Protection Agency's guideline for threshold values for noise from businesses, shown in Table 4-1, the noise limit for a recreational park is between 35-40 dB, depending on the time of day.

Table 4-1. The Environmental Protection Agency's guideline on the recommended noise limits from industry (Miljø- og Ligestillingsministeriet, n.d.).

	Monday-Friday 07-18, Saturday 07-14	Monday-Friday 06-22, Saturday 14-22, Sunday and public holidays 07-22	Everyday 22-07
Industrial and commercial areas	70 dB	70 dB	70 dB
Industrial and commercial areas with ban against annoying activities	60 dB	60 dB	60 dB
Areas for mixed dwellings and commercial use, center areas, etc.	55 dB	45 dB	40 dB
Multi-story dwelling areas	50 dB	45 dB	40 dB
Dwelling areas, low rise dwellings	45 dB	40 dB	35 dB
Areas for holiday cottages, recreational areas	40 dB	35 dB	35 dB

There are no specific guidelines on noise limits for occasional events such as music festivals. Vejle Municipality has no general guidelines. However, other municipalities in Denmark use a criterion value of 70 dB averaged over 15 minutes for outdoor music events. At concerts, noise levels vary but are dominated by the sound of the loudspeaker systems. Noise levels from the audience are irrelevant to overall noise levels in the surroundings. There are no noise guidelines for camping areas.

5 Identifying potential impacts

The potential impacts on the property's OUV have been identified by examining how the proposed project actions could affect the attributes of the property, which convey the values of the heritage property. Direct, indirect, and cumulative impacts have been examined. The potential impacts identified are listed in Table 5-1 and consist of three types of environmental impact:

- Visual disturbance to views between the Monument Area and the landscape north of the Monument Area
- Noise disturbance
- Physical wear and tears

As shown in Table 5-1, the attributes are potentially impacted in different ways.

Table 5-1. The potential impact identified.

	Element of the project that has the potential to cause an impact		
Attributes	Construction of recreational park area	Operation of recreational park area	Annual execution of the music festival in Jelling
Runic stones	No impact	No impact	Noise from the music festival may affect visitors' experience of the cultural heritage.
The North Mound	Impact on the visual landscape from activities (machines, temporary facilities) during	Impact on the visual landscape from the new recreational park area. Specifically, the impact on	Impact on the visual landscape from the concert facilities during the music festival in Jelling. Specifically, the impact on the views of the landscape

	construction of the recreational park area.	views of the wider setting from the North Mound.	to the north from the North Mound and the views of the North Mound from the buffer zone. Noise from the music festival may affect visitors' experience of the cultural heritage. An increase in pedestrian traffic between the Jelling Town and the music festival site could potentially lead to more people using the North Mound, causing increased physical wear and tear.
The South Mound	No impact	No impact	Impact on the visual landscape from the concert facilities during the music festival in Jelling. Specifically, the impact on the views of the landscape to the north from the South Mound. Noise from the music festival may affect visitors' experience of the cultural heritage. An increase in pedestrian traffic between Jelling Town and the music festival site could potentially lead to more people using the South Mound, causing increased physical wear and tear.
The church	No impact	No impact	Impact on the visual landscape from the concert facilities during the music festival in Jelling. Specifically, the impact on the views of the church from the buffer zone. Noise from the music festival may affect visitors' experience of the cultural heritage.
The palisade (northern border)	Impact on the visual landscape from activities (machines, temporary facilities) during construction of the recreational park area. The potential visual impact only affects the northern border of the palisade.	Impact on the visual landscape from the new recreational park area. Specifically, the impact on views of the wider setting from the palisade.	Impact on the visual landscape from the concert facilities during the music festival in Jelling. Specifically, the impact on the views of the landscape to the north from the palisade and the views of the palisade from the buffer zone. Noise from the music festival may affect visitors' experience of the cultural heritage. An increase in pedestrian traffic between the town of Jelling and the music festival site could potentially lead to increased physical wear and tears of the palisade.
Ship setting (northern part)	Impact on the visual landscape from activities (machines, temporary facilities) during construction of the recreational park area. The potential visual impact	Impact on the visual landscape from the new recreational park area. Specifically, the impact on views of the wider setting from the ship setting	Impact on the visual landscape from the concert facilities during the music festival in Jelling. Specifically, the impact on the views of the landscape to the north from the ship setting Noise from the music festival may affect visitors' experience of the cultural heritage.

	only affects the northern part of the ship setting.		An increase in pedestrian traffic between the Jelling Town and the music festival site could potentially lead to increased physical wear and tear of the ship setting.
--	---	--	--

5.1 Impact on the visual landscape

The proposed project aims to establish a permanent recreational park, which will be the setting of the annual music festival in Jelling. The area is located outside of the boundaries of the World Heritage property and the surrounding buffer zone. Except for the pathway on the northeastern side of Herningvej connecting the town with the permanent recreational park, which is located within the buffer zone. The permanent recreational park area is, however, located within the wider setting and will be visible from the North Mound, the palisade, and the ship setting. The construction and the operation of the new recreational park area could potentially impact the landscape views by obstructing or disturbing the view of the wider setting from the North Mound, the palisade, and the ship setting. During the construction phase, an increase in working machinery, storage of construction materials and temporary facilities/buildings may be visually disturbing. Over time, the earth berms, the new permanent buildings, and the new vegetation at the permanent recreational park will gradually limit or block the views of these elements in the wider setting.

The annual music festival in Jelling takes place in the permanent recreational park area and part of the property's buffer zone. Most of the festival facilities will be in the park area, with the camping areas situated in the buffer zone. The festival may impact the appearance of the landscape to the north and northwest as seen from the burial mounds, the palisade, and the ship setting, as well as the visual experience of the North Mound, the church, and the palisade from the buffer zone.

5.2 Impact of noise

The permanent recreational park area will be the primary location of the annual music festival in Jelling. This is where the stages, food stalls, bars etc. will be located. This part of the music festival in Jelling is located outside the boundaries of the World Heritage property and outside its buffer zone. As a part of the festival, a camping area will be set up in the buffer zone. The performances at the festival will involve noise from loud music and crowds, especially during the festival days, and will, therefore, potentially impact the experience of the property and its attributes.

5.3 Impact of wear and tears

The music festival in Jelling will increase the pedestrian traffic between town of Jelling and the festival area. As the World Heritage Site is located between the train station and the festival site and functions as a recreational area, the increase in pedestrian traffic and visitors could potentially cause an impact of wear and tear to the burial mounds.

6 Evaluating potential impacts

In the following chapter, the identified potential impacts are evaluated based on data collected, visualizations, and analysis done as part of the project's EIA. The evaluation has also been based on the tool to evaluate potential impacts in the *Guidance and toolkit for Impact Assessments in a World Heritage context (UNESCO et al., 2022)*.

6.1 Impact on the visual landscape

6.1.1 Construction phase: Impact of the visual landscape

6.1.1.1 The North Mound, the palisade, and the ship setting

The construction of the new recreational park area will be visible from the North Mound, the palisade, and the ship setting in a northwestern direction. However, it will only be visible from a distance, as the park area is located approximately 200-400 m away from the three attributes. Temporary facilities for workers, construction materials and machines used for grading the terrain, building earth berms and constructing permanent buildings will be visible. There will also be an increase in heavy traffic and vehicles to and from the construction site during the construction phase.

Construction activities in the recreational park area will generate some visual noise and obstruct views from the three attributes, as the construction site will give the landscape a more technical appearance. Construction machinery, trucks, and facilities are rather small elements in the landscape that will move around, so they will not block the views of the landscape and the wider setting from the three attributes. However, as construction of earth berms and buildings progresses, there will be more permanent changes to the landscape of the recreational park area. The earth berms will seem uncharacteristic of the landscape during the construction period, before they are not yet planted with vegetation. The view from the open field to the west of the riad Mangehøje and the hedgerow in the distance will also be obstructed by the construction of the earth berms and the buildings.

Construction activities will only occur during the three-year construction period, so they are denoted as long-term. While most construction activities are reversible and temporary, the construction of earth berms will cause irreversible and permanent changes to the existing terrain in the recreational park project area. While the change to the experience of the landscape and the wider setting will be negative, it will be negligible, as the long-distance views of the landscape will not be obstructed by the construction activities, which will take place relatively far from the Monument Area. Thus, they will cause only minimal visual noise and visual disturbance. The impact of activities during the construction phase on the attributes will be minor.

Table 6-1. Assessment of the potential impact of the visual landscape during the construction phase of the recreational park

Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of impact to the attribute	Longevity of impact to the attribute	Degree of impact to the attribute	Quality of impact to the attribute	Evaluation of impact
The North Mound, the palisade, and ship setting (northern part)	Impact on visual landscape	Once	Long-term	Reversible (except construction of earth berms)	Reversible (except construction of earth berms)	Temporary (except construction of earth berms)	Negligible	Negative	Minor

6.1.2 Operational phase: Impact of the visual landscape from new park area

6.1.2.1 The North Mound

The proposed recreational park area to the north of Jelling, located approximately 400 m northwest of the North Mound, will be visible at the distance from the top of the North Mound. Figure 6-1 shows the current view during the winter period, and Figure 6-2 shows the visualization of the new recreational park.



Figure 6-1. Panoramic view of the current view from the top of the North Mound in a northern direction (LYTT, 2025).



Figure 6-2. Visualization of the new recreational park from the top of the North Mound (LYTT, 2025).

The visualization illustrates how the park will look once the planted trees and bushes are fully grown. Once the vegetation has matured, the office and storage buildings will be hidden from view, as will the earth berms. From this viewpoint, the park will resemble a small, forested area or a thick hedgerow and blend into the landscape. However, the park will obstruct the landscape views from this viewpoint, as the trees will block the existing long-distance views to the northwest. During the initial years of operation, trees and bushes will be smaller and as a result, the buildings and earth berms will be partially visible until the vegetation has grown to its height and size. The earth berms and buildings are less characteristic of the existing landscape north of Jelling and, therefore, seem more out of place or visually disturbing. The trees will not block long-distance views until they are fully grown, as well as during winter when deciduous plants have no leaves, because they are more visually transparent.

The operational phase of the new recreational park will result in continuous and permanent changes to the wider landscape and the views from the North Mound. It will be an irreversible change in the sense that, even if the

recreational park were to be dismantled, it would not be possible to restore the terrain regulations to its original state. However, the long-distance views could be restored by removing the trees, which would, therefore, be reversible. The new recreational park will have some negative indirect impact on the attributes of the World Heritage property by limiting or blocking long-distance views and introducing elements that are not characteristic of the landscape, such as earth berms and office and storage buildings. The views of the wider setting in a straight northern direction and in the buffer zone will not be affected. Once the trees and bushes have fully grown, the park will blend in with the surrounding area and will still be perceived as a relatively visually calm landscape dominated by agricultural fields and scattered vegetation. Therefore, the visual impact on the North Mound is assessed as minor.

6.1.2.2 The palisade and the ship setting

The proposed recreational park area to the north of Jelling is located approximately 200 meters northwest of the northern boundary of the palisade, and around 300 meters from the northern part of the ship setting. Figure 6-3 and Figure 6-5 show the existing view from the palisade during the winter period, while Figure 6-4 and Figure 6-6 show the visualization of the new recreational park.



Figure 6-3. Photos of the existing view from the center of northern border of the palisade, in northern direction (LYTT, 2025)



Figure 6-4. Visualization of the new recreational park from the center of the northern border of the palisade (LYTT, 2025)



Figure 6-5. Panoramic view of the existing view from the northeastern border of the palisade, looking north (LYTT, 2025).



Figure 6-6. Visualization of the new recreational park from the northeastern border of the palisade (LYTT, 2025).

Figure 6-4 shows what the park will look like from a point at the center of the northern border of the palisade, looking northwestern, once the trees and bushes have been planted and are fully grown. Figure 6-6 shows how the park will look from the northeastern corner of the palisade. Similarly to the view from the North Mound, buildings and earth berms will be hidden by the vegetation once it is fully grown, and the vegetation will blend in with the landscape. Unlike the view from the North Mound, however, the view from the palisade and the ship setting is not elevated, so it is not possible to see as far. The new recreational park will not obstruct the long-distance view to the same extent as the North Mound viewpoint. However, there will be some loss of depth in the landscape views and the new recreational park's vegetation will limit the long-distance landscape views to some degree from this "ground level" viewpoint. When the vegetation is not fully grown, the earth berms and the buildings will be partially visible, and the earth berms will obstruct long-distance views.

The operational phase of the new recreational park will be a continuous and permanent change to the landscape in the wider setting and to the views from the palisade and ship setting. The change will be irreversible in the sense that, even if the recreational park were to be dismantled, it would not be possible to restore the terrain to its original state. However, the long-distance views could be restored by removing the trees, which would, therefore, be reversible. The new recreational park will have some negative indirect impact on the attributes of the World Heritage property by limiting or blocking long-distance views and introducing elements that are not characteristic of the landscape, such as earth berms and office and storage buildings. Views of the wider setting in a straight northern direction and in the buffer zone will not be affected. Once the trees and bushes have fully grown, the park will blend in with the surrounding area and will still be perceived as a relatively visually calm landscape dominated by agricultural fields and scattered vegetation. Therefore, the visual impact on the palisade and the ship setting is assessed as minor.

Table 6-2. Assessment of the potential impact of the visual landscape in the operational phase of the recreational park.

Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of impact to the attribute	Longevity of impact to the attribute	Degree of impact to the attribute	Quality of impact to the attribute	Evaluation of impact
The North Mound	Impact on visual landscape	Continuous	Long-term	Reversible (except for changes to original terrain)	Reversible (except for changes to original terrain)	Permanent	Some	Negative	Minor
The palisade and ship setting (northern part)	Impact on visual landscape	Continuous	Long-term	Reversible (except for changes to original terrain)	Reversible (except for changes to original terrain)	Permanent	Some	Negative	Minor

6.1.3 Operational phase: Impact of the visual landscape from music festival in Jelling

6.1.3.1 The North Mound

During the execution of the music festival in Jelling, the festival activities and facilities will be visible from the top of the North Mound, as shown in [Figure 6-7](#).



Figure 6-7. Visualization of the music festival in Jelling facilities and activities from the top of the North Mound (LYTT, 2025).

In the camping area, it will mainly be tents and facilities such as toilets, fencing and food stalls that are visible, as one of the camping areas is located just north of the Monument Area. The stage facilities and other facilities in the park area will be less visible once the park vegetation has fully grown. However, these facilities will be more visible during the first years of operation. The festival facilities and camping areas will cause visual disturbance or visual noise to the views of the landscape in the buffer zone and the wider setting from the North Mound. As shown in Figure 6-9, the facilities and camping areas will also create visual disturbance and visual noise to the views from the buffer zone overlooking the North Mound. As shown in Figure 6-11, they will also block the views of the North Mound from the Mangelhøjje road. The facilities and camping areas also appear less characteristic of the existing landscape.



Figure 6-8. Panoramic view of the existing view and visualization of the permanent park area from the path between the road Mangehøje and the monument area, in southern direction (LYTT, 2025).



Figure 6-9. Visualization of the music festival in Jelling facilities and activities from the path between the road Mangehøje and the monument area, in southern direction (LYTT, 2025).



Figure 6-10. Panoramic view of the existing view and visualization of the permanent park area from the road Mangehøje, in southern direction (LYTT, 2025).

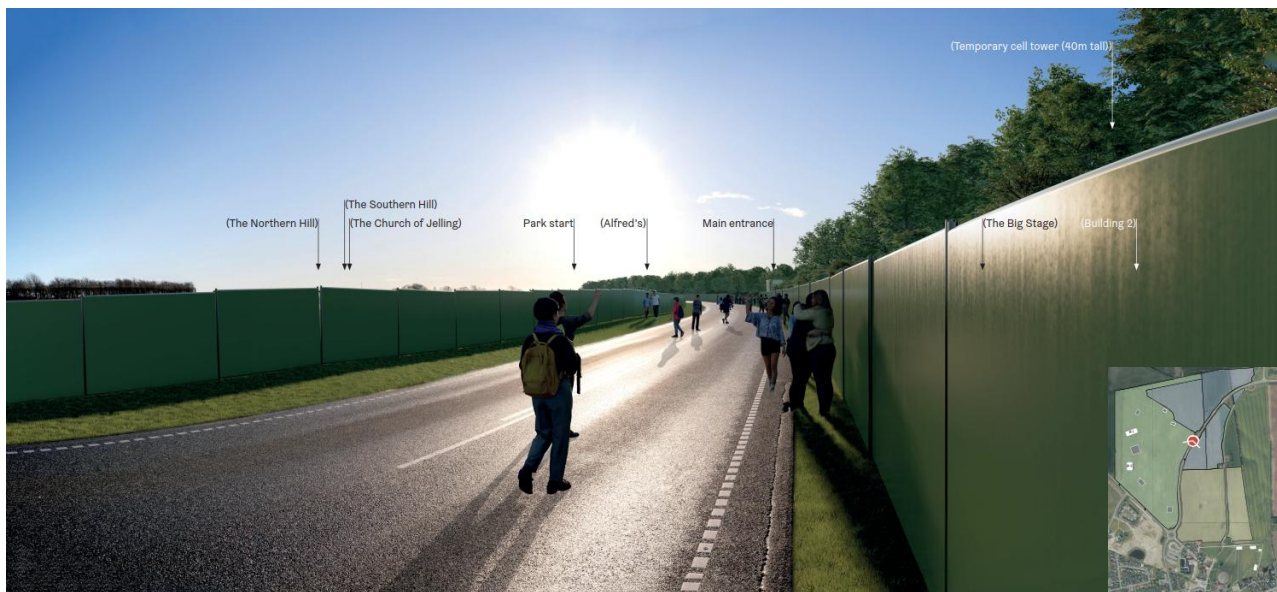


Figure 6-11. Visualization of the Jelling Music Festival facilities and activities from the road Mangehøje, in southern direction (LYTT, 2025).

The music festival in Jelling is intermittent because, although it is held every year, it has a short-term duration around the weekend, normally the last weekend of May. In the period of the festival, there are camps and concert up to five days. The festival includes setup and dismantling, are from beginning of April to end of June, except area R4 and R5, where it is limited to last of April to middle of June. The activities and changes to the views of and from the North Mound are reversible and temporary, as the facilities are dismantled and the area cleaned up after the festival. After the festival, the project area will revert to open fields, and the new recreational park will return to normal operation. However, the visual impact on the views to and from the North Mound will be significant and negative during the festival, particularly during the five days of the festival itself.

Given the short duration and reversibility of the changes, the visual impact on the North Mound is considered minor.

6.1.3.2 The South Mound

From the top of the South Mound, only the camping area will be visible during the execution of the festival as shown in Figure 6-12 and Figure 6-13.



Figure 6-12. Panoramic view of the existing view and visualization of the permanent park area from the top of the South Mound, in northern direction (LYTT, 2025).



Figure 6-13. Visualization of the Jelling Music Festival facilities and activities from the top of the South Mound, in northern direction (LYTT, 2025).

The camping area, including the tents and fencing, will only be partially visible in the distance due to the church, the cemetery, the runic stones, and the buildings being at the forefront of the view. The photographs were taken in the winter when most of the trees north of the South Mound have no leaves. Since the festival will be held in summer, the trees will have leaves and will not be as visually transparent as they appear in the photographs. Therefore, the camping area will be even less visible than the visualization suggests, and the impact on the view of the landscape within the buffer zone from the South Mound will be negligible. As the music festival in Jelling is a short-term annual

event that does not result in any irreversible changes to the landscape views from the South Mound, the visual impact on the South Mound is negligible.

6.1.3.3 The Jelling Church

The festival facilities and activities will not be visible from the church, but the view of the church from the buffer zone will be affected by the camping area. As Figure 6-8 and Figure 6-11 show, the church can be seen from the path leading from Mangehøje to the Monument Area, as well as from the road Mangehøje. The path is located within the property's buffer zone and within the future camping area during the music festival in Jelling. The road Mangehøje, meanwhile, is located in the wider setting at the border of the buffer zone.

During the festival days, the tents and other facilities in the camping area will be visually disturbing. They will distract from the view of the church and will seem out of place of the landscape. However, the visibility of the church from these viewpoints will be more limited during the summer when the festival takes place, as the trees in front of the church will have leaves, and, therefore, not be as visually transparent as they are in winter. The impact on the view of the church from the buffer zone will be negligible, as the visibility of the church is already minimal in summer. In contrast, there will be a significant visual impact on the view of the church from Mangehøje, as the view of the church will be blocked. The overall visual impact on the church is minor due to the reversible, short-term and temporary nature of the music festival in Jelling activities.

6.1.3.4 The palisade and the ship setting

Figure 6-14 and Figure 6-15 show a visualization of the visibility of the festival from the palisade and the ship setting. From these viewpoints, the views of the landscape will be partially obscured by fences relatively close to the palisade and the ship setting. The tents will be partially visible through a gate, see Figure 6-14.



Figure 6-14. Visualizations of the music festival in Jellings facilities and activities from the center of the northern border of the palisade (LYTT, 2025). The visualization on top shows the fences with green plastic. The bottom one shows plastic with motifs of trees.



Figure 6-15. Visualization of the music festival in Jellings facilities and activities from the northeastern border of the palisade (LYTT, 2025).

As shown in Figure 6-9 and Figure 6-11, the view of the palisade from the buffer zone will be affected, either because tents and camping facilities are visually disturbing and distracting elements that are not characteristic of the landscape, or because the fence blocks the view of the palisade from the road Mangehøje.

The degree to which the views from the ship setting and the palisade will change is significant, as the landscape view will either be blocked or affected by visual disturbance. The view of the palisade from the buffer zone will also change significantly as the landscape view will either be blocked or affected by visual disturbance. However, the visual impact on the ship setting and especially the palisade is considered minor due to the reversible and short-term nature of the impact.

Table 6-3. Assessment of the potential impact of the visual landscape during the music festival in Jelling.

Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of impact to the attribute	Longevity of impact to the attribute	Degree of impact to the attribute	Quality of impact to the attribute	Evaluation of impact
The North Mound	Impact on visual landscape	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Minor
The South Mound	Impact on visual landscape	Intermittent	Short term	Reversible	Reversible	Temporary	Negligible	Negative	Minor
The Jelling Church	Impact on visual landscape	Intermittent	Short term	Reversible	Reversible	Temporary	Negligible	Negative	Minor
The palisade and the ship setting (northern part)	Impact on visual landscape	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Minor

6.2 Impact of noise

6.2.1 Evaluation of the noise impact of the Jelling Music Festival

The Jelling Music Festival has provided information on the speaker systems and stage locations on the festival site. The calculations represent worst-case scenarios for noise propagation into the surrounding area. During a normal concert, however, the sound level will vary significantly from moment to moment, as will the noise propagation.

The expected maximum sound level is listed in Table 6-4.

Table 6-4. The expected maximum sound level.

Scene	Sound level at mixing console	Source height above ground
The Big Stage	102 dB	7 meters
The Tent Stage	101 dB	5 meters
The Tribune Stage	98 dB	5 meters
Alfred's	97 dB	3 meters
The Lake Pavillion	92 dB	3 meters
The Camp Stage	96 dB	3 meters

Concerts will be planned so that not all stages have concerts at the same time. Noise propagation is calculated based on the stage combinations of when concerts are played simultaneously. For the time being, the concerts will take place simultaneously on the following stages:

- The Big Stage, The Tribune Stage, The Lake Pavillion, The Camp Stage
- The Big Stage, Alfred's, The Camp Stage
- The Tent Stage, The Tribune Stage, The Lake Pavillion, The Camp Stage
- The Tent Stage, Alfred's, The Camp Stage

The festival playing times are shown in Table 6-5.

Table 6-5. The festival playing times.

Day	Playing times
Wednesday	16:15 – 01:40
Thursday	12:15 – 01:45
Friday	12:30 – 01:45
Saturday	12:30 – 01:45

The camping areas for the Jelling Music Festival are divided into three zones: North, East-A and East-B. The calculations are based on Ramboll's Environmental Impact Assessment of the new stadium in Aarhus. This assessment calculated the noise contributions from crowds in the fan zones outside the stadium. It is estimated that the noise generated by festival guests and football fans at the stadium is comparable. For fan zones with 10,000 people, a source strength of 98 dB is used. The same source strength of 98 dB is used for the North and East-A camping areas, while the noise propagation for the camping area East-B is estimated to be 3 dB lower, as its capacity is half that of East-A.

The noise propagation maps use a color scale, with green indicating noise levels below the criterion value of 70 dB. Areas colored yellow, orange, or red indicate noise levels that are 0-5 dB, 5-10 dB and 10-15 dB higher than the limit value for those time periods.

The noise generated by the Jelling Music Festival is calculated in accordance with the Danish Environmental Protection Agency's guide 5/1993, "*Beregning af ekstern støj fra virksomheder*" ("Calculation of External Noise from Industrial Plants"). The criterion value for noise used in noise calculations is 70 dB, as this is the criterion value for noise from outdoor music events in other municipalities. However, noise levels below this criterion value will still impact the experience of the attributes, so the normal threshold values for noise need to be considered in the assessment. The normal threshold values for noise from businesses in the Monument area of Jelling are 35/40 dB – 40/50 dB.

The noise analysis shows that noise propagation exceeds the limit value of 70 dB. Areas that are not marked with a color indicate that the noise level is below the 70 dB limit. This does not mean that there will be no noise, as there will be noise from the Jelling Music Festival. However, this noise will be at a level that does not exceed the 70 dB limit. The data and the results of the analysis are detailed in the report (Rambøll, 2025)

The noise analysis results for the combination of the Big Stage, the Tribune Stage, the Lake Pavillion and the Camp Stage, are shown in

Table 6-6. This concert combination will result in a noise propagation impact at the North Mound, the palisade, the ship setting, and the northern side of the church. The South Mound and the runic stones will not be affected by noise above the limit value at 70 dB, see Figure 6-16. However, even though the noise level will not exceed the 70 dB limit, there will still be noise from the festival impacting the South Mound and the runic stones. Nevertheless, the impact will be less significant because much of the noise from the festival area is minimized by the buildings, the church, and the North Mound.

Table 6-6. Noise levels on the facade of residential dwellings during all concerts at the Big Stage, the Tribune Stage, the Lake Pavillion, and the Camp Stage.

Calculation point	Noise level, L _{Aeq}
Asta Andersens Vej 13	76 dB
Dalvænget 4	68 dB
Herningvej 16	71 dB
Herningvej 18	74 dB
Herningvej 20	66 dB
Mangenhøj 45	76 dB
Thyrasvej 9	62 dB
Tørringvej 17	71 dB

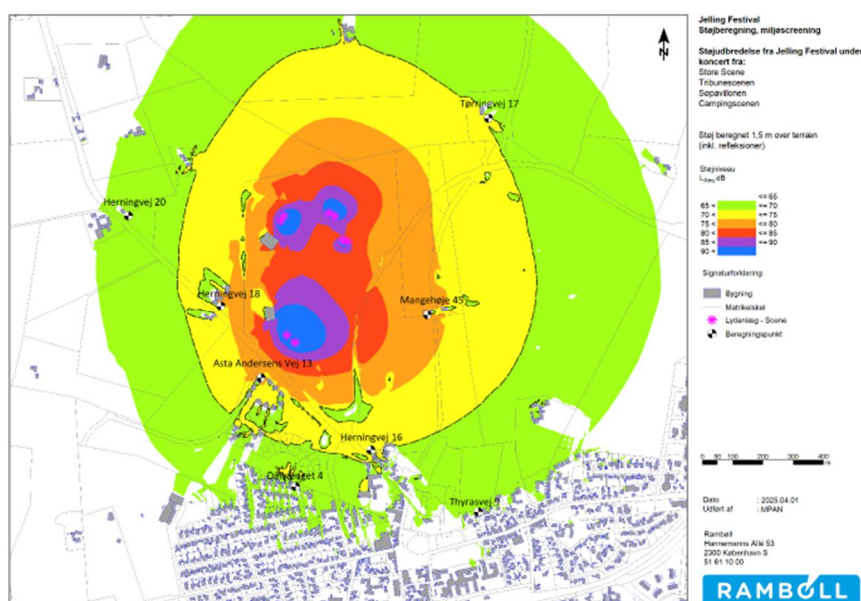


Figure 6-16. The noise propagation from concerts at the Big Stage, the Tribune Stage, the Lake Pavilion, and the Camp Stage.

The noise analysis results for the concerts at the Big Stage, Alfred's, and the Camp Stage are shown in Table 6-7. The noise propagation from the concert combination will have an impact at the North Mound, the palisade, the ship setting, and the northern side of the church. The South Mound and the runic stones will not be affected by noise above the limit value of 70 dB, see Figure 6-17. However, even if the noise level does not exceed the 70 dB limit, the

area's soundscape will change as it will be possible to hear the Jelling Music Festival noise in the monument area to a certain extent.

Table 6-7. Noise level on the facade of residential dwellings during all concerts at the Big Stage, Alfred's, and the Camp Stage.

Calculation point	Noise level, L_{Aeq}
Asta Andersens Vej 13	76 dB
Dalvænget 4	68 dB
Herningvej 16	71 dB
Herningvej 18	74 dB
Herningvej 20	66 dB
Mangehøje 45	77 dB
Thyrasvej 9	62 dB
Tørringvej 17	70 dB

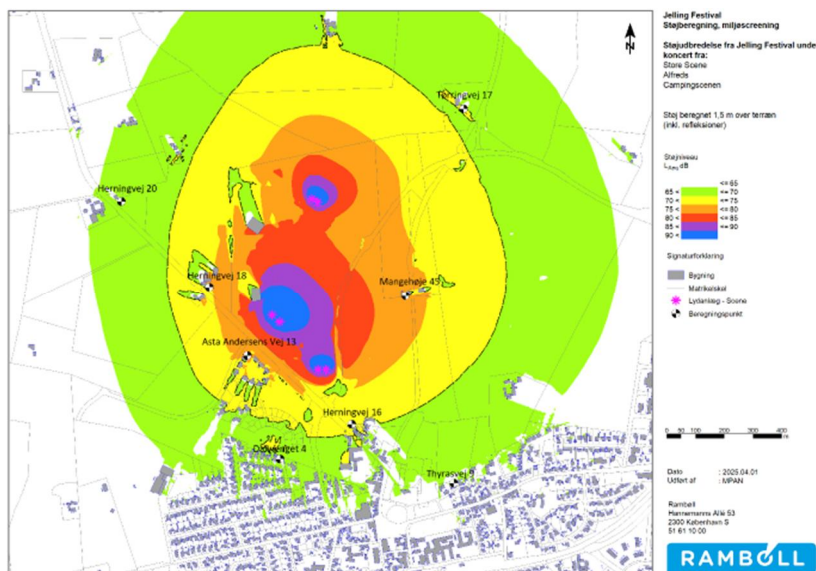


Figure 6-17. The noise propagation from concerts at the Big Stage, Alfred's, and the Camp Stage.

The noise analysis results for the concerts at the Tent Stage, the Tribune Stage, the Lake Pavilion, and the Camp Stage are shown in Table 6-8. The noise propagation from the concert combination will have an impact at the North Mound, the palisade, the ship setting, and the northern side of the church. The South Mound and the runic stones will not be affected by noise above the limit value of 70 dB, see Figure 6-18. However, even if the noise level does not exceed the 70 dB limit, there will still be a noise impact from the festival by the South Mound and the runic stones. The extent of the impact will not be less significant, as much of the noise from the festival area is minimized by the buildings, the church, and the North Mound.

Table 6-8. Noise level on the facade of residential dwellings during all concerts at the Tent Stage, the Tribune Stage, the Lake Pavilion, and the Camp Stage.

Calculation point	Noise level, L_{Aeq}
Asta Andersens Vej 13	76 dB
Dalvænget 4	68 dB
Herningvej 16	71 dB
Herningvej 18	74 dB
Herningvej 20	66 dB
Mangehøje 45	77 dB
Thyrasvej 9	62 dB

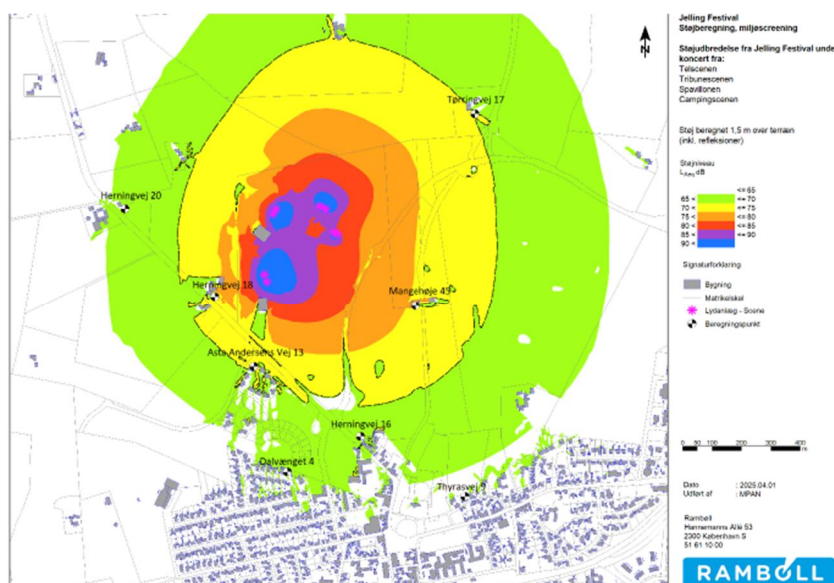


Figure 6-18. The noise propagation from concerts at the Tent Stage, the Tribune Stage, the Lake Pavilion, and the Camp Stage.

Tørringvej 17	70 dB
---------------	-------

The noise analysis results for the concerts at the Tent Stage, Alfred's, and the Camp Stage are shown in Table 6-9. The noise propagation from the concert combination will not have an impact at the North Mound, the ship setting, the church, the South Mound, or the runic stones. The noise level will not exceed the limit value of 70 dB, but the northern part of the palisade will experience noise above the limit value, see Figure 6-19. The other attributes will not be affected by noise above the limit value of 70 dB, see Figure 6-19. Even though the noise level does not exceed the 70 dB limit, the festival will still have a noise impact on the other attributes. However, it will not be the same degree of impact.

Table 6-9. Noise level on the facade of residential dwellings during all concerts at the Tent Stage, Alfred's, and the Camp Stage.

Calculations point	Noise level, L _{Aeq}
Asta Andersens Vej 13	71 dB
Dalvænget 4	66 dB
Herningvej 16	69 dB
Herningvej 18	74 dB
Herningvej 20	66 dB
Mangenhøj 45	75 dB
Thyrasvej 9	61 dB
Tørringvej 17	70 dB

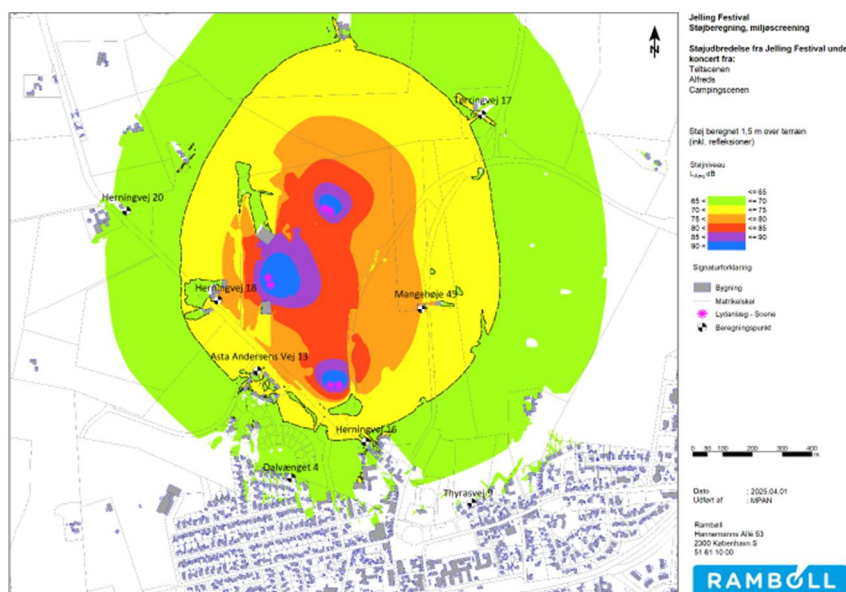


Figure 6-19. The noise propagation from concerts at the Tent Stage, Alfred's, and the Camp Stage.

The noise analysis results for the camping areas when no concerts are being held on the stages are shown in Table 6-10. At all residential dwellings, the calculated noise levels are lower than the criterion value of 70 dB and will have no impact within the Monument Area. However, there may be a slight impact on the northern part of the palisade, see Figure 6-20. Even if the noise level does not exceed the 70 dB limit, it may still alter the area's soundscape. To a certain extent, it will be possible to hear the noise from the Jelling Music Festival in the monument area.

Table 6-10. Noise level on the facade of residential dwellings from the camping areas.

Calculations point	Noise level, L _{Aeq}
Asta Andersens Vej 13	30 dB
Dalvænget 4	31 dB
Herningvej 16	38 dB
Herningvej 18	29 dB
Herningvej 20	26 dB
Mangehøje 45	42 dB
Thyrasvej 9	28 dB
Tørringvej 17	30 dB

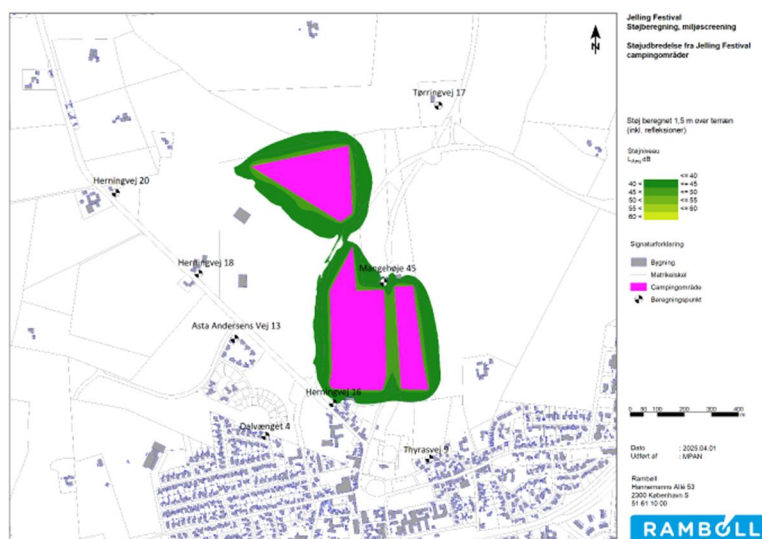


Figure 6-20. The noise propagation from the camping areas.

Noise calculations with and without earth berms to the north of the camp area show identical noise levels on the facades of nearby residential dwellings. The average noise levels on the facades of nearby homes will generally be below the applied criterion value of 70 dB, though there will be a few exceptions where the levels may exceed the criterion value. The calculations represent worst-case scenarios, in which the estimated maximum sound pressure level is emitted from several scenes simultaneously (Rambøll, 2025).

The impact of noise is intermittent for five days every year. The sound level in the surrounding area will return to normal at the end of the music festival in Jelling. The impact of noise is negative and causes a significant impact to the attribute. The North Mound and the northern part of the church, the ship setting, and the palisade are more affected by the noise, but the rest of the attributes will still experience noise levels considerably higher than the normal levels. The impact has been assessed as moderate. While it represents a significant change in the sound levels in the area surrounding the Monument Area, the noise impact of the music festival in Jelling is temporary and reversible. Once the annual festival has finished, the sound level in the Monument Area will return to its original state. For the Outstanding Universal Value (OUV), noise from the music festival in Jelling impacts the experience of the World Heritage property.

Table 6-11. Overview of the impact on the different attributes of the music festival in Jelling.

Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of impact to the attribute	Longevity of impact to the attribute	Degree of impact to the attribute	Quality of impact to the attribute	Evaluation of impact
The North Mound	Noise during festival	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Moderate
The palisade	Noise during festival	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Moderate
The ship setting	Noise during festival	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Moderate

The South Mound	Noise during festival	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Moderate
The Jelling church	Noise during festival	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Moderate
The runic stones	Noise during festival	Intermittent	Short term	Reversible	Reversible	Temporary	Large	Negative	Moderate

6.3 Impact of wear and tear

6.3.1 Evaluation of impact from the music festival in Jelling

6.3.1.1 The North and South Mound

The potential impact of wear and tear would be caused by festival guests walking on the burial mounds. This would result in damage to the grass or minor changes to the mound's shape if large numbers of people walked along the mound's sides and compressed the soil.

The duration of the music festival in Jelling will be a total of five festival days with festival guests each year, and it is, therefore, an intermittent and short-term activity.

The potential impact of wear and tear on the two burial mounds is limited to damage to the grass or minor changes to their shape. Any actions that cause damage are irreversible. However, any changes to the burial mounds will be reversible and temporary, as it will be possible to reseed the grass on the mounds and refill the mounds with additional soil through a restoration process. The burial mounds have already been excavated and, subsequently, re-established, so any changes to their shape will not be irreversible. Although they are not in their original state, they appear intact (Danmarks Nationalleksikon, 2025).

Any impact of wear and tear will be negative but has a negligible degree of the impact to the attribute. The risk of damage to the grass cover and changes to the shape of the burial mounds is low, as the traffic between the town and the festival during the festival days will be redirected around the monument area by volunteers who will nudge festival guests to stay away from the monument area. More precisely, guests will be guided away from the monument area by volunteers, signage, and extra lighting on the route to the festival site. Kongernes Jelling Museum has experienced a decrease in the number of visitors dedicated to the museum during the music festival in Jelling. Therefore, the increase in traffic is not expected to result in more visitors to the monuments in Jelling. The decrease in visitors to the museum and monument area, paired with guests from the festival, may offset each other. The impact of wear and tear on the burial mounds is assessed as neutral because it would be negligible, temporary and reversible.

Table 12. Assessment of the impact of wear and tear at the music festival in Jelling.

Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of impact to the attribute	Longevity of impact to the attribute	Degree of impact to the attribute	Quality of impact to the attribute	Evaluation of impact
The North Mound	Wear and tear from traffic and living	Intermittent	Short term	Irreversible	Reversible	Temporary	Negligible	Negative	Neutral

The South Mound	Wear and tear from traffic and living	Intermittent	Short term	Irreversible	Reversible	Temporary	Negligible	Negative	Neutral
-----------------	---------------------------------------	--------------	------------	--------------	------------	-----------	------------	----------	---------

7 Conclusion

The assessment of the potential impact of the project on the attributes of the World Heritage property *Jelling Mounds, Runic Stones and Church* has shown that it will have a minor visual impact, a moderate noise impact, and a neutral wear-and-tear impact. Depending on the type of impact and the specific attribute, the impact to the attributes will range from negligible to a significant degree. Most of the potential impacts relate to the annual music festival in Jelling. The impact will be temporary, short-term, and reversible as the festival itself only lasts 5 days with concerts and only consists of temporary facilities. In area R1, R2 and R3 the whole period including setup and dismantling are 13 weeks from start of April to end of June. In area R4 and R5, which are closest to the heritage site, a total length of 6 weeks from start of May to middle of June. Overall, the negative impacts on the OUV of the world heritage site are negligible.

8 References

- Danmarks Nationalleksikon. (n.d.). *Kongernes Jelling – Trap Danmark* | Lex. Retrieved 1 May 2025, from https://trap.lex.dk/Kongernes_Jelling
- Danmarks Nationalleksikon. (2025, March 24). *De arkæologiske undersøgelser af Jellingmonumenterne, 1820-2013 – Danmarkshistorien* | Lex. https://danmarkshistorien.lex.dk/De_ark%C3%A6ologiske_unders%C3%B8gelser_af_Jellingmonumenterne,_1820-2013
- Fortidens Jelling. (n.d.). *Palisadehegnet*. Retrieved 1 May 2025, from <https://www.fortidensjelling.dk/jelling31.htm>
- Fredningskendelser Jellingehøjene, 1945. Retrieved 4 April 2025, from <https://www2.blst.dk/nfr/00980.00.pdf>
- Hvass, S. (n.d.). *JELLING-MONUMENTERNE-deres historie og bevaring*.
- Imer, L. M., Åhfeldt, L. K., & Zedig, H. (2023). A lady of leadership: 3D-scanning of runestones in search of Queen Thyra and the Jelling Dynasty. *Antiquity*, 97(395), 1262–1278. <https://doi.org/10.15184/AQY.2023.108>
- Miljø- og Ligestillingsministeriet. (n.d.). *Støjgrænser - Miljøstyrelsen*. Retrieved 1 May 2025, from <https://mst.dk/erhverv/rent-miljoe-og-sikker-forsyning/stoej/stoejgraenser>
- Nationalmuseet. (n.d.-a). *Hvem indhuggede Jellingstenen? - Nationalmuseet*. Retrieved 1 May 2025, from <https://natmus.dk/historisk-viden/danmark/oldtid-indtil-aar-1050/vikingetiden-800-1050/monumenterne-i-jelling/jellingstenen/hvem-indhuggede-jellingstenen/>
- Nationalmuseet. (n.d.-b). *Jelling som UNESCO-monument*. Retrieved 30 April 2025, from <https://natmus.dk/museer-og-slotte/kongernes-jelling/verdensarv-og-unesco/>
- Nationalmuseet. (n.d.-c). *Kirkerne*. Retrieved 30 April 2025, from <https://natmus.dk/museer-og-slotte/nationalmuseet/undervisning-paa-nationalmuseet/undervisningsmaterialer/grundskolen/danmarks-oldtid/undervisningsrollespil/vikingetiden/vikingernes-jelling/kirkerne/>
- Nationalmuseet. (n.d.-d). *Nye undersøgelser i Jelling*. Retrieved 30 April 2025, from <https://natmus.dk/historisk-viden/danmark/oldtid-indtil-aar-1050/vikingetiden-800-1050/monumenterne-i-jelling/nye-undersogelser-i-jelling/>
- Nationalmuseet. (n.d.-e). *Oplevelser ude*. Retrieved 30 April 2025, from <https://natmus.dk/museer-og-slotte/kongernes-jelling/oplevelser-ude/>

- Nationalmuseet. (n.d.-f). *The North Mound and the South Mound*. Retrieved 30 April 2025, from <https://en.natmus.dk/historical-knowledge/denmark/prehistoric-period-until-1050-ad/the-viking-age/the-monuments-at-jelling/the-north-mound-and-the-south-mound/>
- LYTT. (2025). *Visualiseringsrapport, Appendix X in Miljøvurderingsrapport for Rekreativt område ved Herningvej nord for Jelling*.
- Rambøll. (2025). *Støjanalyse af ny festivalplads*.
- Slots- og Kulturstyrelsen. (n.d.). *Jelling-monumenterne*. Retrieved 30 April 2025, from <https://slks.dk/omraader/kulturarv/verdensarv/jelling-monumenterne/>
- UNESCO. (n.d.-a). *Buffer zones - Questions and Answers - UNESCO World Heritage Centre*. Retrieved 30 April 2025, from <https://whc.unesco.org/en/faq/199>
- UNESCO. (n.d.-b). *Jelling Mounds, Runic Stones and Church - UNESCO World Heritage Centre*. Retrieved 30 April 2025, from <https://whc.unesco.org/en/list/697>
- UNESCO. (2018). *Jelling Mounds, Runic Stones and Church - Map of the inscribed minor boundary modification*.
- UNESCO. (2023). *Operational Guidelines for the Implementation of the World Heritage Convention UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION INTERGOVERNMENTAL COMMITTEE FOR THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE WORLD HERITAGE CENTRE*. <https://whc.unesco.org/fr/orientations>
- UNESCO, ICOMOS, ICUN, & ICCROM. (2022). *Guidance and Toolkit for Impact Assessments*.
- Vejle Kommune. (n.d.-a). *Retningslinje for kirkeomgivelser*. Retrieved 30 April 2025, from <https://vejle.cowiplan.dk/kommuneplan21/hovedstruktur-og-retningslinjer/kultur-turisme-og-fritidsoplevelser/kulturhistorie/retningslinje-for-kirkeomgivelser/>
- Vejle Kommune. (n.d.-b). *Retningslinje for kulturmiljøer i Vejle Kommune*. Retrieved 30 April 2025, from <https://vejle.cowiplan.dk/kommuneplan21/hovedstruktur-og-retningslinjer/kultur-turisme-og-fritidsoplevelser/kulturhistorie/retningslinje-for-kulturmiljoeer-i-vejle-kommune/>
- Vejle Kommune. (n.d.-c). *Retningslinje for Monumentområdet i Jelling*. Retrieved 30 April 2025, from <https://vejle.cowiplan.dk/kommuneplan21/hovedstruktur-og-retningslinjer/kultur-turisme-og-fritidsoplevelser/kulturhistorie/retningslinje-for-monumentomraadet-i-jelling/>